The Ontario Public Health Standards are published as the guidelines for the provision of mandatory health programs and services by the Minister of Health and Long-Term Care, pursuant to Section 7 of the Health Protection and Promotion Act, R.S.O. 1990, c. H.7.
# Table of Contents

## Introduction to the Standards

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose</td>
<td>1</td>
</tr>
<tr>
<td>Scope and Accountability</td>
<td>1</td>
</tr>
<tr>
<td>Determinants of Health</td>
<td>1</td>
</tr>
<tr>
<td>Public Health in Ontario</td>
<td>2</td>
</tr>
<tr>
<td>Legislative Mandate for Ontario’s Boards of Health</td>
<td>3</td>
</tr>
<tr>
<td>Statutory Basis for the Ontario Public Health Standards</td>
<td>5</td>
</tr>
<tr>
<td>Format</td>
<td>9</td>
</tr>
</tbody>
</table>

## Foundations

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principles</td>
<td>12</td>
</tr>
<tr>
<td>Foundational Standard</td>
<td>15</td>
</tr>
</tbody>
</table>

## Chronic Diseases and Injuries Program Standards

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic Disease Prevention</td>
<td>18</td>
</tr>
<tr>
<td>Prevention of Injury and Substance Misuse</td>
<td>22</td>
</tr>
</tbody>
</table>

## Family Health Program Standards

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reproductive Health</td>
<td>25</td>
</tr>
<tr>
<td>Child Health</td>
<td>27</td>
</tr>
</tbody>
</table>

## Infectious Diseases Program Standards

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infectious Diseases Prevention and Control</td>
<td>30</td>
</tr>
<tr>
<td>Rabies Prevention and Control</td>
<td>33</td>
</tr>
<tr>
<td>Sexual Health, Sexually Transmitted Infections, and Blood-borne Infections (including HIV)</td>
<td>35</td>
</tr>
<tr>
<td>Tuberculosis Prevention and Control</td>
<td>37</td>
</tr>
<tr>
<td>Vaccine Preventable Diseases</td>
<td>39</td>
</tr>
</tbody>
</table>

## Environmental Health Program Standards

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Safety</td>
<td>42</td>
</tr>
<tr>
<td>Safe Water</td>
<td>44</td>
</tr>
<tr>
<td>Health Hazard Prevention and Management</td>
<td>46</td>
</tr>
</tbody>
</table>

## Emergency Preparedness Program Standard

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Health Emergency Preparedness</td>
<td>48</td>
</tr>
</tbody>
</table>
Introduction to the Standards

Purpose
The Ontario Public Health Standards establish requirements for fundamental public health programs and services, which include assessment and surveillance, health promotion and policy development, disease and injury prevention, and health protection. The Ontario Public Health Standards outline the expectations for boards of health, which are responsible for providing public health programs and services that contribute to the physical, mental, and emotional health and well-being of all Ontarians. Boards of health are responsible for the assessment, planning, delivery, management, and evaluation of a variety of public health programs and services that address multiple health needs, as well as the contexts in which these needs occur.

Scope and Accountability
This document specifies only those programs and services that all boards of health shall provide and is not intended to encompass the total potential scope of public health programming in Ontario.

The scope of these standards includes a broad range of population-based activities designed to promote the health of the population as a whole, and with community partners to reduce health inequities. The concepts of population health and health promotion are embedded in the Ontario Public Health Standards.

The Ontario Public Health Standards identify requirements that should result in specified outcomes and goals. Boards of health shall tailor programs and services to meet local needs and work towards the achievement of those specified outcomes and goals.

Many of the standards are supported by specific protocols (or other documents referred to in these standards) that further specify how to operationalize some of the requirements. Boards of health are accountable for implementing the standards including those protocols that are incorporated into the standards.

The achievement of overall goals and societal outcomes depends on achievements by boards of health along with those of many other organizations, governmental bodies, and community partners across the province. Societal outcomes and goals help to qualify the collective contribution towards broader health and societal aspirations. Measurement at these levels will meet provincial reporting requirements while assisting boards of health in planning and organizing programs and services in relation to other community partners.

Determinants of Health
The health of individuals and communities is significantly influenced by complex interactions between social and economic factors, the physical environment, and individual behaviours and conditions. These factors are referred to as the determinants of health, and together they play a key role in determining the health status of the population as a whole. Determinants of health include the following:

- Income and social status;
- Social support networks;
- Education and literacy;
- Employment/working conditions;

1 Refer to Format section for a definition.
Addressing determinants of health and reducing health inequities are fundamental to the work of public health in Ontario. Effective public health programs and services consider the impact of the determinants of health on the achievement of intended health outcomes.

A key component of the requirements outlined in the Ontario Public Health Standards is to identify and work with local priority populations. Priority populations are identified by surveillance, epidemiological, or other research studies and are those populations that are at risk and for whom public health interventions may be reasonably considered to have a substantial impact at the population level.

The Ontario Public Health Standards incorporate and address the determinants of health throughout, and include a broad range of population-based activities designed to promote the health of the population and reduce health inequities by working with community partners.

Public Health in Ontario

Public health programs and services are an essential part of the health system, and they share with other services the common vision of a system that helps people stay healthy, delivers good care when people get sick, and will be there for people's children and grandchildren. The primary focus of public health is the health and well-being of the whole population through the promotion and protection of health and the prevention of illness.

The preventive nature of public health means that the public is often unaware of public health interventions. However, the work of public health is important to the overall promotion of a healthier population, reducing the demand on the health care system, and responding to threats to the health of the public. Public health is responsible for many major improvements in the population's health through initiatives such as childhood vaccinations, the control of infectious disease, safe food handling, reproductive health, the prevention of chronic diseases (e.g., through tobacco control), and the prevention of injury. These efforts complement the work of much of the health care system, which focuses predominantly on the treatment of individual illness and disability.

The public health system is an extensive collection of governmental, non-governmental, and community organizations operating at the local, provincial, and federal levels with varying roles, perspectives, and linkages. In Ontario, boards of health have historically been an integral part of the formal health system, with responsibility for the delivery of local public health programs and services. This responsibility is carried out in collaboration with other organizations in the health system and in partnership with others in local communities. The locus of responsibility and accountability of program delivery for boards of health is local, not provincial or federal.

At the time of writing, Ontarians are served by a system of 36 local boards of health that collectively cover the entire province and are individually responsible for serving the population within their geographic borders. Just over two-thirds of Ontario's boards of health are autonomous bodies created to provide local public health services. Municipal councils act as the board of health for the remainder. Specifically there are:

- 22 autonomous boards that operate separately from the administrative structure of their municipalities;
- 4 autonomous boards that are integrated into municipal structures;
- 4 boards that are councils of single tier municipalities; and
- 6 boards that are councils of regional municipalities.
All boards of health have the same responsibilities in terms of delivering public health programs and services within their communities.

**Legislative Mandate for Ontario’s Boards of Health**

Ontario’s Health Protection and Promotion Act (HPPA) provides the legislative mandate for boards of health. This section provides an overview of the HPPA.

The guiding purpose of the HPPA is to:

...provide for the organization and delivery of public health programs and services, the prevention of the spread of disease and the promotion and protection of the health of the people of Ontario. (R.S.O. 1990, c. H.7, s.2)

The HPPA is divided into 11 Parts with 111 Sections, summarized below:

**Part I: Interpretation**
- Provides a definition of terms used in the HPPA and sets out the purpose of the HPPA.

**Part II: Health Programs and Services**
- Sets out the duties of boards of health with regard to the provision of mandatory health programs and services (including the application of these programs and services to school pupils).
- Includes the provision of safe drinking water by small drinking water systems.
- Sets out the Minister of Health and Long-Term Care’s authority to publish guidelines for the provision of mandatory health programs and services.

**Part III: Community Health Protection**
- Sets out the duties of public health officials with regard to health hazards (including the issuance of written orders and the provision of direction with regard to investigating or mitigating health hazards).
- Sets out the legislative requirements for the operation and maintenance of food premises.
- Sets out the power of the medical officer of health to vary prescribed regulatory requirements relating to small drinking water systems on a temporary basis, and to specify alternative requirements that will apply in their stead.

**Part IV: Communicable Diseases**
- Sets out the duties of a medical officer of health with regard to communicable diseases, including the issuance of written orders (i.e., Section 22 orders).
- Includes orders to address communicable diseases outbreaks.
- Sets out the duty to report reportable diseases (for physicians, practitioners, hospital administrators, school principals, etc.).
- Sets out requirements with regard to immunization.

**Part V: Rights of Entry and Appeals from Orders**
- Describes the right of entry, powers of inspection, and appeals from orders.

**Part VI: Health Units and Boards of Health**
- Sets out the requirements for the composition of boards of health.
- Sets out the process for boards of health to enter into agreements with the council of the band on a reserve.
- Sets out the duties of boards of health.
- Sets out the manner of appointment of medical officers of health (and of associate medical officers of health).
- Sets out the requirements for boards of health to address medical officer of health vacancies (including vacancies due to inability to act or due to absences).
- Sets out the requirement for payment by obligated municipalities.

---

2 The summary is not comprehensive; refer to the HPPA for a complete list of provisions.
Part VI.1: Provincial Public Health Powers

- Sets out the actions that the Chief Medical Officer of Health may take where there exists or there may exist an immediate risk to the health of persons anywhere in Ontario.
- Authorizes the Minister of Health and Long-Term Care, on certification by the Chief Medical Officer of Health that an immediate risk to human health exists, to procure, acquire, or seize medication and supplies that are essential for safeguarding human health when regular supply and procurement processes are insufficient to address the risk.
- Authorizes the Chief Medical Officer of Health, where there is an immediate and serious risk to the health of persons, to make orders to health information custodians (defined in the Personal Health Information Protection Act) to provide information.
- Authorizes the Chief Medical Officer of Health to issue directives concerning precautions and procedures to health care providers or health care entities.
- Authorizes the Chief Medical Officer of Health to collect, retain, and use pre-existing laboratory specimens to investigate, eliminate, or reduce the risk to health.

Part VII: Administration

- Provides for the Minister of Health and Long-Term Care to make investigations respecting the causes of disease or mortality.
- Provides for the appointment of the Chief Medical Officer of Health.
- Provides for the appointment of assessors.
- Provides for the Minister of Health and Long-Term Care to issue direction to boards of health and powers to ensure that the direction is carried out.
- Provides for the agency known as the Northern Ontario Public Health Service.
- Provides for protection from personal liability for certain persons in certain circumstances.

Part VIII: Regulations

- Provides for the Lieutenant Governor in Council and the Minister of Health and Long-Term Care to make regulations relating to the various parts of the HPPA.

Part IX: Enforcement

- Sets out offences under the HPPA.

Part X: Transition

- Sets out the parameters for transition from the old Public Health Act to the HPPA.

More specifically, authority for the establishment of boards of health is provided under Part VI, Section 49, of the HPPA. The HPPA specifies that there shall be a board of health for each health unit. A health unit is defined in the HPPA, in part, as the “...area of jurisdiction of the board of health” (s.1).

The HPPA also provides the mandate for the duties of boards of health. Boards of health have many statutory responsibilities, including the following:

- Superintend, provide, or ensure the provision of health programs and services in specified areas (s.5);
- Provide health programs and services as prescribed by regulations to the pupils attending schools within the health unit (s.6);
- Superintend and ensure the carrying out of HPPA Parts II, III, and IV and the regulations relating to those parts in the health unit served by the board of health (s.61);
- Appoint a full-time medical officer of health (s.62);
- Hire staff as necessary to carry out the functions of the board (s.71); and
- Give annually to each obligated municipality a written (budget) notice (s.72(5)).

Section 50 of the HPPA allows a board of health to enter into an agreement with the council of the band on a reserve within the health unit. Under such an agreement, the board of health would provide health programs and services to the members of the band, and the council of the band would accept the responsibilities of a municipal council within the health unit.
Under Section 62 of the HPPA, each board of health is required to appoint a full-time medical officer of health. Section 64 states that no person is eligible for appointment as a medical officer of health unless he or she is a physician and possesses the qualifications and requirements prescribed by the regulations for the position, and the Minister of Health and Long-Term Care approves the proposed appointment.

A medical officer of health:

- Is responsible to the board for the management of the public health programs and services;
- Directs staff of the board of health (who are responsible to the medical officer of health) if their duties relate to the delivery of public health programs or services;
- Has authority that is limited to the health unit served by the board of health; and
- Is entitled to attend each meeting of the board and its committees (except as relates to the performance and remuneration of the medical officer of health).

Under Section 71 of the HPPA, boards of health are also required to engage the services of qualified staff to carry out the functions of the board of health, including the duties of the board of health with respect to mandatory health programs and services.

In addition to the qualifications for the position of medical officer of health, R.R.O. 1990, Regulation 566 under the HPPA (Qualifications of Boards of Health Staff) outlines the educational and experiential qualifications for the following classifications of board of health staff:

- Business administrator;
- Public health dentist;
- Dental hygienist;
- Public health inspector;
- Public health nurse; and
- Public health nutritionist.

The HPPA and its associated regulations do not currently outline the required qualifications for other classifications of board of health staff including, but not limited to, epidemiologists, health promoters, toxicologists, program evaluators, data analysts, librarians, communications specialists, etc.

As mandated by Section 72 of the HPPA, obligated municipalities shall pay the expenses of the board of health and the medical officer of health. Boards of health are required to provide a written notice on an annual basis to each obligated municipality to specify the amount required from the municipality to defray the expenses of the board, the medical officer of health, and the provision of public health programs and services.

The Minister of Health and Long-Term Care may make grants for the purposes of the HPPA on such conditions as he or she considers appropriate.

In 2008 the provincial/municipal cost-share relationship for public health programs and services is 75 per cent/25 per cent.

**Statutory Basis for the Ontario Public Health Standards**

Section 5 of the HPPA specifies that boards of health must provide or ensure the provision of a minimum level of public health programs and services in specified areas as follows:

- Community sanitation and the prevention or elimination of health hazards;
- Provision of safe drinking water by small drinking water systems;
- Control of infectious and reportable disease, including providing immunization services to children and adults;
- Health promotion, health protection, and disease and injury prevention;
• Family health;
• Collection and analysis of epidemiologic data;
• Such additional health programs and services as prescribed by regulations; and
• Home care services that are insured services under the Health Insurance Act including services to the acutely ill and the chronically ill.

Section 7 of the HPPA grants authority to the Minister of Health and Long-Term Care to “publish guidelines for the provision of mandatory health programs and services, and every board of health shall comply with the published guidelines” (R.S.O. 1990, c. H.7, s.7(1)), thereby establishing the legal authority for the Ontario Public Health Standards.

Where there is a reference to the HPPA within the Ontario Public Health Standards, the reference is deemed to include the HPPA and its regulations.

At the time of writing, the following standards are administered by the Ministry of Health and Long-Term Care:

• Foundational
• Infectious Diseases
  – Infectious Diseases Prevention and Control
  – Rabies Prevention and Control
  – Sexual Health, Sexually Transmitted Infections, and Blood-borne Infections (including HIV)
  – Tuberculosis Prevention and Control
  – Vaccine-Preventable Diseases
• Environmental Health
  – Food Safety
  – Safe Water
  – Health Hazard Prevention and Management
• Emergency Preparedness
  – Public Health Emergency Preparedness

At the time of writing, the following standards are administered by the Ministry of Health Promotion:

• Chronic Diseases and Injuries
  – Chronic Disease Prevention
  – Prevention of Injury and Substance Misuse
• Family Health
  – Reproductive Health
  – Child Health

Note: The Ministry of Children and Youth Services is responsible for the administration of the Healthy Babies Healthy Children components of the Family Health standards.

Boards of health may deliver additional programs and services in response to local needs identified within their communities, as acknowledged in Section 9 of the HPPA.

Furthermore, boards of health should bear in mind that in keeping with the French Language Services Act, services in French should be made available to French-speaking Ontarians located in designated areas.

Boards of health need to be knowledgeable about their duties and responsibilities as specified in other applicable Ontario laws, including but not limited to, the Building Code Act, the Day Nurseries Act, the Employment Standards Act, the Immunization of School Pupils Act, the Occupational Health and Safety Act, the Personal Health Information Protection Act, and the Smoke-Free Ontario Act (see Table 1 for an inclusive listing of current Ontario Acts and regulations within which boards of health and medical officers of health are cited).
Table 1: Ontario Acts and associated regulations within which boards of health (BOH) and medical officers of health (MOH) are cited (at the time of writing)

<table>
<thead>
<tr>
<th>Act</th>
<th>BOH</th>
<th>MOH</th>
<th>Associated regulation(s)</th>
<th>BOH</th>
<th>MOH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cemeteries Act (Revised), R.S.O. 1990, c. C.4</td>
<td>✓</td>
<td></td>
<td>O. Reg. 130/92</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Charitable Institutions Act, R.S.O. 1990, c. C.9</td>
<td></td>
<td>✓</td>
<td>R.R.O. 1990, Reg. 69</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>City of Greater Sudbury Act, 1999, S.O. 1999, c. 14, Sched. A</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>City of Toronto Act, 2006, S.O. 2006, c. 11, Sched. A</td>
<td>✓</td>
<td>✓</td>
<td>O. Reg. 596/06</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Commissioners for Taking Affidavits Act, R.S.O. 1990, c. C.17</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coroner’s Act, R.S.O. 1990, c. C.37</td>
<td></td>
<td></td>
<td>O. Reg. 264/99</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Emergency Management and Civil Protection Act, R.S.O. 1990, c. E.9</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental Assessment Act, R.S.O. 1990, c. E.18</td>
<td></td>
<td></td>
<td>O. Reg. 627/91</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Environmental Protection Act, R.S.O. 1990, c. E.19</td>
<td></td>
<td></td>
<td>O. Reg. 153/04</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Food Safety and Quality Act, 2001, S.O. 2001, c. 20</td>
<td>✓</td>
<td>✓</td>
<td>O. Reg. 31/05</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>
Table 1 (continued)

<table>
<thead>
<tr>
<th>Act</th>
<th>BOH</th>
<th>MOH</th>
<th>Associated regulation(s)</th>
<th>BOH</th>
<th>MOH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Protection and Promotion Act, R.S.O. 1990, c. H.7</td>
<td>✓</td>
<td>✓</td>
<td>O. Reg. 165/03 – BOH, MOH</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>O. Reg. 199/03 – MOH</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>O. Reg. 489/97 – BOH</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>O. Reg. 338/96 – MOH</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>O. Reg. 428/05 – MOH</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R.R.O. 1990, Reg. 568 – BOH, MOH</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R.R.O. 1990, Reg. 569 – MOH</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R.R.O. 1990, Reg. 565 – MOH</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R.R.O. 1990, Reg. 566 – BOH, MOH</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R.R.O. 1990, Reg. 562 – BOH, MOH</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R.R.O. 1990, Reg. 559 – BOH</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R.R.O. 1990, Reg. 557 – BOH, MOH</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R.R.O. 1990, Reg. 554 – BOH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homes for the Aged and Rest Homes Act, R.S.O. 1990, c. H.13</td>
<td></td>
<td></td>
<td>R.R.O. 1990, Reg. 637</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Laboratory and Specimen Collection Centre Licensing Act, R.S.O. 1990, c. L.1</td>
<td></td>
<td></td>
<td>R.R.O. 1990, Reg. 682</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Long-Term Care Act, 1994, S.O. 1994, c. 26</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental Health Act, R.S.O. 1990, c. M.7</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Municipal Act, 2001, S.O. 2001, c. 25</td>
<td>✓</td>
<td></td>
<td>O. Reg. 204/03</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>O. Reg. 586/06</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Municipal Affairs Act, R.S.O. 1990, c. M.46</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Municipal Conflict of Interest Act, R.S.O. 1990, c. M.50</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Municipal Freedom of Information and Protection of Privacy Act, R.S.O. 1990, c. M.56</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupational Health and Safety Act, R.S.O. 1990, c. O.1</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ontario Municipal Board Act, R.S.O. 1990, c. O.28</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pay Equity Act, R.S.O. 1990, c. P.7</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Ontario Public Health Standards specify the requirements to be carried out by each board of health. The Ontario Public Health Standards document is organized as follows:

### Foundations

- **Four Principles**, which are Need, Impact, Capacity, and Partnership and Collaboration. The principles underpin the Foundational and Program Standards and are meant to be used by boards of health to guide the assessment, planning, delivery, management, and evaluation of public health programs and services.

- **One Foundational Standard**, which consists of four specific areas:
  - Population Health Assessment;
  - Surveillance;
  - Research and Knowledge Exchange; and
  - Program Evaluation.

### Format

<table>
<thead>
<tr>
<th>Act</th>
<th>BOH</th>
<th>MOH</th>
<th>Associated regulation(s)</th>
<th>BOH</th>
<th>MOH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning Act, R.S.O. 1990, c. P.13</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SARS Assistance and Recovery Strategy Act, 2003, S.O. 2003, c. 1</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical Standards and Safety Act, 2000, S.O. 2000, c. 16</td>
<td></td>
<td></td>
<td>O. Reg. 218/01</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>
The Foundational Standard outlines specific requirements that underlie and support all Program Standards. Population health assessment and surveillance requirements are included in a general manner in the Foundational Standard and more specifically in each Program Standard.

**Program Standards**

- **Program Standards (grouped under five program areas),** which address Chronic Diseases and Injuries, Family Health, Infectious Diseases, Environmental Health, and Emergency Preparedness. Specific requirements are articulated for each of the Program Standards. Boards of health shall assess, plan, deliver, manage, and evaluate programs and services in each of those Program Standards and coordinate across the Program Standards.

The relationship between the Principles, the Foundational Standard, and the Program Standards is depicted in Figure 1.

Figure 1: Ontario Public Health Standards: Relationship between the Principles, the Foundational Standard, and the Program Standards
Both the Foundational Standard and the Program Standards articulate broad societal goals that result from the activities undertaken by boards of health and many others, including community partners, non-governmental organizations, and governmental bodies. These results have been expressed in terms of two levels of outcomes: societal outcomes and board of health outcomes. Societal outcomes entail changes in health status, organizations, systems, norms, policies, environments, and practices. Societal outcomes result from the work of many sectors of society, including boards of health, for the improvement of the overall health of the population. Board of health outcomes are the results of endeavours by boards of health and often focus on changes in awareness, knowledge, attitudes, skills, practices, environments, and policies. The standards also outline the requirements that boards of health must implement to achieve the stated results. The intent of these concepts is outlined in Figure 2.

Figure 2: Components of each standard

- **Goal**: The goal is a statement that reflects the broadest level of results to be achieved in a specific standard. The work of boards of health, along with community partners, non-governmental organizations, governmental bodies, and community members, contributes to achieving the goal.

- **Societal Outcomes**: Societal outcomes entail changes in health status, organizations, systems, norms, policies, environments, and practices. Societal outcomes result from the work of many sectors of society, including boards of health, for the improvement of the overall health of the population.

- **Board of Health Outcomes**: Board of health outcomes are the results of endeavours by boards of health. Outcomes often focus on changes in awareness, knowledge, attitudes, skills, practices, environments, and policies. Boards of health shall direct their efforts towards, and shall be held accountable for, these outcomes.

  Each board of health shall establish internal processes for managing day-to-day operations of programs and services to achieve desired board of health outcomes. These processes should be outlined in each board of health’s local operational and strategic plans. These in turn align with the board of health outcomes articulated in these standards.

- **Requirements**: Requirements are the specific statements of action. Requirements have been developed to achieve a balance between flexibility and the need to provide clear program direction for consistent province-wide implementation and the achievement of provincially set outcomes. All boards of health shall demonstrate progress based on established baselines.

  Program requirements have been generally grouped into four categories representing public health functions. These complementary and interdependent categories are:

  - Assessment and Surveillance;
  - Health Promotion and Policy Development;
  - Disease Prevention; and
  - Health Protection.

  In addition, protocols are named in many requirements to provide further direction on how boards of health must operationalize specific requirement(s).
Foundations

Principles

The delivery of public health programs and services occurs in diverse and complex geographic, physical, cultural, social, and economic environments that differ significantly across Ontario. There are systemic differences in health status that exist across socio-economic groups (i.e., health inequities). Thus, there are both common and diverse factors that influence and shape the public health response required to achieve a desired health outcome.

Effective public health programs and services take into account communities' needs, which are influenced by the determinants of health. As well, an understanding of local public health capacity and the resources required, including collaboration with partners to achieve outcomes, is essential for effective management of programs and services.

To ensure that boards of health assess, plan, deliver, manage, and evaluate public health programs and services to meet local needs, while continuing to work towards common outcomes, boards of health shall be guided by the following principles: Need, Impact, Capacity, and Partnership and Collaboration.

1. Need

The principle of need acknowledges the importance of using data and information to inform decision-making at the local level regarding program assessment, planning, delivery, management, and evaluation. This principle must be continuously applied at all levels of program and service delivery to ensure optimal performance. In order to be successful in achieving outcomes, boards of health shall continuously tailor their programs and services to address needs that are influenced by differences in the context of their local communities. The Ontario Public Health Standards allow for flexibility in local public health programming by emphasizing the importance of population health assessment and surveillance to inform program planning and service delivery.

Public health programs and services must consider the health needs of the local population. Need is established by assessing the distribution of determinants of health, health status, and incidence of disease and injury. Boards of health shall engage in ongoing population health assessment and surveillance. Information to support this analysis shall be derived from a range of provincial and local indicators using identified data sets and methodologies. These analyses shall use specific information on the following: demographics; burden of disease, including mortality and morbidity rates; reproductive outcomes; risk factor prevalence; cultural and social behaviours related to health; health conditions (including injury and substance misuse); environmental conditions and hazards; health determinants; and other risks to the public’s health.

The determinants of health will often inform the needs of a community. It is evident that population health outcomes are often influenced disproportionately by sub-populations who experience inequities in health status and comparatively less control over factors and conditions that promote, protect, or sustain their health. By tailoring programs and services to meet the needs of priority populations, boards of health contribute to the improvement of overall population health outcomes. Boards of health shall also ensure that barriers to accessing public health programs and services are minimized. Barriers can include, but are not limited to, education; literacy levels; language; culture; geography; economic circumstances; discrimination (e.g., age, sexual orientation, race, etc.); social factors, including social isolation; and mental and physical ability.

Many of the requirements can be more optimally achieved through partnerships with community partners, non-governmental organizations, governmental bodies, and others. The attainment of desired population outcomes, as identified in the Ontario Public Health Standards, is dependent upon the degree of integration of public health programs and services with broader community goals. Collaboration among boards of health, their local community partners, academic institutions, and government is integral to the interpretation and prioritization of needs. Shared knowledge can assist in leveraging resources and aligning community goals and objectives.
2. Impact
The ability to influence broader societal changes is the responsibility of many parties. As a sector, public health not only acknowledges the impact of the determinants of health but also strives to influence broader societal changes that reduce health disparities and inequities by coordinating and aligning its programs and services with those of other partners. Public health has a leading role in fostering relationships to support broader health goals to achieve the best possible outcomes for all Ontarians.

Boards of health shall assess, plan, deliver, and manage their programs and services by considering the following:

- **Is there reasonable evidence of the effectiveness of the intervention in the scientific literature or in reviews of best practices?** Boards of health shall draw on relevant research, evidence, and best practices to support integration of the Ontario Public Health Standards’ requirements within their specific context in order to achieve intended outcomes. Wherever possible, boards of health are encouraged to use integrated and comprehensive approaches for the assessment, planning, delivery, management, and evaluation of programs. Comprehensive approaches require a broad-based, multifaceted range of activities that employ more than one health promotion strategy.

- **Are the interventions compatible with the scope of programming for boards of health?** The Ontario Public Health Standards incorporate clearly defined public health functions to assist boards of health in managing their programs and services within established roles. The majority of public health activities shall be aimed at primary prevention, using a population-based approach. Some activities shall be aimed at the secondary prevention level in order to achieve broader population-based effects. All activities shall be developed to:
  - Prevent diseases or eliminate conditions that are important contributors to the burden of disease;
  - Prevent diseases or eliminate conditions that are potentially important threats to health; and/or
  - Improve the overall health, wellness, and resilience of the population as a whole, or of priority populations.

- **What are the barriers to achieving maximum health potential for individuals, groups, and communities and to narrowing inequities in health?** Public health interventions shall acknowledge and aim to reduce existing health inequities. Furthermore, boards of health shall not only examine the accessibility of their programs and services to address barriers (e.g., physical, social, geographic, cultural and economic), but also assess, plan, deliver, manage, and evaluate programs to reduce inequities in health while at the same time maximizing the health gain for the whole population.

- **What relevant performance measures exist or can be developed to assess the impact and effectiveness of programs and services?** Management of public health programs and services shall require ongoing monitoring of key performance indicators to support continuous quality improvement and evidence-informed public health practice.

- **Do interventions have unintended consequences that need to be further assessed to improve understanding of the program itself or the context in which it is being implemented?** Boards of health shall continually re-examine program and service delivery by engaging in relevant assessment and information management, and where appropriate, program evaluation as outlined in the Foundational Standard.

3. Capacity
Understanding local public health capacity and the resources required to achieve outcomes is essential for effective management of programs and services. All boards of health shall strive to achieve the needed capacity and resources required to meet these standards. Continuous measurement of the resource implications of the standards supports boards of health in their decision-making for managing towards optimal achievement of outcomes.

Capacity includes many areas: organizational structures and processes; workforce planning, development, and maintenance; information and knowledge systems; and financial resources. Therefore, it is important that boards of health assess their capacity with respect to the breadth and scope of programs and services in relation to the skill levels of their staff, the accessibility of relevant and timely information, and the financial implications involved in achieving the desired outcomes for their populations.
The cornerstone of public health is the quality of its workforce. Programs and services provided by boards of health shall be planned and delivered by staff with both the required technical and professional skills, including core competencies in public health as well as competencies in public health disciplines. Boards of health shall employ the services of appropriately trained professionals as mandated by the HPPA (e.g., medical officers of health, public health dentists, dental hygienists, public health inspectors, public health nurses, and public health nutritionists). Furthermore, staff shall have appropriate training in interdisciplinary public health program planning and effective program delivery (e.g., epidemiology, health promotion, toxicology, program evaluation, informatics, etc.).

Building and sustaining public health human resource capacity is also dependent on continuing educational opportunities and the influx of new professionals into the system. Boards of health shall ensure a competent and diverse public health workforce by providing ongoing staff development and skill building related to public health competencies. This shall include quality improvement and life-long learning programs for staff members, as well as the provision of opportunities for formal and informal public health leadership development. Boards of health shall foster an interest in public health practice for future health professionals by supporting student placements.

4. Partnership and Collaboration

Public health programs and services involve extensive partnerships within the health sector (e.g., Local Health Integration Networks and primary health care) and other sectors (e.g., education, social services, housing, workplace health and safety system, and environment). Public health promotes community capacity building by fostering partnerships and collaborating with community partners, including the voluntary sector, non-governmental organizations, local associations, community groups, networks, coalitions, academia, governmental bodies, the private sector, and others. Where appropriate, boards of health shall collaborate with other boards of health to coordinate the delivery of public health programs and services.

Boards of health shall foster the creation of a supportive environment for health through community and citizen engagement in the assessment, planning, delivery, management, and evaluation of programs and services. This will support improved local capacity to meet the public health needs of the community.

The quality and scope of local partnerships shall be an essential indicator of success for boards of health in achieving and maintaining the leadership role required to create the conditions necessary for effective change. Boards of health shall continually monitor and evaluate local partnerships and collaborations to determine their effectiveness.
**Foundational Standard**

Public health programs and services that are informed by evidence are the foundation for effective public health practice. Evidence-informed practice is responsive to the needs and emerging issues of the health unit and uses the best available evidence to address them. Population health assessment, surveillance, research, and program evaluation generate evidence that contributes to the public health knowledge base and ultimately improves public health programs and services.

**Goal**

**Public health practice responds effectively to current and evolving conditions, and contributes to the public’s health and well-being.**

**Societal Outcomes**

- Population health needs are anticipated, identified, addressed, and evaluated.
- Emerging threats to the public’s health are prevented or mitigated.
- Community-based planning and delivery of public health programs and services incorporate new public health knowledge.

**Board of Health Outcomes**

- Public health programs and services are planned and implemented to address local population health needs.
- The public, community partners, and health care providers are aware of relevant and current population health information.
- The board of health identifies public health priorities, including identification of emerging public health issues.
- The board of health allocates resources to reflect public health priorities and reallocates resources, as feasible, to reflect emergent public health priorities.
- Relevant audiences have available information that is necessary for taking appropriate action.
- Public health practitioners, policy-makers, community partners, health care providers, and the public are aware of the best available research regarding the factors that determine the health of the population and support effective public health practice.
- The board of health has effective partnerships with community researchers, academic partners, and other appropriate organizations to support public health research and knowledge exchange.
- The board of health identifies program implementation issues in a timely and effective manner.
- Public health practitioners and policy-makers are aware of the effectiveness of existing programs and services, as well as of factors contributing to their outcomes.

**Population Health Assessment**

Population health assessment includes measuring, monitoring, and reporting on the status of a population’s health, including determinants of health and health inequities. Population health assessment provides the information necessary to understand the health of populations through the collaborative development and ongoing maintenance of population health profiles, identification of challenges and opportunities, and monitoring of the health impacts of public health practice.

**Requirements**

1. The board of health shall assess current health status, health behaviours, preventive health practices, health care utilization relevant to public health, and demographic indicators in accordance with the *Population Health Assessment and Surveillance Protocol, 2008* (or as current).

2. The board of health shall assess trends and changes in local population health in accordance with the *Population Health Assessment and Surveillance Protocol, 2008* (or as current).
3. The board of health shall use population health, determinants of health and health inequities information to assess the needs of the local population, including the identification of populations at risk, to determine those groups that would benefit most from public health programs and services (i.e., priority populations\(^3\)).

4. The board of health shall tailor public health programs and services to meet local population health needs, including those of priority populations, to the extent possible based on available resources.

5. The board of health shall provide population health information, including determinants of health and health inequities to the public, community partners, and health care providers, in accordance with the *Population Health Assessment and Surveillance Protocol, 2008* (or as current).

**Surveillance**

Surveillance is the systematic and ongoing collection, collation, and analysis of health-related information that is communicated in a timely manner to all who need to know, so that action can be taken. Surveillance contributes to effective public health program planning, delivery, and management. Dissemination of surveillance analyses may take the form of reports, advisories, healthy public policy recommendations, alerts, or warnings. Surveillance has historically been associated with infectious diseases and vaccination programs, but its importance has become increasingly recognized for environmental health issues, child health, reproductive health, chronic disease prevention, and injury prevention.

**Requirements**

6. The board of health shall conduct surveillance, including the ongoing collection, collation, analysis, and periodic reporting of population health indicators, as required by the Health Protection and Promotion Act and in accordance with the *Population Health Assessment and Surveillance Protocol, 2008* (or as current).

7. The board of health shall interpret and use surveillance data to communicate information on risks to relevant audiences in accordance with the *Identification, Investigation and Management of Health Hazards Protocol, 2008* (or as current); the *Infectious Diseases Protocol, 2008* (or as current); the *Population Health Assessment and Surveillance Protocol, 2008* (or as current); the *Public Health Emergency Preparedness Protocol, 2008* (or as current); and the *Risk Assessment and Inspection of Facilities Protocol, 2008* (or as current).

**Research and Knowledge Exchange**

Exploring an issue or investigating a question is accomplished through research – the organized and purposeful collection, analysis, and interpretation of data. Research may involve the primary collection of new data or the analysis or synthesis of existing data and research findings. Knowledge exchange is collaborative problem-solving among public health practitioners, researchers, and decision-makers, which takes place through linkage and exchange. It results in mutual learning through the process of planning, producing, disseminating, and applying existing or new research in decision-making.

**Requirements**

8. The board of health shall engage in knowledge exchange activities with public health practitioners, policy-makers, community partners, health care providers, and the public regarding factors that determine the health of the population and support effective public health practice gained through population health assessment, surveillance, research, and program evaluation.

9. The board of health shall foster relationships with community researchers, academic partners, and other appropriate organizations to support public health research and knowledge exchange.

10. The board of health shall engage in public health research activities\(^4\) which may include those conducted by the board of health alone or in partnership or collaboration with other organizations.

---

\(^3\) Priority populations are identified by surveillance, epidemiological, or other research studies. They are those populations that are at risk and for which public health interventions may be reasonably considered to have a substantial impact at the population level.

\(^4\) Research that involves personal health information must comply with the Personal Health Information Protection Act, and specifically with Section 44 of that Act.
Program Evaluation
Program evaluation is the systematic gathering, analysis, and reporting of data about a program to assist in decision-making. It includes quantitative, qualitative, and mixed-method approaches. Program evaluation produces the information needed to support the establishment of new programs and services (needs assessment); assess whether evidence-informed programs are carried out with the necessary reach, intensity, and duration (process evaluation); or document the effectiveness and efficiency of programs and services (outcome evaluation).

Requirements
11. The board of health shall routinely monitor program activities and outcomes to assess and improve the implementation and effectiveness of programs and services, including collection, analysis, and periodic reporting of indicators related to inputs, resources, implementation processes, reach, outputs, and outcomes.

12. The board of health shall conduct program evaluations when new interventions are developed or implemented, or when there is evidence of unexpected operational issues or program results, to understand the linkages between inputs, activities, outputs, and outcomes.

13. The board of health shall use a range of methods to facilitate public health practitioners’ and policy-makers’ awareness of the factors that contribute to program effectiveness.
Chronic Disease Prevention

Goal
To reduce the burden of preventable chronic diseases of public health importance.  

Societal Outcomes
- An increased proportion of the population lives, works, plays, and learns in healthy environments that contribute to chronic disease prevention.
- There is increased adoption of behaviours and skills associated with reducing the risk of chronic diseases of public health importance.
- There is increased community participation in developing integrated and comprehensive local programs that reduce chronic diseases of public health importance.
- Community partners have the capacity to address the risk factors associated with chronic diseases, including poor diet, obesity, tobacco use, physical inactivity, alcohol misuse, and exposure to ultraviolet radiation.

Board of Health Outcomes
- The board of health is aware of and uses epidemiology to influence the development of healthy public policy and its programs and services for chronic disease prevention.
- There is increased awareness among community partners about the factors associated with chronic diseases that are required to inform program planning and policy development, including the following:
  - Community health status;
  - Risk, protective, and resiliency factors; and
  - The importance of creating healthy environments.
- Policy-makers have the information required to enable them to amend current policies or develop new policies that would have an impact on the prevention of chronic diseases.
- The public is aware of the importance of healthy eating, healthy weights, comprehensive tobacco control, physical activity, reduced alcohol use, and reduced exposure to ultraviolet radiation.
- The public is aware of the benefits of screening for early detection of cancers and other chronic diseases of public health importance.
- Priority populations have food skills and adopt healthy eating behaviours.
- Priority populations adopt tobacco-free living.
- Tobacco vendors are in compliance with the Smoke-Free Ontario Act.
- Youth have reduced access to tobacco products.

Chronic diseases of public health importance include cardiovascular diseases, cancer, respiratory diseases, and type 2 diabetes. Risk factors for chronic diseases include, but are not limited to, poor diet, obesity, tobacco use, physical inactivity, alcohol misuse, and exposure to ultraviolet radiation.
Assessment and Surveillance

Requirements

1. The board of health shall conduct epidemiological analysis of surveillance data, including monitoring of trends over time, emerging trends, and priority populations, in accordance with the *Population Health Assessment and Surveillance Protocol, 2008* (or as current), in the areas of:

   - Healthy eating;
   - Healthy weights;
   - Comprehensive tobacco control;
   - Physical activity;
   - Alcohol use; and
   - Exposure to ultraviolet radiation.

2. The board of health shall monitor food affordability in accordance with the *Nutritious Food Basket Protocol, 2008* (or as current) and the *Population Health Assessment and Surveillance Protocol, 2008* (or as current).

Health Promotion and Policy Development

Requirements

3. The board of health shall work with school boards and/or staff of elementary, secondary, and post-secondary educational settings, using a comprehensive health promotion approach, to influence the development and implementation of healthy policies, and the creation or enhancement of supportive environments to address the following topics:

   - Healthy eating;
   - Healthy weights;
   - Comprehensive tobacco control;
   - Physical activity;
   - Alcohol use; and
   - Exposure to ultraviolet radiation.

   These efforts shall include:
   a. Assessing the needs of educational settings; and
   b. Assisting with the development and/or review of curriculum support.

4. The board of health shall use a comprehensive health promotion approach to increase the capacity of workplaces to develop and implement healthy policies and programs, and to create or enhance supportive environments to address the following topics:

   - Healthy eating;
   - Healthy weights;
   - Comprehensive tobacco control;
   - Physical activity;
   - Alcohol use;
   - Work stress; and
   - Exposure to ultraviolet radiation.

   These efforts shall include:
   a. Conducting a situational assessment in accordance with the *Population Health Assessment and Surveillance Protocol, 2008* (or as current); and
   b. Reviewing, adapting, and/or providing behaviour change support resources and programs.

---

*Comprehensive tobacco control includes preventing the initiation of tobacco use among young people; promoting quitting among young people and adults; eliminating non-smokers’ exposure to environmental tobacco smoke; and identifying and eliminating disparities related to tobacco use and its societal outcomes among different population groups.*
5. The board of health shall collaborate with local food premises to provide information and support environmental changes through policy development related to healthy eating and protection from environmental tobacco smoke.

6. The board of health shall work with municipalities to support healthy public policies and the creation or enhancement of supportive environments in recreational settings and the built environment regarding the following topics:

- Healthy eating;
- Healthy weights;
- Comprehensive tobacco control;
- Physical activity;
- Alcohol use; and
- Exposure to ultraviolet radiation.

7. The board of health shall increase the capacity of community partners to coordinate and develop regional/local programs and services related to:

- Healthy eating, including community-based food activities;
- Healthy weights;
- Comprehensive tobacco control;
- Physical activity;
- Alcohol use; and
- Exposure to ultraviolet radiation.

These efforts shall include:

a. Mobilizing and promoting access to community resources;
b. Providing skill-building opportunities; and
c. Sharing best practices and evidence for the prevention of chronic diseases.

8. The board of health shall provide opportunities for skill development in the areas of food skills and healthy eating practices for priority populations.

9. The board of health shall ensure the provision of tobacco use cessation programs and services for priority populations.

10. The board of health shall collaborate with community partners to promote provincially approved screening programs related to the early detection of cancers.

11. The board of health shall increase public awareness in the following areas:

- Healthy eating;
- Healthy weights;
- Comprehensive tobacco control;
- Physical activity;
- Alcohol use;
- Exposure to ultraviolet radiation;
- Benefits of screening for early detection of cancers and other chronic diseases of public health importance; and
- Health inequities that contribute to chronic diseases.

These efforts shall include:

a. Adapting and/or supplementing national and provincial health communications strategies; and/or
b. Developing and implementing regional/local communications strategies.

---

7 This may include pregnant and postpartum women, individuals of low socio-economic status and youth.
12. The board of health shall provide advice and information to link people to community programs and services on the following topics:

- Healthy eating;
- Healthy weights;
- Comprehensive tobacco control;
- Physical activity;
- Alcohol use;
- Screening for chronic diseases and early detection of cancers; and
- Exposure to ultraviolet radiation.

**Health Protection**

**Requirement**

13. The board of health shall implement and enforce the Smoke-Free Ontario Act\(^8\) in accordance with provincial protocols, including but not limited to the *Tobacco Compliance Protocol, 2008* (or as current).

---

\(^8\) This shall include, but not be limited to: inspection and re-inspection, including enforcement/compliance checks of all tobacco vendors; inspection and re-inspection of appropriate public places and workplaces; inquiries into all complaints under the Smoke-Free Ontario Act; maintenance of a supporting database related to enforcement of the Smoke-Free Ontario Act, and provision of Smoke-Free Ontario Act education and information to the community. It is recommended that boards of health also offer to develop a written agreement with every school board covering all local schools and outlining the roles and responsibilities of the board of health and school officials and the procedures related to the Smoke-Free Ontario Act.
Prevention of Injury and Substance Misuse

Goal

To reduce the frequency, severity, and impact of preventable injury and of substance misuse.

Societal Outcomes

- Community partners\(^{10}\) have the capacity to create safe and supportive environments where people live, work, play, and learn.
- Members of the public have an increased capacity to prevent injury and substance misuse.
- There is change in the public’s cultural norms towards viewing injuries as predictable and preventable.
- Sustained behaviour change by the public contributes to the prevention of injury and substance misuse.
- An increased proportion of the public lives in safe and supportive environments.
- There is reduced incidence and severity of injuries and injury-related hospitalizations, disabilities, and deaths.
- There is reduced incidence and severity of substance misuse and substance-related injuries, hospitalizations, disabilities, and deaths.

Board of Health Outcomes

- The board of health is aware of and uses epidemiology to influence the development of healthy public policy and its programs and services for the prevention of injury and substance misuse.
- There is an increased awareness of community partners about the factors associated with injury and substance misuse required to inform program planning and policy development, including the following:
  - Community health status;
  - Risk, protective, and resiliency factors; and
  - Impact.
- Policy-makers have the information required to enable them to amend current policies or develop new policies that would have an impact on the prevention of injury and substance misuse.
- Community partners are engaged in the prevention of injury and substance misuse.
- The public is aware that the majority of injuries are predictable and preventable.
- The public is aware of the risk, protective, and resiliency factors associated with injury and substance misuse.
- The public is aware of the impact associated with injury and substance misuse.
- Priority populations have the capacity to prevent injury, substance misuse, and associated harms.
- The public is aware of current legislation related to the prevention of injury and substance misuse.

---

\(^9\) Substance misuse refers to the harmful use of any substance, such as alcohol, a street drug, an over-the-counter drug, or a prescribed drug. The program name is meant to clearly articulate the need to address the prevention of the adverse health outcomes associated with substance use, the illegal use of alcohol and other substances (e.g., preventing alcohol from being served to minors and preventing illegal drug use), and delaying the age of initial use of alcohol and other substances. Prevention efforts would include the implementation of harm reduction strategies (i.e., any program or policy designed to help reduce substance-related harm without requiring the cessation of substance use).

\(^{10}\) Community partners may include but are not limited to non-governmental organizations; governmental bodies; school boards and/or staff, school councils, and students of elementary, secondary, and post-secondary educational settings; parents; employers and employees in workplace settings; and other stakeholders.
Assessment and Surveillance

Requirement
1. The board of health shall conduct epidemiological analysis of surveillance data, including monitoring trends over time, emerging trends, and priority populations, in accordance with the Population Health Assessment and Surveillance Protocol, 2008 (or as current), in the areas of:

- Alcohol and other substances;
- Falls across the lifespan;
- Road and off-road safety; and
- Other areas of public health importance for the prevention of injuries.

Health Promotion and Policy Development

Requirements
2. The board of health shall work with community partners, using a comprehensive health promotion approach, to influence the development and implementation of healthy policies and programs, and the creation or enhancement of safe and supportive environments that address the following:

- Alcohol and other substances;
- Falls across the lifespan;
- Road and off-road safety; and may include
- Other areas of public health importance for the prevention of injuries as identified by local surveillance in accordance with the Population Health Assessment and Surveillance Protocol, 2008 (or as current).

3. The board of health shall use a comprehensive health promotion approach to increase the capacity of priority populations to prevent injury and substance misuse by:
   a. Collaborating with and engaging community partners;
   b. Mobilizing and promoting access to community resources;
   c. Providing skill-building opportunities; and

4. The board of health shall increase public awareness of the prevention of injury and substance misuse in the following areas:

- Alcohol and other substances;
- Falls across the lifespan;
- Road and off-road safety; and may include
- Other areas of public health importance for the prevention of injuries, as identified by local surveillance in accordance with the Population Health Assessment and Surveillance Protocol, 2008 (or as current).

These efforts shall include:
   a. Adapting and/or supplementing national and provincial health communications strategies; and/or
   b. Developing and implementing regional/local communications strategies.

---

11 The broad topic areas include alcohol and other substances (i.e., including alcohol misuse, drinking and driving, illicit substance use), falls across the lifespan (i.e., including falls in children, youth, adults, and older adults), and road and off-road safety (i.e., including motorized vehicles, pedestrians, cyclists, drivers, and occupants).

12 Other areas of public health importance related to prevention of injuries and substance misuse may include violence, suicide, burns, drowning, farm injuries, poisonings, scalds, suffocation, sport and recreation, and playground safety. The assessment, planning, delivery, and management for other areas of public health importance would be based on local epidemiology and evidence of effective interventions.

13 Community resources may include, but are not limited to, volunteers, coalitions, stakeholders, and access to safety equipment.
Health Protection

Requirement

5. The board of health shall use a comprehensive health promotion approach in collaboration with community partners, including enforcement agencies, to increase public awareness of and adoption of behaviours that are in accordance with current legislation\(^\text{14}\) related to the prevention of injury and substance misuse in the following areas:

- Alcohol and other substances;
- Falls across the lifespan;
- Road and off-road safety; and may include
- Other areas of public health importance for the prevention of injuries as identified by local surveillance in accordance with the *Population Health Assessment and Surveillance Protocol, 2008* (or as current).

\(^{14}\) Legislation includes municipal by-laws (e.g., community safety zones), provincial legislation (e.g., mandatory child car seats under the Highway Traffic Act), and federal legislation (e.g., ban on baby walkers under the Hazardous Products Act) that support prevention of injury and substance misuse.
Family Health Program Standards

Reproductive Health

Goal
To enable individuals and families to achieve optimal preconception health, experience a healthy pregnancy, have the healthiest newborn(s) possible, and be prepared for parenthood.

Societal Outcomes
- An increased proportion of community partners provide safe and supportive environments to promote healthy pregnancies, healthy birth outcomes, and preparation for parenthood.
- An increased proportion of individuals in their reproductive years are physically, emotionally, and socially prepared for conception.
- An increased proportion of pregnant women and their families adopt practices to support a healthy pregnancy.
- An increased proportion of expectant parents are physically, emotionally, and socially prepared to become parents.
- An increased proportion of full-term newborns are born within a healthy birth weight range.
- Individuals in their reproductive years, including pregnant women and their families, live, work, play, and learn in safe and supportive environments.

Board of Health Outcomes
- The board of health is aware of and uses epidemiology to influence the development of healthy public policy and its programs and services for the promotion of reproductive health.
- The public is aware of the importance of creating safe and supportive environments that promote healthy pregnancies, healthy birth outcomes, and preparation for parenthood.
- Community partners are aware of the importance of creating safe and supportive environments that promote healthy pregnancies, healthy birth outcomes, and preparation for parenthood.
- Policy-makers have the information required to enable them to amend current policies or develop new policies that would have an impact on the promotion of reproductive health.
- Individuals in their reproductive years, including pregnant women and their families, have the information, skills, and supports necessary to adopt health-promoting practices.
- Expectant parents are aware of the benefits of breastfeeding, the mechanics of breastfeeding, and where to obtain assistance with breastfeeding.
- Priority populations are linked to reproductive health information, programs, and services.
- Pregnant women and their families at risk of poor birth outcomes are supported and referred to services in the prenatal period.

Assessment and Surveillance

Requirement
1. The board of health shall conduct epidemiological analysis of surveillance data, including monitoring of trends over time, emerging trends, and priority populations, in accordance with the Population Health Assessment and Surveillance Protocol, 2008 (or as current) in the areas of:
   - Preconception health;
   - Healthy pregnancies;
   - Reproductive health outcomes; and
   - Preparation for parenting.
Health Promotion and Policy Development

Requirements

2. The board of health shall work with community partners, using a comprehensive health promotion approach, to influence the development and implementation of healthy policies and the creation or enhancement of supportive environments to address:

- Preconception health;
- Healthy pregnancies; and
- Preparation for parenting.

These efforts shall include:

a. Conducting a situational assessment in accordance with the Population Health Assessment and Surveillance Protocol, 2008 (or as current); and
b. Reviewing, adapting, and/or providing behaviour change support resources and programs.\textsuperscript{16}

3. The board of health shall increase public awareness of preconception health, healthy pregnancies, and preparation for parenting by:

a. Adapting and/or supplementing national and provincial health communications strategies; and/or
b. Developing and implementing regional/local communications strategies.

4. The board of health shall provide, in collaboration with community partners, prenatal programs, services, and supports, which include:

a. Consultation, assessment, and referral; and
b. Group sessions.

5. The board of health shall provide advice and information to link people to community programs and services on the following topics:

- Preconception health;
- Healthy pregnancies; and
- Preparation for parenting.

6. The board of health shall provide, in collaboration with community partners, outreach to priority populations to link them to information, programs, and services.

Disease Prevention

Requirement

7. The board of health shall provide all the components of the Healthy Babies Healthy Children Program in accordance with the Healthy Babies Healthy Children Protocol, 2008 (or as current) (Ministry of Children and Youth Services).\textsuperscript{16}

\textsuperscript{15} This could include, but is not limited to, curriculum support resources (in preschools, schools, etc.), workplace support resources, and education and skill-building opportunities.

\textsuperscript{16} While the Healthy Babies Healthy Children program does contain Health Promotion and Policy Development components, it has been included in the Disease Prevention section due to its focus on screening, assessment, referrals, and support services.
Child Health

Goal
To enable all children to attain and sustain optimal health and developmental potential.

Societal Outcomes
- An increased proportion of community partners provide safe and supportive environments for children and their families.
- An increased proportion of families provide safe and supportive environments for their children.
- There is an increased rate of exclusive breastfeeding until six months, with continued breastfeeding until 24 months and beyond.
- An increased proportion of children reach growth and developmental outcomes.
- An increased proportion of children beginning school are ready to achieve success.
- An increased proportion of children have optimal oral health.

Board of Health Outcomes
- The board of health is aware of and uses epidemiology to influence the development of healthy public policy and its programs and services for the promotion of healthy child development.
- The board of health achieves timely and effective detection and identification of children at risk of poor oral health outcomes, their associated risk factors, and emerging trends.
- The public is aware of the importance of creating safe and supportive environments that promote healthy child development.
- The public is aware of the factors associated with positive parenting.
- Community partners are aware of the importance of creating safe and supportive environments that promote healthy child development.
- Policy-makers have the information required to enable them to amend current policies or develop new policies that would have an impact on the promotion of healthy child development.
- Breastfeeding women have improved knowledge and skills.
- Priority populations are linked to child/family health information, programs, and services.
- Children at risk of poor health and developmental outcomes are supported and referred to services prior to school entry.
- Children urgently in need of oral health care have access to such care.
- Children in need of preventive oral health services receive essential clinical preventive oral health services.
- The board of health achieves timely and effective detection and identification of communities with levels of fluoride outside the therapeutic range.

Assessment and Surveillance

Requirements
1. The board of health shall conduct epidemiological analysis of surveillance data, including monitoring of trends over time, emerging trends, and priority populations in accordance with the Population Health Assessment and Surveillance Protocol, 2008 (or as current), in the areas of:
   - Positive parenting;
   - Breastfeeding;
   - Healthy family dynamics;
   - Healthy eating, healthy weights, and physical activity;
   - Growth and development; and
   - Oral health.

2. The board of health shall conduct surveillance of children in schools and refer individuals who may be at risk of poor oral health outcomes in accordance with the Oral Health Assessment and Surveillance Protocol, 2008 (or as current), and the Population Health Assessment and Surveillance Protocol, 2008 (or as current).
3. The board of health shall report oral health data elements in accordance with the *Oral Health Assessment and Surveillance Protocol, 2008* (or as current).

**Health Promotion and Policy Development**

**Requirements**

4. The board of health shall work with community partners, using a comprehensive health promotion approach, to influence the development and implementation of healthy policies and the creation or enhancement of supportive environments to address:

- Positive parenting;
- Breastfeeding;
- Healthy family dynamics;
- Healthy eating, healthy weights, and physical activity;
- Growth and development; and
- Oral health.

These efforts shall include:

a. Conducting a situational assessment in accordance with the *Population Health Assessment and Surveillance Protocol, 2008* (or as current); and

b. Reviewing, adapting, and/or providing behaviour change support resources and programs.17

5. The board of health shall increase public awareness of:

- Positive parenting;
- Breastfeeding;
- Healthy family dynamics;
- Healthy eating, healthy weights, and physical activity;
- Growth and development; and
- Oral health.

These efforts shall include:

a. Adapting and/or supplementing national and provincial health communications strategies; and/or

b. Developing and implementing regional/local communications strategies.

6. The board of health shall provide, in collaboration with community partners, parenting programs, services, and supports, which include:

a. Consultation, assessment, and referral; and

b. Group sessions.

7. The board of health shall provide advice and information to link people to community programs and services on the following topics:

- Positive parenting;
- Breastfeeding;
- Healthy family dynamics;
- Healthy eating, healthy weights, and physical activity;
- Growth and development; and
- Oral health.

8. The board of health shall provide, in collaboration with community partners, outreach to priority populations to link them to information, programs, and services.

17 This could include, but is not limited to, curriculum support resources (in preschools, schools, etc.), workplace support resources, and education and skill-building opportunities.
Disease Prevention

Requirements

9. The board of health shall provide all the components of the Healthy Babies Healthy Children Program in accordance with the Healthy Babies Healthy Children Protocol, 2008 (or as current) (Ministry of Children and Youth Services).\(^{18}\)

10. The board of health shall conduct oral screening in accordance with the Oral Health Assessment and Surveillance Protocol, 2008 (or as current).

11. The board of health shall facilitate access and support for families to complete screening tools\(^ {19} \) to monitor their child’s health and development, and provide a contact for families to discuss results and arrange follow-up.

12. The board of health shall provide the Children in Need of Treatment (CINOT) Program in accordance with the Children in Need of Treatment (CINOT) Program Protocol, 2008 (or as current). For CINOT-eligible children, the board of health shall provide referrals to oral health care providers and monitor the action taken.

13. The board of health shall provide or ensure the provision of the essential clinical preventive oral health services at least annually in accordance with the Preventive Oral Health Services Protocol, 2008 (or as current).

Health Protection

Requirement

14. The board of health shall review drinking water quality reports for its municipal drinking water supply(ies) where fluoride is added. These reports shall be reviewed at least monthly and, where necessary, action shall be taken in accordance with the Protocol for the Monitoring of Community Water Fluoride Levels, 2008 (or as current).

\(^{18}\) While the Healthy Babies Healthy Children program does contain Health Promotion and Policy Development components, it has been included in the Disease Prevention section due to its focus on screening, assessment, referrals, and support services.

\(^{19}\) Screening tools will include those that are part of the Healthy Babies Healthy Children program (e.g., Nipissing District Developmental Screen\(^ {TM} \)) as well as other reliable, valid screening tools that may be identified, such as NutriSTEP\(^ {TM} \) and the Paediatric Dental Screening Instrument.
Infectious Diseases Prevention and Control

Goal
To prevent or reduce the burden of infectious diseases of public health importance.\(^{20}\)

Societal Outcomes
- There is reduced incidence of infectious diseases of public health importance.
- There is reduced morbidity and mortality associated with infectious diseases of public health importance.
- There is increased public capacity to prevent and control infectious diseases.
- There is increased capacity on the part of all hospitals, long-term care homes (LTCHs), and other settings with risk of infections to prevent and control infectious diseases.

Board of Health Outcomes
- The board of health achieves timely and effective detection and identification of cases/outbreaks of infectious diseases of public health importance, their associated risk factors and emerging trends.
- The board of health is aware of and uses epidemiology to influence the development of healthy public policy and its programs and services to prevent or reduce the burden of infectious diseases of public health importance.
- There is increased public awareness of infection prevention and control practices.
- Community partners and health care providers are aware of the local epidemiology of infectious diseases of public health importance.
- Community partners and health care providers are aware of infection prevention and control practices.
- Settings that are required to be inspected are aware of appropriate infection prevention and control practices.
- The board of health has effective partnerships with committees, advisory bodies, and networks\(^{21}\) that address infection prevention and control practices.
- Hospitals, LTCHs, and other settings with risk of infections are able to prevent nosocomial infections and control the spread of outbreaks of infectious diseases of public health importance.
- The board of health manages outbreaks and other sporadic cases of infectious diseases of public health importance resulting in limited secondary cases.
- The board of health manages reported cases of infectious diseases of public health importance and their contacts.
- The board of health manages infection prevention and control practice complaints.
- Settings that are required to be inspected use appropriate infection prevention and control practices.

\(^{20}\) Infectious diseases of public health importance include, but are not limited to, those specified reportable diseases as set out by Regulation 559/91 (as amended) under the Health Protection and Promotion Act and include zoonotic diseases. Emerging infectious diseases may be considered of public health importance based on a variety of criteria, including their designation as an emerging disease by international, federal, and/or provincial health authorities; their potential for preventability or public health action; and the seriousness of their impact on the health of the population and potential spread.

\(^{21}\) Networks include the Regional Infection Control Networks.
Assessment and Surveillance

Requirements
1. The board of health shall report infectious disease data elements in accordance with the Health Protection and Promotion Act and the *Infectious Diseases Protocol, 2008* (or as current).

2. The board of health shall conduct surveillance of:
   - Infectious diseases of public health importance, their associated risk factors, and emerging trends; and
   - Infection prevention and control practices of inspected premises associated with risk of infectious diseases of public health importance in accordance with the *Infectious Diseases Protocol, 2008* (or as current) and the *Population Health Assessment and Surveillance Protocol, 2008* (or as current).

3. The board of health shall conduct epidemiological analysis of surveillance data, including monitoring of trends over time, emerging trends, and priority populations, in accordance with the *Population Health Assessment and Surveillance Protocol, 2008* (or as current).

Health Promotion and Policy Development

Requirements
4. The board of health shall work with community partners to improve public knowledge of infectious diseases of public health importance and infection prevention and control practices in the following areas:
   - Epidemiology of infectious diseases of public health importance that are locally relevant;
   - Respiratory etiquette;
   - Hand hygiene;
   - Vaccinations and medications to prevent or treat infectious diseases of public health importance;
   - Infection prevention and control core competencies, incorporating both Routine Practices (including personal protective equipment) and Additional Precautions (transmission-based precautions); and
   - Other measures, as new interventions and/or diseases arise.

These efforts shall include:
   a. Adapting and/or supplementing national and provincial health communications strategies; and/or
   b. Developing and implementing regional/local communications strategies.

5. The board of health shall participate on committees, advisory bodies, or networks that address infection prevention and control practices of, but not limited to, hospitals and LTCHs, which shall include consultation on the development and/or revision of:
   - Infection prevention and control policies and procedures;
   - Surveillance systems for infectious diseases of public health importance; and
   - Response plans to cases/outbreaks of infectious diseases of public health importance.

6. The board of health shall work with appropriate partners to increase awareness among relevant community partners, including correctional facilities, health care and other service providers of:
   - The local epidemiology of infectious diseases of public health importance;
   - Infection prevention and control practices; and
   - Reporting requirements for reportable diseases, as specified in the Health Protection and Promotion Act.

---

22 Infection prevention and control practices that may be addressed could include having current evidence-informed infection prevention and control policies and conducting regular staff education sessions to communicate and enhance awareness about the content of the policies.

23 Partners may include, but are not limited to, Regional Infection Control Networks.
Disease Prevention

Requirements

7. The board of health shall ensure that the medical officer of health or designate is available on a 24/7 basis to receive reports of and respond to infectious diseases of public health importance in accordance with the Health Protection and Promotion Act; the Mandatory Blood Testing Act; the Exposure of Emergency Service Workers to Infectious Diseases Protocol, 2008 (or as current); the Infectious Diseases Protocol, 2008 (or as current); the Institutional/Facility Outbreak Prevention and Control Protocol, 2008 (or as current); and the Public Health Emergency Preparedness Protocol, 2008 (or as current).

8. The board of health shall provide public health management of cases and outbreaks to minimize the public health risk in accordance with the Infectious Diseases Protocol, 2008 (or as current); the Institutional/Facility Outbreak Prevention and Control Protocol, 2008 (or as current); and provincial and national protocols on best practices.

9. The board of health shall ensure that the medical officer of health or designate receives reports of complaints regarding infection prevention and control practices and responds and/or refers to appropriate regulatory bodies in accordance with applicable provincial legislation and in accordance with the Infection Prevention and Control Practices Complaint Protocol, 2008 (or as current).

10. The board of health shall ensure that the medical officer of health or designate receives reports of and responds to complaints regarding infection prevention and control practices in settings for which no regulatory bodies exist, particularly personal services settings. This shall be done in accordance with the Infection Prevention and Control in Personal Services Settings Protocol, 2008 (or as current) and the Infection Prevention and Control Practices Complaint Protocol, 2008 (or as current).

11. The board of health shall respond to local, provincial/territorial, federal and international changes in disease epidemiology by adapting programs and services.

12. The board of health shall supplement provincial efforts in managing risk communications to the appropriate stakeholders on identified risks associated with infectious diseases of public health importance based on local epidemiology and epidemiological information.

13. The board of health shall communicate in a timely and comprehensive manner with all relevant health care providers and other partners about urgent and emerging infectious disease issues.

Health Protection

Requirement

14. The board of health shall inspect settings associated with risk of infectious diseases of public health importance in accordance with the Infection Prevention and Control in Licensed Day Nurseries Protocol, 2008 (or as current); the Infection Prevention and Control in Personal Services Settings Protocol, 2008 (or as current); and the Risk Assessment and Inspection of Facilities Protocol, 2008 (or as current).
Rabies Prevention and Control

Goal
To prevent the occurrence of rabies in humans.

Societal Outcomes
- There is reduced incidence of suspected rabies exposures in humans.
- Human rabies is prevented in all reported suspected rabies exposures.

Board of Health Outcomes
- The board of health achieves timely and effective detection and identification of positive reports of rabies in animal species and other emerging risks and trends associated with rabies in humans.
- The board of health is aware of and uses epidemiology to influence the development of healthy public policy and its programs and services to prevent the occurrence of rabies in humans.
- The public is aware of rabies and its prevention.
- The public, community partners, and health care providers report all suspected rabies exposures in the health unit to the board of health.
- The board of health manages reports of suspected rabies exposures.
- The public, community partners, and health care providers are prepared for rabies threats.

Assessment and Surveillance

Requirements
1. The board of health shall liaise with the Canadian Food Inspection Agency to identify local cases of rabies in animal species.

2. The board of health shall report rabies data elements in accordance with the Health Protection and Promotion Act and the *Rabies Prevention and Control Protocol, 2008* (or as current).

3. The board of health shall conduct surveillance of rabies in accordance with the *Population Health Assessment and Surveillance Protocol, 2008* (or as current) and the *Rabies Prevention and Control Protocol, 2008* (or as current).

4. The board of health shall conduct epidemiological analysis of surveillance data, including monitoring of trends over time, emerging trends, and priority populations, in accordance with the *Population Health Assessment and Surveillance Protocol, 2008* (or as current).

Health Promotion and Policy Development

Requirement
5. The board of health shall work with community partners to improve public knowledge of rabies and its prevention in the community by supplementing national/provincial education/communications strategies and/or developing and implementing regional/local communications strategies based on local epidemiology.

---

24 This requirement does not explicitly address the promotion of rabies vaccination for cats and dogs, because there have been few such cases in recent years. However, this requirement does not preclude the possibility of such activities in the future.
Disease Prevention/Health Protection

Requirements

6. The board of health shall annually remind those individuals specified in the Health Protection and Promotion Act of their duty to report suspected rabies exposure.

7. The board of health shall ensure that the medical officer of health or designate is available on a 24/7 basis to receive reports of and respond to suspected rabies exposures in accordance with the Health Protection and Promotion Act; the Public Health Emergency Preparedness Protocol, 2008 (or as current); and the Rabies Prevention and Control Protocol, 2008 (or as current).

8. The board of health shall address the prevention and control of rabies threats as per a local Rabies Contingency Plan, as outlined in the Rabies Prevention and Control Protocol, 2008 (or as current).
Sexual Health, Sexually Transmitted Infections, and Blood-borne Infections (including HIV)

Goals
- To prevent or reduce the burden of sexually transmitted infections and blood-borne infections.
- To promote healthy sexuality.

Societal Outcomes
- There is increased adoption of healthy behaviours among the population regarding sexual health.
- There are enhanced supportive environments regarding healthy sexuality.
- There is a decreased rate of adolescent pregnancy.
- There are reduced transmission and incidence rates of sexually transmitted infections and blood-borne infections.
- There is reduced morbidity and mortality associated with sexually transmitted infections and blood-borne infections.

Board of Health Outcomes
- The board of health achieves timely and effective detection and identification of cases of sexually transmitted infections and blood-borne infections, and their associated risk factors and emerging trends.
- The board of health is aware of and uses epidemiology to influence the development of healthy public policy and its programs and services to promote healthy sexuality and to prevent or reduce the burden of sexually transmitted infections and blood-borne infections.
- The public is aware of risk, protective, and resiliency factors related to healthy sexuality and the prevention of sexually transmitted infections and blood-borne infections.
- Community partners are aware of the importance of having supportive environments to promote healthy sexuality and prevent sexually transmitted infections and blood-borne infections.
- Priority populations have the capacity to adopt behaviours related to healthy sexuality and the prevention of sexually transmitted infections and blood-borne infections.
- The board of health manages reported cases and contacts of sexually transmitted infections and blood-borne infections.
- Health care providers have the capacity to manage cases and contacts of sexually transmitted infections and blood-borne infections.
- Priority populations have access to sexual health services, including contraception and comprehensive pregnancy counselling.
- Priority populations have access to harm reduction services to reduce the transmission of sexually transmitted infections and blood-borne infections.

Assessment and Surveillance

Requirements
1. The board of health shall report data elements on sexually transmitted infections and blood-borne infections in accordance with the Health Protection and Promotion Act and the Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008 (or as current).

2. The board of health shall conduct surveillance of:
   - Sexually transmitted infections;
   - Blood-borne infections;
   - Reproductive outcomes;
   - Risk behaviours; and
   - Distribution of harm reduction materials/equipment

---

25 Blood-borne infections include hepatitis B, human immunodeficiency virus (HIV), and hepatitis C. Blood-borne infections are transmitted to the blood through sexual activities/intercourse and by the sharing of injection equipment and other drug-related activities.

26 HIV is specified only in the title but is implied throughout the Program Standard in all sections referring to sexually transmitted infections and blood-borne infections.
in accordance with the Population Health Assessment and Surveillance Protocol, 2008 (or as current) and the Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008 (or as current).

3. The board of health shall conduct epidemiological analysis of surveillance data, including monitoring of trends over time, emerging trends, and priority populations, in accordance with the Population Health Assessment and Surveillance Protocol, 2008 (or as current).

Health Promotion and Policy Development

Requirements
4. The board of health shall increase public awareness of the epidemiology, associated risk behaviours, risk factors, and risk reduction strategies related to healthy sexuality, sexually transmitted infections, and blood-borne infections by:
   a. Adapting and/or supplementing national and provincial health communications strategies; and/or
   b. Developing and implementing regional/local communications strategies.

5. The board of health shall use a comprehensive health promotion approach to increase the community capacity regarding the promotion of healthy sexuality, including the prevention of adolescent pregnancies, sexually transmitted infections, and blood-borne infections, by:
   a. Collaborating with and engaging community partners and priority populations;
   b. Mobilizing and promoting access to community resources;
   c. Providing skill-building opportunities; and

6. The board of health shall collaborate with community partners, including school boards, to create supportive environments to promote healthy sexuality and access to sexual health services.

Disease Prevention/Health Protection

Requirements
7. The board of health shall provide clinical services for priority populations to address contraception, comprehensive pregnancy counselling, sexually transmitted infections, and blood-borne infections. For further information, refer to the Sexual Health Clinic Services Manual, 2002 (or as current).

8. The board of health shall ensure that the medical officer of health or designate receives reports of sexually transmitted infections and blood-borne infections and responds in accordance with the Health Protection and Promotion Act and the Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008 (or as current).

9. The board of health shall provide or ensure access to provincially funded drugs for the treatment of sexually transmitted infections, at no cost to clients, in accordance with the Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008 (or as current).

10. The board of health shall communicate and coordinate care with health care providers to achieve a comprehensive and consistent approach to the management of sexually transmitted infections and blood-borne infections.

11. The board of health shall engage community partners and priority populations in the planning, development, and implementation of harm reduction programming.

12. The board of health shall ensure access to a variety of harm reduction program delivery models which shall include the provision of sterile needles and syringes and may include other evidence-informed harm reduction strategies27 in response to local surveillance.

---

27 Harm reduction strategies include clean and sterile drug-using equipment (sterile water, alcohol swabs, steri-cups, tourniquets, ascorbic acid, and filters, which are currently funded through the Ontario Harm Reduction Distribution Program); condoms; client-centered counselling; skill-building and education; and referral to addictions treatment, health services and other social services.
Tuberculosis Prevention and Control

Goal
To prevent or reduce the burden of tuberculosis (TB).

Societal Outcomes
- There is reduced transmission of TB.
- There is reduced progression of latent TB infection (LTBI) to active TB.
- There is reduced incidence of drug-resistant TB.
- Community partners and health care providers have improved capacity to effectively manage TB.
- There is improved public access to the diagnosis and treatment of TB.
- The public is aware of TB and its prevention.

Board of Health Outcomes
- The board of health achieves timely and effective detection and identification of TB trends, emerging risks, and associated risk factors.
- The board of health is aware of and uses epidemiology to influence the development of healthy public policy and its programs and services to prevent and reduce the burden of TB.
- The board of health has effective partnerships with committees, advisory bodies, networks, and community organizations to address the prevention and control of TB.
- Public health risks associated with active TB are mitigated.
- Individuals with infectious TB are isolated.
- Individuals with active TB (cases) receive the appropriate medication.
- Individuals with active TB or LTBI are identified.
- Individuals with LTBI are offered appropriate treatment.

Assessment and Surveillance
Requirements
1. The board of health shall report TB data elements in accordance with the Health Protection and Promotion Act and the Tuberculosis Prevention and Control Protocol, 2008 (or as current).

2. The board of health shall conduct surveillance of active tuberculosis as well as individuals with LTBI in accordance with the Population Health Assessment and Surveillance Protocol, 2008 (or as current) and the Tuberculosis Prevention and Control Protocol, 2008 (or as current).

3. The board of health shall conduct epidemiological analysis of surveillance data, including monitoring of trends over time, emerging trends, and priority populations, in accordance with the Population Health Assessment and Surveillance Protocol, 2008 (or as current).

Health Promotion and Policy Development
Requirement
4. The board of health shall engage in health promotion and policy development activities with community partners, policy-makers, and health care providers that have clients/contacts from priority populations based on local epidemiology.

28 For the purpose of this standard, priority populations may include, but are not limited to, those incarcerated in correctional facilities, Aboriginal peoples and First Nation communities, refugees, recent arrivals to Canada, homeless persons, and those who work closely with these groups.
Disease Prevention/Health Protection

Requirements
5. The board of health shall facilitate timely identification of active cases of TB and referrals of persons with inactive TB through immigration medical surveillance in accordance with the *Tuberculosis Prevention and Control Protocol, 2008* (or as current).

6. The board of health shall provide management of cases to minimize the public health risk in accordance with the *Tuberculosis Prevention and Control Protocol, 2008* (or as current).

7. The board of health shall provide or ensure access to TB medication at no cost to clients or providers.

8. The board of health shall provide or ensure the provision of the identification, assessment, and public health management of contacts of active cases in accordance with the *Tuberculosis Prevention and Control Protocol, 2008* (or as current).

9. The board of health shall provide or ensure the provision of the identification and effective public health management of individuals with LTBI in accordance with the *Tuberculosis Prevention and Control Protocol, 2008* (or as current), with a particular focus on people at highest risk of progression to active TB.

10. The board of health shall respond to local, provincial/territorial, federal, and international changes in disease epidemiology by adapting programs and services.

Referrals through Citizenship and Immigration Canada include individuals referred to boards of health, post-landing, for medical follow-up to rule out active TB and to determine the need for treatment of LTBI.

People at highest risk of progression to active TB may include recent contacts, the immunocompromised, and recent arrivals to Canada.
Vaccine Preventable Diseases

Goal

To reduce or eliminate the burden of vaccine preventable diseases.

Societal Outcomes

- There is reduced incidence of vaccine preventable diseases.
- Target coverage rates for vaccine preventable diseases are achieved.
- There is increased health care provider knowledge of immunization.
- There is increased public knowledge of immunization.
- There is improved effectiveness of publicly funded immunization programs.
- There is a reduced incidence rate of adverse events following immunization.
- There is reduced vaccine wastage.

Board of Health Outcomes

- The board of health achieves timely and effective detection and identification of children susceptible to vaccine preventable diseases, their associated risk factors, and emerging trends.
- The board of health achieves timely and effective detection and identification of priority populations facing barriers to immunization, their associated risk factors, and emerging trends.
- The board of health is aware of and uses epidemiology to influence the development of healthy public policy and its programs and services to reduce or eliminate the burden of vaccine preventable diseases.
- The public is aware of the importance of immunization across the lifespan.
- Health care providers report adverse events following immunization to the board of health.
- Health care providers are knowledgeable of improved practices related to proper vaccine management, including storage and handling.
- Target coverage rates for provincially funded immunizations are achieved.
- The board of health effectively responds to vaccine preventable disease outbreaks.
- The public is aware of the availability of travel health services, including immunizations for travellers.
- Health care providers adhere to proper vaccine management, including storage and handling practices and inventory management.
- Vaccines are distributed in an equitable and timely manner that adheres to proper vaccine management, including storage and handling practices.
- The board of health achieves timely and effective detection and identification of adverse events following immunization.
- Children have up-to-date immunizations according to the current Publicly Funded Immunization Schedules for Ontario and in accordance with the Immunization of School Pupils Act and the Day Nurseries Act.

Assessment and Surveillance

Requirements

1. The board of health shall assess, maintain records and report, where applicable, on:
   - The immunization status of children enrolled in licensed child care programs as defined in the Day Nurseries Act;
   - The immunization status of children attending schools in accordance with the Immunization of School Pupils Act; and
   - Immunizations administered at board of health-based clinics as required in accordance with the Immunization Management Protocol, 2008 (or as current) and the Infectious Diseases Protocol, 2008 (or as current).

2. The board of health shall conduct epidemiological analysis of surveillance data, including monitoring of trends over time, emerging trends, and priority populations, in accordance with the Infectious Diseases Protocol, 2008 (or as current) and the Population Health Assessment and Surveillance Protocol, 2008 (or as current).
Health Promotion and Policy Development

Requirements
3. The board of health shall work with community partners to improve public knowledge and confidence in immunization programs by:
   a. Supplementing national and provincial health communications strategies; and/or
   b. Developing and implementing regional/local communications strategies.

Topics to be addressed shall include:

- The importance of immunization;
- Diseases that vaccines prevent;
- Recommended immunization schedules for children and adults and the importance of adhering to the schedules;
- Introduction of new provincially funded vaccines;
- Promotion of childhood and adult immunization, including high-risk programs;
- The importance of maintaining a personal immunization record for all family members;
- The importance of reporting adverse events following immunization;
- Reporting immunization information to the board of health as required;
- Vaccine safety; and
- Legislation related to immunizations.

4. The board of health shall promote the reporting of adverse events following immunization by health care providers to the local board of health in accordance with the Health Protection and Promotion Act.

5. The board of health shall provide a comprehensive information and education strategy to promote optimal vaccine management, including storage and handling practices, among health care providers in accordance with the Vaccine Storage and Handling Protocol, 2008 (or as current). This shall include:
   - One-on-one training at the time of cold chain inspection;
   - Distributing information to new health care providers who handle vaccines; and
   - Providing ongoing support to existing health care providers who handle vaccines.

6. The board of health shall provide consultation to community partners to develop immunization policies (e.g., workplace policies) based on local need and as requested.

Disease Prevention

Requirements
7. The board of health shall promote and provide provincially funded immunization programs to any eligible person in the health unit, including:
   - Board of health-based clinics;
   - School-based clinics (including, but not limited to, hepatitis B and meningococcal immunization);
   - Community-based clinics; and
   - Outreach clinics to priority populations.

8. The board of health shall, as part of the Public Health Emergency Preparedness Program Standard, have a contingency plan to deploy board of health staff capable of providing vaccine preventable disease outbreak management and control such as mass immunization in the event of a community outbreak.

9. The board of health shall provide or ensure the availability of travel health clinics.
Health Protection

Requirements

10. The board of health shall ensure the storage and distribution of provincially funded vaccines including to health care providers practicing within the health unit in accordance with the *Vaccine Storage and Handling Protocol, 2008* (or as current).

11. The board of health shall promote vaccine inventory management in all premises where provincially funded vaccines are stored in accordance with the *Vaccine Storage and Handling Protocol, 2008* (or as current).

12. The board of health shall monitor, investigate, and document all suspected cases of adverse events following immunization that meet the provincial reporting criteria\(^3^1\) and promptly report all cases.

13. The board of health shall comply with the *Immunization Management Protocol, 2008* (or as current), that specifies the process for the assessment of the immunization status of children in licensed day nurseries as defined in the Day Nurseries Act and the enforcement of the Immunization of School Pupils Act.

---

\(^3^1\) The provincial reporting criteria are under development at the Federal/Provincial/Territorial level.
Environmental Health Program Standards

Food Safety

Goal
To prevent or reduce the burden of food-borne illness.

Societal Outcomes
- There is reduced incidence of food-borne illness.
- There is reduced exposure to food that is unfit for human consumption.
- Private and public food providers handle and manage food in a safe and sanitary manner.
- Food prepared in private homes is handled and managed in a safe and sanitary manner.
- Policies developed by community partners integrate safe food-handling practices.

Board of Health Outcomes
- The board of health achieves timely and effective detection and identification of:
  - Food-borne illnesses;
  - Their associated risk factors and emerging trends; and
  - Unsafe food in food premises.
- The board of health mitigates food-borne illness risks.
- The board of health is aware of and uses epidemiology to influence the development of healthy public policy and its programs and services to reduce the burden of food-borne illness of public health importance.
- Food handlers in food premises handle and manage food in a safe and sanitary manner.
- Community partners are aware of safe food-handling practices and food safety issues.
- The public is aware of safe food-handling practices and food safety issues.

Assessment and Surveillance

Requirements
1. The board of health shall conduct surveillance of:
   - Suspected and confirmed food-borne illnesses; and
   - Food premises
   in accordance with the Food Safety Protocol, 2008 (or as current) and the Population Health Assessment and Surveillance Protocol, 2008 (or as current).

2. The board of health shall conduct epidemiological analysis of surveillance data, including monitoring of trends over time, emerging trends, and priority populations, in accordance with the Population Health Assessment and Surveillance Protocol, 2008 (or as current).

3. The board of health shall report Food Safety Program data elements in accordance with the Food Safety Protocol, 2008 (or as current).
Health Promotion and Policy Development

Requirements
4. The board of health shall ensure food handlers in food premises have access to training in safe food-handling practices and principles in accordance with the Food Safety Protocol, 2008 (or as current).

5. The board of health shall increase public awareness of food-borne illnesses and safe food-handling practices and principles in accordance with the Food Safety Protocol, 2008 (or as current) by:
   a. Adapting and/or supplementing national and provincial food safety communications strategies; and/or
   b. Developing and implementing regional/local communications strategies.

Disease Prevention/Health Protection

Requirements
6. The board of health shall ensure that the medical officer of health or designate is available on a 24/7 basis to receive reports of and respond to:
   - Suspected and confirmed food-borne illnesses or outbreaks;
   - Unsafe food-handling practices, food recalls, adulteration, and consumer complaints; and
   - Food-related issues arising from floods, fires, power outages, or other situations that may affect food safety in accordance with the Health Protection and Promotion Act; the Food Safety Protocol, 2008 (or as current); the Infectious Diseases Protocol, 2008 (or as current); and the Public Health Emergency Preparedness Protocol, 2008 (or as current).

7. The board of health shall inspect food premises and provide all the components of the Food Safety Program within food premises as defined by the Health Protection and Promotion Act and in accordance with the Food Premises Regulation (O. Reg. 562); the Food Safety Protocol, 2008 (or as current); and all other applicable Acts.
Safe Water

Goals
- To prevent or reduce the burden of water-borne illness related to drinking water.
- To prevent or reduce the burden of water-borne illness and injury related to recreational water use.

Societal Outcomes
- The public has access to safe drinking water.
- There is reduced exposure to unsafe drinking water.
- Public exposure to water-borne illnesses is mitigated.
- There is reduced incidence of adverse events related to unsafe drinking water.
- There is reduced incidence of water-related illness, injuries, and fatalities in public recreational waters.
- There is decreased public use of public beach water under adverse water quality conditions.
- There is reduced public exposure to recreational water-borne illnesses.

Board of Health Outcomes
- The board of health achieves timely and effective detection and identification of water contaminants and illnesses, their associated risk factors, and emerging trends.
- The board of health mitigates water-borne illness.
- The board of health is aware of and uses epidemiology to influence the development of healthy public policy and its programs and services to reduce the burden of water-borne illnesses of public health importance.
- Members of the public who use private wells, cisterns, rain or lake water are aware of how to safely manage their own drinking-water systems.
- The public is aware of drinking water safety.
- Owners/operators of recreational water facilities operate in a safe and sanitary manner.
- Owners/operators of drinking-water systems operate in a safe and sanitary manner.
- The public is aware of potential risk of illness and injury related to public beach use.

Assessment and Surveillance

Requirements
1. The board of health shall report Safe Water Program data elements in accordance with the Beach Management Protocol, 2008 (or as current); the Drinking Water Protocol, 2008 (or as current); and the Recreational Water Protocol, 2008 (or as current).

2. The board of health shall conduct surveillance of drinking-water systems and of drinking water illnesses of public health importance, their associated risk factors, and emerging trends in accordance with the Drinking Water Protocol, 2008 (or as current); the Infectious Diseases Protocol, 2008 (or as current); and the Population Health Assessment and Surveillance Protocol, 2008 (or as current).

3. The board of health shall conduct surveillance of public beaches and public beach water illnesses of public health importance, their associated risk factors, and emerging trends in accordance with the Beach Management Protocol, 2008 (or as current).

4. The board of health shall conduct epidemiological analysis of surveillance data, including monitoring of trends over time, emerging trends, and priority populations, in accordance with the Population Health Assessment and Surveillance Protocol, 2008 (or as current).

5. The board of health shall conduct surveillance of recreational water facilities in accordance with the Recreational Water Protocol, 2008 (or as current).
Health Promotion and Policy Development

Requirements
6. The board of health shall provide information to private citizens who operate their own wells, cisterns, rain or lake water system to promote their awareness of how to safely manage their own drinking-water systems.

7. The board of health shall provide education and training for owners/operators of drinking-water systems in accordance with the *Drinking Water Protocol, 2008* (or as current).

8. The board of health shall increase public awareness of water-borne illnesses and safe drinking water use by:
   a. Adapting and/or supplementing national and provincial safe drinking water communications strategies; and/or
   b. Developing and implementing regional/local communications strategies.

9. The board of health shall provide education and training for owner/operators of recreational water facilities in accordance with the *Recreational Water Protocol, 2008* (or as current).

Disease Prevention/Health Protection

Requirements
10. The board of health shall ensure that the medical officer of health or designate is available on a 24/7 basis to receive reports of and respond to:
   - Adverse events related to safe water, such as reports of adverse drinking water on drinking-water systems governed under the Health Protection and Promotion Act or the Safe Drinking Water Act;
   - Reports of water-borne illnesses or outbreaks;
   - Safe water issues arising from floods, fires, power outages, or other situations that may affect water safety; and
   - Safe water issues relating to recreational water use including public beaches in accordance with the Health Protection and Promotion Act; the *Beach Management Protocol, 2008* (or as current); the *Drinking Water Protocol, 2008* (or as current); the *Infectious Diseases Protocol, 2008* (or as current); the *Public Health Emergency Preparedness Protocol, 2008* (or as current); and the *Recreational Water Protocol, 2008* (or as current).

11. The board of health shall provide all the components of the Safe Water Program in accordance with all applicable statutes and regulations, and the *Drinking Water Protocol, 2008* (or as current) to protect the public from exposure to unsafe drinking water.

12. The board of health shall inform the public about unsafe drinking water conditions and provide the necessary information to respond appropriately in accordance with the *Drinking Water Protocol, 2008* (or as current).

13. The board of health shall reduce risks of public beach use by implementing a beach management program in accordance with the *Beach Management Protocol, 2008* (or as current).

14. The board of health shall reduce the risks of recreational water facility use by implementing a management program in accordance with the *Recreational Water Protocol, 2008* (or as current).
Health Hazard Prevention and Management

Goal
To prevent or reduce the burden of illness from health hazards\textsuperscript{32} in the physical environment.

Societal Outcomes
- There is reduced incidence of adverse health outcomes from exposure to chemical, radiological, biological, and other physical factors in the environment.
- There is reduced public exposure to health hazards.
- There is increased capacity on the part of the public and community partners to address the risk factors that reduce health hazard exposure and diseases.
- There is increased public engagement in practices and activities that reduce exposure to hazardous conditions and factors and protect the environment.
- There is increased community partner participation in developing local policies and programs that address the risk factors associated with health hazard exposure and diseases.

Board of Health Outcomes
- The board of health achieves timely and effective detection and identification of exposures of human health concern and associated public health risks, trends and illnesses.
- The board of health is aware of and uses epidemiology to influence the development of healthy public policy and its programs and services to reduce or eliminate the burden of illness from health hazards in the environment.
- The public is aware of health protection and prevention activities related to health hazards and conditions that create healthy environments.
- Community partners have the information necessary to create healthy public policies related to reducing exposure to health hazards.
- The public and community partners are aware of health hazard incidents and risks in a timely manner.

Assessment and Surveillance

Requirements
1. The board of health shall conduct surveillance of the environmental health status of the community in accordance with the Identification, Investigation and Management of Health Hazards Protocol, 2008 (or as current); the Infectious Diseases Protocol, 2008 (or as current); the Population Health Assessment and Surveillance Protocol, 2008 (or as current); the Public Health Emergency Preparedness Protocol 2008 (or as current); and the Risk Assessment and Inspection of Facilities Protocol, 2008 (or as current).

2. The board of health shall conduct epidemiological analysis of surveillance data, including monitoring of trends over time, emerging trends, and priority populations, in accordance with the Population Health Assessment and Surveillance Protocol, 2008 (or as current).

\textsuperscript{32} Health hazard, as defined in s.1(1) of the Health Protection and Promotion Act, means “(a) a condition of a premises, (b) a substance, thing, plant or animal other than man, or (c) a solid, liquid, gas or combination of any of them, that is likely to have an adverse effect on the health of any person.”
Health Promotion and Policy Development

Requirements

3. The board of health shall increase public awareness of health risk factors associated with the following health hazards:

- Indoor air quality;
- Outdoor air quality;
- Extreme weather;
- Climate change;
- Exposure to radiation; and
- Other measures, as emerging health issues arise.

These efforts shall include:

a. Adapting and/or supplementing national and provincial health communications strategies; and/or

b. Developing and implementing regional/local communications strategies.

4. The board of health shall assist community partners to develop healthy policies related to reducing exposure to health hazards. Topics may include, but are not limited to:

- Indoor air quality;
- Outdoor air quality;
- Extreme weather; and
- Built environments.

Disease Prevention/Health Protection

Requirements

5. The board of health shall ensure that the medical officer of health or designate is available on a 24/7 basis to respond to and manage health hazards in accordance with the Health Protection and Promotion Act; the Identification, Investigation and Management of Health Hazards Protocol, 2008 (or as current); the Public Health Emergency Preparedness Protocol, 2008 (or as current); and the Risk Assessment and Inspection of Facilities Protocol, 2008 (or as current).

6. The board of health shall inspect and assess facilities where there is an elevated risk of illness associated with exposures that are known or suspected to be associated with health hazards in accordance with the Risk Assessment and Inspection of Facilities Protocol, 2008 (or as current).

7. The board of health shall implement control measures to prevent or reduce exposure to health hazards in accordance with the Identification, Investigation and Management of Health Hazards Protocol, 2008 (or as current) and the Risk Assessment and Inspection of Facilities Protocol, 2008 (or as current).

8. The board of health shall develop a local vector-borne management strategy based on surveillance data and emerging trends in accordance with the Infectious Diseases Protocol, 2008 (or as current).

9. The board of health shall maintain systems to support timely and comprehensive communication with all relevant health care and other community partners about identified health hazard risks.
Public Health Emergency Preparedness

Goal
To enable and ensure a consistent and effective response to public health emergencies and emergencies with public health impacts.

Societal Outcomes
- There is effective preparedness infrastructure for public health emergencies.
- There is increased self-sufficiency on the part of the public and community partners during emergencies.

Board of Health Outcomes
- There is enhanced public health emergency preparedness, response, and recovery behaviours.
- The board of health is aware of the hazards in the health unit that are relevant to the board of health.
- The board of health has enhanced risk-based emergency planning and programming to guide ongoing board of health preparedness efforts.
- The board of health has current and relevant mechanisms in place to support the continuation and restoration of time-critical board of health services in the event of disruption.
- The board of health has effective risk-based emergency response capability and clearly defined public health roles and responsibilities in an emergency.
- The board of health communicates with community partners in order to share information required to take action in advance of, during, and after a public health emergency or an emergency with public health impacts.
- The public is aware of health risks and emergency preparedness.
- The board of health is aware of emergency preparedness and response roles and responsibilities.

Assessment and Surveillance

Requirement
1. The board of health shall identify and assess the relevant hazards and risks to the public's health in accordance with the Identification, Investigation and Management of Health Hazards Protocol, 2008 (or as current); the Population Health Assessment and Surveillance Protocol, 2008 (or as current); and the Public Health Emergency Preparedness Protocol, 2008 (or as current).

Health Protection

Emergency Planning

Requirements
2. The board of health shall develop a continuity of operations plan to sustain the ongoing functioning of time-critical board of health services during business disruptions in accordance with the Public Health Emergency Preparedness Protocol, 2008 (or as current).

3. The board of health shall develop its emergency response plan, in consultation with community partners and governmental bodies, to address the identified hazards for which the board of health and medical officer of health will have a lead role in responding to, consistent with an Incident Management System and in accordance with the Public Health Emergency Preparedness Protocol, 2008 (or as current).
Risk Communications and Public Awareness

Requirements
4. The board of health shall develop, implement, and document 24/7 notification protocols for communications with board of health staff, community partners, and governmental bodies to facilitate the sharing of information in accordance with the Public Health Emergency Preparedness Protocol, 2008 (or as current).

5. The board of health shall, in collaboration with community partners, increase public awareness regarding emergency preparedness activities.

Education, Training, and Exercises

Requirements
6. The board of health shall ensure the provision of emergency preparedness and response education and training for board of health staff in accordance with the Public Health Emergency Preparedness Protocol, 2008 (or as current).

7. The board of health shall ensure that its officials are oriented on the board of health’s emergency response plan in accordance with the Public Health Emergency Preparedness Protocol, 2008 (or as current).

8. The board of health shall exercise, in whole or in part, the continuity of operations plan, emergency response plan, and 24/7 notification procedures in accordance with the Public Health Emergency Preparedness Protocol, 2008 (or as current).
Beach Management Protocol

Preamble
The Ontario Public Health Standards (OPHS) are published by the Minister of Health and Long-Term Care under the authority of the Health Protection and Promotion Act (HPPA)\(^1\) to specify the mandatory health programs and services provided by boards of health. Protocols are program and topic specific documents which provide direction on how boards of health must operationalize specific requirement(s) identified within the OPHS. They are an important mechanism by which greater standardization is achieved in the province-wide implementation of public health programs.

Protocols identify the minimum expectations for public health programs and services. Boards of health have the authority to develop programs and services in excess of minimum requirements where required to address local needs. Boards of health are accountable for implementing the standards including those protocols that are incorporated into the standards.

Purpose
The purpose of this protocol is to assist in the prevention and reduction of water-borne illness and injury related to recreational water use at public beaches, and to assist boards of health in the delivery of local, comprehensive public beach management programs, which include, but are not limited to:

- Surveillance and inspection, including pre-season assessment and routine public beach surveillance;
- Management and response, including response to complaints and adverse events at public beaches and communication strategies for the public and stakeholders; and
- Reporting of Safe Water Program data elements to the Ministry of Health and Long-Term Care (the “ministry”) related to recreational water use at public beaches.

Public beaches within provincial parks are generally the responsibility of the Ministry of Natural Resources; however, this is done in consultation with the board of health. The board of health is not responsible for routine monitoring of private residential beaches.

Recreational water quality is influenced by various environmental and built factors, including rainfall, wave action, water and ambient air temperatures, waterfowl, industrial waste discharges, storm water outflows, septic system discharges, and agricultural run-off.

This protocol replaces the Beach Management Protocol, January 1998.

Reference to the Standards
The table below identifies the OPHS standard and requirements to which this protocol relates.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safe Water</td>
<td>Requirement #1: The board of health shall report Safe Water Program data elements in accordance with the Beach Management Protocol, 2008 (or as current); the Drinking Water Protocol, 2008 (or as current); and the Recreational Water Protocol, 2008 (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #3: The board of health shall conduct surveillance of public beaches and public beach water illnesses of public health importance, their associated risk factors, and emerging trends in accordance with the Beach Management Protocol, 2008 (or as current).</td>
</tr>
</tbody>
</table>
Requirement #10: The board of health shall ensure that the medical officer of health or designate is available on a 24/7 basis to receive reports of and respond to:
- Adverse events related to safe water, such as reports of adverse drinking water on drinking-water systems governed under the Health Protection and Promotion Act or the Safe Drinking Water Act;
- Reports of water-borne illnesses or outbreaks;
- Safe water issues arising from floods, fires, power outages, or other situations that may affect water safety; and
- Safe water issues relating to recreational water use including public beaches in accordance with the Health Protection and Promotion Act; the Beach Management Protocol, 2008 (or as current); the Drinking Water Protocol, 2008 (or as current); the Infectious Diseases Protocol, 2008 (or as current); the Public Health Emergency Preparedness Protocol, 2008 (or as current); and the Recreational Water Protocol, 2008 (or as current).

Requirement #13: The board of health shall reduce risks of public beach use by implementing a beach management program in accordance with the Beach Management Protocol, 2008 (or as current).

Operational Roles and Responsibilities

1) Surveillance and inspection

Pre-season assessment

a) The board of health shall conduct a pre-season assessment of all public beaches each year. This assessment shall include:

i) Inventory of public beaches:
   - Development and maintenance of an inventory of public beaches in its jurisdiction; and
   - Review of the inventory of public beaches before the commencement of the season to confirm the number and location of the beaches that require monitoring as per this protocol. The board of health may also monitor any other public bathing area, except provincial parks, to which the public has access, and where there is reason to believe that recreational use of the water may result in waterborne illness or injury.

ii) Historical and epidemiological data:
   - Collection and analysis of historical, environmental, and epidemiological data to assess conditions that may have adverse health effects for the public using public beaches; and
   - Analysis of previous years’ data on public beach water conditions and bacterial quality (geometric mean results) to identify factors that can be used to predict influences on water quality. Heavy rain, storm sewer outfalls, waterfowl activity, or wave action have been shown to have an adverse effect on bacterial water quality at many public beaches. This analysis can assist in developing risk management approaches and communication strategies on a site-by-site basis.

iii) Environmental survey:
   - Carry out an environmental survey of the public beach prior to the commencement of regular testing of the water quality. The purpose of conducting the survey is to identify possible pollution sources and their potential impact on the quality of the water to determine the safety of the water for public recreational use. As part of the environmental survey, the board of health shall:
     - Verify existing sources of pollution at the public beach, such as storm water outfalls, and identify other sources that may not have been identified in previous seasons;
     - Work with municipalities and other surrounding landowners, wherever possible, to reduce or eliminate sources of pollution, such as garbage and litter; and
     - Collect water samples as deemed necessary from areas such as storm water outfalls, which may influence water quality at the bathing area.
Routine public beach surveillance

b) The board of health shall conduct routine beach surveillance of all public beaches, including but not limited to, the following components:

i) Ensure the collection of recreational water samples on a weekly basis, at minimum, to assess ongoing water quality conditions at public beaches in accordance with this protocol. Refer to the water sampling methodology provided in the most current version of Water Sampling Methodology for information.

ii) Conduct a minimum of one set of five samples per week taken on the same day from each public beach beginning prior to and continuing over the course of the bathing season.

iii) Consider the following additional factors with respect to the frequency and timing of water sampling:
- More frequent sampling is recommended for public beaches that are affected by intermittent contamination sources.
- Routine samples should be collected at regular times, ideally when bacterial levels are expected to be highest.
- Where historical data and environmental surveys indicate that water quality has been consistently within the limits of the provincial water quality standards for recreational use, routine surveillance may be reduced to once per month.

iv) Collect water samples and any subsequent re-samples for routine surveillance from fixed locations at the public beach that are representative of the majority of the bathing area. Fixed sampling locations will support consistency for analyzing trends in water quality.

v) Prepare a detailed layout of the public beach area, including but not limited to:
- All possible sources of pollution and the distances to the bathing area;
- The bathing area with shallow sections indicated; and
- Numbered sampling point locations and the order of samples to be collected.

vi) Record sampling conditions at the public beach on a weekly basis based on information contained in the Routine Beach Surveillance Field Data Report provided in the most current version of the Public Beach – Routine Beach Surveillance Field Data Report.

vii) Use the following guideline to establish the number of sampling sites for extensive public beach areas:

<table>
<thead>
<tr>
<th>Length of beach</th>
<th>Number of sampling sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000 metres or less</td>
<td>5 sites</td>
</tr>
<tr>
<td>Over 1000 metres</td>
<td>1 site per 200 metres</td>
</tr>
</tbody>
</table>

c) The board of health shall:

i) Review the bacterial test results, as calculated using the daily geometric mean, along with other environmental factors of the particular public beach, to determine the appropriate course of action. Refer to the calculation of geometric mean outlined in the most current version of Public Beach – Calculation of Geometric Mean for information.

ii) Consider signage posting when the daily geometric mean of the samples for a public beach exceeds the Ontario Ministry of the Environment Guideline for Recreational Water Quality.

d) The board of health shall implement additional environmental surveys during the course of the bathing season if:

i) Subsequent bacterial testing of the water demonstrates a significant, unexpected deterioration in water quality;

ii) Historical and epidemiological evidence points to the public beach as a possible factor in the prevalence or incidence of an illness that may be water-borne; or

iii) There are reports or evidence of chemical, manure, sewage spills or other contaminants that may affect public beach water quality.

2) Management and response

24/7 on-call and response policy

a) The board of health shall have an on-call system for receiving and responding to reports of water-related emergencies, outbreaks and incidents in the health unit on a 24 hours per day, 7 days per week (24/7) basis related to recreational water use at beaches.
b) The board of health shall act on complaints and reports related to recreational water use at beaches within 24 hours of notification of the complaint or report to determine the appropriate response required.

c) Where the board of health suspects that a microbiological, chemical, physical or radiological agent has been transmitted through water intended for recreational water use, the board of health shall:
   i) Respond appropriately within 24 hours of receiving report of the water-related incident, illness, injury or outbreak; and
   ii) Conduct outbreak investigations for microbiological agents in accordance with the Infectious Diseases Protocol, 2008 (or as current).

d) The board of health shall take immediate action to address any hazardous condition observed during the course of its pre-season assessment or routine beach surveillance of public beaches.

e) The board of health shall establish local operating procedures for responding to and reporting potentially hazardous spills and other adverse events at public beaches. Refer to the procedures outlined in the most current version of the Operating Procedures for Responding to Adverse Events at Public Beaches for information.

f) Routine recreational water sampling in public beaches at provincial parks is the responsibility of the Ministry of Natural Resources. The board of health shall, upon request, provide advice and consultation to local Ministry of Natural Resources staff with respect to recreational water use at provincial beaches in accordance with this protocol.

Enforcement actions and procedures

g) The board of health shall address non-compliance with the HPBA and related regulations and take action where such action may be warranted to reduce the risk of illness or injury to the public using a public beach.

Communication and education

h) The board of health shall establish communication strategies with partner agencies to provide timely and clear information to the public regarding the potential risks associated with the use of public beaches. Communications strategies may include, but are not limited to:
   i) Posting of signage regarding the status of recreational water quality at public beach locations;
   ii) Posting information on the board of health website;
   iii) Disseminating written materials;
   iv) Issuing media releases to the local newspaper, radio station, or other local media; and
   v) Informing local stakeholders and elected officials.

i) Where there is evidence that recreational beach water is potentially dangerous to the health of bathers, the board of health shall ensure that notices are displayed in prominent locations at the public beach indicating the nature of the risk. Considerations with respect to sign posting shall include:
   i) The evidence to support the posting of signs may be based on bacteriological analysis, assessment of historical environmental and epidemiological data, or the physical quality of the water.
   ii) Posting involves placing one or more signs at conspicuous locations along the affected public beach or shoreline. The notices (signs) should be clear, concise, and recommend a course of action to the public based on the specific risk.
   iii) The international icons for safe or unsafe swimming should also be incorporated into the signs.
   iv) The posting and removal of signs at public beaches should be carried out by the owner/operator.
   v) The signs shall be left in place for as long as deemed necessary and promptly removed when the adverse condition no longer exists. The duration of beach posting should take into account any available evidence and historical data related to the beach in question. Posting should continue until surveillance of the water quality demonstrates that the risk to bathers is at a level considered by the board of health to be acceptable. Where beach water contamination follows a heavy rainfall or other environmental factors known to influence the recreational water quality, notices of beach postings may be removed when previous experience suggests that sufficient time has elapsed for water quality to have recovered.
vi) Where historical data show that the bacterial counts consistently either exceed or fluctuate above the limits set for recreational use, the beach may be permanently posted. Monthly sampling to provide background data may be continued at the discretion of the board of health. After any remedial work is completed that may affect water quality, regular weekly sampling should resume to re-assess the posting requirement.

j) The board of health shall ensure the availability of educational material and/or information to owners/operators regarding the health and safety-related operational procedures applicable to public beaches.

3) Reporting
a) The board of health shall record monitoring data pertaining to public beaches under its jurisdiction and provide information as required by the ministry.

Glossary

**Adverse condition:** A situation that may be potentially harmful to the health of users of the beach.

**Advisory:** A precautionary notice that informs members of the public about specific risks to health and safety to allow them to take measures to protect themselves.

**Bathing season:** A bathing season generally begins the first week of June and ends the first weekend of September.

**Closure:** To cause restriction or elimination of public access to a beach or specific beach areas where a significant risk to health and safety has been identified. Board of health staff will direct owner/operators of beaches to post signage and erect barriers and barricades at appropriate locations to reduce the risk of public exposure to the health hazard.

**Environmental survey:** An environmental survey of a beach area is a site investigation where observations are made to identify environmental and built factors that may influence recreational water quality.

**Geometric mean calculation:** For the purposes of this protocol, the geometric mean is a calculation used to estimate bacterial levels of *E. coli* in recreational water. This averaging method is used to reduce the biasing effect of a single high reading. A single high reading may indicate an accident whose cause should be investigated, but a simple arithmetic average incorporating this reading gives an unrealistic estimate of average conditions.

**Posting:** Posting of a beach means to cause the placement of signs that inform the public about potential risks to health and safety based on an assessment of those risks. The owner/operator of the beach will be primarily responsible for posting and removing the signs as conditions warrant.

**Public beach:** A beach area owned and/or operated by a municipality which:
- The general public has direct access to;
- Allows supervised aquatics programs or is staffed by lifeguards; and
- Meets the requirements of the sampling protocol for sampling sites.

References

Preamble

The Ontario Public Health Standards (OPHS) are published by the Minister of Health and Long-Term Care under the authority of the Health Protection and Promotion Act (HPPA) to specify the mandatory health programs and services provided by boards of health. Protocols are program and topic specific documents which provide direction on how boards of health must operationalize specific requirement(s) identified within the OPHS. They are an important mechanism by which greater standardization is achieved in the province-wide implementation of public health programs.

Protocols identify the minimum expectations for public health programs and services. Boards of health have the authority to develop programs and services in excess of minimum requirements where required to address local needs. Boards of health are accountable for implementing the standards including those protocols that are incorporated into the standards.

Purpose

This protocol has been developed to standardize case management for children with identified urgent dental care needs. The administration of the Children in Need of Treatment (CINOT) program is described in this protocol.

This protocol replaces the Children in Need of Treatment (CINOT) Program Protocol, August 29, 1997.

Statutory Basis

The statutory basis for this protocol is the HPPA, Section 7. Other relevant legislation includes the Child and Family Services Act, R.S.O. 1990; the Personal Health Information Protection Act; the Dental Hygiene Act, 1991, S.O. 1991; and the Dentistry Act, 1991.

Reference to the Standards

The table below identifies the OPHS standard and requirement to which this protocol relates.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child Health</td>
<td>Requirement #12: The board of health shall provide the Children in Need of Treatment (CINOT) Program in accordance with the Children in Need of Treatment (CINOT) Program Protocol, 2008 (or as current). For CINOT-eligible children, the board of health shall provide referrals to oral health care providers and monitor the action taken.</td>
</tr>
</tbody>
</table>

Operational Roles and Responsibilities

1) Identification

The board of health shall:

a) Provide the CINOT program as described in and in accordance with the most current versions of the Ministry of Health Promotion's (the “ministry”) CINOT Schedule of Dental Services and Fees (Dentist Providers) and CINOT Schedule of Dental Services and Fees (Non-Dentist Providers), as these documents are updated from time to time.
b) Identify clinically CINOT-eligible* children through oral health screening by board of health staff as per the procedure in the *Oral Health Assessment and Surveillance Protocol, 2008* (or as current). Where oral health screening by board of health staff is unavailable due to geographic isolation or emergency circumstances (as outlined in the schedules noted in 1a) above), children shall be identified through dental referrals from qualified practitioners.

c) For non-school entry points to public health programs and services, offer a screening appointment within five business days at an alternate (non-school) facility, when a parent/guardian requests a screening. Alternate facilities may include but are not limited to a board of health office, a community centre, a food bank, a shelter, or an Ontario Early Years Centre.

d) Use the ministry's Oral Health Information Support System (OHISS) or any other method specified by the ministry to conduct case management (i.e., tracking from screening until the case is completed or closed) and for CINOT administration.

2) Notification/Case management

The board of health shall:

a) Notify parents/guardians for all children meeting the age/grade and dental criteria for the CINOT program within two business days or, within two business days of completing screening in a school. This notification shall be by mail, telephone discussion or direct contact, and must include issuing a Parent Notification Form (PNF1).

b) Mail a PNF2 or have a telephone discussion with the child's parent or guardian if there is no response to the PNF1 within 20 business days of the date of issue of the PNF1.

c) Issue a PNF3 with proof of delivery if there is no response to the PNF2 (or telephone discussion) within 20 business days of the date of issue of the PNF2 (or telephone discussion).

d) Through oral health staff who screened the child, report any suspicion that a child is suffering from abuse and/or neglect and may be in need of protection to the local Children's Aid Society, in accordance with Section 72 (1) of the Child and Family Services Act. If there is no response to the PNF3 within 20 business days of the date of issue, the board of health staff member who performed the original dental screening shall make the referral. As well, the staff member who does the original screening of the child shall be responsible for ensuring that case management is completed (i.e., the child receives treatment or is referred to the Children's Aid Society).

e) Ensure that a PNF1 generated from the OHISS software is completed, signed, and dated before a child is eligible for the CINOT program.

f) Contact the dental office (where known) or re-contact the parent or guardian within four months when a CINOT claim form has been issued and no claim has been received. When no treatment has been initiated, the child shall be referred to the local Children's Aid Society for the urgent dental condition identified through screening.

g) Adjudicate predetermination requests and issue a response within five business days of the date of receipt.

h) Mark a case complete on the OHISS or any other method specified by the ministry when:

i) The case is marked complete on the claim form by the treatment provider;

ii) The PNF1 is returned with Section A signed by the treatment provider;

iii) The child has been re-screened by board of health staff and deemed non-urgent; or

iv) The child has been referred to the local Children's Aid Society.

*Criteria for CINOT eligibility are listed in the CINOT Schedule of Dental Services and Fees (Dentist Providers) and CINOT Schedule of Dental Services and Fees (Non-Dentist Providers).*
i) Mark a case closed on the OHISS or any other method specified by the ministry when:
   i) The child has been referred to another board of health;
   ii) The child has moved out of Ontario;
   iii) The family has moved from the address on file at the school, or provided during non-school screening and no
       contact information can be obtained; or
   iv) The child is deceased.

j) Process, adjudicate (if required), and mark claim “ready to pay” on the OHISS or any other method specified by the
   ministry within five business days of the date of receipt of claim.

k) Issue a cheque to the treatment provider within 20 business days once a claim is marked “ready to pay” on the OHISS
   or any other method specified by the ministry.

l) Quality assurance: Each school year, re-screen a 10 per cent sample of children who received care through CINOT
   during the previous school year.

3) Data collection, reporting, and information transfer
   The board of health shall:
   a) Use the OHISS or any other method specified by the ministry to track children identified with urgent conditions,
      conduct case management, facilitate CINOT administration, run local reports for surveillance purposes, and transfer
      cases between boards of health.
   b) Use the OHISS or any other method specified by the ministry to collect the following information for all children
      identified with an urgent dental condition:
      i) Date of screening;
      ii) Demographic information of the child;
      iii) Contact information of the parent/guardian;
      iv) Screening findings, including personal health information;
      v) Treatment information, including personal health information;
      vi) Payment information; and
      vii) All interactions with the family and/or dental office.
   c) Input all existing historical CINOT data as outlined in 3b), above, upon the introduction of the OHISS or any other
      method specified by the ministry.

References
6. Ministry of Health Promotion. CINOT schedule of dental services and fees (dentist providers).
   Toronto, ON: Queen's Printer for Ontario; 2008.
7. Ministry of Health Promotion. CINOT schedule of dental services and fees (non-dentist providers).
   Toronto, ON: Queen's Printer for Ontario; 2008.
Drinking Water Protocol

Preamble
The Ontario Public Health Standards (OPHS) are published by the Minister of Health and Long-Term Care under the authority of the Health Protection and Promotion Act (HPPA)\(^1\) to specify the mandatory health programs and services provided by boards of health. Protocols are program and topic specific documents which provide direction on how boards of health must operationalize specific requirement(s) identified within the OPHS. They are an important mechanism by which greater standardization is achieved in the province-wide implementation of public health programs.

Protocols identify the minimum expectations for public health programs and services. Boards of health have the authority to develop programs and services in excess of minimum requirements where required to address local needs. Boards of health are accountable for implementing the standards including those protocols that are incorporated into the standards.

Purpose
The purpose of this protocol is to provide direction in the prevention and reduction of water-borne illness related to drinking water by providing direction to boards of health on the components of the Safe Water Program, which include but are not limited to:

- Surveillance and inspection of drinking water systems;
- Timely response to drinking water adverse events, reports of water-borne illnesses or outbreaks, and other drinking water-related issues arising from emergencies;
- Education and training of owners/operators of small drinking water systems;
- Informing the public about unsafe drinking-water conditions and provision of the necessary information to respond appropriately; and
- Reporting of Safe Water Program data elements to the Ministry of Health and Long-Term Care (the “ministry”) related to drinking water systems.

Regulations under the HPPA which are relevant to this protocol include:

- O. Reg. 562\(^2\) (Food Premises) under the HPPA\(^1\);
- O. Reg. 568\(^3\) (Recreational Camps) under the HPPA\(^1\);
- O. Reg. 554\(^4\) (Camps in Unorganized Territories) under the HPPA\(^1\);
- O. Reg. 318/08\(^5\) (Transitional-Small Drinking Water Systems) under the HPPA\(^1\); and
- O. Reg. 319/08\(^6\) (Small Drinking Water Systems) under the HPPA\(^1\).

Other legislation and regulations that are relevant to this protocol include:

- O. Reg. 170/03\(^7\) (Drinking Water Systems) under the Safe Drinking Water Act, 2002\(^8\) (SDWA);
- O. Reg. 248/03\(^9\) (Drinking Water Testing Services) under the SDWA\(^8\);
- O. Reg. 169/03\(^10\) (Ontario Drinking Water Quality Standards) under the SDWA\(^8\);
- O. Reg. 243/07\(^11\) (Schools, Private Schools and Day Nurseries) under the SDWA\(^8\);
- Ontario Water Resources Act (OWRA)\(^12\); and
- Clean Water Act (CWA)\(^13\).
Reference to the Standards

The table below identifies the OPHS standard and requirements to which this protocol relates.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safe Water</td>
<td>Requirement #1: The board of health shall report Safe Water Program data elements in accordance with the Beach Management Protocol, 2008 (or as current); the Drinking Water Protocol, 2008 (or as current); and the Recreational Water Protocol, 2008 (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #2: The board of health shall conduct surveillance of drinking-water systems and of drinking water illnesses of public health importance, their associated risk factors, and emerging trends in accordance with the Drinking Water Protocol, 2008 (or as current); the Infectious Diseases Protocol, 2008 (or as current); and the Population Health Assessment and Surveillance Protocol, 2008 (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #7: The board of health shall provide education and training for owners/operators of drinking-water systems in accordance with the Drinking Water Protocol, 2008 (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #10: The board of health shall ensure that the medical officer of health or designate is available on a 24/7 basis to receive reports of and respond to:</td>
</tr>
<tr>
<td></td>
<td>• Adverse events related to safe water, such as reports of adverse drinking water on drinking-water systems governed under the Health Protection and Promotion Act or the Safe Drinking Water Act;</td>
</tr>
<tr>
<td></td>
<td>• Reports of water-borne illnesses or outbreaks;</td>
</tr>
<tr>
<td></td>
<td>• Safe water issues arising from floods, fires, power outages, or other situations that may affect water safety; and</td>
</tr>
<tr>
<td></td>
<td>• Safe water issues relating to recreational water use including public beaches in accordance with the Health Protection and Promotion Act; the Beach Management Protocol, 2008 (or as current); the Drinking Water Protocol, 2008 (or as current); the Infectious Diseases Protocol, 2008 (or as current); the Public Health Emergency Preparedness Protocol, 2008 (or as current); and the Recreational Water Protocol, 2008 (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #11: The board of health shall provide all the components of the Safe Water Program in accordance with all applicable statutes and regulations, and the Drinking Water Protocol, 2008 (or as current) to protect the public from exposure to unsafe drinking water.</td>
</tr>
<tr>
<td></td>
<td>Requirement #12: The board of health shall inform the public about unsafe drinking water conditions and provide the necessary information to respond appropriately in accordance with the Drinking Water Protocol, 2008 (or as current).</td>
</tr>
</tbody>
</table>

Operational Roles and Responsibilities

1) Surveillance and inspection

Inventory

a) The board of health shall:

i) Maintain an inventory or inventories of all drinking water systems in the health unit that are regulated under the HPPA¹ and the SDWA², and

ii) Include in the inventory, at minimum, information required to identify the drinking water systems and the owners and operators of those systems in the event of emergencies or adverse results or observations.

Inspections of Drinking Water Systems

b) The board of health shall utilize a risk management approach for addressing water-related public health issues regarding drinking water systems that are required to provide potable water under the HPPA¹ or as required by the local medical officer of health.
c) The board of health shall inspect drinking water systems regulated under the HPPA on a response basis to support the provision of safe drinking water and to determine compliance with standards and regulations where applicable. These inspections shall include but are not limited to:

i) Observations to determine compliance with regulations, where applicable;

ii) Arrangements for testing water-quality parameters and collection of water samples, as deemed necessary;

iii) Communication of results or findings of the inspection to the owner/operator of the drinking water system; and

iv) Communication of requirements or recommendations, if applicable, to the owner/operator of the drinking water system.

d) The board of health shall inspect drinking water haulage vehicles annually. In conducting these inspections, boards of health shall refer to the most current version of the Drinking Water Haulage Guidance Document for information.

e) The board of health shall conduct additional inspections of drinking water systems regulated under the HPPA as necessary.

Inspections of Small Drinking Water Systems

f) The board of health shall conduct risk assessments of all small drinking water systems that meet the criteria of O. Reg. 318/08 (Transitional-Small Drinking Water Systems) or O. Reg. 319/08 (Small Drinking Water Systems) under the HPPA. As part of the risk assessment process, the board of health shall:

i) Conduct a site-specific visit of the small drinking water system;

ii) Use the most current version of the ministry-approved risk categorization (RCAT) tool in accordance with any ministry instructions relating to that version;

iii) Assign a risk category of “high,” “moderate” or “low” for each system;

iv) Assess each system’s compliance with regulations;

v) Issue a written directive to the owner of each system outlining the site-specific requirements for the system following an initial risk assessment; and

vi) Issue a new directive or written amendment to a directive to the owner of each system outlining the site-specific requirements for the system following any subsequent routine risk assessment of the system, where deemed necessary.

g) The board of health shall issue directives to owners of small drinking water systems in accordance with the most current version of the Small Drinking Water Systems Risk Assessment Directives Guidance Document.

h) Following the initial risk assessment, the board of health shall conduct subsequent routine risk assessments of small drinking water systems based on the following frequencies:

- Not less than once every two years for high-risk small drinking water systems; and
- Not less than once every four years for moderate and low-risk small drinking water systems.

i) The board of health shall re-evaluate the requirements outlined in the site-specific directive relating to a small drinking water system between regularly-scheduled, routine risk assessments when any of the following situations exist:

- The owner or operator requests in writing a reassessment of the system;
- Any water sampling or other information indicates a possible change in the function or operation of the small drinking water system (e.g., complaints, adverse results, adverse observations, illnesses); or
- There is a change in the premises being served by the small drinking water system (e.g., expansion, alteration).

j) When scheduling any risk assessment, the board of health shall:

i) Give priority to those small drinking water systems that have the potential to pose the greatest risk to health; and

ii) Notify owners and operators in advance of the risk assessment and inform them of any information or other requirements that will be necessary for purposes of completing the risk assessment.
k) As part of general inspection responsibilities, the board of health shall:
   i) Notify owners and operators of small drinking water systems in a timely manner following each risk assessment of: the risk category assigned to their system; the findings arising out of the inspection; recommendations relating to the operation of the system; any issues relating to compliance; and the site-specific directives, as applicable;
   ii) Inform owners and operators that they may request a review of the risk category assigned to their small drinking water system and/or the contents of the directives; and
   iii) Carry-out ongoing compliance monitoring of drinking water samples submitted by owners or operators in accordance with the regulations and site-specific directives.

2) Management and response

24/7 on-call and response policy

a) The board of health shall have an on-call system for receiving and responding to reports in the health unit on a 24 hours per day, 7 days per week (24/7) basis related to:
   i) Suspected or confirmed waterborne illnesses or outbreaks; and
   ii) Water-related complaints, adverse test results and adverse observations.

b) The board of health shall act on drinking water-related complaints and reports within 24 hours of notification of the complaint or report to determine the appropriate response required. For more information, refer to the most current version of the Response to Adverse Drinking Water Quality Incidents Guidance Document.

c) Where the board of health suspects that a microbiological, chemical, physical or radiological agent has been transmitted through drinking water intended for consumption, the board of health shall:
   i) Respond appropriately within 24 hours of receiving report of the drinking water-related incident, illness, injury or outbreak;
   ii) Conduct outbreak investigations for microbiological agents in accordance with the Infectious Diseases Protocol, 2008 (or as current); and
   iii) Conduct investigations for chemical, physical or radiological agents in accordance with the Risk Assessment and Inspection of Facilities Protocol, 2008 (or as current).

Enforcement actions and procedures

d) The board of health shall address non-compliance with the HPPA¹ and related regulations and take action where water that is intended for human consumption may not be safe.

Liaison with agencies and ministries

e) The board of health shall:
   i) Provide upon request from the Ministry of the Environment (MOE) information on the quality of water intended for human consumption and any other information as requested by the ministry;
   ii) Provide upon request of the ministry information to other governmental bodies;
   iii) Engage in activities within the community that increase the safety of drinking water and decrease potential for adverse effects on health, including but not limited to participation on technical committees and assistance in the identification of vulnerable areas and threats to drinking water systems;
   iv) Collaborate with MOE through participation in meetings held at least semi-annually on matters of:
      • Existing drinking water systems in the health unit;
      • Mutual responsibility and interest;
      • Applications to issue, amend, suspend, or revoke an approval, permit, or licence or fragmentation of a drinking water system; and
      • Regulatory oversight and sharing expertise regarding the inspection of drinking water systems.
   iv) Notify the local MOE office, when possible, of any small drinking water system that is expected to move from the authority of a regulation under the HPPA¹ to the authority of O. Reg. 170/03⁷ (Drinking Water Systems) under the SDWA⁸; and
v) Participate in local steering groups consisting of representatives from organizations including local hospitals, municipalities and local MOE offices, for the purpose of developing drinking water–related emergency response plans for the control of or response to infectious diseases, outbreaks and other public health hazards.

3) Education and training

**Drinking water education**

a) The board of health shall:
   i) Ensure the availability of information and/or educational material on safe drinking water practices to private citizens, water haulers, and owners and operators of drinking water systems required to provide potable water under the HPPA;
   ii) Ensure the availability of information and/or educational material to owners and operators of small drinking water systems regarding:
       • Available training programs pertaining to the operation of small drinking water systems;
       • Relevant public health legislation and regulations; and
       • Directives requirements.
   iii) Provide, upon request:
       • Assistance in the interpretation of water analysis reports; and
       • Information on potential health effects and appropriate response to adverse results or adverse observations.

Providing water sampling bottles for unregulated drinking water systems

b) The board of health shall make available for owners of unregulated drinking water systems sample bottles, forms and information provided by the Public Health Laboratories to encourage sampling and testing of those unregulated drinking water systems.

4) Reporting

**Inspection activities – general**

a) The board of health shall:
   i) Record inspection data pertaining to drinking water systems under its jurisdiction and provide information as required by the ministry; and
   ii) Report all adverse drinking water notifications in a timely manner and as directed by the ministry including as a minimum: date issued, date rescinded and corrective measures taken.

**Inspection activities – small drinking water systems**

b) The board of health shall:
   i) Record data collected from risk assessments and inspections conducted on small drinking water systems in the health unit and provide information as required by the ministry;
   ii) Maintain surveillance of drinking water sampling results using the ministry laboratory results management application; and
   iii) Retain results of any inspections conducted for a minimum of five years.
Glossary

Drinking water system: Defined in Section 2.(1) of the Safe Drinking Water Act, 2002

A system of works, excluding plumbing, that is established for the purpose of providing users of the system with drinking water and that includes,

a) any thing used for the collection, production, treatment, storage, supply or distribution of water;
b) any thing related to the management of residue from the treatment process or the management of the discharge of a substance into the natural environment from the treatment system, and
c) a well or intake that serves as the source or entry point of raw water supply for the system.⁸

Potable water: Defined in Section 10 of the Safe Drinking Water Act, 2002

Despite any other Act, a requirement that water be “potable” in any Act, regulation, order or other document issued under the authority of any Act or in a municipal by-law shall be deemed to be a requirement to meet, at a minimum, the requirements of the prescribed drinking-water quality standards.⁸

Small drinking water system: A small drinking water system as defined in O. Reg. 318/08⁸ (Transitional-Small Drinking Water Systems) and O. Reg. 319/08⁶ (Small Drinking Water Systems) under the HPPA¹.

References

Preamble

The Ontario Public Health Standards (OPHS) are published by the Minister of Health and Long-Term Care under the authority of the Health Protection and Promotion Act (HPPA)\(^1\) to specify the mandatory health programs and services provided by boards of health. Protocols are program and topic specific documents which provide direction on how boards of health must operationalize specific requirement(s) identified within the OPHS. They are an important mechanism by which greater standardization is achieved in the province-wide implementation of public health programs.

Protocols identify the minimum expectations for public health programs and services. Boards of health have the authority to develop programs and services in excess of minimum requirements where required to address local needs. Boards of health are accountable for implementing the standards including those protocols that are incorporated into the standards.

Purpose

The purpose of this protocol is to ensure that:

- Emergency service workers (ESWs) are notified by the medical officer of health or designate, in the event that s/he may have been exposed to an infectious disease of public health importance, so that appropriate action can be taken.
- Designated officers are able to obtain advice from boards of health through the medical officer of health or designate regarding possible exposure(s) of ESWs to infectious diseases of public health importance.

This protocol replaces the roles, responsibilities, and requirements of boards of health found in the *Notification of Emergency Service Workers Protocol, 1994*. This protocol does not address requirements of boards of health under the Mandatory Blood Testing Act, 2006 (MBTA)\(^2\), which is administered by the Ministry of Community Safety and Correctional Services. This protocol addresses responsibilities of boards of health with regard to notifying ESWs of possible exposures to infectious diseases of public health importance where:

- Diseases are not limited to those named under the MBTA\(^2\) (it is currently restricted to hepatitis B, hepatitis C and HIV); or
- An ESW has not made an application under the MBTA\(^2\) but the board of health and/or medical officer of health or designate suspects that an ESW may have been exposed to an infectious disease of public health importance.

Reference to the Standards

The table below identifies the OPHS standard and requirement to which this protocol relates.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infectious Diseases Prevention</td>
<td>Requirement #7: The board of health shall ensure that the medical officer of health or designate is available on a 24/7 basis to receive reports of and respond to infectious diseases of public health importance in accordance with the Health Protection and Promotion Act; the Mandatory Blood Testing Act; the <em>Exposure of Emergency Service Workers to Infectious Diseases Protocol, 2008</em> (or as current); the <em>Infectious Diseases Protocol, 2008</em> (or as current); the <em>Institutional/Facility Outbreak Prevention and Control Protocol, 2008</em> (or as current); and the <em>Public Health Emergency Preparedness Protocol, 2008</em> (or as current).</td>
</tr>
</tbody>
</table>
1) Operational Roles and Responsibilities

a) The board of health shall have an on-call system for receiving and responding to reports of infectious diseases of public health importance on a 24 hours per day, 7 days a week (24/7) basis.

b) The board of health shall ensure that the medical officer of health or designate is available on a 24/7 basis to receive and respond to reports of infectious diseases of public health importance in accordance with this protocol to ensure that:

   i) Reports of a possible exposure of an ESW are received, assessed, and responded to as soon as possible, but not later than 48 hours (depending on situation and disease, response may be required sooner) after receiving notification; and

   ii) Reports of all infectious diseases of public health importance are received and assessed, with particular consideration given to potential exposures of ESWs.

c) The board of health shall contact emergency services in their health unit and request that they identify designated officers for their respective emergency service (i.e., police, firefighters, ambulance) in order to facilitate the exposure notification process.

d) The board of health* shall advise designated officers in their health unit regarding the possible exposure of an ESW to an infectious disease of public health importance when made aware by:

   i) Having the medical officer of health or designate actively seek out contacts of cases with infectious diseases of public health importance, even if a designated officer has not contacted the medical officer of health or designate regarding the possible exposure and no application has been made by an individual under the MBTA;

   ii) Informing the respective designated officer that an ESW might have been exposed to an infectious disease of public health importance during his/her work. This is not dependent on laboratory confirmation – e.g., the case can exhibit clinical signs and symptoms of a particular infectious disease; and

   iii) Informing the designated officer regarding any specific actions to be taken based on the designated officer’s report, including advising ESWs to seek medical attention and the initiation of post-exposure prophylaxis if applicable.

e) When a designated officer makes an incident report of a possible exposure to an infectious disease of public health importance to the board of health, the board of health shall:

   i) Review and assess the information provided;

   ii) Contact health care facilities and other persons (e.g., infection control practitioners and/or attending physicians) to obtain additional information on the specific case, as necessary, based on the assessment of the incident by the medical officer of health, or designate; and

   iii) Inform the designated officer as soon as possible and no later than 48 hours after receiving notification (depending on the disease) of advised actions to be taken, including accessing medical care by the ESW.

   • Advice shall include, but is not limited to assessing the possible risk of occupational exposure and setting standards of practice, appropriate use of personal protective equipment, training for employees to prevent possible exposures; and

   • Follow up with the designated officer to ascertain what action has been taken.

f) In the event that there is a disagreement between the designated officer and the medical officer of health or designate regarding a possible exposure, the designated officer may refer the matter to the Chief Medical Officer of Health or designate.

*A decision by the board of health to contact the designated officer can be made on a case-by-case basis, based on clinical assessment which could include, but is not limited to degree of risk, type of exposure, etc.
Glossary

**Designated officer:** A person identified in an emergency service (i.e., police, firefighters, ambulance) who is responsible for receiving and assessing reports regarding the possible exposure of an emergency service worker to an infectious disease of public health importance and then contacting the medical officer of health or designate.

**Emergency service worker:** A person working in an emergency service (i.e., police, firefighters, ambulance).

**Infectious diseases of public health importance:** Diseases include, but are not limited to, those specified reportable diseases as set out by O. Reg. 559/91\(^3\) (as amended) under the HPPA\(^1\), and include zoonotic diseases.

References

   Available from [http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_06m26_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_06m26_e.htm).
Preamble

The Ontario Public Health Standards (OPHS) are published by the Minister of Health and Long-Term Care under the authority of the Health Protection and Promotion Act (HPPA) to specify the mandatory health programs and services provided by boards of health. Protocols are program and topic specific documents which provide direction on how boards of health must operationalize specific requirement(s) identified within the OPHS. They are an important mechanism by which greater standardization is achieved in the province-wide implementation of public health programs.

Protocols identify the minimum expectations for public health programs and services. Boards of health have the authority to develop programs and services in excess of minimum requirements where required to address local needs. Boards of health are accountable for implementing the standards including those protocols that are incorporated into the standards.

Purpose

The purpose of this protocol is to assist in the prevention and reduction of food-borne illness by providing direction to boards of health on the delivery of local, comprehensive food safety management programs, which include, but are not limited to:

- Surveillance and inspection of food premises;
- Epidemiological analyses of surveillance data;
- Food handler training; and
- Timely response to:
  - Reports of food-borne illnesses or outbreaks;
  - Unsafe food-handling practices, food recalls, adulteration and consumer complaints; and
  - Food-related issues arising from floods, fires, power outages or other situations that may affect food safety.

Regulations under the HPPA which are relevant to this protocol include:

- O. Reg. 562 (Food Premises);
- O. Reg. 568 (Recreational Camps); and
- O. Reg. 554 (Camps in Unorganized Territories).

This protocol replaces the following protocols:


Reference to the Standards

The table below identifies the OPHS standard and requirements to which this protocol relates.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Safety</td>
<td>Requirement #1: The board of health shall conduct surveillance of:</td>
</tr>
<tr>
<td></td>
<td>• Suspected and confirmed food-borne illnesses; and</td>
</tr>
<tr>
<td></td>
<td>• Food premises</td>
</tr>
<tr>
<td></td>
<td>in accordance with the Food Safety Protocol, 2008 (or as current) and the Population Health Assessment and Surveillance Protocol, 2008 (or as current).</td>
</tr>
</tbody>
</table>
Standard  Requirement

Requirement #3: The board of health shall report Food Safety Program data elements in accordance with the Food Safety Protocol, 2008 (or as current).

Requirement #4: The board of health shall ensure food handlers in food premises have access to training in safe food-handling practices and principles in accordance with the Food Safety Protocol, 2008 (or as current).

Requirement #5: The board of health shall increase public awareness of food-borne illnesses and safe food-handling practices and principles in accordance with the Food Safety Protocol, 2008 (or as current) by:
a) Adapting and/or supplementing national and provincial food safety communications strategies; and/or
b) Developing and implementing regional/local communications strategies.

Requirement #6: The board of health shall ensure that the medical officer of health or designate is available on a 24/7 basis to receive reports of and respond to:
• Suspected and confirmed food-borne illnesses or outbreaks;
• Unsafe food-handling practices, food recalls, adulteration, and consumer complaints; and
• Food-related issues arising from floods, fires, power outages, or other situations that may affect food safety
in accordance with the Health Protection and Promotion Act; the Food Safety Protocol, 2008 (or as current); the Infectious Diseases Protocol, 2008 (or as current); and the Public Health Emergency Preparedness Protocol, 2008 (or as current).

Requirement #7: The board of health shall inspect food premises and provide all the components of the Food Safety Program within food premises as defined by the Health Protection and Promotion Act and in accordance with the Food Premises Regulation (O. Reg. 562); the Food Safety Protocol, 2008 (or as current); and all other applicable Acts.

Operational Roles and Responsibilities

1) Surveillance and inspection

Inventory of food premises
a) The board of health shall maintain an inventory or inventories of all food premises within the health unit.

Food safety management system
b) The board of health shall implement an integrated food safety management system utilizing a hazard identification and risk-based approach for all food premises in the health unit. An integrated food safety management system shall include but is not limited to the following components:
   i) A risk categorization process which uses a site-specific risk assessment to determine the risk level, inspection frequency and any other food safety strategies for the safe operation of the food premises.
   ii) An inspection process to assess risk of food safety practices and determine compliance with regulation, as well as to provide management consultation and education.
   iii) A monitoring and evaluation process to annually assess and measure the effectiveness of food safety strategies.
c) The board of health shall conduct an annual site-specific risk assessment of each food premises and, based on the results of the assessment, shall assign a risk category for each food premises as high, moderate or low. Refer to the most current version of the Risk Categorization Model for more information on assigning a risk category.
d) The board of health shall conduct inspections of all fixed food premises in accordance with the following minimum schedule:
   i) Not less than once every four months for high-risk food premises;
   ii) Not less than once every six months for moderate-risk food premises; and
   iii) Not less than once every 12 months for low-risk food premises.
e) The board of health shall ensure inspection of all transient and temporary food premises, other than those exempted by regulation, at least once during its seasonal operation.

f) The board of health shall incorporate the following components into the inspection process:
   i) Hazard Analysis and Critical Control Point (HACCP)-based principles in assessing safe food-handling practices;
   ii) Inspection for compliance with regulations;
   iii) Management consultation; and
   iv) On-site food safety education and/or promotion of training.

g) The board of health shall promote among operators of high- and moderate-risk premises the adoption of food safety management strategies, including but not limited to:
   i) Operational strategies to promote safe food-handling practices;
   ii) Hazard analysis of key food items and processes;
   iii) Identification of critical control points (CCPs) for these items and processes;
   iv) Monitoring strategies to control CCPs to ensure the provision of safe foods; and
   v) Documentation to record operational strategies.

h) The board of health shall liaise with owners, operators or their agents to assist them in becoming compliant with regulations upon being notified or becoming aware of:
   i) Newly constructed or renovated food premises prior to commencement of operation; and
   ii) Proposed food premises.

i) The board of health shall conduct additional inspections as necessary to address:
   i) Unsafe food-handling practices;
   ii) Issues of non-compliance with regulations;
   iii) Investigation of food-borne illnesses and food-borne outbreaks;
   iv) Investigation of consumer complaints; and
   v) Action on food recalls, fires, floods, and emergencies.

j) When inspecting for compliance with regulations, the board of health shall use food premises compliance inspection reports which are based on specific food safety data elements such as those captured in the following Ministry of Health and Long-Term Care (the “ministry”) forms, as these forms are updated from time to time:
   i) Food Premises Inspection Report – Items Critical to Food Safety for high- and moderate-risk food premises; and

2) Management and Response

24/7 on-call and response policy

a) The board of health shall have an on-call system for receiving and responding to reports in the health unit on a
   24 hours per day, 7 days per week (24/7) basis related to:
   i) Suspected and confirmed food-borne illnesses or outbreaks;
   ii) Unsafe food-handling practices, food recalls, adulteration and consumer complaints; and
   iii) Food-related issues arising from floods, fires, power outages or other situations and emergencies that may affect
       food safety.

b) The board of health shall act on food-related complaints and reports within 24 hours of notification of the complaint or
   report to determine the appropriate response required.

c) Where the board of health suspects that a microbiological, chemical, physical or radiological agent has been
   transmitted through food to a consumer, the board of health shall:
   i) Respond appropriately within 24 hours of receiving report of the food-related incident, illness, injury or outbreak;
   ii) Conduct outbreak investigations for microbiological agents in accordance with the Infectious Diseases Protocol,
       2008 (or as current); and
   iii) Conduct investigations for chemical, physical or radiological agents in accordance with the Risk Assessment and
       Inspection of Facilities Protocol, 2008 (or as current).
Enforcement actions and procedures
d) The board of health shall establish policies and procedures to address non-compliance with the HPPA' and related regulations and take action where food that is intended for human consumption may not be safe. The policies and procedures shall include but are not limited to:
i) Interagency collaboration where appropriate;
ii) Consideration of existing, repeat, and multiple infractions of regulation; and
iii) Enforcement actions under the HPPA.

Food recall
e) The board of health shall respond and provide assistance as requested to ensure the recall of:
   i) All food products that are identified by the Canadian Food Inspection Agency (CFIA) as being in violation of legislation enforced by the CFIA and/or where there is a health risk;
   ii) Foods that are determined by the Chief Medical Officer of Health as being a health hazard; and
   iii) Foods that are determined by the local medical officer of health as being a health hazard under the HPPA.

f) Where applicable, the board of health's response to a food recall shall include, but is not limited to:
   i) Action with respect to a food recall as soon as possible following a written request by the Chief Medical Officer of Health, with particular urgency for Class 1 food recalls;
   ii) Support for CFIA requests for assistance with recalls, with particular urgency when attending to Class 1 recalls. If the board of health increases the scope of the recall, they shall notify the ministry, who in turn will notify the CFIA's Area Recall Coordinator;
   iii) Provision to the ministry of an up-to-date list of board of health staff contact names, titles, telephone and fax numbers for all matters pertaining to food recalls;
   iv) Immediate notification to the CFIA's Area Recall Coordinator when product that is being recalled is found; and
   v) Immediate notification in writing to the Chief Medical Officer of Health of any food recall initiated by the local medical officer of health within his or her area of jurisdiction.

3) Education and training

Food safety education
a) The board of health shall provide food safety information and/or educational material through various media to assist in the safe preparation and handling of food. Venues include but are not limited to:
   i) Farmers' markets and community special events;
   ii) Day nurseries, school nutrition programs, and community food programs;
   iii) Teachers responsible for teaching food-related subjects to students and/or other teachers as deemed appropriate; and
   iv) General community.

Food safety training and certification
b) The board of health shall:
   i) Ensure that a food-safety training program is available to food handlers in all food premises (high, moderate, and low risk) in the health unit. Consideration shall be given to training food handlers in high-risk food premises before those in moderate-risk food premises.
   ii) Promote that a minimum of one operator and food handler each be certified, and at least one certified food handler be present in the food premises at all times during operation. This applies to all high- and moderate-risk food premises.
   iii) Ensure that the following minimum course requirements are included in the food-safety training program:
      • Role of the board of health;
      • Public health legislation and regulations;
      • Outline of food safety management principles (including HACCP-based principles);
      • Safe handling, preparation, and storage (including basic microbiology, safe food supplies, adverse reactions to food, safe food preparation/storage);
      • Food handler hygiene;
Food premises sanitation, design, and maintenance;
Prevention of food allergies, incidents and response; and
Food-related issues arising from floods, fires, power outages or other situations that may affect food safety.

iv) Develop and conduct an examination for participants, with the issuance of a food safety training certificate. Certificates shall include the name of the person completing the course, date of course completion, expiry date, course title, issuing board of health, and signature of instructor or food safety coordinator.

v) Promote recertification of food handlers for a period not more than every five years.

vi) Promote additional training or recertification for food handlers whose lack of hygiene or inadequate food preparation practices have been implicated in a food-borne illness or an outbreak.

vii) Evaluate the content and effectiveness of the food-safety training program, and develop and implement a strategy to promote the value of attending.

4) Reporting

Inspection activity reporting system
a) The board of health shall record inspection data pertaining to food premises under its jurisdiction and provide information as required by the ministry.

Annual food safety audit reports
b) The board of health shall provide annually to the ministry food safety data as directed by the ministry through a food safety audit report. The January 1 to December 31 food safety audit report shall be sent to the ministry prior to March 31 of the following year.

Food premises inspection disclosure
c) The board of health shall establish a procedure for disclosure of information from food premises compliance inspection reports, to be provided upon request by the public. Reference to the process by which the public may obtain such information shall be posted on the board of health’s website.

Glossary

Food recall: A method of removing food products that may represent a health hazard to the consumer. It is an action taken by a manufacturer, distributor, or operator of a food premises, board of health, the ministry or CFIA (in the case of mandatory recalls) to protect the public’s health and is monitored by the appropriate agency. A food recall is given a numeric designation to indicate the relative degree of health hazard by the product being recalled:

a) Class 1: a situation in which there is a reasonable probability that the use of or exposure to a food product will cause serious adverse health consequences or death.

b) Class 2: a situation in which the use of or exposure to a food product may cause temporary adverse consequences or where the probability of serious adverse health consequence is remote.

c) Class 3: a situation in which the use of or exposure to a food product is not likely to cause adverse health consequences.5

Hazard Analysis and Critical Control Points (HACCP): A science-based, internationally accepted food safety system which includes:

a) An assessment which identifies the hazards associated with preparing or using a raw material or food product and assessing the associated risk.

b) Determining the critical control points required to control or eliminate any identified hazards. The determination of critical control points is by a combined evaluation of the ingredients used in the product and the processing applied. In products which are not processed to eliminate pathogens, the ingredients themselves are critical control points. Critical control points are not necessarily specific processing stages such as heating or cooling, but may include factors such as equipment sanitation and the food handlers themselves.

c) Established preventative or control measures.
d) **Monitoring** to ensure that the processing or food handling at a critical control point is under control. The monitoring system should be designed to detect loss of control rapidly so that corrective action can be taken before the food product must be discarded.

**Management consultation:** A dynamic process where the nature and complexity of the foodservice operation is reviewed and discussed with the operator/manager in an effort to reduce the risk of food-borne illness. The consultation serves to identify, manage and control the risks associated with food through the selection and implementation of appropriate strategies, hence management’s support and commitment is paramount.

**References**

Preamble

The Ontario Public Health Standards (OPHS) are published by the Minister of Health and Long-Term Care under the authority of the Health Protection and Promotion Act (HPPA)\(^1\) to specify the mandatory health programs and services provided by boards of health. Protocols are program and topic specific documents which provide direction on how boards of health must operationalize specific requirement(s) identified within the OPHS. They are an important mechanism by which greater standardization is achieved in the province-wide implementation of public health programs.

Protocols identify the minimum expectations for public health programs and services. Boards of health have the authority to develop programs and services in excess of minimum requirements where required to address local needs. Boards of health are accountable for implementing the standards including those protocols that are incorporated into the standards.

Purpose

This protocol has been developed to provide direction to boards of health in delivering the Healthy Babies Healthy Children Program. Boards of health shall provide Healthy Babies Healthy Children Program services to women and their families in the prenatal period and to families with children up to six years old. The provision of the Healthy Babies Healthy Children Program is mandatory for all boards of health, but family participation in the program is voluntary. Family consent is required for the provision of all components of the Healthy Babies Healthy Children Program.

For more information on best practices for implementing the Healthy Babies Healthy Children Program, refer to the *Healthy Babies Healthy Children 2003 Consolidated Guidelines*\(^2\) (or as current) and *Healthy Babies Healthy Children 2003 Complete Guide to Screening and Assessment*\(^3\) (or as current).

Reference to the Standards

The table below identifies the OPHS program standards and requirements to which this protocol relates.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reproductive Health</td>
<td>Requirement #7: The board of health shall provide all the components of the Healthy Babies Healthy Children Program in accordance with the <em>Healthy Babies Healthy Children Protocol, 2008</em> (or as current) (Ministry of Children and Youth Services).</td>
</tr>
<tr>
<td>Child Health</td>
<td>Requirement #9: The board of health shall provide all the components of the Healthy Babies Healthy Children Program in accordance with the <em>Healthy Babies Healthy Children Protocol, 2008</em> (or as current) (Ministry of Children and Youth Services).</td>
</tr>
</tbody>
</table>

Legal and professional requirements are addressed under existing legislation and guidelines, such as the Regulated Health Professions Act,\(^4\) the Nursing Act,\(^5\) the Municipal Freedom of Information and Protection of Privacy Act (MFIPPA),\(^6\) the Child and Family Services Act (CFSA),\(^7\) the Ministry of Community and Social Services Act,\(^8\) and the Personal Health Information Protection Act.\(^9\)
Operational Roles and Responsibilities

1) General policy/practice requirements

a) Legislation, standards of care, and professional practice
   i) The individuals, agencies, and organizations that deliver the Healthy Babies Healthy Children Program shall comply with all relevant legislation, regulations, policy, and legal agreements, and with accepted standards of care and professional practice.

b) Informed consent, confidentiality, and disclosure
   i) Confidentiality and consent provisions are articulated in legislation, regulation, policy, and legal agreements specific to particular programs and agencies. Compliance with the appropriate legislation and regulation is a requirement under the law.
   ii) The board of health shall develop an appropriate policy concerning confidentiality and disclosure of client information, and this policy shall be approved in writing by their Information Privacy Coordinator.

c) Duty to report
   i) The Child and Family Services Act (CFSA) requires any person who has reasonable grounds to suspect that a child is or may be in need of protection to report that suspicion and the information on which it is based to child protection services forthwith. In the case of persons who perform professional duties with respect to children, the Act also sets out that they could be liable to a penalty for not reporting.
   ii) In addition to the legal requirement to report, the board of health shall require all employees who work with children and families to consult with the child protection services about any family situation in which child protection advice would be helpful.
   iii) The board of health shall provide that all employees who deliver the Healthy Babies Healthy Children Program services receive education and training in the board of health's established policy and procedures for handling potential cases of children in need of protection.

d) Personal Safety
   i) The board of health shall provide the education and training to all employees needed to implement policy and procedures and deal with personal safety issues or safety issues for the child and family that may arise in cases of children in need of protection.

e) Service agreements
   i) The board of health shall maintain current agreements with the services and organizations that help deliver the Healthy Babies Healthy Children Program, including hospitals, midwives, prenatal clinics, the Children's Aid Society, primary care providers, and any other health or social service agency that provides screening, assessment, home visiting, or service coordination services for the Healthy Babies Healthy Children Program.
   ii) The board of health shall provide ongoing education, training, and support to all employees responsible for the delivery of the Healthy Babies Healthy Children Program.

2) Screening

a) Prenatal screening
   i) The board of health shall work with health service providers involved in prenatal care to offer screening to all pregnant women.
   ii) The board of health shall use and promote the prenatal screening tool as prescribed by the Ministry of Children and Youth Services (the “ministry”).
   iii) The board of health shall establish a procedure for obtaining the results of the prenatal screens.
   iv) The board of health shall be responsible for entering the results of the prenatal screen in the Integrated Services for Children Information System (ISCIS) or any other method specified by the ministry.

b) Postpartum screening
   i) The board of health shall work with hospitals and midwives to provide that all women who give birth in Ontario are offered a postpartum screen.
   ii) The board of health shall use the postpartum screening tool as prescribed by the ministry.
iii) The board of health shall work with hospitals and midwives to establish a procedure for notifying the boards of health of all births and obtaining the results of all postpartum screens.
iv) The board of health shall be responsible for entering the results of the postpartum screen in ISCIS or any other method specified by the ministry.

c) Early childhood screening and promotion
   i) The board of health shall work with primary care providers, educators, and providers involved in early learning and child development to provide that all families have access to screening for healthy child development throughout the early years.
   ii) The board of health shall identify local champions/opinion leaders and engage them in strategies to increase primary care providers’ participation in interdisciplinary educational opportunities in child development.
   iii) The board of health shall promote the use of the *Rourke Well Baby Record: Evidence Based Infant/Child Health Maintenance Guide (Ontario version)*\textsuperscript{10} by primary care providers to review and evaluate child development and to serve as the record for all of their well-baby visits.
   iv) The board of health shall provide parents with the Nipissing District Developmental Screen\textsuperscript{TM11} for use in monitoring their child’s achievement of developmental milestones.
   v) The board of health shall provide local contact information for parents to discuss results and arrange follow-up.
   vi) The board of health shall work with primary care providers and community partners to develop procedures for referring at-risk families to the Healthy Babies Healthy Children Program and sharing results of early childhood screens.

3) Assessment
a) General
   i) The board of health shall conduct brief assessments using the brief assessment tool as prescribed by the ministry and in-depth assessments using the in-depth assessment tool as prescribed by the ministry. The tools shall be completed by public health nurses.
   ii) The board of health shall integrate family assessment information with their consent, when obtained from other organizations.
   iii) The board of health shall record all assessment results in ISCIS or any other method specified by the ministry.

b) Prenatal assessment
   i) The board of health shall conduct a brief assessment on all consenting pregnant women who have been identified as at-risk by the prenatal screening tool. If the pregnant woman is identified as at-risk through the brief assessment, the board of health shall conduct an in-depth assessment using the in-depth assessment tool.

c) Postpartum assessment
   i) The board of health shall conduct a brief assessment on all consenting postpartum families. If the family is identified as at-risk through the brief assessment, the board of health shall conduct an in-depth assessment using the in-depth assessment tool.

d) Early identification assessment
   i) The board of health shall conduct a brief assessment on all consenting families with children from six weeks to six years who are referred to the Healthy Babies Healthy Children Program. If the family is identified as at-risk through the brief assessment, the board of health shall conduct an in-depth assessment using the in-depth assessment tool.

4) Support services
a) General
   i) The board of health shall record and track the Healthy Babies Healthy Children Program services provided to pregnant women and families with children up to six years old in ISCIS or any other method specified by the ministry.
b) Prenatal Support Services
   i) The board of health shall provide all pregnant women with access to information about the prenatal period that will help families promote healthy child development.
   ii) The board of health shall refer pregnant women identified as high-risk by the in-depth assessment tool to the Healthy Babies Healthy Children Program blended home visiting services and other community services.

   c) Postpartum support services
   i) The board of health shall provide that all families who have given their consent are contacted by a public health nurse within 48 hours of being discharged from a birth admission.
   ii) The board of health shall offer all families of newborns a home visit from a public health nurse.
   iii) The board of health shall provide all families, including families that do not choose to have a home visit, information about community resources for parents.
   iv) The board of health shall refer families identified as high-risk by the in-depth assessment tool to the Healthy Babies Healthy Children Program blended home visiting services and other community services.

   d) Early identification support services
   i) The board of health shall refer families identified as high-risk by the in-depth assessment tool to the Healthy Babies Healthy Children Program blended home visiting services and other community services.

5) Blended home visiting services
   a) The board of health shall provide home visiting services for pregnant women and families with children up to six years old identified as high-risk by the in-depth assessment tool.
   b) The board of health shall use a blended model of home visiting by public health nurses, family home visitors, and other professionals with the permission of the ministry.
   c) The board of health shall plan home visiting services in collaboration with the family. Home visiting services is usually delivered ideally in the home, but may be delivered in an early years community setting that families and children attend, or in an alternative setting that is mutually agreeable.
   d) The board of health shall establish policies and procedures to manage home visiting services.
   e) The board of health shall work with pregnant women and their families, and families with children up to six years old to access the Healthy Babies Healthy Children Program blended home visiting services and to develop a family service plan.
   f) The board of health shall identify and implement tools to determine a family's level of service and readiness for discharge.
   g) The board of health shall record and track the blended home visiting services in ISCIS or any other method specified by the ministry.

6) Service coordination
   a) The board of health shall offer service coordination to all pregnant women and their families, and families with children up to six years old eligible for home visiting services and identify a service coordinator.
   b) The board of health shall develop procedures to support service coordination in conjunction with community partners.
   c) The board of health shall record and track service coordination in ISCIS or any other method specified by the ministry.
7) **Referrals to community services**
   a) The board of health shall develop and maintain a network of health and social service providers to support pregnant women and their families, and families with children up to six years old in attaining and sustaining their health and developmental potential.

   b) The board of health shall refer all pregnant women and their families, and families with children up to six years old who require additional support to community programs or services available in the community.

   c) The board of health shall record and track the referrals to community programs and/or services in ISCIS or any other method specified by the ministry.

8) **Service and system integration**
   a) The board of health shall engage the community and be engaged with the community in planning and delivering the Healthy Babies Healthy Children Program through representation and participation at community network tables.

   b) The board of health shall work with other service providers to coordinate service delivery to clients as needed. The list of service providers may include the following:
      - Aboriginal Head Start Programs;
      - Aboriginal Healing and Wellness Strategy;
      - Aboriginal Healthy Babies Healthy Children (AHBHC);
      - Adult Mental Health service organization;
      - Autism Program;
      - Best Start Hubs;
      - Best Start Networks;
      - Blind Low Vision Early Intervention Program;
      - Canada Prenatal Nutrition Program (CPNP);
      - Child welfare services;
      - Children in Need of Treatment (CINOT) Program;
      - Children’s Mental Health service organizations;
      - Children’s Treatment Centres;
      - College of Midwives of Ontario;
      - Community Action Program for Children (CAPC);
      - Family Health Teams, family practice networks, community health centres, community clinics and reproductive health services;
      - First Nations Inuit Health Branch, Health Canada;
      - Hospitals;
      - Infant Development Program;
      - Infant Hearing Program;
      - Integrated Services Northwest (ISN);
      - Local Child Health Networks;
      - Local children’s services networks;
      - Local Health Integration Networks (LHINs);
      - Local midwifery practices;
      - Municipal programs, such as child care and Ontario Works;
      - Ontario Early Years Centres;
      - Other child and family services;
      - Prenatal programs;
      - Preschool Speech and Language Program;
      - Related board of health public health programs;
      - School Boards; and
      - Women’s Emergency Shelters.
c) The board of health shall promote the Healthy Babies Healthy Children Program to community partners.

d) The board of health shall develop procedures with primary care providers and community partners for:
   i) Referring pregnant women and their families, and families with children up to six years old to other agencies; and
   ii) Accepting referrals from other agencies and individuals.

9) Evaluation
   a) The board of health shall participate in provincial Healthy Babies Healthy Children Program evaluation activities.

Glossary

48 Hour Postpartum Contact: Families who have given their consent are contacted by a public health nurse within 48 hours of being discharged from a birth admission. The contact is made preferentially by phone but if the family cannot be contacted by phone then they can be contacted by other means.

Assessment: The Healthy Babies Healthy Children Program evaluates a broad range of economic, psychosocial, behavioural, and lifestyle factors that affect families and that will influence the child’s ability to develop to his or her full potential.

Assessments are delivered in two stages:
   • Determination of “at-risk” situations based on nursing judgment and the results of a brief assessment, using the tool prescribed by the Ministry of Children and Youth Services.
   • Determination of “at high-risk” situations based on nursing judgment and the results of an in-depth assessment, using the tool prescribed by the Ministry of Children and Youth Services.

At-risk: A family is “at-risk” if determined through a brief assessment and nursing judgment, that there is some risk that a child may not reach his or her full potential.

Blended home visiting: Home visiting services are provided by an integrated team consisting of public health nurses, family home visitors and other professionals. The members of the team coordinate their work to enhance the family’s parenting capacity.

Early identification: Early identification is the use of screening and monitoring tools by professionals and parents to determine whether children are achieving developmental milestones. Early identification can occur any time after the postpartum period up to school entry (six weeks to six years).

Employees: Staff employed by or on contract with the board of health.

Family Home Visitor: Family home visitors are people from the community who work one-to-one with families in their homes, modeling effective parenting. Family home visitors receive training to become skilled peer mentors and are supported by public health nurses and/or other professionals.

High-risk: A family is “high-risk” if determined through an in-depth assessment and nursing judgment that there is a serious risk that a child may not reach his or her potential and the family may benefit from the more intensive Healthy Babies Healthy Children Program services (blended home visiting, service coordination).

Public Health Nurse: Public health nurses are knowledgeable about local children’s and family services, committed to evidence-based practice, and up-to-date with the early years literature. They have skills in adult education, health teaching, communication, problem solving, conflict resolution, strength-based planning, and child and family health and/or other areas.
Screening: Screening is a process that is universal or population-based. It is the first step in identifying pregnant women and families with children up to six years old who may need the Healthy Babies Healthy Children Program’s services or other services.

The Healthy Babies Healthy Children Program offers screening services at three stages:
- Prenatal screening,*
- Postpartum screening; and
- Early childhood screening.

Service coordination: Service coordination is a family-centred process that supports high-risk families in accessing services and supports.

References

* Within the context of the Healthy Babies Healthy Children Protocol, prenatal screening is used to describe only that screening which is done as part of the Healthy Babies Healthy Children Program; it does not include other types of prenatal screening that may be done as part of comprehensive prenatal care (e.g., serum screening for genetic diseases).
Preamble

The Ontario Public Health Standards (OPHS) are published by the Minister of Health and Long-Term Care under the authority of the Health Protection and Promotion Act (HPPA)\(^1\) to specify the mandatory health programs and services provided by boards of health. Protocols are program and topic specific documents which provide direction on how boards of health must operationalize specific requirement(s) identified within the OPHS. They are an important mechanism by which greater standardization is achieved in the province-wide implementation of public health programs.

Protocols identify the minimum expectations for public health programs and services. Boards of health have the authority to develop programs and services in excess of minimum requirements where required to address local needs. Boards of health are accountable for implementing the standards including those protocols that are incorporated into the standards.

Purpose

The purpose of this protocol is to assist in the prevention and reduction of adverse health outcomes from health hazards in the environment by providing direction to boards of health on the delivery of comprehensive, local health hazard prevention and management programs including, but not limited to:

- Surveillance of the environmental health status of the community;
- Investigation and risk assessment where there is an elevated risk of illness associated with exposures in the community that are known or suspected to be associated with health hazards;
- Control measures to prevent or reduce exposure to health hazards in the environment; and
- Timely response to and management of health hazards in the environment.

It should be noted that where a health hazard pertains to a facility, the board of health shall refer to the *Risk Assessment and Inspection of Facilities Protocol, 2008* (or as current). Where a health hazard escalates into an emergency, the board of health shall refer to the *Public Health Emergency Preparedness Protocol, 2008* (or as current).

This protocol promotes consistent best practices for addressing health hazards in the environment across the province in order to prevent or reduce the burden of illness from such hazards. It is consistent with the framework for risk assessment and management utilized by Health Canada and other organizations. It also supports local collaboration and sharing of information and expertise, recognizing that boards of health are not always the lead agency in responding to health hazards in the environment.

Reference to the Standards

The table below identifies the OPHS standards and requirements to which this protocol relates.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Hazard Prevention and Management</td>
<td>Requirement #1: The board of health shall conduct surveillance of the environmental health status of the community in accordance with the <em>Identification, Investigation and Management of Health Hazards Protocol, 2008</em> (or as current); the <em>Infectious Diseases Protocol, 2008</em> (or as current); the <em>Population Health Assessment and Surveillance Protocol, 2008</em> (or as current); the <em>Public Health Emergency Preparedness Protocol 2008</em> (or as current); and the <em>Risk Assessment and Inspection of Facilities Protocol, 2008</em> (or as current).</td>
</tr>
</tbody>
</table>
Identification, Investigation and Management of Health Hazards Protocol

Table:

<table>
<thead>
<tr>
<th>Standard</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requirement #5</td>
<td>The board of health shall ensure that the medical officer of health or designate is available on a 24/7 basis to respond to and manage health hazards in accordance with the Health Protection and Promotion Act; the Identification, Investigation and Management of Health Hazards Protocol, 2008 (or as current); the Public Health Emergency Preparedness Protocol, 2008 (or as current); and the Risk Assessment and Inspection of Facilities Protocol, 2008 (or as current).</td>
</tr>
<tr>
<td>Requirement #7</td>
<td>The board of health shall implement control measures to prevent or reduce exposure to health hazards in accordance with the Identification, Investigation and Management of Health Hazards Protocol, 2008 (or as current) and the Risk Assessment and Inspection of Facilities Protocol, 2008 (or as current).</td>
</tr>
</tbody>
</table>

Public Health Emergency Preparedness

| Requirement #1:  | The board of health shall identify and assess the relevant hazards and risks to the public's health in accordance with the Identification, Investigation and Management of Health Hazards Protocol, 2008 (or as current); the Population Health Assessment and Surveillance Protocol, 2008 (or as current); and the Public Health Emergency Preparedness Protocol, 2008 (or as current). |
| Foundational Requirement #7: | The board of health shall interpret and use surveillance data to communicate information on risks to relevant audiences in accordance with the Identification, Investigation and Management of Health Hazards Protocol, 2008 (or as current); the Infectious Diseases Protocol, 2008 (or as current); the Population Health Assessment and Surveillance Protocol, 2008 (or as current); the Public Health Emergency Preparedness Protocol, 2008 (or as current); and the Risk Assessment and Inspection of Facilities Protocol, 2008 (or as current). |

Operational Roles and Responsibilities

1) Hazard management system
   a) The board of health shall develop and implement a health hazard management system to identify, assess and manage health hazards in the environment, in collaboration with the lead government agencies with primary responsibility for the environmental issue and/or other relevant agencies, experts and interested parties, as applicable.

2) Hazard identification and surveillance
   The board of health shall:
   a) Identify health hazards in the environment through the following activities:
      i) Identify and review relevant evidence-based information on environmental exposures and their relationship with potential adverse health outcomes;
      ii) Liaise and maintain partnerships with the community and relevant local, provincial, and federal agencies with an interest in and mandate for prevention of health hazards in the environment through committees, meetings, and/or regular communications for the purpose of sharing expertise and information;
      iii) Review and maintain relevant data on health hazards in the environment within the health unit, including available reports of adverse test results provided by federal, provincial, local, or other agencies; and
      iv) Monitor and collect data on the health status of residents in the health unit, focusing on adverse health outcomes potentially related to health hazards in the environment.
   b) Conduct analysis and interpretation of the information collected to identify potential human health risks from health hazards in the environment and local priority environmental health issues.

3) Hazard investigation
   a) The board of health shall have an on-call system for receiving and responding to reports of potential health hazards in the environment in the health unit on a 24 hours per day, 7 days per week (24/7) basis and provide an initial response within 24 hours.
b) Where a report of a health hazard in the environment is received and another Government of Ontario ministry has primary responsibility in the matter, the board of health shall refer to Section 11 of the HPPA.

c) For all complaints and reports received by the board of health related to potential health hazards in the environment, the board of health shall undertake a preliminary assessment to determine the level of potential impact.

d) Where a report of a health hazard in the environment is received that pertains to a facility, the board of health shall address the request in accordance with the Risk Assessment and Inspection of Facilities Protocol, 2008 (or as current).

e) The board of health shall stay informed of available resources and expertise for investigating health hazards in the environment, including resources to support investigations where health hazards in the environment are linked to land use planning and development proposals.

f) The board of health shall conduct investigations and risk assessments of reported health hazards in the environment in consultation with relevant community and government agencies and experts, as appropriate, to evaluate the possible risks to human health. Risk assessments shall be conducted through a review and analysis of scientific data and shall include, but are not limited to, the following activities:
   i) Assessing the hazard to determine potential acute and chronic health effects;
   ii) Assessing exposures by identifying potential sources of the hazard, exposure routes, levels of exposure, number of people potentially exposed, and susceptible sub-populations; and
   iii) Characterizing the level of risk to human health by comparing available environmental test results with provincial, federal, or other exposure standards, where they exist for the particular contaminant.

g) The board of health shall maintain records of investigation activities related to potential environmental health hazards in the health unit.

4) Health hazard prevention and management
   a) In collaboration with the lead government agencies with primary responsibility for the environmental health issue and/or other relevant agencies, experts and interested parties as applicable, the board of health shall manage identified health hazards in the environment by:
      i) Developing options and implementing action plans, including strategies for corrective actions for controlling and, where possible, mitigating exposure based on a risk assessment approach. These options may include healthy public policy;
      ii) Developing and implementing risk communication strategies for the public and stakeholders specific to the environmental health issues;
      iii) Providing educational material and/or information to the public about health hazards in the environment and actions to minimize the hazards and/or reduce exposure;
      iv) Monitoring corrective actions pertaining to identified health hazards in the environment; and
      v) Addressing non-compliance with the HPPA and taking action where appropriate.

5) Reporting
   a) The board of health shall record inspection data pertaining to the investigation of health hazards under its jurisdiction and provide information as required by the Ministry of Health and Long-Term Care.

Glossary

Emergency: A situation or an impending situation that constitutes a danger of major proportions that could result in serious harm to persons or substantial damage to property and that is caused by the forces of nature, a disease or other health risk, accident or an act whether intentional or otherwise?

Environment: The physical environment, which includes the natural and built environment.

Health hazard: (a) A condition of a premises, (b) a substance, thing, plant or animal other than man, or (c) a solid, liquid, gas or combination of any of them, that is likely to have an adverse effect on the health of any person.
**Health hazards in the environment:** Health hazards in the physical environment that are not addressed in other programs under the Ontario Public Health Standards.

**Health hazard management system:** A framework for risk assessment and management based on Health Canada’s decision-making framework for identifying, assessing, and managing health risks. It consists of issue identification (identify issue and its context), risk assessment (assess risks and benefits), and risk management (identify and analyze options, select a strategy, implement the strategy, and monitor and evaluate the results). This framework reflects the involvement of interested and affected parties throughout the process, including partners, the public, and other stakeholders.

**Risk:** The probability of an adverse health outcome resulting from exposure to a hazard.

**Risk assessment:** The scientific process that characterizes the potential risk of hazards to human health, consisting of four main steps: hazard identification, dose-response assessment, exposure assessment, and risk characterization.

**Risk management:** Decisions on hazard control that are made based on the results of a risk assessment, taking into consideration other factors such as technical feasibility. Risk communication is a component of risk management.

**References**

Preamble

The Ontario Public Health Standards (OPHS) are published by the Minister of Health and Long-Term Care under the authority of the Health Protection and Promotion Act (HPPA)\(^1\) to specify the mandatory health programs and services provided by boards of health. Protocols are program and topic specific documents which provide direction on how boards of health must operationalize specific requirement(s) identified within the OPHS. They are an important mechanism by which greater standardization is achieved in the province-wide implementation of public health programs.

Protocols identify the minimum expectations for public health programs and services. Boards of health have the authority to develop programs and services in excess of minimum requirements where required to address local needs. Boards of health are accountable for implementing the standards including those protocols that are incorporated into the standards.

Purpose

The purpose of this protocol is to provide direction to boards of health, and to promote standardized practices, with respect to the required assessment of the immunization status of school pupils, including processes associated with issuing suspensions, and the assessment of the immunization status of children in licensed day nurseries.

Reference to the Standards

The table below identifies the OPHS standard and requirements to which this protocol relates.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaccine Preventable</td>
<td>Requirement #1: The board of health shall assess, maintain records and report, where applicable, on:</td>
</tr>
<tr>
<td>Diseases</td>
<td>• The immunization status of children enrolled in licensed child care programs as defined in the Day Nurseries Act;</td>
</tr>
<tr>
<td></td>
<td>• The immunization status of children attending schools in accordance with the Immunization of School Pupils Act; and</td>
</tr>
<tr>
<td></td>
<td>• Immunizations administered at board of health-based clinics as required in accordance with the Immunization Management Protocol, 2008 (or as current) and the Infectious Diseases Protocol, 2008 (or as current).</td>
</tr>
</tbody>
</table>

Requirement #13: The board of health shall comply with the Immunization Management Protocol, 2008 (or as current), that specifies the process for the assessment of the immunization status of children in licensed day nurseries as defined in the Day Nurseries Act and the enforcement of the Immunization of School Pupils Act.
Operational Roles and Responsibilities

1) Assessment of the immunization status of school pupils and the school suspension process
   a) The board of health shall request that parents of all school pupils and students if 16 years of age or older provide a
      copy of the student’s immunization information necessary to compile a complete immunization record, as specified in
      O. Reg. 645 under the Immunization of School Pupils Act, attached to a completed immunization information form, to
      the board of health†:
         i) The board of health shall also request additional immunization information from parents and students if 16 years
            of age or older, as required, to update the student’s immunization information on file at the board of health.
   b) The board of health shall ensure that all immunization records collected are entered into the Immunization
      Record Information System (IRIS) or any other method specified by the Ministry of Health and Long-Term Care
      (the “ministry”) as soon as possible.
   c) The board of health shall ensure that students who have incomplete records or are overdue for immunization are
      notified through the questionnaire/suspension process specified in this protocol.

2) Assessing and maintaining immunization records
   a) The board of health shall annually assess and maintain records of the immunization status of school pupils as required
      in the Immunization of School Pupils Act (ISPA), Section 11³
   b) The board of health shall maintain policies and procedures with regard to the school pupil immunization assessment
      and suspension processes specified in this protocol.
   c) At the beginning of the school year, the board of health shall ensure that:
      i) Boards of education and school principals are notified in advance of yearly ISPA enforcement activities;
      ii) Information is provided to parents, students, and schools regarding the ISPA including enforcement activities,
          and the immunization requirements for students attending school in Ontario;
      iii) Parents and students are advised about how to access immunization services in order to comply with the
          requirements of the ISPA³;
      iv) Student enrollment lists are requested from boards of education†† and private schools (student enrollment lists
          shall include the student’s name, date of birth, address, telephone number; and parent/legal guardian’s name,
          address, and telephone number) and that this data is imported into the IRIS or any other method specified by
          the ministry;
      v) Board of health staff check for valid exemptions in the IRIS or any other method specified by the ministry. Valid
          exemptions shall be documented at least annually;
      vi) Student information is updated in the IRIS or any other method specified by the ministry by reconciling information
          from the schools with the current provincial electronic information system and checking for duplicates;
      vii) The IRIS or any other method specified by the ministry is used to assess the immunization status of all students
          by birth year and by vaccine antigen(s) or antigen combination;
      viii) An immunization program questionnaire generated by the current information system is sent to the parent of
           each student and/or to the student if 16 years of age or older. For students with incomplete immunization records
           and/or “overdue” status, the board of health shall request the missing/incomplete immunization information; and
           the notice shall state that students may be suspended from school for up to 20 school days or until records have
           been forwarded to the board of health and assessed for up-to-date status or valid exemptions; and
      ix) The student’s record is updated and the board considers taking no further action if the immunization information
          gathered is sufficient to demonstrate that the student is up-to-date according to the schedule in O. Reg. 645²
          under the ISPA³

† The board of health should consider special circumstances where a school pupil does not live with either their parent or legal guardian and ensure that, where appropriate, it communicates directly with the school pupil.
†† Education Act s. 266(2.1).
d) The board of health shall, once a student’s immunization is in progress, consider readmitting the student to school and provide further follow-up to ensure completion of the immunization. For example: if the board of health has required tetanus/diphtheria/polio (Td-IPV) and measles/mumps/rubella (MMR) immunizations and a physician has provided only a Td-IPV, choosing to wait to give the MMR, the student’s immunization would be considered to be in progress; and

   i) In this case, the board of health staff person shall complete and give to the parent or the student if 16 years of age or older a letter indicating that the child has been admitted to school but will still require the outstanding immunization(s) prior to the next school year.

e) The board of health shall assess students who are new to Ontario with limited or no history of immunization for the adequacy of previous immunizations:

   i) Some cases may need to be assessed on an individual basis and should be discussed with the medical officer of health; and

   ii) If the parent or the student if 16 years of age or older has not provided the required immunization information by the designated date, the medical officer of health can consider issuing an order for suspension.

f) The board of health shall consider accepting verbal/phone reports of immunization information given by parents or students if 16 years of age or older. In general, estimated dates of immunization should not be accepted.

g) The board of health shall document all phone and/or mail contacts with the parent/student in the student’s immunization record at the board of health.

3) Orders for the suspension of a school pupil

   a) On the day of suspension, the board of health shall ensure that the school principal or director of education has the contact information (such as name and telephone number) of a designated board of health staff person who is able to respond to any issues that may arise from the suspension process.

   b) If the immunization information is received within 20 school days, the board of health shall ensure that the parent and/or the student if 16 years of age or older, is notified by the local medical officer of health of a decision to rescind a suspension order.

   c) If the missing immunization information is provided, the board of health shall ensure that the student’s record is updated in the IRIS or any other method specified by the ministry and no further action is required.

   d) The board of health shall ensure that a board of health staff person records in the IRIS or any other method specified by the ministry that the student has been removed from the suspension list and admitted to school.

   e) The board of health shall ensure that after the completion of the assessment and suspension process, all immunization records are updated in the IRIS or any other method specified by the ministry by the end of May of each school year.

   f) The board of health shall maintain statistical information on school suspensions in the health unit and create a summary of suspensions for each school year.

4) Order of exclusion for an outbreak or risk of an outbreak of a designated disease

   a) Upon notification of an outbreak or threat of an outbreak of a designated disease at a school, the board of health shall undertake an immediate and rigorous assessment of students’ immunization information on file to determine students who are at risk for the disease.

   b) For students who are not up-to-date according to the IRIS or any other method specified by the ministry, the board of health shall contact the parent, or student if 16 years of age or older, to request the information.

   c) The board of health shall ensure that students who are not up-to-date with their immunizations have access to immunization services.

   d) The board of health shall document any orders of exclusion in the IRIS or any other method specified by the ministry.
5) Exemptions
a) The board of health shall maintain medical exemption records of students for a designated disease:
   i) Medical exemptions in respect of designated disease shall be documented in the IRIS or any other method specified by the ministry as soon as possible; and
   ii) If a medical exemption form is incomplete, a board of health staff person shall contact the physician or the registered nurse in the extended class (RN(EC)) as appropriate for the additional information required.

b) The board of health shall ensure that statement(s) of conscience or religious belief affidavits are kept on file at the board of health and entered in the IRIS or any other method specified by the ministry.

6) Assessment of the immunization status of children in licensed day nurseries
a) The board of health shall ensure that operators of licensed day nurseries receive annual recommendations from the medical officer of health with respect to immunizations required for enrollment and attendance in a licensed day nursery.

b) The board of health shall ensure that the recommendations are, at a minimum, according to the current provincial publicly funded immunization schedule(s).

c) The board of health shall ensure that the medical officer of health requests the immunization records for all children enrolled in licensed day nurseries in order to assess whether all attendees are immunized as recommended by the medical officer of health on or prior to admission to a licensed day nursery.

d) The board of health shall provide information and recommendations to parents of children enrolled in licensed day nurseries with respect to immunizations recommended by the medical officer of health.

e) The board of health shall ensure that licensed day nursery attendees have access to immunization services in order to comply with recommendations of the medical officer of health.

f) The board of health shall provide annual education with regard to immunization recommendations to licensed day nursery operators.

g) The board of health shall assess and maintain records of the immunization status of attendees of all licensed day nurseries in the health unit on an annual basis to ensure that children are up-to-date with their immunizations as recommended by the medical officer of health (or have a valid exemption), in order to identify children susceptible to vaccine preventable diseases and for the prevention and control of vaccine preventable diseases. In order to operationalize this requirement, the board of health shall:
   i) Request that every operator of a licensed day nursery provide a list of attendees;
   ii) Request that the operator of a day nursery provide the immunization records or written exemptions of all children attending a licensed day nursery to the local medical officer of health on an annual basis with monthly updates as required;
   iii) Assess and maintain records of immunizations for all children attending a licensed day nursery in the health unit on an annual basis with monthly updates as required;
   iv) Check for valid exemptions;
   v) Review the records of children enrolled in licensed day nurseries in the health unit and input the information into the IRIS or any other method specified by the ministry;
   vi) Send immunization questionnaires to the parents of children with missing or incomplete immunizations; and
   vii) Assist the licensed day nursery operator in maintaining immunization records on all attendees.

7) Exclusions in relation to licensed day nurseries for an outbreak or risk of an outbreak of a designated disease
a) Upon notification of an outbreak or threat of an outbreak of a designated disease at a licensed day nursery, the board of health shall undertake an immediate and rigorous assessment of the day care attendees' immunization records to determine children who are at risk for the disease.
b) The board of health shall ensure that consideration is given to the exclusion of licensed day care attendees and staff without the required immunization information or a valid exemption under Section 22 of the HPPA\(^1\) where there is an outbreak or risk of an outbreak of a communicable disease.

c) The exclusion order shall be documented in the IRIS or any other method specified by the ministry.

8) **Exemptions under the Day Nurseries Act**

a) The board of health shall ensure that all statements of medical exemptions or statements of conscience or religious belief that are received by the board of health are entered into IRIS or any other method specified by the ministry.

9) **Coverage reports**

a) The board of health shall annually, or more often as required, report to the ministry on:

i) Immunization coverage rates with respect to designated vaccine preventable diseases for school pupils;

ii) Immunization coverage rates retrospectively at age two with respect to selected antigens for children currently enrolled in school in the health unit; and

iii) Immunization coverage rates with respect to recommended vaccines for all children under four years of age attending a licensed day nursery.

**Glossary**

**Antigen:** An antigen is any substance that causes your immune system to produce antibodies against it. An antigen may be a vaccine.

**Assess:** Involves the systematic collection and analysis of data (immunization records) in order to provide a basis for decision-making.\(^4\)

**Due:** The recommended age for administration of a dose of vaccine, or the recommended interval between doses, based on the recommended immunization schedule(s).

**Eligible:** The minimum acceptable age for receipt of a dose of a vaccine, and the minimum acceptable interval between doses of a vaccine. Doses given prior to the minimum acceptable age or minimum acceptable interval are invalid and will not be recognized by the current provincial electronic information system.

**Exemptions:** Medical exemptions or a statement of conscience or religious belief apply only to vaccines as designated in the ISPA\(^3\).

**Overdue:** For vaccines administered to school-age children, overdue parameters have been set for required antigens according to the schedule under the ISPA\(^3\); this is the age or interval beyond which a child can be suspended from school. Although overdue parameters are defined for doses given to those younger or older than school age, with the exception of the day nursery setting, only school pupils may be suspended if overdue for required vaccines. For vaccines that are not required under the ISPA\(^3\) but are recommended by the ministry, overdue triggers a reminder system.

**Parent:** As defined in the ISPA\(^3\) “parent” includes an individual or a corporation that has the responsibilities of a parent.

**RN(EC):** Registered nurse in the extended class.

**School:** As defined in the ISPA\(^3\) – “school” means a “private school” and a “school” as defined in the Education Act\(^5\) and includes a kindergarten, a junior kindergarten and a beginners class within the meaning of the Education Act\(^5\) (“école”).
References

Preamble
The Ontario Public Health Standards (OPHS) are published by the Minister of Health and Long-Term Care under the authority of the Health Protection and Promotion Act (HPPA)\(^1\) to specify the mandatory health programs and services provided by boards of health. Protocols are program and topic specific documents which provide direction on how boards of health must operationalize specific requirement(s) identified within the OPHS. They are an important mechanism by which greater standardization is achieved in the province-wide implementation of public health programs.

Protocols identify the minimum expectations for public health programs and services. Boards of health have the authority to develop programs and services in excess of minimum requirements where required to address local needs. Boards of health are accountable for implementing the standards including those protocols that are incorporated into the standards.

Purpose
The purpose of this protocol is to provide direction to boards of health for the delivery of advice, consultation, and inspection(s) with respect to infection prevention and control practices in licensed day nurseries.

Reference to the Standards
The table below identifies the OPHS standard and requirement to which this protocol relates:

<table>
<thead>
<tr>
<th>Standard</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infectious Diseases Prevention and Control</td>
<td>Requirement #14: The board of health shall inspect settings associated with risk of infectious diseases of public health importance in accordance with the <em>Infection Prevention and Control in Licensed Day Nurseries Protocol, 2008</em> (or as current); the <em>Infection Prevention and Control in Personal Services Settings Protocol, 2008</em> (or as current); and the <em>Risk Assessment and Inspection of Facilities Protocol, 2008</em> (or as current).</td>
</tr>
</tbody>
</table>

Operational Roles and Responsibilities

1) General
a) The board of health shall maintain a current list of licensed day nurseries (“day nursery” is defined under Section 1 of the Day Nurseries Act\(^2\)) in the health unit.

2) Detection, investigation, and identification
a) The board of health shall respond to requests from licensed day nurseries for consultation or inspections related to infection prevention and control policies and practices in licensed day nurseries in the health unit.

b) The board of health shall conduct assessments of infection prevention and control policies and practices in licensed day nurseries to address:
   i) Adherence to board of health policies;
   ii) Use of appropriate infection prevention and control practices; and
   iii) Risk of infectious disease transmission.
3) Management
   a) The board of health shall provide written information to licensed day nurseries to specify required reporting to the medical officer of health of cases and outbreaks of reportable infectious diseases.
   b) The board of health shall provide educational resources to licensed day nursery operators with respect to appropriate infection prevention and control policies and practices.
   c) The board of health shall assist licensed day nursery operators in implementing infection prevention and control programs and practices. Activities shall include consultation on the development of infection prevention and control policies and procedures as follows:
      i) Health evaluation of children for signs and symptoms of communicable disease;
      ii) Hygiene and disinfection practices;
      iii) Hand hygiene;
      iv) Appropriate diapering and toileting practices;
      v) Prevention of occupationally acquired infections, including surveillance and management; and
      vi) Communication with parents and staff with respect to infection prevention and control practices in the licensed day nursery.
   d) The board of health shall assist licensed day nurseries in developing and maintaining policies to address:
      i) Maintenance of immunization records of children enrolled and staff. For additional information, refer also to the Immunization Management Protocol, 2008 (or as current);
      ii) Required reporting of cases and outbreaks of reportable diseases to the medical officer of health;
      iii) Management of response to infectious diseases in the licensed day nursery;
      iv) Exclusion of sick children, staff, parents, and/or volunteers; and
      v) Required communication with parents with regard to communicable diseases.
   e) The board of health shall provide annual in-service education on appropriate current infection prevention and control practices to licensed day nursery operators and staff. In-service education shall be relevant to the setting and the needs identified through inspection or consultation with the setting.*

4) Inspection
   a) The board of health shall inspect all licensed day nurseries annually which shall include:
      i) A risk-based approach shall be used to determine the priority and need for additional inspections;
      ii) A risk-based approach shall be used to determine and recommend applicable infection prevention and control measures;
      iii) Inspections shall include assessment of compliance with statutory requirements; and
      iv) Inspections may be conducted more frequently as required.
   b) The board of health shall respond to food safety and environmental issues in licensed day nursery settings in accordance with the requirements of the Food Safety Protocol, 2008 (or as current) and the Risk Assessment and Inspection of Facilities Protocol, 2008 (or as current).
   c) In addition to the annual inspection, the board of health shall conduct inspections on a case-by-case basis in response to specific complaints by members of the public or risks which have been identified.

5) Enforcement
   a) The board of health shall respond appropriately to findings of inspections, including orders issued by the medical officer of health or public health inspector, as the case may be, under Sections 13 and 22 of the HPPA.¹

*For further information, please refer to best practice documents such as: Well Beings: A Guide to Promote the Physical Health, Safety and Emotional Well-Being of Children in Child Care Centres and Family Day Care Homes, 1999² and Infection Control in the Child Care Center and Preschool³
6) Data collection, reporting, and information transfer
   a) The board of health shall maintain a record of all inspections conducted.

   b) The board of health shall report, to the Ministry of Health and Long-Term Care (the “ministry”), cases and outbreaks of infectious diseases in day nurseries in accordance with their supervisory role under Part IV of the HPPA through the integrated Public Health Information System (iPHIS) or any other method specified by the ministry.

   c) The board of health shall review findings of licensed day nursery inspections to identify epidemiological/disease trends to inform future education and response activities and to develop corrective actions.

References
Infection Prevention and Control in Personal Services Settings Protocol

Preamble

The Ontario Public Health Standards (OPHS) are published by the Minister of Health and Long-Term Care under the authority of the Health Protection and Promotion Act (HPPA)\(^1\) to specify the mandatory health programs and services provided by boards of health. Protocols are program and topic specific documents which provide direction on how boards of health must operationalize specific requirement(s) identified within the OPHS. They are an important mechanism by which greater standardization is achieved in the province-wide implementation of public health programs.

Protocols identify the minimum expectations for public health programs and services. Boards of health have the authority to develop programs and services in excess of minimum requirements where required to address local needs. Boards of health are accountable for implementing the standards including those protocols that are incorporated into the standards.

Purpose

This protocol has been developed to provide direction to boards of health to minimize the risk of contracting blood-borne and other types of infections for both clients and personal service workers during the delivery of personal services.

This protocol applies to any facility, service, or person offering services where there is a risk of exposure to blood, such as, but not limited to hairdressing and barber shops, tattoo and body piercing studios, electrolysis, acupuncture, and various aesthetic services. This protocol also applies to “special events,” such as trade shows, conventions, fairs, or exhibitions.

This protocol does not apply to any regulated health professional under the Regulated Health Professions Act, or any other regulated health profession-specific legislation.

This protocol replaces the Personal Services Setting Protocol, 1998.

For more information, refer to the most current version of the Infection Prevention and Control Best Practices for Personal Services Settings.

Reference to the Standards

The table below identifies the OPHS standard and requirements to which this protocol relates.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infectious Diseases Prevention</td>
<td>Requirement #10: The board of health shall ensure that the medical officer of health or designate receives reports of and responds to complaints regarding infection prevention and control practices in settings for which no regulatory bodies exist, particularly personal services settings. This shall be done in accordance with the Infection Prevention and Control in Personal Services Settings Protocol, 2008 (or as current) and the Infection Prevention and Control Practices Complaint Protocol, 2008 (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #14: The board of health shall inspect settings associated with risk of infectious diseases of public health importance in accordance with the Infection Prevention and Control in Licensed Day Nurseries Protocol, 2008 (or as current); the Infection Prevention and Control in Personal Services Settings Protocol, 2008 (or as current); and the Risk Assessment and Inspection of Facilities Protocol, 2008 (or as current).</td>
</tr>
</tbody>
</table>
Operational Roles and Responsibilities

1) Inspection
The board of health shall:

a) Perform routine inspections for all personal services settings at least once a year.

b) In addition to the annual inspection, conduct inspections in response to complaints or if non-compliance to infection prevention and control practices for personal services settings are identified in 1 (a). The frequency of inspection may be increased based on compliance results from inspection. For more information, refer to the most current version of Infection Prevention and Control Best Practices for Personal Services Settings.

2) Detection/investigation/identification
a) Conducting risk assessment to identify health hazards affecting health is an integral component of the role of public health. The board of health shall incorporate risk assessments into the yearly inspection process and when investigating potential health hazards in personal services settings.

b) The board of health shall investigate all complaints and inquiries related to personal services settings to identify deficiencies in infection prevention and control practice(s) and take appropriate action as necessary to reduce or eliminate the health hazard. For more information, refer to the most current version of Infection Prevention and Control Best Practices for Personal Services Settings. For additional information refer to the Infection Prevention and Control Practices Complaints Protocol, 2008 (or as current).

3) Management
The board of health shall:

a) Offer education to the general public in regards to infection prevention and control practices for personal services settings.

b) Offer education to the personal service worker and/or operator annually in regards to infection prevention and control practices for such settings. Education may be offered during annual inspections and includes appropriate infection prevention and control practices.

c) Provide an on-call system that can address and respond to issues respecting personal services settings.

d) Focus on the risk related to a breach in infection prevention and control practices during annual inspections or when investigating complaints. The assessment of the complaint shall include, but not be limited to:
   i) The extent to which routine infection prevention and control practices have been implemented/adhered to;
   ii) The implementation of additional precautions where applicable; and
   iii) Adherence to best practices for cleaning, disinfection, and sterilization in the setting named in the complaint.

e) Initiate an investigation within 24 hours if the assessment indicates the risk of communicable disease transmission in the setting named in the complaint. This shall include:
   i) Recommending the implementation of appropriate infection prevention and control procedures in accordance with current best practices;
   ii) Offering education in regards to current best practices;
   iii) Scheduling re-inspection to ensure compliance with best practices document if non-compliance issues are identified;
   iv) Identifying cases that may be associated with non-compliance with infection prevention and control best practices in the setting under assessment;
   v) Developing a risk communication strategy for identified cases;
   vi) Advising the party under investigation of his/her roles and responsibilities in taking or failing to take the corrective actions; and
   vii) Ordering corrective action based on the findings of the investigation, up to and including issuing written orders under the HPPA.
f) Conduct a risk assessment in order to determine if a health hazard exists in regards to failed (i.e., spore growth observed) or missing spore tests or if the setting has not adhered to infection prevention and control practices. When conducting a risk assessment related to a failed spore test, the board of health shall request information to facilitate the completion of an assessment including but not limited to:
   i) Invasive procedures performed by the setting;
   ii) Client contact information;
   iii) Sterilizer monitoring logs;
   iv) Spore test results; and
   v) Supplier information for items purchased as pre-packaged and sterile.

g) Communicate with affected client(s) when an investigation of a personal service setting has identified a health hazard that is a potential risk to their personal health.

h) Communicate with the general public when an investigation has identified a health hazard that poses a public health risk to unidentified clients of the setting.

i) Maintain a record of all complaints received and investigations undertaken.

j) For additional information regarding appropriate infection prevention and control practices for personal services settings refer to the most current version of *Infection Prevention and Control Best Practices for Personal Services Settings*.

4) Enforcement

   The board of health shall:

   a) In addition to yearly inspections, inspect personal services settings following complaints/inquiries made to the board of health and/or based on results from previous inspections to ensure compliance with infection prevention and control practices for such settings.

   b) Determine if a health hazard exists following an inspection of a personal services setting if the setting was found to be non-compliant with infection prevention and control practices.

   c) Take action under the HPPA to decrease the effect of or eliminate the health hazard in the event that a health hazard has been identified. This action shall include a number of educational, procedural, and re-inspection measures to effect the necessary correction, up to and including the issuance of an order under the HPPA.

5) Data collection, reporting, and information transfer

   The board of health shall:

   a) Report occurrences of significance (i.e., non-compliance issues leading to a media release) to the Ministry of Health and Long-Term Care (the “ministry”) prior to media release.

   b) Report cases of reportable diseases associated with personal service settings through the integrated Public Health Information System (iPHIS) or any other method specified by the ministry.
Glossary

**Personal services operator:** A person who operates a business offering one of the personal services as outlined below.

**Personal services settings:** Settings in which aesthetic services are delivered, such as but not limited to: hairdressing and barber shops; tattoo and body piercing studios; electrolysis; acupuncture; and various aesthetic services.

**Risk assessment:** The characterization of the potential adverse health effects of human exposures to health hazards. Risk assessment consists of four steps: hazard identification (the process of determining whether exposure to an agent can lead to adverse health outcomes), dose-response assessment (characterizing the relation between the dose of an agent administered or received and the occurrence of adverse health effects in exposed populations), exposure assessment (measuring or estimating the intensity, frequency, and duration of human exposures to an agent currently present in the environment), and risk characterization (estimating the risk of adverse health effects under specific conditions of human exposure).

References


Infection Prevention and Control Practices Complaint Protocol

Preamble
The Ontario Public Health Standards (OPHS) are published by the Minister of Health and Long-Term Care under the authority of the Health Protection and Promotion Act (HPPA) to specify the mandatory health programs and services provided by boards of health. Protocols are program and topic specific documents which provide direction on how boards of health must operationalize specific requirement(s) identified within the OPHS. They are an important mechanism by which greater standardization is achieved in the province-wide implementation of public health programs.

Protocols identify the minimum expectations for public health programs and services. Boards of health have the authority to develop programs and services in excess of minimum requirements where required to address local needs. Boards of health are accountable for implementing the standards including those protocols that are incorporated into the standards.

Purpose
This protocol has been developed to provide direction to boards of health with respect to reporting, investigating and responding to infection prevention and control complaints.

Processes for complaints regarding health hazards related to occupational or environmental health are addressed in the Identification, Investigation, and Management of Health Hazards Protocol, 2008 (or as current) under the Health Hazards Prevention and Management Standard.

For complaints specific to personal services settings, please refer to the Infection Prevention and Control in Personal Services Settings Protocol, 2008 (or as current).

Reference to the Standards
The table below identifies the OPHS standard and requirements to which this protocol relates.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infectious Diseases Prevention and Control</td>
<td>Requirement #9: The board of health shall ensure that the medical officer of health or designate receives reports of complaints regarding infection prevention and control practices and responds and/or refers to appropriate regulatory bodies in accordance with applicable provincial legislation and in accordance with the Infection Prevention and Control Practices Complaint Protocol, 2008 (or as current).</td>
</tr>
<tr>
<td>Requirement #10: The board of health shall ensure that the medical officer of health or designate receives reports of and responds to complaints regarding infection prevention and control practices in settings for which no regulatory bodies exist, particularly personal services settings. This shall be done in accordance with the Infection Prevention and Control in Personal Services Settings Protocol, 2008 (or as current) and the Infection Prevention and Control Practices Complaint Protocol, 2008 (or as current).</td>
<td></td>
</tr>
</tbody>
</table>
Operational Roles and Responsibilities

1) General
   a) The board of health shall have an on-call system for receiving and responding to infection prevention and control practices complaints on a 24 hours per day, 7 days per week (24/7) basis.

   b) The board of health shall develop and maintain written policies and procedures for responding to infection prevention and control practices complaints. The policies and procedures shall address but are not limited to:
      i) Steps for managing a complaint investigation;
      ii) Interagency cooperation as required;
      iii) Communication with institutions/facilities, temporary dwellings, agencies, regulatory bodies, other settings where complaints have arisen; and the public as applicable; and
      iv) Processes and timelines for referral to regulatory bodies.

2) Responding to complaints regarding infection prevention and control practices in settings or involving health professionals governed by a regulatory body
   a) The board of health shall initiate response to all complaints within 24 hours to determine the risk of communicable disease transmission, and the appropriate board of health response.

   b) If the complaint concerns the conduct of a member of a regulated health profession, for example, a physician, nurse or chiropractor, the board of health shall consider the complaint and determine, given the information available, whether a communicable disease is or may be linked to the conduct of the regulated health professional. The board of health shall, in that event, consider the following:
      i) Contacting the regulatory body directly and provide it with any relevant information about the member and the reported non-adherence to infection prevention and control practice and the link or possible link to a communicable disease for follow up by the regulatory body;
      ii) Providing information to the complainant about how to contact the regulatory body himself or herself; or
      iii) Beginning an investigation into the incident involving the member and the complainant from a public health perspective, in collaboration with the regulatory body.

   c) The board of health shall initiate an investigation within 24 hours if a review of communicable disease surveillance data available to the board indicates that a case of a communicable disease is or may be connected to the setting named in the complaint.

   d) The board of health shall take action based on the findings of its assessment, up to and including issuing orders under the HPPA.

   e) The board of health shall maintain a record of all complaints received and any investigation and/or referral action undertaken.
3) Responding to complaints regarding infection prevention and control practices in settings or against individuals for which no health regulatory body exists, including but not limited to: schools, recreational facilities, community centres, and sports clubs

a) The board of health shall initiate response to all complaints within 24 hours to determine the risk of communicable disease transmission and initiate an appropriate board of health response.

b) In assessing the complaint, the board of health shall focus on the risk related to a potential breach in infection prevention and control practices in the setting named in the complaint.

i) The assessment of the complaint shall include but not be limited to:
   - Visiting the setting named in the complaint;
   - Interviewing staff of the setting directly involved in the practice under assessment;
   - Determining whether previous complaints or concerns have been reported to the operator and what actions if any were taken;
   - Observing infection prevention and control practices; and
   - Reviewing relevant documentation, which includes policies, procedures, records, and logs (e.g., sterilization practices).

ii) Information obtained during the assessment shall be evaluated on:
   - The extent to which routine infection prevention and control practices have been implemented/adhered to;
   - The implementation of appropriate precautions where applicable; and
   - Adherence to best practices for cleaning, disinfection, and sterilization practices in the setting named in the complaint.

c) The board of health shall initiate an investigation if its assessment indicates a risk of communicable disease transmission in the setting named in the complaint. This shall include:

i) Recommending the implementation of appropriate infection prevention and control procedures in accordance with current best practices;
ii) Providing education to ensure adherence to current best practices;
iii) Scheduling re-inspection to ensure adherence to current infection prevention and control practices;
iv) Engaging in formal look-back case-finding studies where initial investigations raise concerns about an infectious disease outbreak related to improper infection prevention and control practices;
v) Developing a risk-communication strategy for notification of identified cases;
vi) Ordering corrective action based on the findings of the investigation, up to and including having the medical officer of health or public health inspector issuing written orders under the HPPA; and
vii) Advising the party under investigation of his/her responsibility to take corrective action and the consequences of failing to do so.

d) The board of health shall maintain a record of all complaints received and response activities undertaken.

References

Preamble

The Ontario Public Health Standards (OPHS) are published by the Minister of Health and Long-Term Care under the authority of the Health Protection and Promotion Act (HPPA) to specify the mandatory health programs and services provided by boards of health. Protocols are program and topic specific documents which provide direction on how boards of health must operationalize specific requirement(s) identified within the OPHS. They are an important mechanism by which greater standardization is achieved in the province-wide implementation of public health programs.

Protocols identify the minimum expectations for public health programs and services. Boards of health have the authority to develop programs and services in excess of minimum requirements where required to address local needs. Boards of health are accountable for implementing the standards including those protocols that are incorporated into the standards.

Purpose

The purpose of this protocol is to provide boards of health with direction with respect to the prevention and management of infectious diseases of public health importance. In particular, it is intended to provide direction regarding minimum, common operational roles and responsibilities for interpreting, communicating and acting upon surveillance information and findings to reduce the burden of infectious diseases of public health importance.

The protocol provides direction regarding:

- The establishment of baseline rates of infectious diseases of public health importance and factors that influence their occurrence;
- The identification of emerging trends and changes in baseline infectious disease rates;
- The identification of trends and changes in factors that influence the rate of infectious diseases;
- The provision of timely communications with respect to infectious disease incidence in excess of expected levels;
- The assessment of population health status with respect to infectious diseases;
- The planning of evidence-based public health policies, programs, interventions and services to prevent and control infectious diseases in the community and in high-risk settings; and
- The evaluation of public health policies, programs, interventions and services related to the control and prevention of infectious diseases.

Appendix A, Disease Specific Chapters A-Y, provides disease specific information on the pathogenicity, epidemiology and public health management of all reportable diseases. Appendix B, Provincial Case Definitions, provides the provincial surveillance case definitions for reportable diseases, in addition to reportable disease-specific information, including current laboratory technologies and clinical signs and/or symptoms, while incorporating national case definitions, when available.

Reference to the Standards

The table below identifies the OPHS standards and requirements to which this protocol relates.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundational</td>
<td>Requirement #7: The board of health shall interpret and use surveillance data to communicate information on risks to relevant audiences in accordance with the Identification, Investigation and Management of Health Hazards Protocol, 2008 (or as current); the Infectious Diseases Protocol, 2008 (or as current); the Population Health Assessment and Surveillance Protocol, 2008 (or as current); the Public Health Emergency Preparedness Protocol, 2008 (or as current); and the Risk Assessment and Inspection of Facilities Protocol, 2008 (or as current).</td>
</tr>
<tr>
<td>Standard</td>
<td>Requirement</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Infectious Diseases Prevention</td>
<td>Requirement #1: The board of health shall report infectious disease data elements in accordance with the Health Protection and Promotion Act and the <em>Infectious Diseases Protocol, 2008</em> (or as current).</td>
</tr>
<tr>
<td>and Control</td>
<td>Requirement #2: The board of health shall conduct surveillance of:</td>
</tr>
<tr>
<td></td>
<td>• Infectious diseases of public health importance, their associated risk factors, and emerging trends; and</td>
</tr>
<tr>
<td></td>
<td>• Infection prevention and control practices of inspected premises associated with risk of infectious diseases of public health importance.</td>
</tr>
<tr>
<td></td>
<td>in accordance with the <em>Infectious Diseases Protocol, 2008</em> (or as current) and the <em>Population Health Assessment and Surveillance Protocol, 2008</em> (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #7: The board of health shall ensure that the medical officer of health or designate is available on a 24/7 basis to receive reports of and respond to infectious diseases of public health importance in accordance with the Health Protection and Promotion Act; the <em>Mandatory Blood Testing Act</em>, the <em>Exposure of Emergency Service Workers to Infectious Diseases Protocol, 2008</em> (or as current); the <em>Infectious Diseases Protocol, 2008</em> (or as current); the <em>Institutional/Facility Outbreak Prevention and Control Protocol, 2008</em> (or as current); and the <em>Public Health Emergency Preparedness Protocol, 2008</em> (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #8: The board of health shall provide public health management of cases and outbreaks to minimize the public health risk in accordance with the <em>Infectious Diseases Protocol, 2008</em> (or as current); the <em>Institutional/Facility Outbreak Prevention and Control Protocol, 2008</em> (or as current); and provincial and national protocols on best practices.</td>
</tr>
<tr>
<td>Vaccine</td>
<td>Requirement #1: The board of health shall assess, maintain records and report where applicable, on:</td>
</tr>
<tr>
<td>Preventable Diseases</td>
<td>• The immunization status of children enrolled in licensed child care programs as defined in the <em>Day Nurseries Act</em>;</td>
</tr>
<tr>
<td></td>
<td>• The immunization status of children attending schools in accordance with the <em>Immunization of School Pupils Act</em>; and</td>
</tr>
<tr>
<td></td>
<td>• Immunizations administered at board of health-based clinics as required in accordance with the <em>Immunization Management Protocol, 2008</em> (or as current) and the <em>Infectious Diseases Protocol, 2008</em> (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #2: The board of health shall conduct epidemiological analysis of surveillance data, including monitoring of trends over time, emerging trends, and priority populations, in accordance with the <em>Infectious Diseases Protocol, 2008</em> (or as current) and the <em>Population Health Assessment and Surveillance Protocol, 2008</em> (or as current).</td>
</tr>
<tr>
<td>Food Safety</td>
<td>Requirement #6: The board of health shall ensure that the medical officer of health or designate is available on a 24/7 basis to receive reports of and respond to:</td>
</tr>
<tr>
<td></td>
<td>• Suspected and confirmed food-borne illnesses or outbreaks;</td>
</tr>
<tr>
<td></td>
<td>• Unsafe food-handling practices, food recalls, adulteration, and consumer complaints; and</td>
</tr>
<tr>
<td></td>
<td>• Food-related issues arising from floods, fires, power outages, or other situations that may affect food safety in accordance with the Health Protection and Promotion Act; the <em>Food Safety Protocol, 2008</em> (or as current); the <em>Infectious Diseases Protocol, 2008</em> (or as current); and the <em>Public Health Emergency Preparedness Protocol, 2008</em> (or as current).</td>
</tr>
<tr>
<td>Standard</td>
<td>Requirement</td>
</tr>
<tr>
<td>--------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Safe Water</td>
<td>Requirement #2: The board of health shall conduct surveillance of drinking-water systems and of drinking water illnesses of public health importance, their associated risk factors, and emerging trends in accordance with the Drinking Water Protocol, 2008 (or as current), the Infectious Diseases Protocol, 2008 (or as current) and the Population Health Assessment and Surveillance Protocol, 2008 (or as current).</td>
</tr>
</tbody>
</table>

Requirement #10: The board of health shall ensure that the medical officer of health or designate is available on a 24/7 basis to receive reports of and respond to:
- Adverse events related to safe water, such as reports of adverse drinking water on drinking-water systems governed under the Health Protection and Promotion Act or the Safe Drinking Water Act;
- Reports of water-borne illnesses or outbreaks;
- Safe water issues arising from floods, fires, power outages, or other situations that may affect water safety; and
- Safe water issues relating to recreational water use including public beaches in accordance with the Health Protection and Promotion Act; the Beach Management Protocol, 2008 (or as current); the Drinking Water Protocol, 2008 (or as current); the Infectious Diseases Protocol, 2008 (or as current); the Public Health Emergency Preparedness Protocol, 2008 (or as current) and the Recreational Water Protocol, 2008 (or as current).

| Health Hazard Prevention and Management | Requirement #1: The board of health shall conduct surveillance of the environmental health status of the community in accordance with the Identification, Investigation and Management of Health Hazards Protocol, 2008 (or as current); the Infectious Diseases Protocol, 2008 (or as current); the Population Health Assessment and Surveillance Protocol, 2008 (or as current); the Public Health Emergency Preparedness Protocol 2008 (or as current); and the Risk Assessment and Inspection of Facilities Protocol, 2008 (or as current). |

Requirement #8: The board of health shall develop a local vector-borne management strategy based on surveillance data and emerging trends in accordance with the Infectious Diseases Protocol, 2008 (or as current).

**Operational Roles and Responsibilities**

1) **Interpretation, Use and Communication of Infectious Disease Surveillance Data**
   a) The board of health shall, in compliance with privacy laws, communicate public health surveillance information and findings pertaining to infectious diseases of public health importance and factors related to the acquisition of such diseases to relevant audiences, which shall include but not be limited to:
      i) Populations at risk of exposure to infectious diseases;
      ii) The general public;
      iii) The Ministry of Health and Long-Term Care (the “ministry”);
      iv) Public health practitioners, government organizations and other individuals and organizations responsible for the implementation and/or management of infectious disease control and prevention measures;
      v) Health care providers;
      vi) Community partners such as social service agencies, boards of education, public works departments and other non-government agencies; and
      vii) The media.
   b) The board of health shall develop a strategy for reporting and communicating infectious diseases surveillance information and findings that outlines:
      i) The target audience for each communication;
      ii) The communication format;
      iii) The frequency of communication; and
      iv) The characteristics and limitations of the source data and information.
c) The board of health shall undertake timely monitoring, analysis, interpretation and communication of information pertaining to infectious diseases, and factors influencing their occurrence. The timing and frequency of these activities shall be determined by one or more of the following factors:
   i) Temporal/seasonal patterns of exposure or infectious diseases occurrence;
   ii) Likelihood of detecting meaningful change in the rate of infectious disease between communication intervals;
   iii) The availability of data;
   iv) The urgency with which preventive and control measures must be implemented;
   v) The potential influence on decision-making; and
   vi) The characteristics of the target audience.

d) The board of health shall review annually its infectious diseases communication strategy to ensure that key messages are relevant, current and appropriate for its target audience(s), and that the communication channels used and the frequency of communication are appropriate.

e) The board of health shall develop and disseminate information products on infectious diseases, their risk factors, and appropriate personal preventive measures in a format that is understandable and useable by target audiences. Information products may include but not be limited to:
   i) Publications such as public health bulletins, advisories or alerts, health status reports, fact sheets and pamphlets;
   ii) Electronic channels such as board of health website(s), e-mail and facsimile;
   iii) Broadcast and print media; and
   iv) Public forums including briefings, hearings and conferences.

f) The board of health shall consider employing media communications such as news conferences and other public releases when the information to be communicated is critical, time sensitive and must be communicated as broadly as possible.

g) The board of health shall consider disseminating information about infectious diseases and prevention and control measures in collaboration with other boards of health, government agencies, regulatory bodies, non-governmental organizations and community partners as appropriate.

2) Reporting of Infectious Diseases

a) The board of health shall provide instructions as often as is necessary to persons required under the HPPA to report information to the medical officer of health with respect to reportable diseases, reportable events and deaths from such diseases and events. These instructions shall specify:
   i) The diseases and events that must be reported;
   ii) The method or process for reporting;
   iii) Required information as specified in O. Reg. 569 under the HPPA; and
   iv) The time or times when, or the period or periods of time within which to report.

b) The board of health shall forward reports to the ministry with respect to:
   i) Reportable diseases and deaths from such diseases;
   ii) Any other infectious diseases that the ministry may specify from time to time; and
   iii) Reportable events that may be related to the administration of an immunizing agent as defined in the HPPA.

c) Reports as specified in b) above shall be made using the integrated Public Health Information System (iPHIS) or any other method specified by the ministry and shall comply with the minimum data elements identified in:
   i) O. Reg. 569 under the HPPA;
   ii) Disease-specific User Guides published by the ministry; and
   iii) Bulletins and directives issued by the ministry.

d) The ministry may request additional information with respect to reports of reportable diseases, reportable events and deaths from such diseases and events.
The board of health shall forward reports to the ministry with respect to immunization coverage in accordance with the *Immunization Management Protocol, 2008* (or as current). These reports shall be made using the Immunization Records Information System (IRIS) or any other method specified by the ministry.

The board of health shall comply with ministry requests for immunization data and board of health-based immunization clinic data.

The board of health shall comply with ministry requests for vector surveillance and non-human host surveillance data using a method and format specified by the ministry.

A report made to the ministry using iPHIS, IRIS or any other method specified by the ministry shall comply with *Enhanced Surveillance Directives* (ESD) that are active at the time that the report is being made.

A report made using iPHIS or any other method specified by the ministry shall comply with the case classifications set out in the Ontario surveillance case definitions (Appendix B) and the disease-specific User Guides published by the ministry.

A report made using iPHIS or any other method specified by the ministry shall comply with the timely entry of case requirements set out in *iPHIS Bulletin Number 17: “Timely Entry of Cases,”* or as current.

### 3) Interpretation and Application of Surveillance Data

a) The board of health shall use infectious diseases surveillance data, immunization data and vector surveillance data to:
   i) Establish baseline rates for infectious diseases of public health importance and factors that influence their occurrence;
   ii) Identify emerging trends, changes in baseline infectious disease rates and changes in factors that influence the rate of infectious diseases;
   iii) Identify trends and changes in immunization coverage rates;
   iv) Identify trends and changes in disease vector and host surveillance data;
   v) Identify infectious disease incidence in excess of expected levels by comparing data to baseline rates;
   vi) Assess health status with respect to infectious diseases;
   vii) Identify populations at risk of exposure to infectious diseases;
   viii) Plan evidence-based public health policies, programs and services to prevent and control infectious diseases in the community and in high-risk settings; and

b) The board of health shall analyze and interpret infectious diseases data, and data related to factors influencing their occurrence in an annual report to its target audience that describes at a minimum the following:
   i) The incidence (morbidity and mortality) of reportable diseases;
   ii) The distribution of demographic and disease-specific factors influencing infectious disease incidence;
   iii) Populations at risk of exposure to infectious diseases in the community and in specific settings including, but not limited to long-term care homes, hospitals and licensed day nurseries; and
   iv) Trends over time in the incidence of diseases of public health importance.

c) The board of health shall use standard definitions of variables and health indicators where available and appropriate to conduct data analysis and interpretation of infectious diseases data and information. Standard definitions for population health assessment and surveillance indicators developed by the Association of Public Health Epidemiologists in Ontario (APHEO), Statistics Canada, the Canadian Institute for Health Information (CIHI) and the ministry shall be used where available.

d) The board of health shall review annually its infectious diseases surveillance activities to assess their effectiveness to prevent and manage infectious diseases.

e) The board of health shall use information from inspection reports of premises associated with risk of infectious diseases to plan further inspections of these premises, to assess disease transmission risks and required interventions, and to tailor infection control training or messages to these premises.


4) Public Health On-Call System

a) The board of health shall have a 24 hours per day, 7 days per week (24/7) public health on-call system in the health unit for receiving and responding to reports with respect to:
   i) Confirmed and suspected outbreaks of infectious diseases of public health importance occurring in institutions or facilities;
   ii) Confirmed and suspected outbreaks of infectious diseases of public health importance occurring in the community;
   iii) Confirmed or suspected cases of, and exposures to reportable diseases reported by persons required under the HPPA\textsuperscript{1} to report information to the medical officer of health with respect to such diseases;
   iv) Suspected exposures to, and reports of infectious diseases among emergency service workers that occur during the course of work;
   v) Confirmed or suspected cases of, and exposures to infectious diseases reported by a member of the public;
   vi) Health hazards that have, or that are likely to have, an adverse effect on the health of any person;
   vii) Food or other product recalls issued by the ministry, the Canadian Food Inspection Agency or other provincial or national regulatory agencies and manufacturers;
   viii) Public complaints with respect to the risk of transmission of infectious diseases; and
   ix) Applications in accordance with the Mandatory Blood Testing Act.\textsuperscript{4}

b) The board of health shall ensure that persons required under the HPPA\textsuperscript{1} to report information to the medical officer of health with respect to reportable diseases are informed of the public health on-call system, and how to access it.

c) The board of health shall assess reports with respect to infectious diseases and factors influencing their occurrence that originate through the public health on-call system, within 24 hours of receipt.

d) The board of health’s initial response to reports with respect to infectious diseases, and factors influencing their occurrence, that originate through the public health on-call system, shall include the following:
   i) Review and assessment of the information provided as well as appropriate action, based on the initial assessment, to prevent, control or manage exposure to, or transmission of the infectious disease;
   ii) Contacting the reporting person, facility/institution or organization to obtain additional information for the purpose of undertaking further assessment of the risk of exposure to, or transmission of, the infectious disease;
   iii) Contacting the case(s) and/or contact(s) named in the report to obtain additional information for the purpose of making an assessment pertaining to the risk of exposure to, or transmission of the infectious disease; and
   iv) Conducting a site visit or an inspection where appropriate.

e) The board of public health on-call system shall reference standard policies and procedures for responding to health hazards including health hazards associated with the risk of exposure to, and transmission of infectious diseases.

f) The board of health shall transfer reports received through its public health on-call system that are not in the health unit of the board of health receiving such reports, to the appropriate board of health.

g) The public health on-call system shall be documented and reviewed at least annually, and shall include:
   i) An up-to-date schedule that specifies board of health staff responsible for receiving and responding to reports received through the public health on-call system;
   ii) Contact information of board of health staff, which shall be updated quarterly;
   iii) Contact information of community partners, regulatory bodies and government agencies involved in the control and prevention of exposures to, and transmission of infectious diseases, which shall be updated quarterly;
   iv) Contact information of the lead government body, regulatory body or other agencies involved in the response to specific types of reports received through the public health on-call system, which shall be updated quarterly;
   v) Contact information of all medical officers of health for the purpose of transferring reports received through the public health on-call system that are not in the health unit of the board of health receiving such reports. This contact list shall be updated quarterly;
   vi) Contact information for the Public Health Division on-call system, which shall be updated quarterly;
vii) A distribution mechanism for mass notification of board of health staff, the ministry, community partners, other government ministries, regulatory bodies and other government agencies involved in the control and prevention of exposures to and transmission of infectious diseases;

viii) A back-up communications capability for mass notification of board of health staff, the ministry, community partners, regulatory bodies and other government agencies or ministries involved in the control and prevention of exposures to and transmission of infectious diseases;

ix) The process for transferring reports received through the public health on-call system that are not in the health unit of the board of health receiving such reports;

x) Information on the time frame within which the board of health shall provide an initial response or forward an out of jurisdiction report; and

xi) A process for reporting back to persons or organizations that make reports through the public health on-call system, where required.

5) Management of Infectious Diseases – Sporadic Cases

a) The board of health shall provide public health management of cases and contacts of diseases of public health importance in accordance with this protocol.

b) The public health management of cases and contacts of diseases of public health importance shall comprise of, but not be limited to:
   i) Case management including, and where applicable: the determination of potential exposures and the provision of disease prevention counselling, administration of chemoprophylaxis, immunization or immuno-globulin (where appropriate) and/or advice to seek medical care and submit clinical samples;
   ii) Contact identification, tracing and notification;
   iii) Contact management including, and where applicable: the provision of disease prevention counselling, (where appropriate) administration of chemoprophylaxis, immunization or immuno-globulin and/or advice to seek medical care and submit clinical samples;
   iv) Investigation of suspected sources of infection;
   v) Notification of the ministry as specified in this protocol;
   vi) Maintenance of ongoing surveillance for further cases;
   vii) Where warranted, inspection of institutions, premises or facilities where cases and/or disease transmission is suspected; and
   viii) Reporting of cases of infectious diseases to the ministry using iPHIS or any other method specified by the ministry, and in accordance with the reporting criteria for reportable diseases set out in this protocol.

6) Management of Infectious Disease Outbreaks

a) The board of health shall provide public health management of confirmed or suspected outbreaks of infectious diseases of public health importance in accordance with this protocol.

b) The public health management of confirmed or suspected outbreaks of diseases of public health importance shall comprise of, but not be limited to:
   i) Verification of the outbreak;
   ii) Consideration of declaration of an outbreak by the medical officer of health or designate;
   iii) Creation of an Outbreak Management Team (OMT), where required;
   iv) Development of an outbreak case definition;
   v) Case management including the determination of exposure history and the provision of disease prevention counselling, administration of chemoprophylaxis, immunization or immuno-globulin (where indicated) and/or advice to seek medical care and submit clinical samples where applicable;
   vi) Contact identification, tracing and notification;
   vii) Contact management including the provision of disease prevention counselling, administration of chemoprophylaxis, immunization or immuno-globulin (where indicated) and/or advice to seek medical care and submit clinical samples where applicable;
   viii) Epidemiological analysis including but not limited to analyses to determine population(s) at risk, the time period at risk and most likely source(s) of infection;
ix) Outbreak notification and communication of outbreak information to the ministry, regulatory bodies and other government agencies involved in the prevention and control of exposures to and transmission of the outbreak disease;

x) Outbreak notification and communication of outbreak information to the population at risk, including persons in settings associated with an outbreak;

xi) Outbreak notification and communication of outbreak information to community partners with an identified role in the diagnosis and treatment of infectious diseases, and in the control and management of infectious diseases outbreaks, including but not limited to physician offices, hospitals, the public health laboratories of the Ontario Agency for Health Protection and Promotion (OAHHP), and facilities and institutions such as day nurseries and long-term care homes;

xii) Maintenance of ongoing surveillance for new cases and/or implementation of enhanced or active surveillance to identify new cases;

xiii) Implementation of prevention and control measures, taking into consideration the etiologic agent and the epidemiology of the outbreak;

xiv) Issuance of public health alerts or bulletins where prevention and control efforts require public compliance with implemented and/or recommended control measures;

xv) Issuance of public health alerts or bulletins where necessary to advise unidentified contacts of potential exposures and the appropriate follow-up action that is required;

xvi) Investigation of sources of infection including but not limited to collection of exposure histories, inspection of institutions, premises or facilities that have been epidemiologically linked to the outbreak, environmental and clinical sampling and product trace-back; and

xvii) Coordination of and/or collection of clinical specimens and environmental samples in a timely manner to verify diagnosis as well as the exposure source.

c) The board of health shall develop a written outbreak protocol that specifies the composition of the OMT and their roles and responsibilities.

d) The board of health shall comply with all active Enhanced Surveillance Directives (ESD) and other directives with respect to ongoing provincial or multi-jurisdiction outbreaks that are issued by the ministry as per iPHIS Bulletin Number 18: “Enhanced Surveillance Directives.”

e) The board of health shall notify the ministry as soon as possible of any evidence of increased virulence based on unusual clinical presentation, the possibility of multi-jurisdictional involvement, suspicion of a novel or emerging strain, or other novel outbreak findings. Where, in the opinion of the medical officer of health or designate, a delay would not pose a risk of harm to individuals, the board of health shall notify the ministry in advance of any notification of the media.

f) The board of health shall report outbreaks of infectious diseases and/or cases that are linked to an outbreak to the ministry using iPHIS or any other method specified by the ministry within one business day of receiving notification of an outbreak or determining that an outbreak is occurring/has occurred that has not been reported.

g) The board of health shall close reported outbreaks using iPHIS or any other method specified by the ministry within 30 days of declaring them over.

h) A report made using iPHIS or any other method specified by the ministry shall comply with the data reporting criteria for reportable diseases set out in this protocol.

i) The ministry may request additional information with respect to reports of outbreaks of infectious diseases and related deaths.

j) The medical officer of health or designate in collaboration with the OMT, where one has been established, shall determine when to declare an outbreak over, taking into consideration the etiologic agent and the epidemiology of the outbreak.
7) Prevention and Management of Vector-Borne Diseases

a) The board of health shall develop and implement an integrated vector-borne diseases management strategy based on local risk assessment and other scientific evidence with respect to effective and efficient prevention and control measures.

b) The board of health shall conduct local West Nile Virus risk assessments, on a yearly basis, in accordance with the ministry West Nile Virus Preparedness and Prevention Plan, as amended from time to time.

c) The board of health shall develop an integrated vector-borne management plan which shall be comprised of:
   i) Vector surveillance;
   ii) Non-human host surveillance;
   iii) Human surveillance;
   iv) Public education on personal preventive measures; and
   v) Vector control programs including larviciding and adulticiding where required.

d) The board of health shall review annually its vector-borne management strategy to ensure that the components of the strategy reflect changes in the epidemiology of vector-borne diseases.

e) The board of health shall promptly notify the Canadian Blood Services (CBS) and Trillium Gift-of-Life of any positive human results with blood/organ histories of a vector-borne disease.

Glossary

Enhanced Surveillance Directive: Public Health Division may issue enhanced surveillance directives for reportable diseases in response to a variety of circumstances, including but not limited to:

- Increased case reports of reportable disease(s);
- Reports of emerging disease(s);
- Diseases with seasonal variation (e.g., West Nile Virus); and
- Food contamination alerts.

Each enhanced surveillance directive will include the following:

- Situation background and current status;
- Start and end dates (if known);
- Detailed data requirements;
- Step-by-step guide for data entry into iPHIS;
- Data field definitions;
- Screenshots of data field locations; and
- Information on whom to contact for assistance.

Facility: In this protocol, facility has the same meaning as defined in the Risk Assessment and Inspection of Facilities Protocol, 2008 (or as current) which describes facilities in the following two categories:

- Facilities that are under the authority of the HPPA and/or its regulations, including:
  - O. Reg. 568/90 (Recreational Camps);
  - O. Reg. 554/90 (Camps in Unorganized Territories); and
  - HPPA, Section 10.(2) (Premises used or intended for use as a boarding house or lodging house).
- Other facilities that are not regulated under the HPPA, as follows:
  - Ice arenas;
  - Seasonal farm workers' housing;
  - Schools;
  - Day nurseries and other childcare facilities;
  - Long-term care homes;
  - Group homes; and
  - Other facilities as instructed by the ministry.
Health Hazard: In this protocol, health hazard has the same meaning as Section 1 of the HPPA. “Health hazard” means, (a) a condition of a premises, (b) a substance, thing, plant or animal other than man, or (c) a solid, liquid, gas or combination of any of them, that has or that is likely to have an adverse effect on the health of any person; (“risque pour la santé”)

Infectious diseases of public health importance: Infectious diseases of public health importance include, but are not limited to, those specified reportable diseases as set out by O. Reg 559/91 (as amended) under the Health Protection and Promotion Act and include zoonotic diseases. Emerging infectious diseases may be considered of public health importance based on a variety of criteria, including their designation as an emerging disease by international, federal, and/or provincial health authorities; their potential for preventability or public health action; and the seriousness of their impact on the health of the population and potential spread.

Reportable event: In this protocol, reportable event has the same meaning as Section 38 of the HPPA.

Surveillance: The ongoing systematic collection, analysis, and interpretation of health data, essential to the planning, implementation, and evaluation of public health practice, closely integrated with the timely dissemination of these data to those who need to know. The final link in the surveillance chain is the application of these data to prevention and control. A surveillance system includes a functional capacity for data collection, analysis, and dissemination linked to public health programs.

References
   Toronto: Queen’s Printer for Ontario; 2008.
Appendix A:
Disease-Specific Chapters
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquired Immunodeficiency Syndrome (AIDS)</td>
<td>1</td>
</tr>
<tr>
<td>Amebiasis</td>
<td>9</td>
</tr>
<tr>
<td>Anthrax</td>
<td>16</td>
</tr>
<tr>
<td>Botulism</td>
<td>24</td>
</tr>
<tr>
<td>Brucellosis</td>
<td>32</td>
</tr>
<tr>
<td>Campylobacter enteritis</td>
<td>39</td>
</tr>
<tr>
<td>Chancroid</td>
<td>47</td>
</tr>
<tr>
<td>Chickenpox (Varicella)</td>
<td>52</td>
</tr>
<tr>
<td>Chlamydia trachomatis infections</td>
<td>59</td>
</tr>
<tr>
<td>Cholera</td>
<td>65</td>
</tr>
<tr>
<td>Clostridium difficile associated disease (CDAD) outbreaks in public hospitals</td>
<td>72</td>
</tr>
<tr>
<td>Cryptosporidiosis</td>
<td>81</td>
</tr>
<tr>
<td>Cyclosporidiosis</td>
<td>88</td>
</tr>
<tr>
<td>Cytomegalovirus infection, congenital</td>
<td>94</td>
</tr>
<tr>
<td>Diphtheria</td>
<td>99</td>
</tr>
<tr>
<td>Encephalitis, including: i) Primary, viral; ii) Post-infectious; iii) Vaccine-related; iv) Subacute sclerosing panencephalitis, and v) Unspecified</td>
<td>108</td>
</tr>
<tr>
<td>Food poisoning, all causes</td>
<td>114</td>
</tr>
<tr>
<td>Gastroenteritis, institutional outbreaks</td>
<td>120</td>
</tr>
<tr>
<td>Giardiasis, except asymptomatic cases</td>
<td>126</td>
</tr>
<tr>
<td>Gonorrhoea</td>
<td>133</td>
</tr>
<tr>
<td>Group A Streptococcal disease, invasive</td>
<td>139</td>
</tr>
<tr>
<td>Group B Streptococcal disease, neonatal</td>
<td>148</td>
</tr>
<tr>
<td>Haemophilus influenzae b disease, invasive</td>
<td>153</td>
</tr>
<tr>
<td>Hantavirus pulmonary syndrome</td>
<td>161</td>
</tr>
<tr>
<td>Hemorrhagic fevers, including: i) Ebola virus disease; ii) Marburg virus disease, and iii) Other viral causes</td>
<td>167</td>
</tr>
<tr>
<td>Disease</td>
<td>Page</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Hepatitis A</td>
<td>173</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>183</td>
</tr>
<tr>
<td>Hepatitis C</td>
<td>191</td>
</tr>
<tr>
<td>Hepatitis D (Delta hepatitis)</td>
<td>197</td>
</tr>
<tr>
<td>Herpes, neonatal</td>
<td>202</td>
</tr>
<tr>
<td>Influenza</td>
<td>207</td>
</tr>
<tr>
<td>Lassa Fever</td>
<td>215</td>
</tr>
<tr>
<td>Legionellosis</td>
<td>221</td>
</tr>
<tr>
<td>Leprosy</td>
<td>228</td>
</tr>
<tr>
<td>Listeriosis</td>
<td>234</td>
</tr>
<tr>
<td>Lyme Disease</td>
<td>242</td>
</tr>
<tr>
<td>Malaria</td>
<td>248</td>
</tr>
<tr>
<td>Measles</td>
<td>254</td>
</tr>
<tr>
<td>Meningitis, acute: i) bacterial; ii) viral, and iii) other</td>
<td>262</td>
</tr>
<tr>
<td>Meningococcal disease, invasive</td>
<td>269</td>
</tr>
<tr>
<td>Mumps</td>
<td>279</td>
</tr>
<tr>
<td>Ophthalmia neonatorum</td>
<td>286</td>
</tr>
<tr>
<td>Paratyphoid Fever</td>
<td>291</td>
</tr>
<tr>
<td>Pertussis (Whooping Cough)</td>
<td>298</td>
</tr>
<tr>
<td>Plague</td>
<td>307</td>
</tr>
<tr>
<td>Pneumococcal disease, invasive</td>
<td>314</td>
</tr>
<tr>
<td>Poliomyelitis, acute</td>
<td>322</td>
</tr>
<tr>
<td>Psittacosis/Ornithosis</td>
<td>329</td>
</tr>
<tr>
<td>Q Fever</td>
<td>336</td>
</tr>
<tr>
<td>Rabies</td>
<td>343</td>
</tr>
<tr>
<td>Respiratory infection outbreaks in institutions</td>
<td>351</td>
</tr>
<tr>
<td>Rubella</td>
<td>357</td>
</tr>
<tr>
<td>Rubella, congenital syndrome</td>
<td>364</td>
</tr>
<tr>
<td>Salmonellosis</td>
<td>370</td>
</tr>
<tr>
<td>Severe Acute Respiratory Syndrome (SARS)</td>
<td>378</td>
</tr>
<tr>
<td>Shigellosis</td>
<td>387</td>
</tr>
</tbody>
</table>
Smallpox ................................................................. 395
Syphilis ................................................................. 404
Tetanus ................................................................. 411
Transmissible Spongiform Encephalopathy, including: i) Creutzfeldt-Jakob Disease, all types; ii) Gerstmann-Sträussler-Scheinker Syndrome; iii) Fatal Familial Insomnia, and iv) Kuru ........................................ 417
Trichinosis ............................................................ 423
Tuberculosis .......................................................... 430
Tularemia .............................................................. 439
Typhoid Fever ....................................................... 446
Verotoxin-producing \textit{E. coli} infection indicator conditions, including Haemolytic Uraemic Syndrome (HUS) .......................................................... 454
West Nile Virus Illness ............................................ 462
Yellow Fever .......................................................... 468
Yersiniosis ............................................................. 474
Appendix A: Disease-Specific Chapters

Chapter: Acquired Immunodeficiency Syndrome (AIDS)
Acquired Immunodeficiency Syndrome (AIDS)

1) Aetiological Agent:
The human immunodeficiency virus (HIV) is a retrovirus of which two types have been identified: type 1 (HIV-1) and type 2 (HIV-2). They are serologically and geographically distinct but have similar epidemiological characteristics (1).

The pathogenicity of HIV-2 may be lower than that of HIV-1; they have genotypic and phenotypic differences. HIV-2 has lower disease progression and lower rates of mother-to-child transmission (1).

2) Case Definition:

Surveillance Case Definition
See Appendix B

Outbreak Case Definition
Not applicable

3) Identification:

Clinical Presentation
AIDS is a severe, life threatening clinical condition and is advanced HIV related disease. This syndrome represents the late clinical stage of HIV infection resulting from progressive damage to the immune system, leading to one or more of many opportunistic infections and cancers of which bacterial pneumonia is one of the common presentations (1).

Symptoms of acute HIV infection while difficult to diagnose and nonspecific and may include fever, arthralgia or myalgia, rash, lymphadenopathy, sore throat, fatigue, headache, oral ulcers and or genital ulcers, weight loss, nausea, vomiting or diarrhea (2).

AIDS defining conditions include: (2)
- Bacterial pneumonia (recurrent)*
- Candidiasis (bronchi, trachea or lungs)
- Candidiasis (esophageal)†
- Cervical cancer (invasive)*
- Coccidioidomycosis (disseminated or extrapulmonary)*
- Cryptococcosis (extrapulmonary)
- Cryptosporidiosis chronic intestinal (> 1 month duration)
- Cytomegalovirus diseases (other than in liver, spleen or nodes)
- Cytomegalovirus retinitis (with loss of vision)* †
- Encephalopathy, HIV-related (dementia)*
- Herpes simplex: chronic ulcer(s) (> 1 month duration) or bronchitis, pneumonitis or esophagitis
- Histoplasmosis (disseminated or extrapulmonary)*
- Isosporiasis, chronic intestinal (> 1 month duration)*
- Kaposi’s sarcoma†
- Lymphoma, Burkitt’s (or equivalent term)*
- Lymphoma, immunoblastic (or equivalent term)*
- Lymphoma (primary in brain)
- Mycobacterium avium complex or M. kansasii (disseminated or extrapulmonary)*
- Mycobacterium of other species or unidentified species**†
- M. tuberculosis (disseminated or extrapulmonary)*
- M. tuberculosis (pulmonary)*

Pneumocystis jirovecii pneumonia (formerly carinii)
- carinii pneumonia† ¥
- Progressive multifocal leukoencephalopathy
- Salmonella septicemia (recurrent)*
- Toxoplasmosis of brain†
- Wasting syndrome due to HIV*

For pediatric cases only (< 15 years old)
- Bacterial infections (multiple or recurrent, excluding recurrent bacterial pneumonia)*
- Lymphoid interstitial pneumonia and/or pulmonary lymphoid hyperplasia†

* Must have laboratory evidence of HIV infection
† May be diagnosed presumptively if laboratory evidence of HIV infection is present
¥ This has been renamed as Pneumocystis jirovecii

### Diagnosis

See Appendix B

### 4) Epidemiology:

#### Occurrence

AIDS was first reported in 1981 (1). The Public Health Agency of Canada, 2007, list of HIV Endemic Countries includes: 71 African, Caribbean, Asian, and Central/South American countries.

#### Reservoir

Humans (1)

#### Modes of Transmission

Person to person transmission through unprotected sexual intercourse; contact with infected body fluids such as sexual fluids, blood, and breast milk; CSF; the use of HIV-contaminated needles and syringes and some drug paraphernalia, including sharing by injection drug users; transfusion of infected blood or its components, organ and tissue transplants and mother to child transmission and contact of abraded skin or mucosa with body secretions such as
blood, CSF or semen (1).

A more detailed description of HIV transmission is available in the Canadian AIDS Society publication, “HIV Transmission: Guidelines for Assessing Risk – A Resource Guide for Educators, Counsellors and Health Care Providers”, 5th ed. 2004; as well as in the other resources and references listed below.

<table>
<thead>
<tr>
<th>Incubation Period</th>
<th>Variable; time from initial infection to detectable antibodies is usually 1-3 months. The time from HIV infection to diagnosis of AIDS has an observed range of less than one year to 15 years or longer (1).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period of Communicability</td>
<td>Not known precisely; begins early after onset of HIV infection and presumably extends throughout life. Infectivity during the first months is considered to be high; it increases with viral load, with worsening clinical status and with the presence of other STIs (1).</td>
</tr>
<tr>
<td>Susceptibility and Resistance</td>
<td>Unknown, but presumed to be general; race, gender and pregnancy status do not appear to affect susceptibility to HIV infection or AIDS. The presence of other STIs especially if ulcerative increases susceptibility (1). The Ontario Advisory Committee on HIV/AIDS (OACHA) has identified four populations at greatest risk of acquiring HIV/AIDS in Ontario, including gay and bisexual men, African and Caribbean Ontarians, Aboriginal Ontarians and people who use injection drugs.</td>
</tr>
</tbody>
</table>

5) Reporting Requirements:

<table>
<thead>
<tr>
<th>To local Board of Health</th>
<th>Laboratory confirmed cases of HIV infection shall be reported to the medical officer of health by persons required to do so under the <em>Health Protection and Promotion Act</em>, R.S.O. 1990.</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Public Health Division (PHD)</td>
<td>Report only case classifications specified in the case definition to PHD. Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) business days of receipt of initial notification as per <em>iPHIS Bulletin</em> Number 17: Timely Entry of Cases (4). The minimum data elements to be reported for each case is specified in the following:</td>
</tr>
<tr>
<td></td>
<td>• <em>Ontario Regulation 569</em> (Reports) under the Health Protection and Promotion Act (HPPA);</td>
</tr>
<tr>
<td></td>
<td>• The disease-specific User Guides published by the Ministry, and</td>
</tr>
<tr>
<td></td>
<td>• Bulletins and directives issued by the Ministry.</td>
</tr>
</tbody>
</table>
### 6) Prevention and Control Measures:

<table>
<thead>
<tr>
<th>Personal Prevention Measures</th>
<th>Measures include: (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide education to persons about transmission, safer sex/drug practices, including proper use of barrier methods and risk reduction with IUD. Persons with known risk behaviors should be offered HIV testing, with appropriate pre and post counseling, and referral if necessary. Counselling should be age appropriate and individualized to the person being tested.</td>
<td></td>
</tr>
<tr>
<td>• Provide education to persons presenting with concerns about HIV infection about safer sexual practices and proper use of barrier methods and risk reduction</td>
<td></td>
</tr>
<tr>
<td>• Persons with known risk behaviours should be offered HIV testing, counselling and diagnosis</td>
<td></td>
</tr>
<tr>
<td>For more information on counselling and education refer to the <em>Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008</em> (or as current) and, the <em>Canadian Guidelines on Sexually Transmitted Infections</em>, Public Health Agency of Canada, 2008 edition or as current.</td>
<td></td>
</tr>
<tr>
<td>More information is available in the resources and references listed below.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Infection Prevention and Control Strategies</th>
<th>Strategies include:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• At the time of diagnostic testing for HIV, review and monitor prevention practices</td>
<td></td>
</tr>
<tr>
<td>• Identify barriers to prevention practices and the means to overcome them</td>
<td></td>
</tr>
<tr>
<td>• Routine practices are recommended for hospitalized cases (2)</td>
<td></td>
</tr>
<tr>
<td>For more information on infection prevention and control strategies refer to the <em>Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008</em> (or as current) and, the <em>Canadian Guidelines on Sexually Transmitted Infections</em>, Public Health Agency of Canada, 2008 edition or as current.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Management of Cases</th>
<th>Primary focus of HIV/AIDS case management is to counsel regarding ongoing transmission risks and to carry out partner notification (3).</th>
</tr>
</thead>
<tbody>
<tr>
<td>For case management refer to the following documents:</td>
<td></td>
</tr>
<tr>
<td><em>Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008</em> (or as current)</td>
<td></td>
</tr>
<tr>
<td><em>Canadian Guidelines on Sexually Transmitted Infections</em>, Public Health Agency of Canada, 2008 edition or as current</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Management of Contacts</th>
<th>For contact management refer to the ministry document:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management of Outbreaks</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>------------------------</td>
<td>----------------</td>
</tr>
</tbody>
</table>

### 7) References


### 8) Additional Resources


Appendix A: Disease-Specific Chapters

Chapter: Amebiasis
### Amebiasis

<table>
<thead>
<tr>
<th>Communicable</th>
<th>Virulent</th>
</tr>
</thead>
</table>

**Health Protection and Promotion Act:**
Ontario Regulation 558/91 – Specification of Communicable Diseases

**Health Protection and Promotion Act:**
Ontario Regulation 559/91 – Specification of Reportable Diseases

<table>
<thead>
<tr>
<th>1) Aetiologic Agent:</th>
<th>Amebiasis is an enteric infection caused by <em>Entamoeba histolytica</em> (<em>E. histolytica</em>). Differentiation of the pathogenic <em>E. histolytica</em> from the morphologically identical non-pathogenic <em>E. dispar</em> is based on immunologic differences and on isoenzyme patterns. Most asymptomatic cyst passers carry <em>E. dispar</em> (1). The pathogenic <em>E. histolytica</em> and the non-pathogenic <em>E. dispar</em> are excreted as cysts or trophozoites in stools of infected people (2).</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>2) Case Definition:</th>
<th></th>
</tr>
</thead>
</table>

**Surveillance Case Definition**  
See Appendix B

**Outbreak Case Definition**  
The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition:

1. Clinical, laboratory and/or epidemiological criteria
2. The time frame for occurrence
3. The geographic location(s) or place(s) where cases live or became ill/exposed
4. Special attributes of cases (e.g. age, underlying conditions) and/or the aetiologic agent

Cases may be classified by levels of probability (i.e. confirmed, probable and/or suspect).

<table>
<thead>
<tr>
<th>3) Identification:</th>
<th></th>
</tr>
</thead>
</table>

**Clinical Presentation**  
Clinical syndromes associated with *E. histolytica* infection include non-invasive intestinal infection, intestinal amebiasis, ameboma, and liver abscess (2). Most infections are asymptomatic (1).

Persons with non-invasive intestinal infection may be asymptomatic or may have non-specific intestinal tract complaints. Persons with intestinal amebiasis (amebic colitis) generally have 1 to 3 weeks of increasingly severe diarrhea progressing to grossly bloody dysenteric stools with lower abdominal pain and tenesmus. Weight loss and
Amebomas may occur as an annular lesion of the cecum or ascending colon that may be mistaken for colonic carcinoma or as a tender extra-hepatic mass, mimicking a pyogenic abscess. Amebomas usually resolve with anti-amebic therapy and do not require surgery.

In a small proportion of people, extraintestinal disease may occur usually in the liver but can occur in the lungs, pleural space, pericardium, brain skin and genitourinary tract. Liver abscess may be acute with fever, abdominal pain, tachycardia, liver tenderness and hepatomegaly or chronic with weight loss, vague abdominal symptoms and irritability.

Diagnosis

See Appendix B

Fresh fecal specimens are necessary to differentiate non-pathogenic amoebae from macrophages.


4) Epidemiology:

Occurrence

Amebiasis is ubiquitous. Occurs worldwide but is more prevalent in areas of poor sanitation. The proportion of cyst passers who have clinical disease is usually low with higher rates of cyst passage in areas with poor sanitation, mental institutions and among men who are sexually active with men (probably E. dispar) (1). Amebiasis is a common disease in Ontario. The number of cases remains fairly constant throughout the year, with just a slight peak in the summer months. Between 2003 and 2007, an average of 738 cases occurred per year.

Reservoir

Humans; usually a chronically ill or asymptomatic cyst passer (1).

Modes of Transmission

Mainly through ingestion of fecal contaminated food or water containing amoebic cysts, which are relatively chlorine resistant. Transmission may occur sexually by fecal-oral contact (1).

Incubation Period

From a few days to several months or years; commonly 2-4 weeks (1).

Period of Communicability

During the period that E. histolytica cysts are passed, which may continue for years (1).

Susceptibility and Resistance

Susceptibility to infection is general; those harbouring E. dispar do not develop disease; susceptibility to re-infection has been demonstrated but is apparently rare (1).
### 5) Reporting Requirements:

<table>
<thead>
<tr>
<th>To local Board of Health</th>
<th>Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the <em>Health Protection and Promotion Act</em>, R.S.O. 1990.</th>
</tr>
</thead>
</table>
| To Public Health Division (PHD) | Report only case classifications specified in the case definition to PHD. Note: Cases identified as both *dispar* and *histolytica* are not reportable and require further sampling to differentiate pathogenic *E. histolytica* from the morphologically similar but non-pathogenic *E. dispar*. Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) business days of receipt of initial notification as per iPHIS Bulletin Number 17: Timely Entry of Cases (3). The minimum data elements to be reported for each case is specified in the following:  
  - *Ontario Regulation* 569 (Reports) under the Health Protection and Promotion Act (HPPA)  
  - The disease-specific User Guides published by the Ministry, and  
  - Bulletins and directives issued by the Ministry |

### 6) Prevention and Control Measures:

| Personal Prevention Measures | Control Measures include education on the following (2):  
  - Careful hand hygiene after defecation, sexual contact and before preparing or eating food  
  - Sanitary disposal of fecal material  
  - Adequate sanitation of drinking water  
  - Sexual transmission may be prevented by use of personal protective measures and avoidance of sexual practices that may facilitate fecal-oral transmission  
  - Where water might be contaminated, travelers should be advised of methods to make water safe for drinking, including boiling, chemical disinfection and filtration (2) |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Infection Prevention and Control Strategies</td>
<td></td>
</tr>
</tbody>
</table>
  - Implementation of contact precautions and routine practices for hospitalized patients for the duration of illness (2)  
  - Provision of information on personal prevention measures, including advice to avoid public swimming pools when symptomatic  
  - Exclusion of symptomatic cases from conducting activities in high-risk settings such as the food industry, healthcare, or daycare, for 24 hours after diarrhoea resolves or for 48 hours after completion of antibiotic treatment. |
| Management of Cases | Investigate cases to determine the source of infection. Refer to |
Section 5: Reporting Requirements above for relevant data to be collected during case investigation. The following disease-specific information should also be obtained during case management:

- Symptoms and date of symptom onset
- Earliest and latest exposure dates
- Occupational history
- Residency/attendance at a facility or institution
- History of travel
- Exposure to inadequately treated water supply
- Inadequate hygiene practices
- History of institutionalization
- History of risky sexual behaviour
- Treatment status

Provide information on personal prevention measures and the prevention of secondary cases.

Exclude symptomatic cases from conducting activities in high-risk settings such as the food industry, healthcare, or daycare, for 24 hours after diarrhoea resolves or for 48 hours after completion of antibiotic treatment.

Obtain contact information of all contacts for follow-up and contact management.

Provide infection control guidelines where applicable to operators of institutions or premises where cases and/or disease transmission is suspected.

<table>
<thead>
<tr>
<th>Management of Contacts</th>
<th>Household members and other suspected contacts should be assessed for symptoms. Provide information about the spread of infection and how to prevent it. Consider testing symptomatic household members and refer to attending health care provider for treatment.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management of Outbreaks</td>
<td>As with most enteric diseases, an outbreak is defined as the occurrence of two or more cases of enteric illness linked by time, common exposure or source and most often location. Provide public health management of outbreaks or clusters in order to identify the source of illness, stop the outbreak and limit secondary spread. As per this Protocol, outbreak management shall comprise of but not be limited to the following general steps: Confirm diagnosis and verify the outbreak Establish an outbreak team Develop an outbreak case definition Implement prevention and control measures Implement and tailor communication and notification plans depending on the scope of the outbreak Conduct epidemiological analysis on data collected Conduct environmental inspections of implicated premise where applicable</td>
</tr>
</tbody>
</table>
- Coordinate and collect appropriate clinical specimens where applicable
- Prepare a written report
- Declare the outbreak over in collaboration with the outbreak team

### 7) References


### 8) Additional Resources

Ministry of Health and Long Term Care, Advisory Committee on Communicable Diseases, “Enteric Disease Screening Recommendations and Case Management Guidelines on Food handlers and Patient Care Workers”, 1990 or as current (Currently being revised as “Guidelines for the Management of Enteric Diseases in Healthcare Workers, Food Handlers and Day Care Staff and Attendees”).


Appendix A: Disease-Specific Chapters

Chapter: Anthrax
Anthrax

Health Protection and Promotion Act:
Ontario Regulation 558/91 – Specification of Communicable Diseases

Health Protection and Promotion Act:
Ontario Regulation 559/91 – Specification of Reportable Diseases

1) Aetiologic Agent:
The aetiological agent of anthrax is the bacterium *Bacillus anthracis* (*B. anthracis*), an aerobic, Gram-positive, encapsulated, spore forming, nonmotile rod (1).

*B. anthracis* is a potential bioterrorist agent.

2) Case Definition:

<table>
<thead>
<tr>
<th>Surveillance Case Definition</th>
<th>See Appendix B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outbreak Case Definition</td>
<td>The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition:</td>
</tr>
</tbody>
</table>

1. Clinical, laboratory and/or epidemiological criteria
2. The time frame for occurrence
3. The geographic location(s) or place(s) where cases live or became ill/exposed
4. Special attributes of cases (e.g. age, underlying conditions and/or aetiologic agent)

Cases may be classified by levels of probability (e.g. confirmed, probable or suspect).

3) Identification:

<table>
<thead>
<tr>
<th>Clinical Presentation</th>
<th>Depending on the route of transmission of infection, anthrax disease can result in four clinical syndromes: cutaneous, inhalation, intestinal and oropharyngeal (2).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cutaneous anthrax is characterized by initial itching of exposed skin surface; an initial vesicle at the site of inoculation develops into a painless black eschar; fever, malaise and headache may be present.</td>
</tr>
<tr>
<td></td>
<td>Inhalational anthrax is the most lethal form of disease. Initial presentation includes, sweats, malaise, mild cough, dyspnea, nausea or vomiting, and this is followed by acute onset of respiratory distress</td>
</tr>
</tbody>
</table>

Infectious Diseases Protocol, 2009 – Appendix A
and shock; there is also radiological evidence of mediastinal widening and pleural effusion present. Fatality rate is extremely high. Anthrax meningitis begins with hypotension, quickly followed by delirium or coma; refractory seizures, cranial nerve palsies, and myoclonus have been reported.

Intestinal anthrax presents in acute vomiting, abdominal distension, GI bleeding, and peritonitis.

Symptoms of oropharyngeal anthrax include fever, neck swelling due to lymphadenopathy, throat pain, oral ulcers and sepsis.

### Diagnosis

See Appendix B

Laboratory demonstration of *B. anthracis* obtained from blood, CSF, pleural fluid, ascitic fluid, vesicular fluid or lesion exudate (1).

### 4) Epidemiology:

#### Occurrence

Anthrax is primarily a disease of herbivores; humans and carnivores are incidental hosts. In most industrialized countries anthrax is an infrequent and sporadic human infection (1). Anthrax has not been reported in Ontario. Given the severity and rarity of Anthrax, a single confirmed case constitutes an outbreak.

#### Reservoir

The main reservoirs of anthrax are animals both livestock and wildlife, as well as soil where the spores may remain dormant for years and are a potential source of infection for grazing livestock (1).

#### Modes of Transmission

Transmission occurs by inoculation through open skin via contact with infected animal tissue, other animal products and contaminated soil and by ingestion of undercooked, contaminated or raw meat (2). Inhalation anthrax results from the inhalation of anthrax spores, particularly in risky industrial settings (1).

#### Incubation Period

From 1-7 days, although incubation periods of up to 60 days are possible (1).

#### Period of Communicability

Person to person transmission is rare. Articles and soil contaminated with spores may remain infective for years (1).

#### Susceptibility and Resistance

There is some evidence of in-apparent infection among people in frequent contact with the infectious agent; second attacks can occur, but reports are rare (1).

### 5) Reporting Requirements:

#### To local Board of Health

Confirmed and suspected cases should be reported immediately to the medical officer of health by persons required to do so under the *Health Protection and Promotion Act*, R.S.O. 1990.

#### To Public Health Division (PHD)

The board of health shall notify the PHD of the MOHLTC immediately by phone upon receiving a report of a confirmed,
probable or suspect case of anthrax.

Report only case classifications specified in the case definition to PHD using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) business days of receipt of initial notification as per iPHIS Bulletin Number 17: Timely Entry of Cases (3).

The minimum data elements to be reported for each case is specified in the following sources:

- *Ontario Regulation 569 (Reports) under the Health Protection and Promotion Act (HPPA),*
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry.

### 6) Prevention and Control Measures:

<table>
<thead>
<tr>
<th>Personal Prevention Measures</th>
<th>Preventive measures include but are not limited to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Education about the modes of transmission, care of skin abrasions, and hand washing to members of the public visiting areas where anthrax is known to exist</td>
</tr>
<tr>
<td></td>
<td>• Education regarding the importance of hand washing after touching animals in petting zoos, on farms, etc.</td>
</tr>
<tr>
<td></td>
<td>• Controlling the disease in animals at risk through maintenance of active immunization and treatment of active animal cases</td>
</tr>
<tr>
<td></td>
<td>• Immunize high risk persons such as laboratory workers and animal handlers where indicated</td>
</tr>
<tr>
<td></td>
<td>• Use of proper ventilation in hazardous industries and the use of protective clothing where indicated</td>
</tr>
<tr>
<td></td>
<td>• Avoid contact with any powder substance if bioterrorism is suspected</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Infection Prevention and Control Strategies</th>
<th>Strategies:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• For hospitalized persons routine practices are recommended and the use of contact precautions for cases with open lesions (2)</td>
</tr>
<tr>
<td></td>
<td>• Controlling the disease in animals at risk through maintenance of active immunization and treatment of active animal cases</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Management of Cases</th>
<th><strong>One case is deemed a public health emergency.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Case Investigation and follow-up will be done in consultation with the Public Health Division, MOHLTC and the Public Health Agency of Canada.</td>
</tr>
<tr>
<td></td>
<td>Management of cases should also include contacting the Canadian Food Inspection Agency (CFIA).</td>
</tr>
</tbody>
</table>
Epidemiological investigation:

Investigate cases of anthrax to determine the source of infection and whether other cases may have been exposed to any identified source. Refer to Section 5: Reporting Requirements above for relevant data to be collected during case investigation. The following diseases-specific information should also be obtained during case management:

- Symptoms and date of symptom onset
- History of out-of-province and international travel
- History of exposure including contact with ruminants that have died acutely
- Earliest and latest exposure dates
- Occupation

Exposure investigation: In collaboration with the PHD:

- Determine what samples of suspected sources to collect for laboratory analysis
- Determine appropriate sampling medium and techniques;
- Inspect premises associated with illness

Provide information related to anthrax, including information on transmission and on risk factors.

Persons who may have been exposed to anthrax are not contagious, so quarantine is not appropriate. Persons with draining lesions should be cared for using contact precautions. Dressings with drainage from the lesions should be incinerated, autoclaved, or otherwise disposed of as biohazard waste.

Treatment of the case should be under the direction of an infectious disease physician. Refer to the resources and references listed below for more information on treatment.

In collaboration with the PHD, determine what communication and notification is required about the case.

NOTE:
Given the potential for the appearance of these cases to signal a bioterror incident, investigation and follow-up may involve the activation of the emergency management system in place in the province, including the Emergency Management Unit of the Ministry of Health and Long-Term Care and relevant health emergency response plans, as well as those additional ministries with responsibilities for security, law enforcement, or other relevant areas of concern, as identified in the Emergency Management and Civil Protection Act and associated Order in Council. Please see the following link for further information. The Ministry Emergency Response Plan (MERP) provides information on how the ministry would respond to an emergency. Please see the following link for further information:

### Management of Contacts

Although there is no person to person transmission, there could be a possibility of exposure to same source; consultation with infectious disease experts may be prudent.

### Management of Outbreaks

A single case of anthrax should be managed with great urgency. If there is suspicion of a bioterrorism event, notify Emergency Management Ontario. Consider the following outbreak control measures:

- Coordination with appropriate emergency services (e.g. Emergency Management Ontario and the police force)
- Active finding of cases and persons exposed to the same source of infection
- Alerts for medical community and hospitals
- Public information and communication plans
- Control of contacts including field workers involved in the implementation of environmental control measures
- Environmental control measures

As well as collaboration with CFIA, the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) should also be involved.

As per this Protocol, outbreak management shall comprise of but not be limited to the following general steps:

- Confirm diagnosis and verify the outbreak
- Establish an outbreak team
- Develop an outbreak case definition
- Implement prevention and control measures
- Implement and tailor communication and notification plans depending on the scope of the outbreak
- Conduct epidemiological analysis on data collected
- Conduct environmental inspections of implicated premise where applicable
- Coordinate and collect appropriate clinical specimens where applicable
- Prepare a written report
- Declare the outbreak over in collaboration with the outbreak team

### 7) References

8) Additional Resources


Appendix A: Disease-Specific Chapters

Chapter: Botulism
**Botulism**

| Communicable | ☑ | Virulent | ☐ |

**Health Protection and Promotion Act:**
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

**Health Protection and Promotion Act:**
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

<table>
<thead>
<tr>
<th>1) Aetiologic Agent:</th>
<th>Botulism is caused by toxins, produced by <em>Clostridium botulinum</em> (C. botulinum), which is a Gram positive, spore-forming obligate anaerobic bacillus (1).</th>
</tr>
</thead>
</table>
| 2) Case Definition: | **Surveillance Case Definition**  
See Appendix B  

**Outbreak Case Definition**  
A single case of botulism constitutes an outbreak and should be managed with great urgency.  
The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition:  
1. Clinical, laboratory and/or epidemiological criteria  
2. The time frame for occurrence  
3. The geographic location(s) or place(s) where cases live or became ill/exposed  
4. Special attributes of cases (e.g. age, underlying conditions) and/or the aetiologic agent  

Cases may be classified by levels of probability (i.e. confirmed, probable and/or suspect). |

| 3) Identification: | Clinical Presentation  
There are 3 forms of botulism: foodborne (classic form), wound, and intestinal (infant and adult) botulism. The site of toxin production differs for each form, but all share the flaccid paralysis that results from *botulinum* neurotoxin (1).  
Foodborne botulism is a severe intoxication resulting from ingestion |
of preformed toxin present in contaminated food. The usual first signs and symptoms include fatigue, weakness and vertigo, followed by blurred or double vision, dysphasia and dry mouth. Vomiting, diarrhoea, constipation and abdominal swelling may occur. Acute bilateral cranial nerve impairment and descending weakness or paralysis characterize the illness. Recovery may take months; the case fatality rate in the USA is 5%-10% (1).

Wound botulism occurs when spores get into an open wound and reproduce in an anaerobic environment. Symptoms are similar to food borne botulism but may take up to 2 weeks to appear (1).

Intestinal (infant and adult) botulism is rare; it occurs following spore ingestion, subsequent outgrowth and in-vivo toxin production in the intestine; it affects children under 1 year but can rarely affect adults who have altered GI anatomy and microflora (1). Clinical symptoms in infants include constipation, loss of appetite, weakness, lethargy, and altered cry, and a striking loss of head control known as “floppy head” (1).

<table>
<thead>
<tr>
<th>Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>See Appendix B</td>
</tr>
</tbody>
</table>

Diagnosis of food borne botulism is made by demonstration of *botulinum* toxin in serum, stool, gastric aspirate or incriminated food; or through culture of *C. botulism* from gastric aspirate or stool in a clinical case (1).

Identification of organisms in suspected food is helpful but not diagnostic because botulism spores are ubiquitous. The diagnosis may be accepted in a person with the clinical syndrome who had consumed food incriminated in a laboratory-confirmed case (1).

Diagnosis is made in collaboration with the National Botulism Reference Laboratory in Ottawa. The Botulism Reference Service office can be reached during working hours at 613-957-0902 or after-hours at 613-296-1139.

Also refer to the MOHLTC document “Botulism – Guide for Healthcare Professionals” (Version: May 14, 2008)

<table>
<thead>
<tr>
<th>4) Epidemiology:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Occurrence</strong></td>
</tr>
</tbody>
</table>

Botulism is a rare disease in Ontario with less than twenty cases reported over the last five years. Given the severity and rarity of botulism, one case of botulism constitutes an outbreak.

Worldwide; sporadic cases, family and general outbreaks occur when food is prepared or preserved by methods that do not destroy spores and permit toxin formation (1). Cases rarely result from contaminated commercially processed products; however, outbreaks have occurred from contamination through cans damaged after processing (1).
| Reservoir | Botulinum spores are ubiquitous in soil worldwide; are frequently recovered from agricultural products, including honey, and are also found in marine sediments and in the intestinal tract of animals, including fish (1). |
| Modes of Transmission | Foodborne botulism is transmitted by the ingestion of improperly prepared, stored or cooked food containing the toxin. The foods most often implicated are canned foods (vegetables and fruits), home preserved foods, smoked fish, seal meat and other arctic marine mammals such as whale meat.  
Wound botulism results from contamination of traumatized tissue by C. botulinum found in soil that grows in the wound and produces toxin (1).  
Intestinal (infant and adult) botulism is typically associated with the ingestion of spores that germinate and produce toxin in-vivo that may be present in items such as foods, soil, dust, unpasteurized honey and peanut butter. |
| Incubation Period | In food borne botulism neurological symptoms usually appear within 12 to 36 hours after ingestion of contaminated food, or up to several days after eating contaminated food. The shorter the incubation period, the more severe the disease and the higher the case-fatality rate (1).  
For wound botulism, symptoms may take up to 2 weeks to appear after infection (1), with an average of about 10 days.  
The incubation period of intestinal botulism in infants is unknown since the precise time of ingestion often cannot be determined (1). |
| Period of Communicability | No instance of secondary person to person transmission has been documented despite excretion of C. botulinum toxin and organisms in the feces of intestinal (infant) and food borne botulism cases (1).  
People with food borne botulism typically excrete the toxin for shorter periods (1). |
| Susceptibility and Resistance | Susceptibility is general. Adults with special bowel problems leading to unusual gastrointestinal flora (or with a flora unintentionally altered by antibiotic treatment for other purposes) may be susceptible to intestinal botulism (1). |

5) Reporting Requirements:

| To local Board of Health | Confirmed and suspected cases shall be reported immediately by phone to the medical officer of health by persons required to do so under the Health Protection and Promotion Act, R.S.O. 1990. |
| To Public Health Division (PHD) | The board of health shall notify the PHD immediately by phone upon receiving a report of a confirmed, probable or suspect case. |
Report only case classifications specified in the case definition to PHD using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within one (1) business days of receipt of initial notification as per iPHIS Bulletin Number 17: Timely Entry of Cases (2).

The minimum data elements to be reported for each case is specified in the following sources:

- **Ontario Regulation 569 (Reports)** under the Health Protection and Promotion Act (HPPA);
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry.

### 6) Prevention and Control Measures:

| Personal Prevention Measures | Preventive measures (3):
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Practice safe food preparation and canning processes</td>
<td></td>
</tr>
<tr>
<td>Cover wounds to avoid contamination with soil or non-sterile substances</td>
<td></td>
</tr>
<tr>
<td>Abstain from feeding unpasteurized honey and peanut butter to infants less than one year of age</td>
<td></td>
</tr>
<tr>
<td>Effective protocols should be in place for canned food products that have a higher PH and there should always be adequate refrigeration and storage of incompletely processed foods</td>
<td></td>
</tr>
</tbody>
</table>

| Infection Prevention and Control Strategies | Routine practices are recommended for hospitalized cases. |

| Management of Cases | Investigate cases and suspected exposures in collaboration with the attending physician, PHD, MOHLTC, as well as with the Public Health Agency of Canada (PHAC). Decision to notify the Canadian Food Inspection Agency (CFIA) if appropriate will be made in collaboration with the PHD and PHAC as well as decisions for any other communication and or notification that are required. |

Refer to the MOHLTC document *Botulism – Guide for Healthcare Professionals* (Version: May 14, 2008) for steps to be taken in case investigations including:

- Symptoms and date of symptom onset
- History of out-of-province or international travel
- 2-3 day food history and history of other risk behaviours or exposures
- Earliest and latest exposure dates

Exposure investigation should include but not be limited to:

- The collection of food histories 2-3 days prior to symptom onset
The collection of food samples of suspected sources of infection for laboratory analysis using appropriate media, sampling techniques and routine practices for the handling of suspect food

Treatment:

Immediate medical treatment is required; do not await laboratory confirmation. Botulism antitoxin can be accessed through the Ministry of Health and Long Term Care (MOHLTC).


| Management of Contacts | People who are known to have eaten contaminated food or who have shared a likely exposure should be advised to consult with their health care provider for assessment and/or treatment. Treatment may include purging with cathartics, gastric lavage and high enemas (1). |
| Management of Outbreaks | A single case of botulism should be considered an outbreak and should be managed with great urgency in collaboration with the attending physician, PHD-MOHLTC, PHAC and the Botulism Reference Laboratory. In collaboration with PHD and PHAC, determine what if any communication and or notification are required, to whom and how often, including CFIA where appropriate. The local public health unit should consider the following minimum outbreak control measures: |
| | • Active finding of cases and persons exposed to the same source(s) of infection |
| | • Alerts for medical community and hospitals |
| | • Public information and communication plans |
| | • Recall of the suspect food |

In addition, as per this Protocol, outbreak management shall comprise of but not be limited to the following general steps:

• Confirm diagnosis and verify the outbreak
• Establish an outbreak team
• Develop an outbreak case definition
• Implement prevention and control measures
• Implement and tailor communication and notification plans depending on the scope of the outbreak
• Conduct epidemiological analysis on data collected
• Conduct environmental inspections of implicated premise where applicable
• Coordinate and collect appropriate clinical specimens where applicable
• Prepare a written report
• Declare the outbreak over in collaboration with the outbreak team
### References


### Additional Resources


Appendix A: Disease-Specific Chapters

Chapter: Brucellosis
<table>
<thead>
<tr>
<th>Brucellosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communicable</td>
</tr>
<tr>
<td>Virulent</td>
</tr>
</tbody>
</table>

**Health Protection and Promotion Act:**  
Ontario Regulation 558/91 – Specification of Communicable Diseases  

**Health Protection and Promotion Act:**  
Ontario Regulation 559/91 – Specification of Reportable Diseases

### 1) Aetiologic Agent:

Brucellosis is caused by the bacterium *Brucella*. *Brucella* species are small, nonmotile, gram-negative coccobacilli. The species that infect humans include *B. suis*, *B. abortus*, *B. melitensis*, and rarely *B. canis* (2).

Brucellosis is a potential bioterrorism agent.

### 2) Case Definition:

#### Surveillance Case Definition

See Appendix B

#### Outbreak Case Definition

The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following when establishing an outbreak case definition:

1. Clinical, laboratory and/or epidemiological criteria

Cases may be classified by levels of probability (e.g. confirmed, probable and/or suspect).

### 3) Identification:

#### Clinical Presentation

Onset of symptoms may be acute or insidious; it is a systemic infection characterized by continued, intermittent or irregular fever, headache, weakness, sweating, chills, arthralgia, depression, weight loss or generalized aching. Localized infections of organs, including the liver and spleen may be present. Physical findings include lymphadenopathy, hepatosplenomegaly, and occasionally arthritis. Serious complications include meningitis, endocarditis and osteomyelitis (1, 2).

#### Diagnosis

See Appendix B

### 4) Epidemiology:

#### Occurrence

World wide, especially in Mediterranean countries, Middle East,
Africa, Asia, Central and South America, India and Mexico. The disease is often unrecognized and unreported (1).

Predominantly an occupational disease of those who work with infected animals or their tissues, especially farm workers, veterinarians, meat inspectors, and abattoir workers. Infection is common in those who eat raw caribou. There have been reports of isolated cases of infection with *B. canis* occurring in animal handlers from contact with dogs.

In Ontario, the number of brucellosis cases has remained stable over the years with an average of 4 reported cases per year from 2003 to 2007; most of which are related to travel.

<table>
<thead>
<tr>
<th>Reservoir</th>
<th>Domestic animals such as cattle, swine, goats and sheep as well as wild animals such as caribou, bison, elk and some species of deer (1). Ontario has a Brucellosis free status for cattle.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modes of Transmission</td>
<td>Transmission occurs through ingestion of raw milk and unpasteurized dairy products from infected animals, through direct contact of breaks in the skin and mucous membrane with infected animal tissue and their discharges and from fetuses and placentas. Airborne inhalation in laboratories and abattoirs has also been reported (1).</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>The incubation period is variable, and difficult to ascertain; usually 5 - 60 days, commonly 1-2 months, occasionally several months (1).</td>
</tr>
<tr>
<td>Period of Communicability</td>
<td>There is no evidence of person to person communicability (1).</td>
</tr>
<tr>
<td>Susceptibility and Resistance</td>
<td>The severity and duration of the illness varies widely and the duration of acquired immunity following infection is uncertain (1).</td>
</tr>
</tbody>
</table>

5) Reporting Requirements:

To local Board of Health

Confirmed and suspected cases shall be reported **immediately** to the medical officer of health by persons required to do so under the *Health Protection and Promotion Act*, R.S.O. 1990.

To Public Health Division (PHD)

Report only case classifications specified in the case definition to PHD using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry **within five (5) business days of receipt of initial notification** as per *iPHIS Bulletin* Number 17: Timely Entry of Cases (3).

The minimum data elements to be reported for each case is specified in the following sources:

- *Ontario Regulation 569 (Reports)* under the Health Protection and Promotion Act (HPPA);
- The disease-specific User Guides published by the
 Ministry, and
- Bulletins and directives issued by the Ministry.

### 6) Prevention and Control Measures:

<table>
<thead>
<tr>
<th>Personal Prevention Measures</th>
<th>Preventative Measures:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Travellers to foreign countries should be advised not to consume unpasteurized dairy products and undercooked meat products (1);</td>
</tr>
<tr>
<td></td>
<td>• Farmers, hunters and animal handlers should be educated about the proper handling of carcases (1) such as using protective clothing and gloves and when handling feral swine and to bury the remains, and</td>
</tr>
<tr>
<td></td>
<td>• No one should consume raw unpasteurized milk and milk products from potentially infected cows, goats, and sheep or have direct contact with infected animal body fluids or products of conception.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Infection Prevention and Control Strategies</th>
<th>For hospitalized cases, routine practices are recommended and contact precautions are indicated for people with draining wounds and or lesions (2).</th>
</tr>
</thead>
</table>

### Management of Cases

Investigate cases of brucellosis to determine the source of infection. Refer to Section 5: Reporting Requirement above for relevant data to be collected during case investigation. The following disease-specific information should also be obtained during case management:

- History of exposure to possible sources based on specific species identified on culture (in past 60 days)
- History of occupational risks (see above)
- History of recent (international) travel
- Food history
- History of past infection as relapses of prior infection can occur

Notify Canadian Food Inspection Agency (CFIA) if disease is traced to imported or domestic animals. Test all suspect food samples or other incriminated products. Collaborate with CFIA to ensure proper removal/disposal of incriminated product or animal.

Treatment is under the direction of the attending physician and depends on clinical symptoms and age of the case; antibiotics are usually prescribed for six weeks to prevent recurring infection (2).

### Management of Contacts

Investigate contacts, such as co-workers and family members, to identify people who may have been exposed to the same source and who could also be infected (1).

### Management of Outbreaks

Two or more cases linked in time and space is suggestive of an outbreak. If no common source is identified, consideration may be given to a Bioterrorism event where there is potential to infect humans and animals through aerosol exposure.
Provide public health management of outbreaks or clusters in order to identify the source of illness, stop the outbreak.

The occurrence of possible outbreaks of brucellosis is low given Ontario’s brucellosis free status in cattle; however clusters of cases could possibly occur if exposed to an animal with brucellosis other than cattle, such as deer.

In addition, as per this Protocol, outbreak management shall comprise of but not be limited to the following general steps:
- Confirm diagnosis and verify the outbreak
- Establish an outbreak team
- Develop an outbreak case definition
- Implement prevention and control measures
- Implement and tailor communication and notification plans depending on the scope of the outbreak
- Conduct epidemiological analysis on data collected
- Conduct environmental inspections of implicated premise where applicable
- Coordinate and collect appropriate clinical specimens where applicable
- Prepare a written report
- Declare the outbreak over in collaboration with the outbreak team

7) References


(3) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.

8) Additional Resources


Appendix A: Disease-Specific Chapters

Chapter: Campylobacter enteritis
**Campylobacter enteritis**

- **Communicable**: Yes
- **Virulent**: Yes

**Health Protection and Promotion Act:**
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

**Health Protection and Promotion Act:**
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

| 1) Aetiologic Agent: | The bacterium *Campylobacter jejuni* (*C. jejuni*) and less commonly *Campylobacter coli* (*C. coli*) are the usual causes of campylobacteriosis (1). *Campylobacter* species are motile, comma-shaped, microaerophilic Gram-negative bacilli that cause gastroenteritis (2). |
|  |  |
| 2) Case Definition: | **Surveillance Case Definition** See Appendix B |
|  | **Outbreak Case Definition** The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition: |
|  | 1. Clinical, laboratory and/or epidemiological criteria |
|  | 2. The time frame of occurrence |
|  | 3. The geographic location(s) or place(s) where cases live or became ill/exposed |
|  | 4. Special attributes of cases (e.g. age, underlying conditions and/or the aetiologic agent) |
|  | Cases may be classified by levels of probability (e.g. confirmed, probable or suspect). |
| 3) Identification: | **Clinical Presentation** Symptoms usually occur 2-5 days after exposure and may persist for one week (1). Illness is characterized by diarrhea, abdominal pain, malaise, fever, and nausea and vomiting. The symptoms can vary from mild to severe, can mimic appendicitis and can also be asymptomatic. Relapses can occur. Blood and mucus may be present in liquid stools. The illness can also mimic acute appendicitis (1). Less common presentations include typhoid-like syndrome, febrile convulsions, or meningitis (the bacteria infects the membrane which lines the surface of the brain); post-infectious complications include reactive arthritis, febrile convulsions or Guillain-Barre |

Infectious Diseases Protocol, 2009 – Appendix A
Diagnosis

See Appendix B

### 4) Epidemiology:

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Occurrence**     | *Campylobacter* enteritis is one of the leading causes of enteric disease in Ontario and occurs primarily in the summer months with an average of almost 4,000 cases occurring annually.  
Globally, 5-14% of reported cases of diarrhea are caused by infection with *Campylobacter*. In industrialized countries the illness affects predominantly children older than 5 years of age and young adults. In developing countries, the persons most affected are infants and children under 2 years (3). |
| **Reservoir**      | Animals, most frequently poultry and cattle. Puppies, kittens, other pets, swine, sheep, rodents and birds may also be sources of human infection. Most raw poultry meat is contaminated with *C. jejuni* (1). |
| **Modes of Transmission** | Ingestion of the organisms in undercooked meat and poultry, contaminated food and water, or raw milk and other dairy products; contact with infected pets (especially puppies and kittens), farm animals or infected infants. Contamination of milk usually occurs from intestinal carrier cattle; people and food can be contaminated from poultry, especially from common cutting boards. The infective dose is often low. Person to person transmission appears uncommon (1). |
| **Incubation Period** | Usually 2-5 days, with a range of 1-10 days, depending on dose ingested (1). |
| **Period of Communicability** | Variable, throughout the course of infection, as long as organisms are being excreted (usually 2-7 weeks) (1). |
| **Susceptibility and Resistance** | Immune mechanisms are not well understood, but lasting immunity to serologically related strains follows infection. In developing countries, most people develop immunity in the first 2 years of life (1). |

### 5) Reporting Requirements:

To local Board of Health

Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the *Health Protection and Promotion Act*, R.S.O. 1990.
To Public Health Division (PHD)

Report only case classifications specified in the case definition to PHD using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) business days of receipt of initial notification as per iPHIS Bulletin Number 17: Timely Entry of Cases (4).

The minimum data elements to be reported for each case is specified in the following sources:

- *Ontario Regulation 569 (Reports)* under the Health Protection and Promotion Act (HPPA);
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry.

### 6) Prevention and Control Measures:

<table>
<thead>
<tr>
<th>Personal Prevention Measures</th>
<th>Preventive measures:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minimize cross contamination by washing (wash rinse and sanitize) cutting boards and utensils with warm soapy water after contact with raw poultry, and avoiding contact between fruits, vegetables and ready-to-eat foods with the juices of raw poultry.</td>
</tr>
<tr>
<td></td>
<td>Wash hands after using sanitary facilities, handling raw poultry or contacting feces of dogs and cats, particularly diarrheic stool of puppies and kittens; and before handling food.</td>
</tr>
<tr>
<td></td>
<td>Cook thoroughly all food derived from animal sources, especially poultry.</td>
</tr>
<tr>
<td></td>
<td>Treat or boil water when intended for consumption.</td>
</tr>
<tr>
<td></td>
<td>Consume only pasteurized milk.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Infection Prevention and Control Strategies</th>
<th>Strategies:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Provide food safety education to food handlers about safe food and equipment handling, and personal and hand hygiene.</td>
</tr>
<tr>
<td></td>
<td>Enforce the exclusion of cases and symptomatic people from food handling, patient care and child care.</td>
</tr>
<tr>
<td></td>
<td>Recommend routine practices and contact precautions for hospitalized cases.</td>
</tr>
</tbody>
</table>
### Management of Cases

Investigate cases of campylobacteriosis to determine the source of infection. Refer to Section 5: *Reporting Requirements* above for relevant data to be collected during case investigation. The following disease-specific information should also be obtained during case management:

- Symptoms and date of symptom onset
- History of out-of-province or international travel
- History of exposure or risk behaviours
- Earliest and latest exposure dates
- Occupation
- Residency/attendance at a facility or institution
- Determine food history, and current health status

Provide education on illness and how to prevent re-infection and secondary spread (as above).

**Exclusion Criteria:**

- Exclude symptomatic individuals from food handling, and from direct care of infants, elderly, immunocompromised and institutionalized patients until symptom free for 24 hours
- Exclude symptomatic cases from attending or working in day care centers until symptom free for 24 hours.
- Return to work is not conditional upon submission of stool specimens or results of stool examination with the exception of Health Care Workers (HCW) who work with high risk patients such as nursery personnel. Refer these cases to the occupational health or the infection control practitioner for follow up (will be managed as per the OHA/OMA Enteric Diseases Surveillance Protocol, Revised September 2007).

**Note:** Treatment recommendations are under the direction of the individual’s health care provider. Specific treatment is generally not indicated except for rehydration and electrolyte replacement (1). However, treatment with certain antibiotics may shorten duration of illness and prevent relapse when given early in illness (2).

### Management of Contacts

Assess household and other contacts to determine if exposed to same source. Symptomatic contacts that work in high risk settings (such as health care, food preparation, and daycare centers) should be assessed by their health care provider to determine if infected and should be excluded as above.

Asymptomatic contacts should be tested only to assist in the identification of the source of an outbreak.

### Management of Outbreaks

As with most enteric diseases, an outbreak is defined as the occurrence of two or more cases of enteric illness linked by time, common exposure or source and most often location.

Provide public health management of outbreaks or clusters in order to identify the source of illness, stop the outbreak and limit secondary
In addition, as per this Protocol, outbreak management shall comprise of but not be limited to the following general steps:

- Confirm diagnosis and verify the outbreak;
- Establish an outbreak team;
- Develop an outbreak case definition;
- Implement prevention and control measures;
- Implement and tailor communication and notification plans depending on the scope of the outbreak;
- Conduct epidemiological analysis on data collected;
- Conduct environmental inspections of implicated premise where applicable;
- Coordinate and collect appropriate clinical specimens where applicable;
- Prepare a written report, and
- Declare the outbreak over in collaboration with the outbreak team.

<table>
<thead>
<tr>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>(4) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Additional Resources</th>
</tr>
</thead>
</table>
Ministry of Health and Long Term Care, Advisory Committee on Communicable Diseases, “Enteric Disease Screening Recommendations and Case Management Guidelines on Food handlers and Patient Care Workers”, 1990 or as current (Currently being revised as “Guidelines for the Management of Enteric Diseases in Healthcare Workers, Food Handlers and Day Care Staff and Attendees”).

Appendix A: Disease-Specific Chapters

Chapter: Chancroid
### Chancroid

| Communicable | ☑ | Virulent | ☐ |

**Health Protection and Promotion Act:**
*Ontario Regulation 558/91 – Specification of Communicable Diseases*

**Health Protection and Promotion Act:**
*Ontario Regulation 559/91 – Specification of Reportable Diseases*

<table>
<thead>
<tr>
<th>1) Aetiological Agent:</th>
<th>Chancroid is caused by <em>Haemophilus ducreyi</em> (1).</th>
</tr>
</thead>
<tbody>
<tr>
<td>2) Case Definition:</td>
<td></td>
</tr>
<tr>
<td><strong>Surveillance Case Definition</strong></td>
<td>See Appendix B</td>
</tr>
<tr>
<td><strong>Outbreak Case Definition</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td>3) Identification:</td>
<td></td>
</tr>
<tr>
<td><strong>Clinical Presentation</strong></td>
<td>An acute bacterial infection localized in the genital area and characterized clinically by single or multiple painful, necrotizing ulcers at the site of infection (1).</td>
</tr>
<tr>
<td><strong>Diagnosis</strong></td>
<td>See Appendix B</td>
</tr>
<tr>
<td>4) Epidemiology:</td>
<td></td>
</tr>
<tr>
<td><strong>Occurrence</strong></td>
<td>More often diagnosed in men, especially clients of sex trade workers. It is most prevalent in tropical and subtropical regions of the world; less common in temperate zones and may occur in small outbreaks (1).</td>
</tr>
<tr>
<td></td>
<td>There have been no reported cases of Chancroid in Ontario since 1997.</td>
</tr>
<tr>
<td><strong>Reservoir</strong></td>
<td>Humans (1)</td>
</tr>
<tr>
<td><strong>Modes of Transmission</strong></td>
<td>Direct sexual contact with discharge from open lesions and pus from buboes. Autoinoculation to non-genital sites may occur in infected people. Sexual abuse must be considered when chancroid is found in children (1).</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>3-5 days up to 14 days (1).</td>
</tr>
<tr>
<td><strong>Period of Communicability</strong></td>
<td>Until the original ulcer (s) and/or discharging regional lymph nodes</td>
</tr>
</tbody>
</table>
are healed; may take up to several weeks or months without antibiotic treatment. With antibiotic treatment, elimination of H. ducreyi, and lesions heal within 1-2 weeks (1).

<table>
<thead>
<tr>
<th>Susceptibility and Resistance</th>
<th>Susceptibility is general; the uncircumcised are at higher risk than the circumcised; there is no evidence of natural resistance (1).</th>
</tr>
</thead>
</table>

5) Reporting Requirements:

<table>
<thead>
<tr>
<th>To local Board of Health</th>
<th>Laboratory confirmed cases shall be reported to the medical officer of health by persons required to do so under the Health Protection and Promotion Act, R.S.O. 1990.</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Public Health Division (PHD)</td>
<td>Report only case classifications specified in the case definition to PHD. Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) business days of receipt of initial notification as per iPHIS Bulletin Number 17: Timely Entry of Cases (2). The minimum data elements to be reported for each case is specified in the following:</td>
</tr>
</tbody>
</table>

- Ontario Regulation 569 (Reports) under the Health Protection and Promotion Act (HPPA);
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry.

6) Prevention and Control Measures:

<table>
<thead>
<tr>
<th>Personal Prevention Measures</th>
<th>As with all other STIs, prevention is mainly through:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Appropriate sex education with emphasis on condom use to decrease transmission</td>
</tr>
<tr>
<td></td>
<td>- Education about the symptoms of chancroid infection and other STIs, and modes of spread and</td>
</tr>
<tr>
<td></td>
<td>- Education about other risk factors and behaviours</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Infection Prevention and Control Strategies</th>
<th>Not applicable</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Management of Cases</th>
<th>Investigate the case to determine source of infection. Refer to Regulation 569 under the HPPA for relevant data to collect and inquire about:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- History of relevant exposure, including travel history</td>
</tr>
<tr>
<td></td>
<td>- Contact history</td>
</tr>
<tr>
<td></td>
<td>Provide appropriate counselling; advise that infected persons with genital ulcers should be tested for herpes, syphilis and HIV.</td>
</tr>
</tbody>
</table>
Treatement and follow up is under the direction of the attending physician.

Refer to the *Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008* (or as current) listed below for more information, and the *Canadian Guidelines on Sexually Transmitted Infections*, Public Health Agency of Canada, 2008 edition or as current.

<table>
<thead>
<tr>
<th>Management of Contacts</th>
<th>Refer to the <em>Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008</em> (or as current) listed below for more information, and the <em>Canadian Guidelines on Sexually Transmitted Infections</em>, Public Health Agency of Canada, 2008 edition or as current.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management of Outbreaks</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

### 7) References


### 8) Additional Resources


Appendix A: Disease-Specific Chapters

Chapter: Chickenpox (Varicella)
## Chickenpox (Varicella)

<table>
<thead>
<tr>
<th>Communicable</th>
<th>☑</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virulent</td>
<td></td>
</tr>
</tbody>
</table>

### Health Protection and Promotion Act:  
Ontario Regulation 558/91 – Specification of Communicable Diseases

### Health Protection and Promotion Act:  
Ontario Regulation 559/91 – Specification of Reportable Diseases

1) **Aetiological Agent:** Varicella-zoster virus, (VZV), the human (alpha) herpesvirus 3, is a member of the herpesvirus group (1).

2) **Case Definition:**

**Surveillance Case Definition**  
See Appendix B

**Outbreak Case Definition**  
Not applicable, Chickenpox is endemic in Ontario.

3) **Identification:**

**Clinical Presentation**  
Varicella (chickenpox) is an acute disease characterized by a pruritic (itchy) vesicular rash. The rash progresses rapidly from macules to papules, vesicles to pustules and finally lesions scab over within a few days. Lesions appear in successive crops over 5-6 days following rash onset and are more abundant on the trunk, but are sometimes present on the scalp and mucous members of mouth, respiratory tract, conjunctiva and rectal and vaginal mucosa. Lesions are pruritic and if infected cause scarring. The illness may or may not have a prodromal period, which may include fever, malaise, and upper respiratory tract infection (3).

Varicella (chickenpox) is the primary infection and is reportable, while herpes zoster (shingles), a secondary infection due to reactivation of latent varicella infection in the dorsal root ganglia, is not reportable (2).

Serious complications include pneumonia (viral and bacterial), secondary bacterial infections, hemorrhagic complications and encephalitis (1). Fetal infection after maternal varicella infection during the first or early trimester of pregnancy occasionally results in fetal death, congenital varicella syndrome and other complications (2).

**Diagnosis**  
See Appendix B

---

Infectious Diseases Protocol, 2009 – Appendix A
### 4) Epidemiology:

| Occurrence | The occurrence of chickenpox is endemic in Canada and worldwide. Chickenpox occurs most frequently in winter and early spring (1). In Ontario, from 1998-2004 an average of 18,089 cases of chickenpox were reported annually and cases occurred most often among children aged 5-9. The introduction of a varicella immunization program for one year olds in 2004 and for 5 year olds in 2005 has had an impact on disease incidence. Since 2005 there has been a gradual decrease in the number of cases reported. |
| Reservoir | Humans (1) |
| Modes of Transmission | Person to person by direct contact with Varicella zoster virus through droplet or airborne spread of vesicle fluid or secretions of the respiratory tract or indirectly by freshly contaminated fomites. Scabs are not infectious (1). Transmission during pregnancy to the fetus can also occur (1). |
| Incubation Period | 2-3 weeks; commonly 14-16 days; may be prolonged in the immunodeficient and after passive immunization against varicella (1). |
| Period of Communicability | As long as five days but usually one to two days before onset of rash and it continues until all lesions are crusted, usually about five days after the rash onset (1). |
| Susceptibility and Resistance | Susceptibility is universal in persons not previously infected or vaccinated; infection usually confers life long immunity. The virus remains latent in sensory ganglia and disease may recur years later as herpes zoster (shingles) in about 15% of adults and sometimes in children (1, 4). |

### 5) Reporting Requirements:

| To local Board of Health | Laboratory confirmed cases shall be reported to the medical officer of health by persons required to do so under the Health Protection and Promotion Act, R.S.O. 1990. Health units must report the following individual cases of chickenpox: All lab reported cases All cases with complications All hospitalized cases All deaths due to complications of varicella Health units are required to create a new outbreak each month including the reporting of chickenpox aggregate counts regardless of whether or not any counts were observed for a given month. |
Reporting processes include:

- Creating new monthly outbreak;
- Reporting information;
- Entering aggregate (summary) chickenpox counts, and
- Closing and confirming the outbreak.

Health units must enter all cases of chickenpox as aggregate. This includes those that have been entered as individual cases since aggregate data cannot be linked to individual cases.

<table>
<thead>
<tr>
<th>To Public Health Division (PHD)</th>
<th>Report only case classifications specified in the case definition to PHD for the following cases of chickenpox:</th>
</tr>
</thead>
</table>
|                                | 1. Laboratory confirmed cases  
|                                | 2. Hospitalized cases  
|                                | 3. Cases with complications |

Reports received as aggregate numbers should be reported to PHD as such.

Individual and aggregate case counts are to be reported to the PHD using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) business days of receipt of initial notification as per iPHIS Bulletin Number 17: Timely Entry of Cases (8).

The minimum data elements to be reported for each case is specified in the following:

- Ontario Regulation 569 (Reports) under the Health Protection and Promotion Act (HPPA);
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry.

6) Prevention and Control Measures:

Personal Prevention Measures

In Ontario, all one year olds and susceptible five year olds are eligible for immunization as per the publicly funded immunization schedule for Ontario (5).

All susceptible health care workers should be immunized, preferably prior to employment, or immediately upon employment, using the 2-dose schedule, however this is not funded through the routine immunization program (6).

Confirmed cases and susceptible contacts of confirmed cases should avoid contact with immunocompromised individuals, susceptible pregnant women particularly those in the third trimester, and avoid contact with newborns (3).
| Infection Prevention and Control Strategies | Strategies (7):
• For hospitalized cases, in addition to routine practices, airborne precautions are recommended for a minimum of five days after onset of rash and until all lesions are crusted
• Airborne and contact precautions are recommended for neonates born to mothers with varicella infection |
| Management of Cases | Uncomplicated individual cases of chickenpox do not require public health management. Exclusion from school or daycare is not usually recommended if children are well enough to attend.

Unexposed, susceptible children new to the school or child care setting may be excluded for up to five days after the last case of chickenpox and should be offered immunization.

Refer to ON Regulation 569 regarding factors to investigate for cases that are in hospital with complications. Include activities during the five days prior to symptom onset. Treatment of cases where indicated is under the direction of the attending health care provider. For cases, who are health care workers, refer to the OHA/OMA protocol listed below. |
| Management of Contacts | Exposure to VZV is considered significant if it involves direct face-to-face contact with persons who have chickenpox or disseminated zoster, or any direct contact with fluid from lesions or objects contaminated with this fluid. Exposure to dried scabs from varicella or zoster lesions does not constitute significant exposure (6).

Varicella vaccine is effective in preventing illness or modifying severity if used within 3 days after exposure, and possibly up to 5 days of exposure (1); however, offering publicly funded vaccine to contacts outside the age of eligibility is a local policy decision.

For high-risk susceptible contacts where vaccination is not indicated such as neonates, pregnant women and immunocompromised persons, varicella-zoster immune globulin (VZIG) should be offered within 96 hours of exposure (1, 2). There is no assurance that administering VZIG to a pregnant woman will prevent congenital malformation in the fetus, but it may modify varicella severity in the pregnant woman (1).

For high risk exposures such as in hospitals see the OHA/OMA protocol listed below. |
| Management of Outbreaks | Not applicable, Chickenpox is endemic in Ontario; cases and contacts are managed as stated above. |

8) Additional Resources


Appendix A: Disease-Specific Chapters

Chapter: Chlamydia trachomatis infections
**Chlamydia trachomatis infections**

<table>
<thead>
<tr>
<th>Communicable</th>
<th></th>
<th>Virulent</th>
<th></th>
</tr>
</thead>
</table>

**Health Protection and Promotion Act:**  
Ontario Regulation 558/91 – Specification of Communicable Diseases

**Health Protection and Promotion Act:**  
Ontario Regulation 559/91 – Specification of Reportable Diseases

<table>
<thead>
<tr>
<th>1) Aetiologic Agent:</th>
<th>Chlamydia trachomatis is an obligate intracellular bacterium causing genital infections and other forms of infections including chlamydial conjunctivitis and pneumonia (1).</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>2) Case Definition:</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Surveillance Case Definition</th>
<th>See Appendix B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outbreak Case Definition</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3) Identification:</th>
<th></th>
</tr>
</thead>
</table>

| Clinical Presentation | Chlamydia infection is frequently asymptomatic.  
Males may usually present with urethral discharge, dysuria and frequency, non-specific urethral symptoms such as redness, itching, and swelling (1, 2).  
Females may usually present with cervical infection that includes the following signs and symptoms: a mucopurulent endocervical discharge with edema, erythema and easily induced endocervical bleeding. Complications and sequela include salpingitis pelvic inflammatory disease with subsequent risk of infertility. Up to 70% of sexually active females with chlamydia infection are asymptomatic (1).  
Can present as Chlamydia pneumonia in infants (1). |

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>See Appendix B</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>4) Epidemiology:</th>
<th></th>
</tr>
</thead>
</table>

| Occurrence | Common worldwide (1); high rates of infection among sexually active persons.  
In Ontario, Chlamydia is the most commonly reported STI. The rate |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
of Chlamydia is higher among females, and has been rising. Reported rates are highest among youth and young adults aged 15 to 24 years.

<table>
<thead>
<tr>
<th>Reservoir</th>
<th>Humans (1).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modes of Transmission</td>
<td>Sexual contact via oral, vaginal, cervical, urethral or anal routes; in children, exposure to infected genitals (consider the possibility of sexual abuse in these cases); newborns: during delivery from infected mother (1, 2).</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>From time of exposure to onset of infection is 2-3 weeks, but can be as long as 6 weeks (2).</td>
</tr>
<tr>
<td>Period of Communicability</td>
<td>Unknown; may extend for months or longer if untreated, especially in asymptomatic persons; re-infections are common; effective treatment ends infectivity (1).</td>
</tr>
<tr>
<td>Susceptibility and Resistance</td>
<td>Susceptibility is general (1); the transmission probability of <em>C. trachomatis</em> has been estimated to be as high as 20% per genital sexual contact and is more efficient male-to-female than female-to-male. No acquired immunity has been demonstrated, although strain specific immunity probably exists (1).</td>
</tr>
</tbody>
</table>

5) Reporting Requirements:

<table>
<thead>
<tr>
<th>To local Board of Health</th>
<th>Laboratory confirmed cases shall be reported to the medical officer of health by persons required to do so under the <em>Health Protection and Promotion Act</em>, R.S.O. 1990.</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Public Health Division (PHD)</td>
<td>Report only case classifications specified in the case definition to PHD. Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) business days of receipt of initial notification as per <em>iPHIS Bulletin</em> Number 17: Timely Entry of Cases (3). The minimum data elements to be reported for each case is specified in the following:</td>
</tr>
<tr>
<td></td>
<td><em>Ontario Regulation 569</em> (Reports) under the Health Protection and Promotion Act (HPPA);</td>
</tr>
<tr>
<td></td>
<td>The disease-specific User Guides published by the Ministry, and</td>
</tr>
<tr>
<td></td>
<td>Bulletins and directives issued by the Ministry.</td>
</tr>
</tbody>
</table>

6) Prevention and Control

Refer to the *Sexual Health and Sexually Transmitted Infections*
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Prevention Measures</td>
<td>Preventative measures include education about safer sex practices including use of condoms and early detection of infection by testing those at risk (2). Screening should be offered to all sexually active persons as per the protocol listed above (2).</td>
</tr>
<tr>
<td>Infection Prevention and Control Strategies</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>
| Management of Cases | Refer to Ontario Regulation 569 for relevant data to collect and ensure to inquire about the following:  
- history of exposure  
- contact history and  
- assess for risk factors  
Provide education about and promote safer sex practices and advise about the need to test for HIV infection and other STIs if indicated (2).  
Treatment determined as per attending health care provider; refer to the Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008 (or as current) for the following sections, and the Canadian Guidelines on Sexually Transmitted Infections, Public Health Agency of Canada, 2008 edition. |
| Management of Contacts | All identified sexual contacts exposed should be assessed, tested and treated as per the Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008 (or as current). |
| Management of Outbreaks | Not applicable (1). |

7) References


(3) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.

8) Additional Resources

Appendix A: Disease-Specific Chapters

Chapter: Cholera
### Cholera

| Communicable | ✓ | Virulent | ✓ |

#### Health Protection and Promotion Act, Section 1 (1)

#### Health Protection and Promotion Act:
Ontario Regulation 558/91 – Specification of Communicable Diseases

#### Health Protection and Promotion Act:
Ontario Regulation 559/91 – Specification of Reportable Diseases

| 1) Aetiologic Agent: | Cholera is caused by toxigenic strains of *Vibrio cholerae*, which is a gram-negative, curved, motile bacillus with many serogroups. Only serogroups O1, O139 and O141 cause clinical cholera associated with enterotoxin (2). |

<table>
<thead>
<tr>
<th>2) Case Definition:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Surveillance Case Definition</strong></td>
</tr>
</tbody>
</table>

**Outbreak Case Definition**
The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following when establishing an outbreak case definition:

1. Clinical, laboratory and/or epidemiological criteria
2. The time frame for occurrence
3. The geographic location(s) or place(s) where cases live or became ill/exposed
4. Special attributes of cases (e.g. age, underlying conditions) and/or aetiologic agent

Cases may be classified by levels of probability (e.g. confirmed, probable and/or suspect).

**Note:** Cholera is not endemic to Canada. However, clusters can occur among travellers returning from cholera endemic locales and among their household contacts if there is a high likelihood of secondary transmission.

<table>
<thead>
<tr>
<th>3) Identification:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clinical Presentation</strong></td>
</tr>
</tbody>
</table>
with flecks of mucous referred to as “rice water” diarrhoea (2). The resulting loss of fluids in an infected individual can rapidly lead to severe dehydration. If not treated, death can occur within hours (3).

### Diagnosis

See Appendix B

Diagnosis is confirmed by laboratory isolation of *Vibrio cholerae*, serogroups O1 and O139 from feces or vomitus, or by serology for evidence of recent infection (1, 2).

### 4) Epidemiology:

| Occurrence | Cholera is one of the oldest and best understood epidemic diseases. Epidemics and pandemics are strongly linked to the consumption of fecally contaminated water, poor hygiene, poor sanitation and crowded living conditions, such as in many developing countries in Asia and Africa (1). Cholera is not endemic to Canada: it is rare in Canada with just 27 reported cases since 1986. In Ontario, an average of one case has been reported per year in the last 5 years, with all cases due to travel to cholera endemic destinations outside Canada. |
| Reservoir | Humans are the only documented natural hosts, but living *V. cholerae* organisms can exist in the aquatic environment (2). |
| Modes of Transmission | Ingestion of food or water contaminated with feces or vomitus of cases and occasionally feces of carriers; consumption of raw or improperly cooked seafood, and other foods harvested from estuarine water or seawater (1). Direct person-to-person transmission has not been documented (2). |
| Incubation Period | From a few hours to 5 days, usually 2-3 days (1). |
| Period of Communicability | For the duration of the stool-positive stage, usually until 2-3 days after recovery, however, carrier state may persist for months. Appropriate antibiotics can shorten the period of communicability, but are not recommended for treatment (1). |
| Susceptibility and Resistance | Susceptibility is variable; gastric achlorhydria and the lack of immunity seen in small children may increase the risk of illness. Breastfed infants are protected. Cholera occurs more often in persons with blood type O (1). |

In endemic areas, most people acquire antibodies by early adulthood. Infection with O1 serogroup affords no protection against O139 infection and vice versa (1).

### 5) Reporting Requirements:

To local Board of Health | Confirmed and suspected cases shall be reported immediately to the medical officer of health by persons required to do so under the *Health Protection and Promotion Act*, R.S.O. 1990. |
To Public Health Division (PHD)  
Report only case classifications specified in the case definition to PHD using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) business days of receipt of initial notification as per iPHIS Bulletin Number 17: Timely Entry of Cases (4).

The minimum data elements to be reported for each case is specified in the following sources:

- Ontario Regulation 569 (Reports) under the Health Protection and Promotion Act (HPPA);
- The disease-specific User Guides published by the Ministry, and
-Bulletins and directives issued by the Ministry.

<table>
<thead>
<tr>
<th>6) Prevention and Control Measures:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal Prevention Measures</strong></td>
</tr>
<tr>
<td>Traveller education:</td>
</tr>
<tr>
<td>- Stress food and water precautions while travelling in endemic areas</td>
</tr>
<tr>
<td>- Avoid eating raw oysters and undercooked shellfish and fish</td>
</tr>
<tr>
<td>- Consult with a travel clinic regarding occurrence of cholera and vaccination recommendations</td>
</tr>
<tr>
<td>- Disseminate general public health education messages about hand hygiene and food safety</td>
</tr>
<tr>
<td>- Educate the general public and especially food handlers about careful hand washing after defecation, sexual contact and before preparing or eating food</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Infection Prevention and Control Strategies</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Preventative strategies:</td>
</tr>
<tr>
<td>- Use routine practices and additional precautions for hospitalized cases, including contact precautions for diapered or incontinent persons for the duration of illness (2)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Management of Cases</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Investigate cases of cholera to determine the source of infection. Refer to Section 5: Reporting Requirements above for relevant data to be collected during case investigation. The following disease-specific information should also be obtained during case management:</td>
</tr>
<tr>
<td>Epidemiological Investigation:</td>
</tr>
<tr>
<td>- Symptoms and date of symptom onset</td>
</tr>
<tr>
<td>- History of travel</td>
</tr>
<tr>
<td>- Food history for last 5 days</td>
</tr>
<tr>
<td>- History of exposure or risk behaviours</td>
</tr>
<tr>
<td>- Earliest and latest exposure dates</td>
</tr>
<tr>
<td>- Residency/attendance/occupation at a facility or institution</td>
</tr>
<tr>
<td>Treatment is under the direction of the attending health care</td>
</tr>
</tbody>
</table>
provider.

Provide education about the illness and how to prevent the spread of infection as above.

Exclude infected persons from high risk settings (food preparation, daycare and health care) until 24 hours after cessation of symptoms, and 48 hours after antibiotic therapy.

Management of Contacts

Meal companions in the 5 days before onset should be assessed for symptoms and advised to seek medical care if indicated. Chemoprophylaxis is indicated if the likelihood of secondary transmission among household contacts is high.

Management of Outbreaks

As with most enteric diseases, an outbreak is defined as the occurrence of two or more cases of enteric illness linked by time, common exposure or source and most often location.

Provide public health management of outbreaks or clusters in order to identify the source of illness, stop the outbreak and limit secondary spread. As per this Protocol, outbreak management shall comprise of but not be limited to the following general steps:

- Confirm diagnosis and verify the outbreak;
- Establish an outbreak team;
- Develop an outbreak case definition;
- Implement prevention and control measures;
- Implement and tailor communication and notification plans depending on the scope of the outbreak;
- Conduct epidemiological analysis on data collected;
- Conduct environmental inspections of implicated premise where applicable;
- Coordinate and collect appropriate clinical specimens where applicable;
- Prepare a written report, and
- Declare the outbreak over in collaboration with the outbreak team.

7) References


(4) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.
<table>
<thead>
<tr>
<th>8) Additional Resources</th>
</tr>
</thead>
</table>
Appendix A: Disease-Specific Chapters

Chapter: *Clostridium difficile* associated disease (CDAD) outbreaks in public hospitals
### Clostridium difficile associated disease (CDAD) outbreaks in public hospitals

#### Communicable

#### Virulent

**Health Protection and Promotion Act:**
Ontario Regulation 558/91 – Specification of Communicable Diseases

**Health Protection and Promotion Act:**
Ontario Regulation 559/91 – Specification of Reportable Diseases

<table>
<thead>
<tr>
<th>1) Aetiologic Agent:</th>
<th>Clostridium difficile (C. difficile) is a spore-forming gram-positive anaerobic bacillus that produces two exotoxins: toxin A and toxin B. It is present in the environment and can colonize in up to three to five per cent of adults in the community without causing symptoms.</th>
</tr>
</thead>
</table>
| 2) Case Definition: | **Surveillance Case Definition**
See Appendix B

**Outbreak Case Definition**
See Appendix B

| 3) Identification: | **Clinical Presentation**
Symptoms of CDAD include (1):
- Diarrhea (as defined above)
- Fever
- Loss of appetite
- Nausea and
- Abdominal pain or tenderness

Complications include dehydration and colitis (1) and may also lead to life threatening systemic toxicity requiring surgical intervention and may also lead to death (2).

Recurrence of CDAD is common and occurs in about 30% of cases (3).

**Diagnosis**
See Appendix B

For additional information, please consult the following issues of Labstract, a publication of the Ontario Public Health Laboratories:

Clostridium difficile toxin testing: specimen acceptance criteria (4).

Clostridium difficile: specimen acceptance during outbreaks (5).
4) Epidemiology:

| Occurrence | C. difficile associated disease (CDAD) has been associated with infectious diarrhea in health care settings for about 30 years and can be acquired in both hospital and community settings (3). It may occur when antibiotics kill normal bowel bacteria and allow the C. difficile to grow. When C. difficile grows, it may produce toxins, which can damage the bowel and may cause diarrhea. C. difficile associated disease is usually mild but sometimes can be more severe. In severe cases, surgery may be needed, and in extreme cases C. difficile may cause death (6).

Since 2000 there has been an increase in the rates of C. difficile in some health care settings. In some of these settings this has been associated with the appearance of an epidemic strain of C. difficile. Some characteristics of this strain include the presence of binary toxin, increased resistance to clindamycin and fluoroquinolones, and potential for increased adverse events. This strain has been associated with outbreaks in Europe, the United States and Canada (3). |

| Reservoir | C. difficile bacteria are found in feces of humans (1). |

| Modes of Transmission | C. difficile is widely distributed in the environment. It produces spores that survive for longer periods of time and are resistant to destruction by environmental factors (e.g. temperature, humidity), including standard cleaning agents (7). In an effort to protect itself from undesirable environmental conditions, it assumes its spore form. C. difficile can be transmitted and/or acquired by patients and/or health care workers through contact with contaminated surfaces (including both vegetative cells and spores). C. difficile is spread via a fecal-oral route and therefore activities that can result in moving the organism into the mouth should be included as part of the preventative measures (1). |

| Incubation Period | The incubation period of C. difficile following acquisition has not been clearly defined. Studies have determined that onset of infection can occur within 48 hours after exposure and up to 3 months of discharge (8, 9). |

| Period of Communicability | Precise period of communicability is unknown; it may vary depending on the amount of toxin in the stool, which can vary from very small to large; also, the spores are very difficult to eliminate from surfaces and objects (10); cytotoxins may persist in stool for weeks (3). |

| Susceptibility and Resistance | Certain people are at increased risk for acquiring CDAD. These risk factors include (3):

- A history of antibiotic usage
- Bowel surgery
- Chemotherapy
- Prolonged hospitalization |
Additional risk factors that predispose some people to develop more severe disease include:
- Increased age
- Serious underlying illness or debilitation

Antibiotics considered to be associated with the highest risk of *C. difficile* associated disease include clindamycin, cephalosporins, ampicillin-amoxicillin and fluoroquinolones (8).

---

**5) Reporting Requirements:**

Mandatory and standardized reporting of *C. difficile* has been introduced for all Ontario hospitals to monitor rates, establish trends and inform best practices to help the health care system reduce the risk and prevent the spread of the disease.

To local Board of Health

On September 1, 2008, *Clostridium difficile* associated disease (CDAD) outbreaks and outbreak-associated cases in hospitals became reportable as per changes to regulation O. Reg. 559/91 (11) under the *Health Protection and Promotion Act*, R.R.O. 1990. Hospitals with CDAD outbreaks are required to report immediately to their local public health unit.

All outbreaks of CDAD in institutions, other than hospitals under the Public Hospitals Act, shall be reported using the current process (i.e., as Gastroenteritis, institutional outbreaks).

To Public Health Division (PHD)

Public health units are to enter CDAD outbreak and outbreak associated cases as outlined in the chart below:

<table>
<thead>
<tr>
<th>iPHIS entry</th>
<th>Deadline to input information into iPHIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preliminary Report</td>
<td>Within <strong>one business day</strong> of a health unit receiving notification of the outbreak.</td>
</tr>
<tr>
<td>Cases</td>
<td>Within <strong>one business day</strong> of a health unit receiving notification of the case.</td>
</tr>
<tr>
<td>Monthly Report</td>
<td>While the outbreak is ongoing, monthly updates are to be submitted in iPHIS by the health unit on the <strong>last business day of every month</strong>.</td>
</tr>
<tr>
<td>Final Report</td>
<td>Within <strong>15 business days</strong> after the outbreak is declared over.</td>
</tr>
</tbody>
</table>

---

**6) Prevention and Control Measures:**

**Personal Prevention Measures**

As with any infectious disease, washing hands often in warm soapy water for at least 20 seconds is the best defence against *C. difficile*. Before entering and leaving a health care facility the use of alcohol-based hand sanitizer provided at most entrances and units is also advised (1).

Education for staff, patients, visitors/families, should include, but is not limited to (3):
- What is CDAD; transmission; contact precautions, cleaning
- reinforce that health care providers are not at risk of acquisition with consistent use of routine practices
- reinforce safe work practices- no eating or drinking in patient/resident care areas

Patients with CDAD are permitted to have visitors, provided visitors understand how they can protect themselves (3).

Messaging to visitors should be written in clear language at a grade 6 level and include the following:

- What is CDAD and what their risk of acquiring it is
- How to properly clean their hands (and its importance)
- When PPE is needed and how to put on and take off
- Measures to take when providing care to/or having significant contact with the patient (i.e. wear gown and gloves)
- Instructions to only use visitor washrooms and where they are located
- Instructions to visit their significant other in isolation last if they are visiting more than one person in the hospital
- Animals used in visitation programs must be screened by a veterinarian to ensure that the animal is in good health and has all necessary immunizations. Patients/residents, handlers and health care providers must wash their hands after handling the pet and before any other activities (3).

| Infection Prevention and Control Strategies | Prevention Strategies in institutions include (3):
| --- | --- |
|  | • early identification of patients with symptoms
|  | • empowering front-line staff to institute additional precautions at onset of symptoms
|  | • daily surveillance reporting to Infection Prevention and Control program staff
| Control Strategies in institutions include (3):
|  | • In addition to routine precautions, initiate contact precautions, which include signage for contact precautions, use of gloves and gown upon entering room, use of dedicated patient care equipment including bedpans and commodes
|  | • Isolate patients in private rooms or cohort patient(s) if necessary
|  | • Discontinue antibiotic therapy and commence treatment if applicable
|  | • Appropriate environmental cleaning practices
|  | • Reinforce hand hygiene practices
| More detailed information is available in the Provincial Infectious Diseases Advisory Committee’s Best Practices Document for the Management of Clostridium difficile in all health care settings (3). |

| Management of Cases | Individual cases will be managed as per individual facility protocols.
| The following recommendations may be considered when treating |
### CDAD patients (3)
- Cessation of antibiotic therapy, if possible. Consult an ID physician if this is not possible.
- Rehydration of the patient
- Avoid antimotility agents (e.g. loperamide)

For more information on recommended therapies, please refer to the Provincial Infectious Diseases Advisory Committee’s Best Practices Document for the Management of Clostridium difficile in all health care settings (3).

<table>
<thead>
<tr>
<th>Management of Contacts</th>
<th>Not applicable</th>
</tr>
</thead>
</table>
| Management of Outbreaks | Outbreak measures include (3):
- Place all symptomatic patients on contact precautions and in private rooms
- If necessary, cohort patients and staff
- Report outbreak to the local medical officer of health/designate
- Form a multidisciplinary outbreak team to include front line workers and environmental services
- Provide education to staff (e.g. emphasizing diligent hand hygiene practices), patients and families
- Environmental cleaning (Please refer to the Provincial Infectious Diseases Advisory Committee’s Best Practices Document for the Management of Clostridium difficile in all health care settings (3))
- Antibiotic stewardship (12,13)
- If all control measures are not controlling spread, consider closing affected unit to admissions
- Hospitals in discussion with public health units declare the outbreak over based on:
  - Number of cases has decreased to the hospital’s baseline
  - Sustained IPAC measures to prevent transmission
  - No ongoing transmission is occurring

It may take weeks and possibly months to bring a CDAD outbreak under control, and for hospital administrators and public health professionals to reach a level of confidence that measures to prevent ongoing transmission will be in place effectively even after declaring the outbreak over.

### 7) References


(3) Provincial Infectious Diseases Advisory Committee. Best


### 8) Additional Resources


Appendix A: Disease-Specific Chapters

Chapter: Cryptosporidiosis
### Cryptosporidiosis

- **Communicable**
- **Virulent**

**Health Protection and Promotion Act:**
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1) Aetiologic Agent:</strong></td>
<td>Cryptosporidium are obligate parasitic protozoa that excrete viable, environmentally resistant oocysts in feces that are infectious. The most common species causing disease in humans are <em>C. hominis</em>, which only infects humans and <em>C. parvum</em>, which infects humans, cattle and other mammals (2).</td>
</tr>
<tr>
<td><strong>2) Case Definition:</strong></td>
<td></td>
</tr>
<tr>
<td><em>Surveillance Case Definition</em></td>
<td>See Appendix B</td>
</tr>
<tr>
<td><em>Outbreak Case Definition</em></td>
<td>The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following when establishing an outbreak case definition: 1. Clinical, laboratory and/or epidemiological criteria 2. The time frame for occurrence 3. The geographic location(s) or place(s) where cases live or became ill/exposed 4. Special attributes of cases (e.g. age, underlying conditions) and/or aetiologic agent Cases may be classified by levels of probability (e.g. confirmed, probable and/or suspect).</td>
</tr>
<tr>
<td><strong>3) Identification:</strong></td>
<td></td>
</tr>
<tr>
<td><em>Clinical Presentation</em></td>
<td>Cryptosporidiosis is a parasitic infection that commonly presents as gastroenteritis. The major symptom is diarrhea, which can be watery and profuse preceded by anorexia and vomiting in children. The diarrhea is associated with cramping and abdominal pain. General malaise, fever, anorexia, nausea and vomiting occur less often. Asymptomatic infections are common and constitute a source of infection for others (1).</td>
</tr>
<tr>
<td><em>Diagnosis</em></td>
<td>See Appendix B</td>
</tr>
<tr>
<td></td>
<td>Diagnosis is through demonstration of Cryptosporidium oocysts in appropriate clinical specimen (e.g. stool, intestinal fluid, or small bowel biopsy) through microscopy or through detection of Cryptosporidium DNA or demonstration of Cryptosporidium antigen by an approved method (e.g. EIA, ICT).</td>
</tr>
</tbody>
</table>
### 4) Epidemiology:

| Occurrence | Worldwide. Outbreaks have been associated with exposure to recreational water (e.g., splash parks and swimming pools) and lakes, and with drinking unfiltered water and contaminated beverages (1). In Ontario cases of cryptosporidiosis tend to increase during the summer and early fall. Exposure to recreational water is often associated with cryptosporidiosis outbreaks in Ontario. |
| Reservoir | Humans and animals, including cattle (1). |
| Modes of Transmission | Fecal-oral, which includes person-to-person, animal-to-person, waterborne (recreational or drinking water) and foodborne transmission (1). |
| Incubation Period | Not known precisely; 1 – 12 days is the likely range with an average of about 7 days (1). |
| Period of Communicability | Oocysts, the infectious components of the parasites life cycle, appear in stool at the onset of symptoms and are infectious immediately upon excretion; infectious period may be as long as several weeks after symptoms resolve and up to six months in soil with suitable conditions (1). |
| Susceptibility and Resistance | Persons with intact immune function usually have asymptomatic or self-limiting illness. It has been estimated that 10-20% of AIDS patients develop infection at some time during their illness (1). |

### 5) Reporting Requirements:

| To local Board of Health | Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the Health Protection and Promotion Act, R.S.O. 1990. |
| To Public Health Division (PHD) | Report only case classifications specified in the case definition to PHD using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) business days of receipt of initial notification as per iPHIS Bulletin Number 17: Timely Entry of Cases (3). The minimum data elements to be reported for each case is specified in the following sources: |

- Ontario Regulation 569 (Reports) under the Health Protection and Promotion Act (HPPA);  
- The disease-specific User Guides published by the Ministry, and  
- Bulletins and directives issued by the Ministry. |
## 6) Prevention and Control Measures:

### Personal Prevention Measures

**Prevention Measures:**
- Avoid using public recreational waters such as swimming pools and splash pads for 2 weeks after symptoms have resolved (2)
- Use proper hand hygiene after using sanitary facilities, toileting and diapering, handling pets, and before and after handling food
- Cook thoroughly all food derived from animal sources
- Boil, filter or otherwise treat private or non-municipal drinking water supplies to destroy infectious oocysts. Chemical disinfectants are not effective against oocysts in drinking water

### Infection Prevention and Control Strategies

**Strategies:**
- A safe water supply which is of primary importance
- Educate the public about hand hygiene, washing produce and the risks involved with sexual contact
- Recreational water operators should be advised about proper filtration techniques and procedures for the management of fecal accidents

In hospital, in addition to routine practices, contact precautions are recommended for diapered or incontinent children (2).

Exclude food handlers, health care workers, daycare staff and attendees who are symptomatic until 24 hours after cessation of symptoms (1).

### Management of Cases

Investigate cases of cryptosporidiosis to determine the source of infection. Refer to Section 5: *Reporting Requirements* above for relevant data to be collected during case investigation. The following disease-specific information should also be obtained during case management:

- Symptoms and date of symptom onset
- History of out-of-province or international travel
- History of exposure or risk behaviours such as exposure to farm animals, petting zoos or public recreational water
- Earliest and latest exposure dates
- Residency/attendance/occupation at a facility or institution

Exclude food handlers, health care workers, daycare staff and attendees who are symptomatic until 24 hours after cessation of symptoms (1). More detailed information on exclusion is available in the resource “Guidelines for the Management of Enteric Diseases in
| Healthcare Workers, Food Handlers and Daycare Staff and Attendees |
| Provide education about the illness and how to prevent spread, emphasizing strict hand hygiene. |
| There is no specific treatment except rehydration when indicated (1). |
| Management of Contacts |
| Investigate household contacts and contacts who may have shared a common source exposure. |
| Symptomatic contacts that are food handlers, health care workers, daycare staff and attendees should be tested. |
| Management of Outbreaks |
| As with most enteric diseases, an outbreak is defined as the occurrence of two or more cases of enteric illness linked by time, common exposure or source and most often location. |
| Provide public health management of outbreaks or clusters in order to identify the source of illness, stop the outbreak and limit secondary spread. As per this Protocol, outbreak management shall comprise of but not be limited to the following general steps: |
| • Confirm diagnosis and verify the outbreak; |
| • Establish an outbreak team; |
| • Develop an outbreak case definition; |
| • Implement prevention and control measures; |
| • Implement and tailor communication and notification plans depending on the scope of the outbreak; |
| • Conduct epidemiological analysis on data collected; |
| • Conduct environmental inspections of implicated premise where applicable; |
| • Coordinate and collect appropriate clinical specimens where applicable; |
| • Prepare a written report, and |
| • Declare the outbreak over in collaboration with the outbreak team. |

7) References


(3) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.

8) Additional Resources


Ministry of Health and Long Term Care, Advisory Committee on Communicable Diseases, “Enteric Disease Screening Recommendations and Case Management Guidelines on Food Handlers and Patient Care Workers”, 1990 or as current (Currently being revised as “Guidelines for the Management of Enteric Diseases in Healthcare Workers, Food Handlers and Day Care Staff and Attendees”).


Appendix A: Disease-Specific Chapters

Chapter: Cyclosporiasis
### Cyclosporiasis

| Health Protection and Promotion Act:  
Ontario Regulation 559/91 – Specification of Reportable Diseases |
|---------------------------------------------------------------|

#### 1) Aetiologic Agent:

The causative agent is *Cyclospora cayetanensis*, a sporulating coccidian protozoan parasite that infects the upper small bowel (1, 2). Non-infectious, unsporulated oocysts are passed in the stool. Sporulation outside the host produces infectious organisms (2).

#### 2) Case Definition:

- **Surveillance Case Definition**
  - See Appendix B

- **Outbreak Case Definition**
  - The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following when establishing an outbreak case definition:
    1. Clinical, laboratory and/or epidemiological criteria;
    2. The time frame for occurrence;
    3. The geographic location(s) or place(s) where cases live or became ill/exposed, and
    4. Special attributes of cases (e.g. age, underlying conditions) and/or aetiologic agent.

  *Cases may be classified by levels of probability (e.g. confirmed, probable or suspect).*

#### 3) Identification:

- **Clinical Presentation**
  - Profuse, watery diarrhea is the most common symptom. Nausea, vomiting, anorexia, substantial weight loss, abdominal bloating or cramping and prolonged fatigue can also occur. Diarrhea can alternate with constipation (2). In untreated cases, persistent diarrheal illness may occur.

- **Diagnosis**
  - See Appendix B

#### 4) Epidemiology:

- **Occurrence**
  - *Cyclospora* is not endemic in Canada. It has been associated with diarrhea in travellers to Asia, the Caribbean, Mexico and Peru (1). Outbreaks in the US and Canada during 1996 and 1997 were associated with ingestion of fresh raspberries imported from Central
In Ontario, cases of Cyclosporiasis typically occur more often in the spring and summer. Previous clusters of Cyclosporiasis have been associated with the consumption of imported produce. Most sporadic cases have been associated with travel.

<table>
<thead>
<tr>
<th>Reservoir</th>
<th>Confirmed natural infection in animals and humans has not been documented.</th>
</tr>
</thead>
</table>

- **Modes of Transmission**
  - *Cyclospora* is transmitted through food or water contaminated by human feces. Investigations done by the Canadian Food Inspection Agency indicate that fresh fruits and vegetables (berries, basil and mesclun lettuce) may be sources of *Cyclospora* infection. *Cyclospora* is not naturally found in or on fresh fruits and vegetables, or any other foods. However, it is suspected that food contamination occurs during cultivation, harvest, packaging or transportation through contact with contaminated water or infected workers (3). *Cyclospora* oocysts in freshly excreted stool are not infectious. Days to weeks outside the host are required to sporate and become infectious (1). Currently, there is no documentation of person-to-person spread.

<table>
<thead>
<tr>
<th>Incubation Period</th>
<th>Incubation period is approximately 7 days with a range of 1 – 14 days (2).</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Period of Communicability</th>
<th>The disappearance of symptoms and oocysts usually occurs simultaneously. The mean duration of organism shedding is 23 days (1).</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Susceptibility and Resistance</th>
<th>Available evidence is limited.</th>
</tr>
</thead>
</table>

**5) Reporting Requirements:**

- **To local Board of Health**
  - Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the *Health Protection and Promotion Act*, R.S.O. 1990.

- **To Public Health Division (PHD)**
  - Report only case classifications specified in the case definition to PHD using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry **within one (1) business day of receipt of initial notification** as per *iPHIS Bulletin* Number 17: Timely Entry of Cases (4).

  The minimum data elements to be reported for each case is specified in the following:
  - *Ontario Regulation 569* (Reports) under the Health Protection and Promotion Act (HPPA);
  - The disease-specific User Guides published by the Ministry, and
  - Bulletins and directives issued by the Ministry.
6) Prevention and Control Measures:

| Personal Prevention Measures | Prevention measures are similar to those for other enteric diseases.  
| • Wash hands after using sanitary facilities and before handling food  
| • Wash fresh fruits and vegetables  
| • Dispose of feces in a sanitary manner  
| • Travelers should avoid foods from questionable sources such as roadside vendors |
| Infection Prevention and Control Strategies | Disseminate general public health education messages about hand hygiene and safe food handling. |
| Management of Cases | Investigate cases of cyclosporiasis to determine the source of infection. Refer to Section 5: Reporting Requirements above for relevant data to be collected during case investigation. The following disease-specific information should also be obtained during case management:  
| • Symptoms and date of symptom onset  
| • History of out-of-province or international travel including earliest and latest exposure dates  
| • Obtain detailed food history (inquire especially about fresh produce or herbs) |
| Treatment is under the direction of the attending health care provider.  
| Provide education on hand hygiene, proper food handling practices and on preventing the spread of infection.  
| Exclude symptomatic cases from food handling until 24 hours after cessation of symptoms. |
| Management of Contacts | Not applicable |
| Management of Outbreaks | As with most enteric diseases, an outbreak is defined as the occurrence of two or more cases of enteric illness linked by time, common exposure or source and most often location. Provide public health management of outbreaks or clusters in order to identify the source of illness, stop the outbreak and limit secondary spread.  
| As per this Protocol, outbreak management shall comprise of but not be limited to the following general steps:  
| • Confirm diagnosis and verify the outbreak;  
| • Establish an outbreak team;  
| • Develop an outbreak case definition;  
| • Implement prevention and control measures;  
| • Implement and tailor communication and notification plans depending on the scope of the outbreak;  
| • Conduct epidemiological analysis on data collected; |
- Conduct environmental inspections of implicated premise where applicable;
- Coordinate and collect appropriate clinical specimens where applicable;
- Prepare a written report, and
- Declare the outbreak over in collaboration with the outbreak team.

### 7) References


(4) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.

### 8) Additional Resources


Appendix A: Disease-Specific Chapters

Chapter: Cytomegalovirus infection, congenital
### Cytomegalovirus infection, congenital

- **Communicable**
- **Virulent**

**Health Protection and Promotion Act:**
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

**Health Protection and Promotion Act:**
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

<table>
<thead>
<tr>
<th>1) Aetiologic Agent:</th>
<th>Human (beta) herpesvirus 5 (human cytomegalovirus (CMV), a member of the sub family Betaherpesvirus of the family Herpesviridae, and it includes 4 major genotypes and many strains (1).</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>2) Case Definition:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Surveillance Case Definition</td>
<td>See Appendix B</td>
</tr>
<tr>
<td>Outbreak Case Definition</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3) Identification:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Presentation</td>
<td>Infected infants may have signs and symptoms of severe generalized infection, especially of the CNS and liver; lethargy, convulsions, jaundice, petechiae, purpura, hepatosplenomegaly, chorioretinitis, intracerebral calcifications and pulmonary infiltrates can occur leading to intra-uterine death. Survivors may exhibit mental retardation, microcephaly, motor disabilities, hearing loss and evidence of chronic liver disease (1, 2).</td>
</tr>
<tr>
<td>Diagnosis</td>
<td>See Appendix B</td>
</tr>
<tr>
<td>Note:</td>
<td>Diagnostic confirmation is required to determine if acquired or congenital.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4) Epidemiology:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Occurrence</td>
<td>Cases of Cytomegalovirus have fluctuated in the province of Ontario over the years and continue to remain fairly low, with approximately 6 cases per year.</td>
</tr>
<tr>
<td>Reservoir</td>
<td>Humans are only known reservoir for human CMV (1).</td>
</tr>
<tr>
<td>Modes of Transmission</td>
<td>Intimate contact with the virus through transplacental contact during intrauterine life.</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Perinatal infection develops 3-12 weeks after delivery (1).</td>
</tr>
<tr>
<td>------------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td>Period of Communicability</td>
<td>Following neonatal infection, the virus is excreted for 5-6 years.</td>
</tr>
<tr>
<td>Susceptibility and Resistance</td>
<td>Universal.</td>
</tr>
</tbody>
</table>

### 5) Reporting Requirements:

<table>
<thead>
<tr>
<th>To local Board of Health</th>
<th>Confirmed and suspect cases shall be reported to the medical officer of health by persons required to do so under the <em>Health Protection and Promotion Act</em>, R.S.O. 1990. Only congenital CMV is reportable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Public Health Division (PHD)</td>
<td>Report only case classifications specified in the case definition to PHD. Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry <strong>within five (5) business days of receipt of initial notification</strong> as per <em>iPHIS Bulletin Number 17: Timely Entry of Cases</em> (3). The minimum data elements to be reported for each case is specified in the following:</td>
</tr>
<tr>
<td></td>
<td>• <em>Ontario Regulation 569</em> (Reports) under the Health Protection and Promotion Act (HPPA)</td>
</tr>
<tr>
<td></td>
<td>• The disease-specific User Guides published by the Ministry, and</td>
</tr>
<tr>
<td></td>
<td>• Bulletins and directives issued by the Ministry.</td>
</tr>
</tbody>
</table>

### 6) Prevention and Control Measures:

<table>
<thead>
<tr>
<th>Personal Prevention Measures</th>
<th>Hand hygiene and routine practices are essential preventive measures for women of child bearing age who work in hospitals, especially delivery and pediatric wards, day care centres and preschools (1).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infection Prevention and Control Strategies</td>
<td>Reportable for prevalence purposes only.</td>
</tr>
<tr>
<td>Management of Cases</td>
<td>CMV is only reportable for prevalence purposes; there is no case management. Refer to Regulation 569 under the HPPA for relevant data to collect and include the following:</td>
</tr>
<tr>
<td></td>
<td>• Confirm the diagnosis as per case definition</td>
</tr>
<tr>
<td>Management of Contacts</td>
<td>Due to the high prevalence of asymptomatic shedders in the population, there is no partner notification for CMV.</td>
</tr>
<tr>
<td>Management of Outbreaks</td>
<td>Not applicable (1)</td>
</tr>
<tr>
<td>------------------------</td>
<td>-------------------</td>
</tr>
</tbody>
</table>

7) References


(3) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.

8) Additional Resources

Appendix A: Disease-Specific Chapters

Chapter: Diphtheria
### 1) Aetiological Agent:

Diphtheria is caused by *Corynebacterium diphtheriae* (*C. diphtheriae*), a gram-positive bacillus with four biotypes of *C. diphtheriae* (*gravis, mitis, belfanti and intermedius*) (1).

Strains may be toxigenic or nontoxigenic. Only the toxigenic strain produces exotoxin and can cause serious diseases. The nontoxigenic strain may produce a milder symptomatic clinical illness and has been increasingly associated with infective endocarditis (2).

### 2) Case Definition:

**Surveillance Case Definition**

See Appendix B

**Outbreak Case Definition**

The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition:

1. Clinical, laboratory and/or epidemiological criteria;
2. A time frame for occurrence;
3. A geographic location(s) or place(s) where cases live or became ill/exposed, and
4. Special attributes of cases (e.g. age, underlying conditions).

Cases should also be classified by levels of probability (i.e. confirmed, probable or suspect).

### 3) Identification:

**Clinical Presentation**

An acute bacterial disease primarily involving the pharynx, tonsils, larynx, nose, occasionally other mucous, membranes or skin and sometimes conjunctivae or vagina. The characteristic lesion, caused by liberation of a specific cytotoxin, is an asymmetrical adherent greyish white membrane with surrounding inflammation (2).

The disease has a number of manifestations depending on the site of
For nasal site symptoms include a mucopurulent nasal discharge, which may become blood tinged and a membrane may form on the nasal septum. The most common site of infection is the pharyngeal/tonsillar area. Cases present with malaise, sore throat, anorexia and low-grade fever. Two to three days later the membrane appears in the area, which may obstruct breathing in severe cases, or the individual may recover depending on the amount of toxin absorbed. In laryngeal infection, symptoms include fever, hoarseness, and a barking cough. Development of the membrane may lead to airway obstruction, coma and death (3).

Late effects of absorption of the toxin include cranial and peripheral motor and sensory nerve palsies, myocarditis and neuritis (3, 4).

Cutaneous infection is often associated with overcrowding and homelessness and is manifested by a rash or by ulcers with demarcated edges and membrane. Generally the organisms isolated from these lesions are nontoxicogenic.

### Diagnosis

See Appendix B

Note: Notify your local public health laboratory prior to submitting a specimen for testing. Specify, “diphtheria culture on the requisition” (5).

### 4) Epidemiology:

**Occurrence**

Diphtheria occurs worldwide but is a rare disease in countries where children and adults are immunized. It is typically a disease of colder months in temperate climates involving children less than 15 years of age and in persons who have not been immunized (2,3).

There have been no confirmed cases of diphtheria reported in Ontario from 1998-2007. Given its rarity in Ontario, a single confirmed case constitutes an outbreak.

**Reservoir**

Humans (2)

**Modes of Transmission**

Transmission is most common from close intimate contact with a case or carrier by respiratory droplet and direct spread from nose/throat secretions, and from eye and skin lesions (2, 6). Transmission via fomites, raw milk and milk products is rare.

**Incubation Period**

Usually 2-5 days, occasionally longer (2) a range from 1-10 days (3).

**Period of Communicability**

Variable; until virulent bacilli have disappeared from discharges and lesions, usually 2 weeks or less, seldom more than 4 weeks (2). Effective antibiotic therapy promptly terminates shedding. The rare chronic carrier may shed organisms for 6 months or more (2, 3).

**Susceptibility and Resistance**

Routine vaccination is recommended as per the Publicly Funded Immunization Schedules for Ontario. Immunization with diphtheria toxoid produces prolonged but not lifelong immunity. Lifelong
immunity is generally, but not always, acquired following disease or inapparent infection (2).

<table>
<thead>
<tr>
<th>5) Reporting Requirements:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>To local Board of Health</strong></td>
</tr>
<tr>
<td>Confirmed and suspected cases shall be reported <strong>immediately</strong> to the medical officer of health by persons required to do so under the <em>Health Protection and Promotion Act</em>, R.S.O. 1990.</td>
</tr>
<tr>
<td><strong>To Public Health Division (PHD)</strong></td>
</tr>
<tr>
<td>Report only case classifications specified in the case definition immediately to the Public Health Division or if after hours to the on-call manager in order to obtain diphtheria antitoxin. Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry <strong>within one (1) business days of receipt of initial notification</strong> as per <em>iPHIS Bulletin</em> Number 17: Timely Entry of Cases (7). The minimum data elements to be reported for each case is specified in the following:</td>
</tr>
<tr>
<td>- <em>Ontario Regulation 569</em> (Reports) under the HPPA;</td>
</tr>
<tr>
<td>- The disease-specific User Guides published by the Ministry, and</td>
</tr>
<tr>
<td>- Bulletins and directives issued by the Ministry.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6) Prevention and Control Measures:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal Prevention Measures</strong></td>
</tr>
<tr>
<td>Most effective measure for prevention is immunization. Use educational strategies to inform the public about: (1)</td>
</tr>
<tr>
<td>- Primary immunization with diphtheria toxoid given in combination with tetanus toxoid, acellular pertussis and polio vaccine as per the Publicly Funded Immunization Schedules for Ontario</td>
</tr>
<tr>
<td>- Adolescents should receive a booster dose of diphtheria containing vaccine at 14 to 16 years of age and given as the combined tetanus toxoid, diphtheria toxoid and acellular pertussis (Tdap) vaccine</td>
</tr>
<tr>
<td>- Adults should receive a booster of diphtheria containing vaccine every 10 years given in combination with tetanus toxoid as Td</td>
</tr>
<tr>
<td><strong>Infection Prevention and Control Strategies</strong></td>
</tr>
<tr>
<td>Strategies (5):</td>
</tr>
<tr>
<td>- For hospitalized cases, in addition to routine practices, droplet precautions are recommended for cases and carriers with pharyngeal diphtheria until two cultures from both the nose and throat collected 24 hours after completing antimicrobial treatment are negative for <em>C. diptheriae</em></td>
</tr>
<tr>
<td>- Contact precautions are recommended for cases with cutaneous diphtheria until two cultures of skin lesions taken at</td>
</tr>
</tbody>
</table>
least 24 hours apart and 24 hours after cessation of antimicrobial therapy are negative

Management of Cases

Refer to Regulation 569 under the HPPA regarding factors to investigate. Investigate to determine immunization status of case and contacts; confirm diagnosis and determine any travel history within the last two weeks to find possible source of infection (2).

Treatment of clinical cases should not be delayed until laboratory confirmation. Treatment is under the direction of the attending health care provider in consultation with an infectious diseases specialist. Diphtheria antitoxin should be administered as soon as possible. It is only available through the Public Health Division. Ontario has obtained a small supply of antitoxin through the federal Special Access Program.

Antibiotic therapy is needed to eliminate the organism and prevent spread and is not a substitute for antitoxin. Throat and nasopharyngeal swabs should be taken prior to starting antibiotic therapy. Erythromycin and penicillin are effective against the organism and either can be administered after cultures have been obtained for a total of 14 days of treatment (4).

The management of cases involves respiratory isolation until:

- 2 cultures from throat, nose or lesions have been taken 24 hours apart and are negative for *C. diphtheriae* (1).

- Cultures are taken 25 hours after completion of treatment

The elimination of *C. diphtheriae* should be confirmed following treatment (refer to the CCDR guideline listed below).

Once recovered, the case should receive a primary series of diphtheria –containing vaccine according to the publicly funded immunization schedule for Ontario and the age of the case.

More details on case management are available in Health Canada’s “Guidelines for the Control of Diphtheria in Canada” (4).

Management of Contacts

Contacts are defined as household members, persons who have had close face-to-face contact to a case such as intimate contact, sharing same room at school or work and health care workers exposed to oropharyngeal secretions from the case (4).

All identified contacts should have swabs taken from nose and throat and sent for culture regardless of immunization status. They should also be started on a prophylactic course of seven days with oral erythromycin or given a single dose of procaine penicillin IM as prophylaxis. They should also be kept under surveillance for seven days for signs and symptoms of disease. Inadequately immunized contacts should receive appropriate immunization (4).

Contacts must be excluded from occupations involving food handling,
close contact with children under 7 years of age or known unimmunized persons, care of the sick and from school until treatment is complete and cultures from the nose and throat or lesions are negative (4).

Refer to the PHAC guideline listed below for more information.

Management of Outbreaks

A single confirmed case of diphtheria is suggestive of an outbreak. Provide public health management of outbreaks or clusters in order to identify the source of illness, stop the outbreak and limit secondary spread.

Outbreaks of diphtheria require immunizing the largest possible proportion of the population involved, emphasizing the need for protection of infants and preschool children. Repeat immunization may be recommended after one month (1). This will be under the direction of the Public Health Division. For outbreak in a school, susceptible students can be excluded under Section 12 of the Immunization of School Pupils Act.

As per this Protocol, outbreak management shall comprise of but not be limited to the following general steps:

- Confirm diagnosis and verify the outbreak;
- Establish an outbreak team;
- Develop an outbreak case definition;
- Implement prevention and control measures;
- Implement and tailor communication and notification plans depending on the scope of the outbreak;
- Conduct epidemiological analysis on data collected;
- Conduct environmental inspections of implicated premise where applicable;
- Coordinate and collect appropriate clinical specimens where applicable;
- Prepare a written report, and
- Declare the outbreak over in collaboration with the outbreak team.

7) References


(4) Advisory Committee on Epidemiology; Division of Immunization, Laboratory Centre for Disease Control, Health Canada. Guidelines.


(7) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.

8) Additional Resources


Appendix A: Disease-Specific Chapters

Chapter: Encephalitis, including: i) Primary, viral; ii) Post-infectious; iii) Vaccine-related; iv) Subacute sclerosing panencephalitis, and v) Unspecified
### Encephalitis, including: i) Primary, viral; ii) Post infectious; iii) Vaccine-related; iv) Subacute sclerosing panencephalitis, and v) Unspecified

| Communicable | Yes |
| Virulent | No |

#### Health Protection and Promotion Act:  
Ontario Regulation 559/91 – Specification of Reportable Diseases

#### Health Protection and Promotion Act:  
Ontario Regulation 558/91 – Specification of Communicable Diseases

#### 1) Aetiologic Agent:
Encephalitis is an acute inflammatory disease involving parts of the brain, spinal cord and meninges caused by specific viruses such as, enteroviruses, coxsackie virus, arboviruses, St. Louis encephalitis virus (SLE), Western equine encephalitis virus (WEE), Eastern equine encephalitis (EEE) and California encephalitis (CE) as well as bacteria, fungi, and protozoa (1, 2).

#### 2) Case Definition:

| Surveillance Case Definition | See Appendix B |
| Outbreak Case Definition | Not applicable |

#### 3) Identification:

| Clinical Presentation | Most viral encephalitis infections are asymptomatic; mild cases often occur as febrile headache; severe infections are usually marked by acute onset, with headache, high fever, meningeal signs, stupor, disorientation, coma, tremors, occasional convulsions and spastic paralysis (1).

In post-infectious encephalitis, the clinical presentation includes confusion, seizures, headaches, stiffness of the neck and fever; ataxia may occur; most people recover fully, however, spinal involvement may lead to paraplegia or quadriplegia (1). |

| Diagnosis | See Appendix B |

#### 4) Epidemiology:

| Occurrence | Viral encephalitis occurs worldwide; more frequently in summer and early fall (1). Post-infectious encephalitis can occur after vaccination or nondescript respiratory infections; the most common viruses implicated are measles, rubella, smallpox and chicken pox (1). |
In Ontario, the group of conditions encompassing encephalitis and meningitis (of viral, bacterial, other, or unspecified origin) have been reported at an average of 447 cases each year from 1998-2007.

<table>
<thead>
<tr>
<th>Reservoir</th>
<th>Depends on causative agent.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modes of Transmission</td>
<td>Depends on causative agent.</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Depends on causative agent; for primary viral, the incubation period is usually 5-15 days (1).</td>
</tr>
<tr>
<td>Period of Communicability</td>
<td>Varies depending on causative agent.</td>
</tr>
<tr>
<td>Susceptibility and Resistance</td>
<td>Susceptibility to clinical disease is usually highest in infancy and in old age (1).</td>
</tr>
</tbody>
</table>

### 5) Reporting Requirements:

**To local Board of Health**

Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the *Health Protection and Promotion Act*, R.S.O. 1990.

**To Public Health Division (PHD)**

Report only case classifications specified in the case definition to PHD.

Encephalitis due to *Haemophilus influenzae b*, *Neisseria meningitidis*, *Streptococcus pneumoniae* (IPD), Tuberculosis, West Nile Virus, or *Listeria monocytogenes* shall be reported under the corresponding diseases.

Post-infectious encephalitis due to measles, rubella, mumps or varicella shall be reported under the respective condition as a complication of the illness.

Post-vaccine encephalitis shall be reported as an Adverse Event Following Immunization (AEFI).

Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry *within five business days of receipt of initial notification* as per *iPHIS Bulletin* Number 17: Timely Entry of Cases (3).

The minimum data elements to be reported for each case is specified in the following:

- *Ontario Regulation 569 (Reports)* under the Health Protection and Promotion Act (HPPA);
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry.
6) Prevention and Control Measures:

<table>
<thead>
<tr>
<th>Personal Prevention Measures</th>
<th>Measures:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Proper hand hygiene and avoidance of sharing utensils, cups and other items to prevent infections that could lead to encephalitis</td>
</tr>
<tr>
<td></td>
<td>- Protection against vectors including: mosquito control programs; personal precautions to avoid arthropod bites include repellents and protective clothing and staying in screened or air-conditioned locations and travellers to tropical countries should consider bringing mosquito bed nets and aerosol insecticide sprays</td>
</tr>
</tbody>
</table>

| Infection Prevention and Control Strategies | Routine practices are recommended for hospitalized cases and additional precautions would depend on causative organism. |

<table>
<thead>
<tr>
<th>Management of Cases</th>
<th>Investigate the case to determine source of infection. Refer to Regulation 569 under the HPPA for relevant data to collect including the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Symptoms and date of symptom onset;</td>
</tr>
<tr>
<td></td>
<td>- Travel history;</td>
</tr>
<tr>
<td></td>
<td>- History of exposure or risk behaviours;</td>
</tr>
<tr>
<td></td>
<td>- Earliest and latest exposure dates;</td>
</tr>
<tr>
<td></td>
<td>- Occupation;</td>
</tr>
<tr>
<td></td>
<td>- History of immunization in last 3 weeks, and</td>
</tr>
<tr>
<td></td>
<td>- History of infectious illness in last 10 days.</td>
</tr>
<tr>
<td></td>
<td>Treatment is mainly supportive.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Management of Contacts</th>
<th>Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management of Outbreaks</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

7) References


(3) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.

8) Additional Resources

Appendix A: Disease-Specific Chapters

Chapter: Food poisoning, all causes
## Food poisoning, all causes

| Communicable | ✔ | Virulent | ☐ |

### Health Protection and Promotion Act:
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

### Health Protection and Promotion Act:
**Ontario Regulation 559/91 – Specification of Reportable Disease**

---

**1) Aetiological Agent:**

Food poisoning refers to a category of enteric diseases that are acquired through the consumption of contaminated food or water but are not directly specified by Regulation 559/91 as a Reportable Disease. Food poisoning includes foodborne infections and intoxications caused by *Staphylococcus aureus*, *Bacillus cereus* and *Clostridium perfringens*, scombroid fish poisoning and ciguatera fish poisoning. However, other agents such as heavy metals, chemicals, toxins, parasites, fungi, and viruses such as noroviruses, and rotaviruses may also be reported here.

---

**2) Case Definition:**

**Surveillance Case Definition**

See Appendix B

**Outbreak Case Definition**

The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition:

1. Clinical, laboratory and/or epidemiological criteria;
2. The time frame for occurrence;
3. The geographic location(s) or place(s) where cases live or became ill/exposed, and
4. Special attributes of cases (e.g. age, underlying conditions) and/or the aetiological agent.

Cases should also be classified by levels of probability (e.g. confirmed, probable and/or suspect).

---

**3) Identification:**

**Clinical Presentation**

Symptoms vary depending on the causative agent.

**Diagnosis**

See Appendix B

Diagnosis is made by laboratory tests on specimens, usually stool, or through the identification of the causative organism and/or its toxin in food (1, 2).
4) Epidemiology:

<table>
<thead>
<tr>
<th>Occurrence</th>
<th>Food poisoning is widespread. It is most often sporadic in occurrence with cases occurring throughout the year.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Not applicable (1,2).</td>
</tr>
<tr>
<td>Modes of Transmission</td>
<td>Foodborne or waterborne.</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Varies depending on the agent.</td>
</tr>
<tr>
<td>Period of Communicability</td>
<td>Varies depending on the agent.</td>
</tr>
<tr>
<td>Susceptibility and Resistance</td>
<td>General susceptibility (1, 2).</td>
</tr>
</tbody>
</table>

5) Reporting Requirements:

<table>
<thead>
<tr>
<th>To local Board of Health</th>
<th>Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the Health Protection and Promotion Act, R.S.O. 1990.</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Public Health Division (PHD)</td>
<td>Report only case classifications specified in the case definition to PHD using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within one (1) business day of receipt of initial notification as per iPHIS Bulletin Number 17: Timely Entry of Cases (3). The minimum data elements to be reported for each case is specified in the following sources:</td>
</tr>
<tr>
<td></td>
<td>• Ontario Regulation 569 (Reports) under the Health Protection and Promotion Act (HPPA);</td>
</tr>
<tr>
<td></td>
<td>• The disease-specific User Guides published by the Ministry, and</td>
</tr>
<tr>
<td></td>
<td>• Bulletins and directives issued by the Ministry.</td>
</tr>
</tbody>
</table>

6) Prevention and Control Measures:

<table>
<thead>
<tr>
<th>Personal Prevention Measures</th>
<th>Prevention Measures:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Maintain good personal hygiene, including hand washing after using sanitary facilities and before handling food</td>
</tr>
<tr>
<td></td>
<td>• Prevent cross-contamination of ready-to-eat foods by storing raw and cooked foods separately</td>
</tr>
<tr>
<td></td>
<td>• Cook foods thoroughly</td>
</tr>
<tr>
<td></td>
<td>• Store foods at or below 4°C or at or above 60°C</td>
</tr>
<tr>
<td></td>
<td>• Use foods from approved sources</td>
</tr>
<tr>
<td>Infection Prevention and Control Strategies</td>
<td>Routine practices.</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td><strong>Management of Cases</strong></td>
<td>Investigate using appropriate interview questions to obtain history of food items eaten during the suspected incubation period and the location where food was obtained (2).</td>
</tr>
<tr>
<td></td>
<td>Identify other persons with similar exposure. For ill persons, obtain information on symptoms, onset date and hour, duration of illness, and any medical treatment or tests performed.</td>
</tr>
<tr>
<td></td>
<td>Collect relevant stool specimens and food specimens for testing (refer to the resources listed below).</td>
</tr>
<tr>
<td></td>
<td>Advise symptomatic contacts and cases to seek appropriate medical consultation.</td>
</tr>
<tr>
<td></td>
<td>Educate cases on modes of transmission (if the agent can be transmitted further), and proper hand hygiene practices to prevent secondary spread.</td>
</tr>
<tr>
<td></td>
<td>Exclude cases presenting with diarrhea from working in high risk settings (i.e., food-handlers, health care workers, and daycare staff and attendees) until diarrhea-free for 24 hours.</td>
</tr>
<tr>
<td></td>
<td>If a seafood or a federally regulated food item is identified as the source of the illness (e.g., for scombroid and ciguatera fish poisoning), notify the Canadian Food Inspection Agency (CFIA) as appropriate.</td>
</tr>
<tr>
<td><strong>Management of Contacts</strong></td>
<td>Same as above</td>
</tr>
<tr>
<td><strong>Management of Outbreaks</strong></td>
<td><strong>An outbreak is defined as the occurrence of two or more cases of enteric illness linked by time, common exposure or source and most often location.</strong></td>
</tr>
<tr>
<td></td>
<td>Provide public health management of outbreaks or clusters in order to identify the source of illness, stop the outbreak and limit secondary spread. As per this Protocol, outbreak management shall comprise of but not be limited to the following general steps:</td>
</tr>
<tr>
<td></td>
<td>• Confirm diagnosis and verify the outbreak;</td>
</tr>
<tr>
<td></td>
<td>• Establish an outbreak team;</td>
</tr>
<tr>
<td></td>
<td>• Develop an outbreak case definition;</td>
</tr>
<tr>
<td></td>
<td>• Implement prevention and control measures;</td>
</tr>
<tr>
<td></td>
<td>• Implement and tailor communication and notification plans depending on the scope of the outbreak;</td>
</tr>
<tr>
<td></td>
<td>• Conduct epidemiological analysis on data collected;</td>
</tr>
<tr>
<td></td>
<td>• Conduct environmental inspections of implicated premise where applicable;</td>
</tr>
<tr>
<td></td>
<td>• Coordinate and collect appropriate clinical specimens where applicable, and</td>
</tr>
<tr>
<td></td>
<td>• Prepare a written report.</td>
</tr>
</tbody>
</table>
• Declare the outbreak over in collaboration with the outbreak team

<table>
<thead>
<tr>
<th>7) References</th>
</tr>
</thead>
<tbody>
<tr>
<td>(3) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8) Additional Resources</th>
</tr>
</thead>
</table>
Appendix A: Disease-Specific Chapters

Chapter: Gastroenteritis, institutional outbreaks
# Gastroenteritis, institutional outbreaks

| Communicable | ☑ |
| Virulent | ☐ |

**Health Protection and Promotion Act:**
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

**Health Protection and Promotion Act:**
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

| 1) Aetiologic Agent: | Outbreaks of gastrointestinal illness in institutions are most frequently caused by viruses such as noroviruses, rotaviruses, astroviruses, enteric adenoviruses, caliciviruses and other viruses. However, bacteria and other pathogens may cause outbreaks as well. |
| 2) Case Definition: | |
| Surveillance Case Definition | See Appendix B |
| Outbreak Case Definition | The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition: |
| | 1. Clinical, laboratory and/or epidemiological criteria |
| | 2. The time frame for occurrence |
| | 3. The geographic location(s) or place(s) where cases live or became ill/exposed |
| | 4. Special attributes of cases (e.g. age, underlying conditions) and/or aetiologic agent |
| | Cases should also be classified by levels of probability (e.g. confirmed, probable and/or suspect). |
| 3) Identification: | |
| Clinical Presentation | The most common presentation of gastroenteritis is, but is not limited to, abdominal pain, vomiting and diarrhoea, along with nausea, headache, chills and myalgia. |
| Diagnosis | See Appendix B |
| | Laboratory diagnosis depends on the aetiologic agent. |
| | When viral agents are suspected, specimens should be collected very early in the course of clinical illness. |
| | It is good practice for institutions to retain 200-gram ready-to-eat, |
potentially hazardous food samples from each meal, frozen at or below \(-4^\circ\)C, for 10 days. During an outbreak, food samples should not be discarded and should be submitted for testing.

### 4) Epidemiology:

<table>
<thead>
<tr>
<th>Occurrence</th>
<th>In Ontario, gastroenteritis outbreaks in institutions occur most frequently between November and May, but may occur at any time during the year.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Varies depending on the agent; frequently humans.</td>
</tr>
<tr>
<td>Modes of Transmission</td>
<td>Primarily transmitted through fecal-oral route. May also be transmitted from person-to-person, foodborne, waterborne and airborne. Transmission may also occur through contact with fomites.</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Varies depending on the agent</td>
</tr>
<tr>
<td>Period of Communicability</td>
<td>Varies depending on the agent</td>
</tr>
<tr>
<td>Susceptibility and Resistance</td>
<td>All persons are susceptible; however susceptibility is greater among the elderly (1).</td>
</tr>
</tbody>
</table>

### 5) Reporting Requirements:

<table>
<thead>
<tr>
<th>To local Board of Health</th>
<th>All suspect and confirmed gastroenteritis institutional outbreaks shall be reported to the medical officer of health by persons required to do so under the <em>Health Protection and Promotion Act</em> R.S.O., 1990.</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Public Health Division (PHD)</td>
<td>Individual cases of gastroenteritis in institutions are not reportable. Community outbreaks of gastroenteritis are also not reportable.</td>
</tr>
<tr>
<td></td>
<td>Outbreaks in institutions that are caused by Reportable Diseases (e.g. <em>salmonellosis</em>, <em>E. coli</em>, etc.) shall be reported under their respective Reportable Disease(s).</td>
</tr>
<tr>
<td></td>
<td>Report only aggregate case counts for gastrointestinal outbreaks in institutions to the ministry using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) business days of receipt of initial notification as per <em>iPHIS Bulletin</em> Number 17: Timely Entry of Cases (2).</td>
</tr>
<tr>
<td></td>
<td>The minimum data elements to be reported for each outbreak is specified in the following sources:</td>
</tr>
<tr>
<td></td>
<td>- <em>Ontario Regulation 569</em> (Reports) under the Health Protection and Promotion Act (HPPA);</td>
</tr>
<tr>
<td></td>
<td>- The disease-specific User Guides published by the Ministry, and</td>
</tr>
<tr>
<td></td>
<td>- Bulletins and directives issued by the Ministry.</td>
</tr>
</tbody>
</table>
### 6) Prevention and Control Measures:

| Personal Prevention Measures | Proper hand washing techniques and proper use of routine practices and additional precautions are key to prevent the risk of transmission of organisms from the client to the health care provider, from the health care provider to the client, and between clients. |
| Infection Prevention and Control Strategies | • Use routine practices, and additional precautions (contact precautions for all enteric diseases and droplet precautions for those diseases transmitted by droplets, for example Norovirus) as necessary to prevent transmission  
• Suspend communal activities  
• Use personal protective equipment as appropriate  
• Use enhanced environmental cleaning and disinfection practices |
| Management of Cases | Cases are managed as part of the outbreak.  
Cases should be maintained on disease-specific isolation precautions for up to 48 hours after cessation of symptoms as long as it does not cause the resident undue stress and can be implemented without using restraints (in long-term care homes).  
Cohorting of confirmed and suspected cases should be implemented. Cohort nursing staff where feasible. Symptomatic staff should be off work for 48 hours after cessation of diarrhea and should receive hygiene counselling before returning to work. |
| Management of Contacts | Monitor contacts for development of symptoms.  
Restrict visitors or admissions to the institution during an outbreak. |
| Management of Outbreaks | For gastroenteritis outbreaks in institutions, public health works collaboratively with the staff of the institution, in particular the infection control practitioner, in order to identify the source of illness, stop the outbreak and limit secondary spread.  
As per this Protocol, outbreak management shall comprise of but not be limited to the following general steps:  
• Confirm diagnosis and verify the outbreak;  
• Establish an outbreak team;  
• Develop an outbreak case definition;  
• Implement prevention and control measures;  
• Implement and tailor communication and notification plans depending on the scope of the outbreak;  
• Conduct epidemiological analysis on data collected;  
• Conduct environmental inspections of implicated premise where applicable;  
• Coordinate and collect appropriate clinical specimens where applicable;  
• Prepare a written report, and |
• Declare the outbreak over in collaboration with the outbreak team.

<table>
<thead>
<tr>
<th>7) References</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8) Additional Resources</th>
<th></th>
</tr>
</thead>
</table>
Appendix A: Disease-Specific Chapters

Chapter: Giardiasis, except asymptomatic cases
Giardiasis, except asymptomatic cases

- Communicable
- Virulent

Health Protection and Promotion Act:
Ontario Regulation 558/91 – Specification of Communicable Diseases

Health Protection and Promotion Act:
Ontario Regulation 559/91 – Specification of Reportable Diseases

| 1) Aetiology Agent: | Giardiasis is caused by the protozoa, *Giardia lamblia* (also known as *G. intestinalis* or *G. duodenalis*). The organism is found in two forms, a pear-shaped **trophozoite** and an ovoid **cyst**. The trophozoite is relatively fragile, and dies when excreted from the body. The cyst form, which is environmentally resistant, thrives in warm, still bodies of water such as ponds and stagnant lakes (2). Additionally it can be found in fecal contaminated surfaces and food items. |
| 2) Case Definition: | **Surveillance Case Definition**
See Appendix B

**Outbreak Case Definition**
The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following when establishing an outbreak case definition:

1. Clinical, laboratory and/or epidemiological criteria;
2. The time frame for occurrence;
3. The geographic location(s) or place(s) where cases live or became ill/exposed, and
4. Special attributes of cases (e.g. age, underlying conditions) and/or aetiologic agent.

Cases may be classified by levels of probability (i.e. confirmed, probable or suspect).

| 3) Identification: | **Clinical Presentation**
Infection is limited to the small intestine and biliary tract (3).

Symptoms include chronic diarrhea, abdominal cramps and bloating, dehydration, frequent passing of loose pale greasy stools due to malabsorption of fats, fatigue and weight loss. Complications, such as arthritis and damage to cells, which line the intestine, can arise from prolonged infection (2). Asymptomatic infections may be present. |
### Diagnosis

See Appendix B

Diagnosis is made by microscopic examination of fecal specimens for *G. lamblia* cysts or trophozoites, or by Giardia immunoassays for *G. lamblia* antigen. Three specimens taken 2-3 days apart will identify 80-90% of infections (1).

### 4) Epidemiology:

| Occurrence | The disease occurs worldwide. In Canada, the illness is common in institutions and daycare centers where children are not yet toilet trained. Children less than 5 years of age, and adults 25-39 years of age (usually the parents of these children) are at increased risk of infection (2). Infection can also be acquired by people with exposure to contaminated lakes and ponds. The greatest number of cases is reported in the warmer months of the year, such as July to October (2). Giardiasis is common in Ontario, with an average of over 1,600 cases occurring per year (2003 to 2007 iPHIS data). |
| Reservoir | Humans, possibly beavers and other wild and domestic animals (1) |
| Modes of Transmission | Transmission is fecal-oral, most commonly through the ingestion of contaminated water or by direct person-to-person contact. Anal-oral contact and transmission through food vehicles and fecally contaminated recreational and drinking water may also occur (1). |
| Incubation Period | Usually 3 – 25 days or longer; median 7 – 10 days (1). |
| Period of Communicability | The disease is communicable as long as the infected person excretes cysts (3). |
| Susceptibility and Resistance | Most common in children less than 5 years of age and in adults 25-39 years of age; asymptomatic carrier rates are high; persons with AIDS may have more serious and prolonged illness (1). |

### 5) Reporting Requirements:

| To local Board of Health | Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the *Health Protection and Promotion Act*, R.S.O. 1990. |
| To Public Health Division (PHD) | Report only case classifications specified in the case definition to PHD using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) business days of receipt of initial notification as per *iPHIS Bulletin* Number 17: Timely Entry of Cases (4). The minimum data elements to be reported for each case is specified in the following sources: |
Ontario Regulation 569 (Reports) under the Health Protection and Promotion Act (HPPA)

- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry

### 6) Prevention and Control Measures:

<table>
<thead>
<tr>
<th>Personal Prevention Measures</th>
<th>Prevention Measures:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Education of families and personnel of day care centres on personal hygienic practices, such as hand washing before meals, after toilet use and changing diapers (3)</td>
</tr>
<tr>
<td></td>
<td>• Where water might be contaminated, travelers, campers and hikers should be advised of methods to make water safe for drinking, including boiling, chemical disinfection and filtration (3)</td>
</tr>
<tr>
<td></td>
<td>• Regular testing of private water supplies is advisable</td>
</tr>
</tbody>
</table>

| Infection Prevention and Control Strategies | Routine practices are recommended for hospitalized cases. |

| Management of Cases | Investigate cases of giardiasis to determine the source of infection. Refer to Section 5: Reporting Requirements above for relevant data to be collected during case investigation. The following disease-specific information should also be obtained during case management: |
|---------------------|• Symptoms and date of symptom onset |
|                     |• History of out-of-province or international travel including earliest and latest exposure dates |
|                     |• History of exposure to known sources of Giardia |
|                     |• Residency/attendance or employment at a facility or institution |
|                     |Exclude symptomatic persons from food handling, care of hospitalized patients and from personal care homes and day care centres until 24 hours after diarrhoea has resolved. |
|                     |Cases should not use recreational water venues such as swimming pools, lakes and rivers for 2 weeks after symptoms resolve (3). |
|                     |Provide education about the illness, proper hand hygiene, proper food handling and how to prevent the spread of infection as above. |
|                     |Treatment is as prescribed by the attending health care provider. |

| Management of Contacts | Household members and other suspected contacts should be assessed for symptoms. Provide information about the spread of infection and how to prevent it. Symptomatic contacts should be excluded from day care settings or high risk occupations such as health care and food handling and should be assessed by their health care provider. |
Management of Outbreaks

As with most enteric diseases, an outbreak is defined as the occurrence of two or more cases of enteric illness linked by time, common exposure or source and most often location.

Provide public health management of outbreaks or clusters in order to identify the source of illness, stop the outbreak and limit secondary spread. As per this Protocol, outbreak management shall comprise of but not be limited to the following general steps:

- Confirm diagnosis and verify the outbreak;
- Establish an outbreak team;
- Develop an outbreak case definition;
- Implement prevention and control measures;
- Implement and tailor communication and notification plans depending on the scope of the outbreak;
- Conduct epidemiological analysis on data collected;
- Conduct environmental inspections of implicated premise where applicable;
- Coordinate and collect appropriate clinical specimens where applicable, and
- Prepare a written report.

7) References


(4) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.

8) Additional Resources


Ministry of Health and Long Term Care, Advisory Committee on Communicable Diseases, “Enteric Disease Screening Recommendations and Case Management Guidelines on Food handlers and Patient Care Workers”, 1990 or as current (Currently being revised as “Guidelines for the Management of Enteric Diseases in Healthcare Workers, Food Handlers and Day Care Staff and Attendees”).

University Press; 2002.


Appendix A: Disease-Specific Chapters

Chapter: Gonorrhoea
Gonorrhoea

- Communicable
- Virulent

Health Protection and Promotion Act, Section 1 (1)

Health Protection and Promotion Act:
Ontario Regulation 558/91 – Specification of Communicable Diseases

Health Protection and Promotion Act:
Ontario Regulation 559/91 – Specification of Reportable Diseases

<table>
<thead>
<tr>
<th>1) Aetiologic Agent:</th>
<th>Causative agent is the <em>Neisseria gonorrhoeae</em>, a gram-negative diplococcus, commonly known as Gonococcus (1).</th>
</tr>
</thead>
<tbody>
<tr>
<td>2) Case Definition:</td>
<td>Surveillance Case Definition: See Appendix B</td>
</tr>
<tr>
<td></td>
<td>Outbreak Case Definition: Not applicable</td>
</tr>
<tr>
<td>3) Identification:</td>
<td>Clinical Presentation: Presentation and severity differs in males and females (1). Many cases are asymptomatic (2).</td>
</tr>
<tr>
<td></td>
<td>In males the most common presenting symptom is a painful purulent urethral discharge; dysuria and frequency as well as redness, itching and swelling of urethra (1).</td>
</tr>
<tr>
<td></td>
<td>Females present with initial urethritis or cervicitis, frequently mild which can go unnoticed; abnormal vaginal discharge and post-coital bleeding may occur and then the infection can progress to pelvic inflammatory disease (1).</td>
</tr>
<tr>
<td></td>
<td>Pharyngeal and anorectal infections are common among those engaging in oral and anal sex (1).</td>
</tr>
<tr>
<td></td>
<td>Diagnosis: See Appendix B</td>
</tr>
<tr>
<td>4) Epidemiology:</td>
<td>Occurrence: Worldwide; affects both genders especially sexually active adolescents and younger adults (1).</td>
</tr>
<tr>
<td></td>
<td>In Ontario, gonorrhoea is a commonly reported STI. Rates of</td>
</tr>
</tbody>
</table>
Gonorrhea are higher among males compared to females, and have been rising. Reported rates are highest among males 20-24 years of age and among females 15-19 years of age.

<table>
<thead>
<tr>
<th>Reservoir</th>
<th>Humans (1).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modes of Transmission</td>
<td>Sexual contact via oral, vaginal, cervical, urethral or anal routes; in children, exposure to infected genitals (consider the possibility of sexual abuse in these cases); newborns: during delivery from infected mother (1, 2).</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Usually 2-7 days, sometimes longer when symptoms occur (1).</td>
</tr>
<tr>
<td>Period of Communicability</td>
<td>May extend for months if untreated; effective treatment usually ends communicability within hours (1).</td>
</tr>
<tr>
<td>Susceptibility and Resistance</td>
<td>Susceptibility is general; the transmission probability of <em>N. gonorrhoea</em> has been estimated to be as high as 50% per genital sexual contact, and is more efficient male to female than female to male (1, 2).</td>
</tr>
</tbody>
</table>

**5) Reporting Requirements:**

<table>
<thead>
<tr>
<th>To local Board of Health</th>
<th>Laboratory confirmed cases shall be reported to the medical officer of health by persons required to do so under the <em>Health Protection and Promotion Act</em>, R.S.O. 1990. Refer to the <em>Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008</em> (or as current) for reporting requirements and data collection requirements.</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Public Health Division (PHD)</td>
<td>Report only case classifications specified in the case definition to PHD. Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry <strong>within five (5) business days of receipt of initial notification</strong> as per <em>iPHIS Bulletin</em> Number 17: Timely Entry of Cases (3). The minimum data elements to be reported for each case is specified in the following:</td>
</tr>
<tr>
<td></td>
<td>• <em>Ontario Regulation 569</em> (Reports) under the Health Protection and Promotion Act (HPPA);</td>
</tr>
<tr>
<td></td>
<td>• The disease-specific User Guides published by the Ministry, and</td>
</tr>
<tr>
<td></td>
<td>• Bulletins and directives issued by the Ministry.</td>
</tr>
</tbody>
</table>
### 6) Prevention and Control Measures:

<table>
<thead>
<tr>
<th>Personal Prevention Measures</th>
<th>Preventative measures include education about safer sex practices including use of condoms and early detection of infection by testing those at risk (2).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>REFER TO Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008 (or as current), and the Canadian Guidelines on Sexually Transmitted Infections, Public Health Agency of Canada, 2008 edition.</td>
</tr>
<tr>
<td>Infection Prevention and Control Strategies</td>
<td>REFER TO Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008 (or as current), and the Canadian Guidelines on Sexually Transmitted Infections, Public Health Agency of Canada, 2008 edition.</td>
</tr>
</tbody>
</table>
| Management of Cases | Investigate the case to determine source of infection. Refer to Ontario Regulation 569 under the HPPA for relevant data to collect and ensure to include the following:  
  - history of exposure  
  - risk assessment  
  - contact history  
  Provide education about and promote safer sex practices.  
  Treatment as per attending health care provider.  
  REFER TO Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008 (or as current), and the Canadian Guidelines on Sexually Transmitted Infections, Public Health Agency of Canada, 2008 edition. |
| Management of Contacts | All identified sexual contacts exposed should be assessed, tested and treated as per the ministry document Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008 (or as current), and the Canadian Guidelines on Sexually Transmitted Infections, Public Health Agency of Canada, 2008 edition. |
| Management of Outbreaks | Not applicable for gonorrhea. |

### 7) References


### 8) Additional Resources

Ministry of Health and Long-Term Care. Sexual health and sexually

Appendix A: Disease-Specific Chapters

Chapter: Group A Streptococcal disease, invasive
### Group A Streptococcal disease, invasive

| Communicable | ☒ | Virulent | ☐ |

**Health Protection and Promotion Act:**  
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

**Health Protection and Promotion Act:**  
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

<table>
<thead>
<tr>
<th>1) Aetiologic Agent:</th>
<th>Invasive Group A Streptococcal (iGAS) disease is caused by the gram-positive <em>B-hemolytic bacterium, Streptococcus pyogenes</em> (<em>S. pyogenes</em>). More than 100 distinct M-protein serotypes of <em>S.pyogenes</em> have been identified (1, 4). Typing based on the M-protein sequence (emm typing) also is performed and is more discriminating than M-protein Serotyping (4).</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>2) Case Definition:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Surveillance Case Definition</strong></td>
<td>See Appendix B</td>
</tr>
</tbody>
</table>
| **Outbreak Case Definition** | An outbreak is defined as increased transmission of GAS causing invasive disease in a population. Outbreaks of invasive GAS disease do not occur in the community frequently and typically involve two cases (i.e. case-pairs) who have had close contact (2). The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition:  
1. Clinical, laboratory and/or epidemiological criteria  
2. A time frame for occurrence (i.e. increase in endemic rate of iGAS)  
3. A geographic location(s) or place(s) where cases live or became ill/exposed  
4. Special attributes of cases (e.g. age, underlying conditions, and risk behaviours)  
Cases should be classified as confirmed, probable or suspect. |

<table>
<thead>
<tr>
<th>3) Identification:</th>
<th>The most common clinical presentations for invasive group A streptococci are skin or soft tissue infections, bacteremia with no septic focus, pneumonia, streptococcal toxic shock syndrome (STSS) and necrotizing fasciitis (NF) (1,2).</th>
</tr>
</thead>
</table>
Streptococcus pyogenes may colonize the throat of individuals (carriers) without symptoms and may be passed from person to person (2).

The manifestations preceding the onset of invasive GAS disease are variable. Symptoms may be vague and include pain of unusual severity, swelling, fever, chills, influenza-like symptoms, generalized muscle aches, generalized macular rash, bullae, nausea, vomiting, diarrhea, malaise or joint pain (2).

Symptoms of NF and myositis include fever, and a red painful swelling of tissue, which spreads rapidly. Death may occur in 12-24 hours. NF and myositis are less severe than STSS, however they have a mortality rate of about 20% (2).

Symptoms of STSS include the primary site of GAS and or NF, plus hypotension, adult respiratory distress syndrome, renal impairment, rapid onset of shock and multi organ failure. STSS has a mortality rate of up to 81%. Survivors may be left with severe long-term disability (2).

### Diagnosis

See Appendix B

### 4) Epidemiology:

#### Occurrence

In Ontario, similar to the rest of Canada, iGAS is most prevalent among older adults and in young children. IGAS follows a seasonal pattern with cases occurring more frequently in the winter and early spring. The most common risk factors for acquisition include injection drug use, pregnancy related risk factors, varicella, cancer, immunocompromised and HIV infection. Highest among adults greater than 60 years of age followed by children less than 1 year of age.

#### Reservoir

Humans, typically in their throat and skin (1).

#### Modes of Transmission

Transmission is generally person to person most commonly by: (1, 2)
- Droplet spread when an infected individual coughs or sneezes
- Direct or indirect contact of the oral or nasal mucus membranes with infectious respiratory secretions or with exudates from wounds or skin lesions
- Direct or indirect contact of non-intact skin with infectious respiratory secretions or skin wound exudates
- Sharing of contaminated needles

#### Incubation Period

Usually 1-3 days (1).

#### Period of Communicability

In untreated uncomplicated cases, 10-21 days; in untreated conditions with purulent discharges, weeks or months. With adequate treatment, transmissibility generally ends within 24 hours. Persons with untreated streptococcal pharyngitis may carry the
organism for weeks or months, but infectivity decreases in 2-3 weeks after onset of infection (1).

### Susceptibility and Resistance

Susceptibility is general; however, the risk of iGAS disease is associated with several underlying conditions including HIV infection, cancer, heart disease, diabetes, lung disease and alcohol abuse. Older individuals, persons with chronic diseases, persons in institutions and pregnant women also appear to be at higher risk of invasive GAS (1, 2).

Many persons who acquire iGAS infection have no underlying disease. Varicella is the most commonly identified risk factor in children and close contacts of persons with invasive GAS are at higher risk of infection (2).

### 5) Reporting Requirements:

<table>
<thead>
<tr>
<th>To local Board of Health</th>
<th>Confirmed and suspected cases shall be reported by phone to the medical officer of health by persons required to do so under the <em>Health Protection and Promotion Act</em>, R.S.O. 1990.</th>
</tr>
</thead>
</table>
| To Public Health Division (PHD) | Report only case classifications specified in the case definition to PHD.  
Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry **within one (1) business day of receipt of initial notification** as per *iPHIS Bulletin* Number 17: Timely Entry of Cases (5).  
The minimum data elements to be reported for each case is specified in the following:  
- *Ontario Regulation 569* (Reports) under the Health Protection and Promotion Act (HPPA);  
- The disease-specific User Guides published by the Ministry, and  
- Bulletins and directives issued by the Ministry. |

### 6) Prevention and Control Measures:

| Personal Prevention Measures | Prevention Measures:  
- Educate the public and health care workers about reducing the spread of all types of infection by proper hand hygiene especially after coughing and sneezing and before preparing foods and eating.  
- Use of the varicella vaccine, as the risk of acquiring invasive GAS infection is higher in persons with antecedent varicella infection. |
<table>
<thead>
<tr>
<th>Infection Prevention and Control Strategies</th>
<th>Strategies:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Prompt identification and aggressive treatment of GAS infections to prevent increased incidence of invasive GAS disease infections (4)</td>
</tr>
<tr>
<td></td>
<td>• Individuals with confirmed streptococcal pharyngitis, especially school aged children should remain at home until at least 24 hours after beginning appropriate antimicrobial therapy</td>
</tr>
<tr>
<td></td>
<td>• Droplet precautions for the first 24 hours after the start of appropriate antibiotic therapy is recommended for hospitalized cases</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Management of Cases</th>
<th>Investigation of reported cases should begin as soon as possible after receiving report. Refer to Regulation 569 under the HPPA for relevant data to collect and make sure to include at a minimum:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Symptoms and date of symptom onset</td>
</tr>
<tr>
<td></td>
<td>• History of varicella infection</td>
</tr>
<tr>
<td></td>
<td>• Occupation</td>
</tr>
<tr>
<td></td>
<td>• Residency/attendance at a facility or institution for institutional outbreaks</td>
</tr>
<tr>
<td></td>
<td>• Risk factors/susceptibility for acquiring disease, such as homelessness, illicit drug use, and presence of wounds</td>
</tr>
<tr>
<td></td>
<td>• Identification of close contacts of cases (see below), assessment of type of contact and probability of transmission</td>
</tr>
</tbody>
</table>

Ensure that early medical intervention with appropriate antibiotic therapy has started. Treatment is under the direction of the attending health care provider.

Routine infection prevention and control practices, as well as contact and droplet precautions should be in effect until 24 hours after appropriate treatment was started.

Provide education about the illness and how to prevent spread as above (2).

More information on treatment and follow up investigations for specific settings is available in the resources and references listed below.

<table>
<thead>
<tr>
<th>Management of Contacts</th>
<th>Close Contacts are defined as:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Household contacts of a case who have spent at least 4 hours/day on average in the previous 7 days</td>
</tr>
<tr>
<td></td>
<td>• Non-household persons who share the same bed with the case or had sexual relations with the case</td>
</tr>
<tr>
<td></td>
<td>• Persons who have had direct mucous membrane contact with the oral or nasal secretions of a case such as, mouth to mouth resuscitation, open mouth kissing or unprotected direct contact with an open skin lesion of the case</td>
</tr>
<tr>
<td></td>
<td>• Injection drug users who have shared needles with the case</td>
</tr>
</tbody>
</table>

All close contacts of invasive disease should be instructed about the
signs and symptoms of GAS infection and advised to seek medical attention if they develop within 30 days after exposure to case (2).  

Expert opinion regarding chemoprophylaxis of contacts of persons with invasive GAS disease varies. The efficacy and optimal regimen of antibiotic prophylaxis for contacts has not been well established, however the Provincial Infectious Diseases Advisory Committee (PIDAC) has stated that chemoprophylaxis should be offered to close contacts of a case of invasive disease with evidence of clinical severity such as in STSS, SNF, meningitis, pneumonia or death. 

The purpose of prophylaxis is to eradicate nasopharyngeal colonization of GAS and prevent disease (2).

**Recommended Chemoprophylaxis Regimens for Close Contacts (2)**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dosage</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>First-generation cephalosporins: cepalexin, cepadroxil, cephradine</td>
<td><strong>First line.</strong> Children and adults: 25 to 50 mg/kg daily, to a maximum of 1 g/day in 2 to 4 divided doses × 10 days</td>
<td>Recommended drug for pregnant and lactating women. Should be used with caution in patients with allergy to penicillin. Use of cephalosporins with nephrotoxic drugs (e.g. aminoglycosides, vancomycin) may increase the risk of cephalosporin-induced nephrotoxicity.</td>
</tr>
<tr>
<td>Erythromycin</td>
<td><strong>Second line.</strong> Children: 5 to 7.5 mg/kg every 6 hours or 10 to 15 mg/kg every 12 hours (base) × 10 days (not to exceed maximum of adult dose) Adults: 500 mg every 12 hours (base) × 10 days</td>
<td>Erythromycin estolate is contraindicated in persons with pre-existing liver disease or dysfunction and during pregnancy. Sensitivity testing is recommended in areas where macrolide resistance is unknown or known to be ≥10%.</td>
</tr>
<tr>
<td>Clarithromycin</td>
<td><strong>Second line.</strong> Children: 15 mg/kg daily in divided doses every 12 hours, to a maximum of 250 mg po bid × 10 days Adults: 250 mg po bid × 10 days</td>
<td>Contraindicated in pregnancy. Sensitivity testing is recommended in areas where macrolide resistance is unknown or known to be ≥10%.</td>
</tr>
<tr>
<td>Clindamycin</td>
<td><strong>Second line.</strong> Children: 8 to 16 mg/kg daily divided into 3 or 4 equal doses × 10 days (not to exceed maximum of adult dose) Adults: 150 mg every 6 hours × 10 days</td>
<td>Alternative for persons who are unable to tolerate beta-lactam antibiotics.</td>
</tr>
</tbody>
</table>

For the management of selected LTCH contacts, selected child care contacts, or selected hospital contacts refer to the PHAC document listed below as well as the other resources and references.

Public Health Agency of Canada. (PHAC) *Guidelines for the Prevention and Control of Invasive Group A Streptococcal (GAS)*
Management of Outbreaks

Provide public health management of outbreaks or clusters to identify
the source of illness, stop the outbreak and limit secondary spread.
For outbreaks in Long Term Care Homes refer to the Ontario Nursing
Home Association, Guidelines for the management of residents with
group A streptococcus infection in long term care homes, October
1997.

An outbreak is defined as increased transmission of GAS
cauing invasive disease in a population. Outbreaks of invasive
GAS disease do not occur in the community frequently and typically
involve two cases (i.e. case-pairs) who have had close contact (2).

As per this Protocol, outbreak management shall comprise of but not
be limited to the following general steps:
- Confirm diagnosis and verify the outbreak;
- Establish an outbreak team;
- Develop an outbreak case definition;
- Implement prevention and control measures;
- Implement and tailor communication and notification plans
depending on the scope of the outbreak;
- Conduct epidemiological analysis on data collected;
- Coordinate and collect appropriate clinical specimens where
  applicable;
- Prepare a written report, and
- Declare the outbreak over in collaboration with the outbreak
team.

Consideration for action for Outbreaks or Clusters:

| Long-Term Care Home | • An incidence rate of culture-confirmed iGAS infections of >1 per 100 residents per month, or
|                     | • At least two cases of culture-confirmed iGAS infection in 1 month in facilities with fewer than 200 residents, or
|                     | • An incidence rate of suggested invasive or non-invasive GAS infections of >4 per 100 residents per month |
| Child Care Centre   | One severe case of iGAS disease in a child attending a child care centre |

Refer to the PHAC document listed below. Public Health Agency of
Canada. (PHAC) Guidelines for the Prevention and Control of
Invasive Group A Streptococcal (GAS) Disease. Ottawa. October
2006

7) References


(5) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.

8) Additional Resources


Appendix A: Disease-Specific Chapters

Chapter: Group B Streptococcal disease, neonatal
# Group B Streptococcal disease, neonatal

| Communicable | X | Virulent | X |

**Health Protection and Promotion Act:**  
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

## 1) Aetiologic Agent:

Group B *streptococci* (GBS) (*S. agalactiae*) are gram-positive cocci which are the most common cause of sepsis and meningitis in “at risk” newborns (1).

## 2) Case Definition:

**Surveillance Case Definition**  
See Appendix B

**Outbreak Case Definition**  
Not Applicable

## 3) Identification:

### Clinical Presentation

Two distinct forms of illness can occur: (1)

- Early onset disease (1 – 7 days after birth) presents with sepsis, respiratory disease, apnea, shock, pneumonia and meningitis.
- Late onset disease (7 days to several months after birth) presents with sepsis and meningitis, however note that only illness up to 28 days after birth is reportable.

**Diagnosis**  
See Appendix B

## 4) Epidemiology:

### Occurrence

Approximately 10-30% of pregnant women harbour GBS in the genital tract; approximately 70% of offspring may be colonized postnatal, but only approximately 1-2 % develop symptomatic infection (1).

In Ontario, the number of cases have fluctuated in recent years but overall tend to remain steady, with a similar number of cases reported among males and females.

### Reservoir

Humans; the usual reservoir site in woman is the GI tract; woman may also carry GBS in the vagina, cervix, urethra, pharynx or on the skin (1).

### Modes of Transmission

Early onset transmission occurs via the infected birth canal as well as in utero.
<table>
<thead>
<tr>
<th>Incubation Period</th>
<th>For early onset disease, the incubation period is from 1-3 days; disease is apparent at birth and the majority are apparent in the first 24 hours of life.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period of Communicability</td>
<td>Group B <em>streptococci</em> are transmissible to infants during labour if the mother is colonized, however, a negative vaginal culture at the time of labour does not guarantee absence of colonization.</td>
</tr>
<tr>
<td>Susceptibility and Resistance</td>
<td>Neonates are universally susceptible; risk is greater among premature babies (1).</td>
</tr>
</tbody>
</table>

5) Reporting Requirements:

<table>
<thead>
<tr>
<th>To local Board of Health</th>
<th>Suspect and laboratory confirmed cases shall be reported to the medical officer of health by persons required to do so under the <em>Health Protection and Promotion Act</em>, R.S.O. 1990.</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Public Health Division (PHD)</td>
<td>Report only case classifications specified in the case definition to PHD. Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) business days of receipt of initial notification as per <em>iPHIS Bulletin</em> Number 17: Timely Entry of Cases (2). The minimum data elements to be reported for each case is specified in the following:</td>
</tr>
<tr>
<td></td>
<td>• <em>Ontario Regulation 569</em> (Reports) under the Health Protection and Promotion Act (HPPA);</td>
</tr>
<tr>
<td></td>
<td>• The disease-specific User Guides published by the Ministry, and</td>
</tr>
<tr>
<td></td>
<td>• Bulletins and directives issued by the Ministry.</td>
</tr>
</tbody>
</table>

6) Prevention and Control Measures:

<table>
<thead>
<tr>
<th>Personal Prevention Measures</th>
<th>In Ontario screening is not public health practice. For information refer to the Society of Obstetricians and Gynaecologists of Canada: <a href="http://www.sogc.org/index_e.asp">http://www.sogc.org/index_e.asp</a>.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infection Prevention and Control Strategies</td>
<td>As above</td>
</tr>
<tr>
<td>Management of Cases</td>
<td>No case management applicable for GBS, reported for prevalence.</td>
</tr>
<tr>
<td>Management of Contacts</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Management of Outbreaks</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
(2) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17. |
Appendix A:
Disease-Specific Chapters

Chapter: Haemophilus influenzae b disease, invasive
Haemophilus influenzae b disease, invasive

- Communicable
- Virulent

Health Protection and Promotion Act:
Ontario Regulation 558/91 – Specification of Communicable Diseases

Health Protection and Promotion Act:
Ontario Regulation 559/91 – Specification of Reportable Diseases

1) Aetiologic Agent:  
*Haemophilus influenzae (H. influenzae)* serotype b (Hib) is a Gram-negative encapsulated coccobacilli bacterium that causes invasive disease and illness; there are numerous serotypes and non-typable strains (1, 2).

2) Case Definition:

<table>
<thead>
<tr>
<th>Surveillance Case Definition</th>
<th>See Appendix B</th>
</tr>
</thead>
</table>

Outbreak Case Definition

The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition:

1. Clinical, laboratory and/or epidemiological criteria
2. A time frame for occurrence
3. A geographic location(s) or place(s) where cases live or became ill/exposed
4. Special attributes of cases (e.g. age, underlying conditions)

Cases may be classified by levels of probability (i.e. confirmed, probable or suspect).

3) Identification:

| Clinical Presentation | Onset of symptoms can be subacute, but is usually sudden, including fever, vomiting, lethargy and meningeval irritation with bulging fontanelle in infants or stiff neck and back in older children (1). Progressive stupor or coma is common; occasionally there is a low-grade fever for several days with more subtle CNS symptoms (1).
Meningitis is the most common presentation, next to epiglottitis and bacteraemia (1). Hib infection may also cause other diseases such as pneumonia, septic arthritis, cellulites and osteomyelitis (1, 2). |
|-----------------------|--------------------------------------------------|

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>See Appendix B</th>
</tr>
</thead>
</table>
### 4) Epidemiology:

<table>
<thead>
<tr>
<th>Occurrence</th>
<th>Worldwide; most prevalent among children aged 2 months to 3 years. Prior to the introduction of routine vaccination with Hib vaccine in early 1990’s, Hib disease was the most common serious invasive bacterial infection in children (1). In Ontario, Hib occurs rarely, with an average of 8 cases per year.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Humans (1)</td>
</tr>
<tr>
<td>Modes of Transmission</td>
<td>Transmission occurs by direct contact with discharge from nose and throat of infected persons during the infectious period via droplets, with the portal of entry most commonly the nasopharynx (1).</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Unknown; probably short, 2-4 days (1).</td>
</tr>
<tr>
<td>Period of Communicability</td>
<td>As long as organisms are present in nose and throat and possibly for up to 7 days prior to onset of illness; antibiotic treatment reduces communicability within 24-48 hours, however does not eliminate carriage (1).</td>
</tr>
<tr>
<td>Susceptibility and Resistance</td>
<td>Susceptibility is assumed to be universal. Immunity is associated with the presence of circulating bacteria and/or anticapsular antibody, acquired transplacentally, from prior infection or through immunization (1).</td>
</tr>
</tbody>
</table>

In Ontario, Hib is most common among the immunocompromised, infants who have not completed the primary series and unimmunized individuals.

### 5) Reporting Requirements:

<table>
<thead>
<tr>
<th>To local Board of Health</th>
<th>Confirmed and suspected cases of invasive disease caused by <em>Haemophilus influenzae</em> type b shall be reported to the medical officer of health by persons required to do so under the <em>Health Protection and Promotion Act</em>, R.S.O. 1990.</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Public Health Division (PHD)</td>
<td>Report only case classifications specified in the case definition to PHD. Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry <em>within five business days of receipt of initial notification</em> as per <em>iPHIS Bulletin</em> Number 17: Timely Entry of Cases (5). The minimum data elements to be reported for each case is specified in the following:</td>
</tr>
<tr>
<td></td>
<td>• <em>Ontario Regulation 569</em> (Reports) under the HPPA;</td>
</tr>
<tr>
<td></td>
<td>• The disease-specific User Guides published by the Ministry, and</td>
</tr>
<tr>
<td></td>
<td>• Bulletins and directives issued by the Ministry.</td>
</tr>
</tbody>
</table>
### 6) Prevention and Control Measures:

<table>
<thead>
<tr>
<th><strong>Personal Prevention Measures</strong></th>
<th>Routine childhood immunization remains the most important preventative measure against Hib disease (1). All children should receive primary immunization series as per the current Publicly Funded Immunization Schedules for Ontario. Also, refer to the Canadian Immunization Guide (CIG) for the immunization of high-risk individuals including cochlear implant recipients (3). The vaccine is not publicly funded for those 5 years or older.</th>
</tr>
</thead>
</table>
Child care centre:
- when one case of invasive Hib disease has occurred for incompletely or unimmunized children younger than four years of age
- regardless of age and immunization status, when 2 or more cases of invasive Hib disease have occurred within 60 days

Rifampin prophylaxis should be considered for all attendees and staff regardless of age and immunization status (even if they do not fit the definition of a contact), when 2 or more cases of disease occur in a child care setting with inadequately immunized attendees within 60 days (2).

Careful observation of exposed unimmunized or incompletely immunized household, non-household, childcare contacts is vital. Exposed children who develop a febrile illness should seek prompt medical attention.

Obtain the age; Hib immunization status and weight of all household and child care contacts (2).

Rifampin Dosage for Treatment of Contacts (2)

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults/Children greater or equal to 12 years</td>
<td>600mg orally once daily for 4 days</td>
</tr>
<tr>
<td>Children under 12 years</td>
<td>20 mg/kg (maximum 600 mg) orally once daily for 4 days</td>
</tr>
<tr>
<td>Infants younger than 1 month</td>
<td>10mg/kg orally once daily for 4 days</td>
</tr>
</tbody>
</table>

Management of Outbreaks

An outbreak is defined as greater than the expected number of confirmed cases that are spatially and temporally linked. In response to a cluster of cases, the control principles are as outlined above for case and contact management with the addition and expansion of contact surveillance, chemoprophylaxis and vaccination.

As per this Protocol, outbreak management shall comprise of, but not be limited to the following general steps:
- Confirm diagnosis and verify the outbreak;
- Establish an outbreak team;
- Develop an outbreak case definition;
- Implement prevention and control measures;
- Implement and tailor communication and notification plans depending on the scope of the outbreak;
- Conduct epidemiological analysis on data collected;
- Conduct environmental inspections of implicated premise where applicable;
- Coordinate and collect appropriate clinical specimens where applicable;
- Prepare a written report, and
- Declare the outbreak over in collaboration with the outbreak team.

7) References


5) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.

8) Additional Resources


Appendix A: Disease-Specific Chapters

Chapter: Hantavirus pulmonary syndrome
Hantavirus pulmonary syndrome

- Communicable
- Virulent

**Health Protection and Promotion Act: Ontario Regulation 559/91 – Specification of Reportable Diseases**

| 1) Aetiological Agent: | Hantavirus is a virus in the family *Bunyaviridae*. More than 25 antigenically distinguishable viral species exist, each associated primarily with a single rodent species (1).

The viruses associated with hantavirus pulmonary syndrome (HPS) in the Americas include the Sin Nombre Virus (SNV), a major cause of HPS in the USA, and Bayou virus, Black Creek Canal virus, and the New York virus sporadic causes in Louisiana, Florida and New York, respectively. In recent years, new hantaviruses, including Andes virus associated with an HPS-like syndrome, have been isolated in South America (2). |

| 2) Case Definition: |

**Surveillance Case Definition** See Appendix B

**Outbreak Case Definition**

The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following when establishing an outbreak case definition:

1. Clinical, laboratory and/or epidemiological criteria
2. The time frame for occurrence
3. The geographic location(s) or place(s) where cases live or became ill/exposed
4. Special attributes of cases (e.g. age, underlying conditions) and/or the aetiological agent

Cases may be classified by levels of probability (i.e. confirmed, probable and/or suspect).

| 3) Identification: |

**Clinical Presentation**

Hantavirus pulmonary syndrome infection often presents as a “flu-like” illness, with fever, intense headache, myalgia, nausea and other gastrointestinal symptoms; this is followed by cough, shortness of breath, dizziness, sweats and arthralgia (usually within 5 days) and then pulmonary edema and deterioration of cardiopulmonary function may rapidly occur. The crude fatality rate is 40-50% (1).

**Diagnosis** See Appendix B
4) Epidemiology:

| Occurrence | The disease was first recognized in 1993 in Southwest USA (1). It was made a nationally notifiable disease in Canada in 2000 (2). Incidence appears to coincide with the distribution and population density of infected carrier rodents and their infection levels (1). There have been no confirmed cases of HPS reported in Ontario. Given the severity and rarity of Hantavirus infection, a single confirmed case constitutes an important public health issue. |
| Reservoir | The major reservoir in North America is the deer mouse, found primarily in rural and semi-rural areas, often in barns and old buildings (1). |
| Modes of Transmission | Infected rodents shed live virus in their saliva, feces and urine; transmission primarily occurs through inhalation of aerosolized rodent saliva, urine or feces; through the bites of infected rodents; and through direct contact of broken skin or mucous membrane with rodent excreta (2). |
| Incubation Period | Not completely defined, however most often it has been found to be approximately 2 weeks after exposure, with a range from a few days to 6 weeks (1). |
| Period of Communicability | No person to person spread documented in North America, however there have been reports of person to person spread of the Andes virus strain in an outbreak in Argentina (1, 2). |
| Susceptibility and Resistance | All persons without prior infection are presumed to be susceptible, however protection and duration of immunity from previous infection is unknown. Rural dwellers, cottagers and campers are most at risk in endemic areas (1). Also any indoor exposure in closed, poorly ventilated areas with viable rodent infestation increases susceptibility to infection. |

5) Reporting Requirements:

| To local Board of Health | Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the Health Protection and Promotion Act, R.S.O. 1990. |
| To Public Health Division (PHD) | Report only case classifications specified in the case definition to PHD using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) business days of receipt of initial notification as per iPHIS Bulletin Number 17: Timely Entry of Cases (3). The minimum data elements to be reported for each case is specified in the following: |
| | • Ontario Regulation 569 (Reports) under the Health |
Protection and Promotion Act (HPPA)
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry.

### 6) Prevention and Control Measures:

| Personal Prevention Measures | Rodent control in and around the home is the primary strategy for preventing hantavirus infection:
|------------------------------|---|
|                              | • Eliminate food sources available to rodents such as storing food meant for humans and animals in a manner that would protect it from rodents
|                              | • Limit possible nesting sites, seal holes and other possible entrances for rodents and use “snap traps” and rodenticides
|                              | • Do not sweep or vacuum rodent contaminated areas; use a wet mop or towel moistened with disinfectant. Disinfect rodent contaminated areas by spraying a disinfectant solution, e.g. diluted bleach (1:10)
|                              | • Wear gloves when cleaning rodent contaminated areas and perform hand hygiene after cleaning
|                              | • Avoid inhalation of dust by using approved respirators when cleaning previously unoccupied areas.
|                              | • Avoid wild rodents and direct contact with areas where there is evidence of rodents |

| Infection Prevention and Control Strategies | If hospitalized routine practices are recommended (2).

| Management of Cases | Investigate cases of to determine the source of infection. Refer to Section 5: Reporting Requirements above for relevant data to be collected during case investigation. The following disease-specific information should also be obtained during case management:
|---------------------|---|
|                     | • Symptoms and date of symptom onset
|                     | • Exposure history including travel and occupational history involving handling of rodents in the previous 6 weeks
|                     | Treatment for respiratory symptoms is under the direction of the attending health care provider. No specific treatment or cure.
|                     | Provide education about the illness and how to prevent exposure.

| Management of Contacts | Not applicable unless exposed to same source, then as above.

| Management of Outbreaks | **An outbreak is defined as two or more cases linked in place and time.**
|-------------------------|---|
|                         | Provide public health management of outbreaks or clusters in order to identify the source of illness and stop the outbreak. Outbreak management should focus on: (1)
|                         | • Rodent control
|                         | • Public education about rodent avoidance and control
As per this Protocol, outbreak management shall comprise of, but not be limited to the following general steps:

- Confirm diagnosis and verify the outbreak;
- Establish an outbreak team;
- Develop an outbreak case definition;
- Implement prevention and control measures;
- Implement and tailor communication and notification plans depending on the scope of the outbreak;
- Conduct epidemiological analysis on data collected;
- Conduct environmental inspections of implicated premises where applicable;
- Coordinate and collect appropriate clinical specimens where applicable;
- Prepare a written report, and
- Declare the outbreak over in collaboration with the outbreak team.

<table>
<thead>
<tr>
<th>7) References</th>
</tr>
</thead>
<tbody>
<tr>
<td>(3) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8) Additional Resources</th>
</tr>
</thead>
</table>
Appendix A: Disease-Specific Chapters

Chapter: Hemorrhagic fevers, including: i) Ebola virus disease; ii) Marburg virus disease, and iii) Other viral causes
<table>
<thead>
<tr>
<th>Hemorrhagic fevers, including: i) Ebola virus disease; ii) Marburg virus disease, and iii) Other viral causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑️ Communicable</td>
</tr>
<tr>
<td>☑️ Virulent</td>
</tr>
</tbody>
</table>

**Health Protection and Promotion Act, Section 1 (1)**

**Health Protection and Promotion Act:**
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

**Health Protection and Promotion Act:**
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

---

<table>
<thead>
<tr>
<th>1) Aetiologic Agent:</th>
<th>Infectious agents are Virions which are members of the Filoviridae family; the Ebola and Marburg viruses are antigenetically distinct; in Africa, 3 different subtypes of the Ebola virus have been associated with human illness (1).</th>
</tr>
</thead>
</table>

---

<table>
<thead>
<tr>
<th>2) Case Definition:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Surveillance Case Definition</td>
<td>See Appendix B</td>
</tr>
<tr>
<td>Outbreak Case Definition</td>
<td>The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition:</td>
</tr>
<tr>
<td></td>
<td>1. Clinical, laboratory and/or epidemiological criteria</td>
</tr>
<tr>
<td></td>
<td>2. A time frame for occurrence</td>
</tr>
<tr>
<td></td>
<td>3. A geographic location(s) or place(s) where cases live or became ill/exposed</td>
</tr>
<tr>
<td></td>
<td>4. Special attributes of cases (e.g. age, underlying conditions)</td>
</tr>
<tr>
<td></td>
<td>Cases should also be classified by levels of probability (i.e. confirmed, probable or suspect).</td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>3) Identification:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Presentation</td>
<td>Sudden onset of fever, malaise, myalgia and headache, followed by pharyngitis, vomiting, diarrhea and maculopapular rash (1).</td>
</tr>
<tr>
<td></td>
<td>In severe and fatal forms, the hemorrhagic diathesis is often accompanied by hepatic damage, renal failure, CNS involvement and terminal shock with multi-organ dysfunction (1).</td>
</tr>
<tr>
<td>Diagnosis</td>
<td>See Appendix B</td>
</tr>
<tr>
<td>Note:</td>
<td></td>
</tr>
</tbody>
</table>
Diagnosis is usually through a combination of laboratory tests (on blood samples, tissue samples or post-mortem biopsies) including assays detecting antigen or RNA and antibody IgM or IgG, ELISA antigen detection or virus isolation (1).

Any testing related to suspected VHF should be carried out under level 4 containment facilities (NML) due to issues of safety, security, expertise, and personnel vaccination.

Refer to the Ontario VHF Contingency Plan, 2002 for specific information on diagnostic testing.

**4) Epidemiology:**

<table>
<thead>
<tr>
<th>Occurrence</th>
<th>Viral hemorrhagic fevers are not endemic to Ontario and to date no cases have been reported.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Unknown for Ebola and Marburg infections. In Africa, human index cases have been linked to monkeys, chimpanzees, gorillas, duikers, and porcupines and other animals found dead in the rain forests (1). For Dengue fever, the viruses are maintained in a human/Aedes aegypti mosquito cycle in tropical urban centres; a monkey/ mosquito cycle may serve as a reservoir in the forests of south-eastern Asia and Western Africa (1).</td>
</tr>
<tr>
<td>Modes of Transmission</td>
<td>For Ebola and Marburg, person to person transmission occurs by direct contact with infected blood, secretions organs or semen. Risk is highest during the late stages of illness when the infected person is vomiting, having diarrhea or haemorrhaging. Risk during the incubation period is low (1). Nosocomial infections have been frequent; virtually all Ebola (Zaire, now Democratic Republic of Congo) patients who acquired infection from contaminated syringes and needles have died (1). For Dengue, bite of infective mosquitoes, principally Aedes. Aegypti (similar to the malaria cycle) (1).</td>
</tr>
<tr>
<td>Incubation Period</td>
<td><strong>Ebola and Marburg virus diseases:</strong> Usually 2 to 21 days (1). <strong>Dengue:</strong> From 3-14 days, commonly 4-7 days (1).</td>
</tr>
<tr>
<td>Period of Communicability</td>
<td>As long as blood and secretions contain virus. Ebola virus was isolated from seminal fluid on the 61st day after onset of illness in a laboratory acquired case (1). For dengue fever, no direct person to person spread; persons are infective for mosquitoes from shortly before the febrile period to the end there of, usually 3-5 days. The mosquito becomes infective 8-12 days after the viraemic blood-meal and remains so for life (1).</td>
</tr>
<tr>
<td>Susceptibility and Resistance</td>
<td>All ages are susceptible (1). Recovery from infection with one</td>
</tr>
</tbody>
</table>
serotype provides lifelong homologous immunity but only short-term protection against other serotypes and may exacerbate disease upon subsequent infections (1).

<table>
<thead>
<tr>
<th>5) Reporting Requirements:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>To local Board of Health</strong></td>
</tr>
<tr>
<td>Suspect and confirmed cases of hemorrhagic fever shall be reported <strong>immediately</strong> to the medical officer of health by persons required to do so under the <em>Health Protection and Promotion Act</em>, R.S.O. 1990.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>To Public Health Division (PHD)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The board of health shall notify the PHD of the MOHLTC <strong>immediately</strong> by phone upon receiving report.</td>
</tr>
<tr>
<td>Report only case classifications specified in the case definition to PHD.</td>
</tr>
<tr>
<td>Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry <strong>within five (5) business days of receipt of initial notification</strong> as per <em>iPHIS Bulletin</em> Number 17: Timely Entry of Cases (2).</td>
</tr>
<tr>
<td>The minimum data elements to be reported for each case is specified in the following:</td>
</tr>
<tr>
<td>• <em>Ontario Regulation 569 (Reports)</em> under the Health Protection and Promotion Act (HPPA);</td>
</tr>
<tr>
<td>• The disease-specific User Guides published by the Ministry, and</td>
</tr>
<tr>
<td>• Bulletins and directives issued by the Ministry.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6) Prevention and Control Measures:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal Prevention Measures</strong></td>
</tr>
<tr>
<td>Refer to the Ontario VHF Contingency Plan, 2002.</td>
</tr>
</tbody>
</table>

| **Infection Prevention and Control Strategies** |
| Public Health response will be under the direction of provincial and federal jurisdiction. |

| **Management of Cases** |
| Refer to the Ontario VHF Contingency Plan, 2002. |

| **Management of Contacts** |
| Refer to the Ontario VHF Contingency Plan 2002. |

| **Management of Outbreaks** |
| Given the severity and rarity of hemorrhagic fevers, a single confirmed case constitutes an outbreak. |
| Refer to the Ontario VHF Contingency Plan. |

<table>
<thead>
<tr>
<th>7) References</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) Ministry of Health and Long-Term Care. Timely entry of cases.</td>
</tr>
</tbody>
</table>

Infectious Diseases Protocol, 2009 – Appendix A
### 8) Additional Resources

Appendix A: Disease-Specific Chapters

Chapter: Hepatitis A
## Hepatitis A

- **Communicable**
- **Virulent**

### Health Protection and Promotion Act:
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

### Health Protection and Promotion Act:
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

### 1) Aetiologic Agent:
Hepatitis A infection is caused by the Hepatitis A virus (HAV), a 27-nanometer picornavirus, positive-strand RNA virus. It has been classified as a member of the family *Picornaviridae* (1).

### 2) Case Definition:

<table>
<thead>
<tr>
<th>Type</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surveillance Case Definition</td>
<td>See Appendix B</td>
</tr>
</tbody>
</table>
| Outbreak Case Definition       | The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition:  
  1. Clinical, laboratory and/or epidemiological criteria  
  2. A time frame for occurrence  
  3. A geographic location(s) or place(s) where cases live or became ill/exposed  
  4. Special attributes of cases (e.g. age, underlying conditions)  
  Cases should also be classified by levels of probability (i.e. confirmed, probable and/or suspect). |

### 3) Identification:

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Presentation</td>
<td>Acute clinical illness is characterized by abrupt fever, malaise, anorexia, nausea and abdominal pain followed by jaundice (2). The disease varies in clinical severity from a mild self limited illness lasting 1 to 2 weeks to a severely disabling disease lasting several months and prolonged, relapsing hepatitis for up to a year occurs in 15% of cases (1).</td>
</tr>
<tr>
<td></td>
<td>Infection usually causes clinical hepatitis in adults and school-aged children but younger children are often asymptomatic. Jaundice develops in &lt; 10% of children 6 years and under (2).</td>
</tr>
<tr>
<td></td>
<td>Chronic infection is not known to occur. There is usually complete recovery without complications (1).</td>
</tr>
</tbody>
</table>
### Diagnosis

See Appendix B

Serology test indicating IgM anti-HAV antibodies confirms recent infection. Antibodies are detectable 5-10 days after exposure, before the onset of symptoms and are present for 2-4 months after onset (1).

IgG antibodies alone are evidence of some level of immunity either from past infection or previous immunization. “Total hepatitis A virus antibody” (Total anti-HAV, i.e., total IgM and IgG) is not a confirmatory test for acute HAV infection.

In rare circumstances, anti-HAV IgM may be detected 1-2 weeks post vaccination with Hepatitis A vaccine.

### 4) Epidemiology:

#### Occurrence

Worldwide, sporadic and epidemic. In endemic areas, adults are usually immune. In Canada, HAV infection occurs primarily in household contacts and in sexual contacts of infected people as well as in day care centres with diapered children and in communities with inadequate sanitation (1).

In Ontario, Hepatitis A occurs throughout the year with no clear seasonal pattern. In recent years, contaminated produce such as green onions, have been associated with community-wide outbreaks.

#### Reservoir

Humans; rarely chimpanzees and other primates (1).

#### Modes of Transmission

HAV infection is transmitted by the fecal-oral route, through direct contact with infected people or indirectly through ingestion of contaminated water or foods (e.g. seafood harvested from contaminated water) (2).

On rare occasions, transmission has been reported after exposure to HAV-contaminated blood or blood products. It also occurs through sexual activities that include direct or indirect oral-anal contact but not through exposure to saliva, semen or urine (2).

Transmission from mother to newborn infant (that is, vertical transmission) is rare (3).

The virus may persist for days or weeks in the environment (2).

#### Incubation Period

The incubation period ranges from 15 to 50 days with an average of 28 to 30 days (1).

#### Period of Communicability

Maximum infectiousness occurs during the latter part of the incubation period with peak levels in the 2 weeks before clinical illness. Infectiousness diminishes rapidly thereafter and ends shortly after the onset of jaundice (2).
Cases are considered non-infectious 7 days after onset of jaundice although prolonged viral excretion up to 6 months has been documented in infants and children (1).

**Susceptibility and Resistance**

General susceptibility, however, sexual and household contacts are at increased risk of infection; homologous immunity after infection probably lasts for life (1).

### 5) Reporting Requirements:

<table>
<thead>
<tr>
<th>To local Board of Health</th>
<th>Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the <em>Health Protection and Promotion Act</em>, R.S.O. 1990.</th>
</tr>
</thead>
</table>
| To Public Health Division (PHD) | Report only case classifications specified in the case definition to PHD using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry **within one (1) business day of receipt of initial notification** as per *iPHIS Bulletin Number 17: Timely Entry of Cases* (4). The minimum data elements to be reported for each case is specified in the following:  
  - *Ontario Regulation 569* (Reports) under the *Health Protection and Promotion Act* (HPPA);  
  - The disease-specific User Guides published by the Ministry, and  
  - Bulletins and directives issued by the Ministry. |

### 6) Prevention and Control Measures:

| Personal Prevention Measures | Proper personal hygiene and hand washing hygiene are key to prevent transmission. As well, travellers going to developing countries should be aware of how to carefully select food and drink to avoid infection. Refer travellers to travel clinics. More information for travellers can be found at:  
  - The Province of British Columbia’s “Healthlink BC” (5) and/or the CDC’s webpage on Hepatitis A Vaccination (6).  
  - In addition immunization with hepatitis A vaccine will prevent infection. The *Canadian Immunization Guide* (7) recommends hepatitis A vaccine for the following high risk groups:  
    - Travelers to countries where hepatitis A is endemic  
    - Residents of communities that have high endemic rates of HAV or are at risk of HAV outbreaks  
    - Members of the Canadian armed forces, emergency relief workers and others likely to be posted abroad at short notice to areas with high rates of HAV infection  
    - People with life-style risks for infection, including people |

---

176
engaging in illicit drug use and MSM

- People who have chronic liver disease or who are receiving hepatotoxic medications, including persons infected with hepatitis C who may not be at increased risk of infection but are at increased risk of fulminant hepatitis A, should infection occur
- People with other conditions for which hepatotoxic medications are likely to be prescribed in the future
- People with hemophilia A or B receiving plasma-derived replacement clotting factors; the solvent-detergent method used to prepare all the present plasma-derived factor VIII and some factor IX concentrates does not reliably inactivate HAV, since the virus does not have an envelope
- Zoo-keepers, veterinarians and researchers who handle non-human primates
- Workers involved in research on HAV or production of hepatitis A vaccine who may be exposed to HAV

<table>
<thead>
<tr>
<th>Infection Prevention and Control Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strategies:</strong></td>
</tr>
<tr>
<td>• Routine precautions are recommended if in hospital</td>
</tr>
<tr>
<td>• Adequate sanitation such as water sources and proper food preparation</td>
</tr>
<tr>
<td>• Adequate and proper hand hygiene after diaper changes in child care settings</td>
</tr>
<tr>
<td>• Advise cases with confirmed HAV not to donate blood for six months or as required by Canadian Blood Services</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Management of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investigate the case to determine source of infection. Refer to <em>Ontario Regulation 569</em> for relevant data to collect and include the following in the epidemiological investigation:</td>
</tr>
<tr>
<td>• Determine possible source of infection, including travel history, detailed food history, high risk behaviour such as men who have sex with men (SM) intravenous drug users (IDU) contact with other symptomatic person, attendee or employee of child care centre, resident or staff in an institution or high risk occupation such as food handler</td>
</tr>
<tr>
<td>• Symptoms and date of symptom onset</td>
</tr>
<tr>
<td>• Date of onset of jaundice</td>
</tr>
<tr>
<td>• Determine if received hep A vaccine in previous two weeks prior to blood test</td>
</tr>
<tr>
<td>• Attendance at any large functions in previous 50 days</td>
</tr>
<tr>
<td>Determine potential contacts by considering the period from 14 days prior to onset of symptoms to 7 days after onset of jaundice.</td>
</tr>
<tr>
<td>Provide education as above to cases regarding transmission and personal hygiene.</td>
</tr>
<tr>
<td><strong>Exclude</strong> cases from work for those in high risk occupations or settings such as food handlers, child care centre employees and attendees and health care workers, for 14 days from the date of onset of symptoms.</td>
</tr>
</tbody>
</table>
If jaundice develops, exclude case until 7 days after onset of jaundice.

Treatment is under the direction of the individual’s health care provider.

### Management of Contacts

Identify the contacts, in particular
- Those living in same household
- Persons who are close non-household contacts such as sexual partners or drug sharing partners
- Contacts who are food handlers or
- Day care and institutional attendees or employees

Determine if any of the contacts are ill. Provide education about proper hygiene, disease transmission and symptoms; if symptoms develop advise to seek medical attention.

Exclude symptomatic contacts of confirmed hepatitis A cases from high risk settings (as mentioned above) and screen for laboratory diagnosis; if lab results are negative then terminate exclusion.

**Post-exposure Prophylaxis Recommendations:**

The Canadian Immunization Guide recommends:
- The use of hepatitis A vaccine for post-exposure prophylaxis given as soon as possible to contacts including food handlers, preferably within one week after exposure but can be given up to 14 days after exposure (1, 7)
- Hepatitis A Immune globulin is recommended for immunocompromised contacts and children under 12 months of age who may not respond fully to the vaccine (3)

Provincial Infectious Diseases Advisory Committee (PIDAC) recommends that in addition to the usual post-exposure contact management as above, **consideration be given to** offering serum immune globulin along with hepatitis A vaccine (separate needle, syringe and site) to:

- High-risk contacts (such as contacts who change diapers of an infected infant; sexual contacts of a case; contacts who ate potentially contaminated food prepared by a case), particularly if the contact is over 50 years of age or has chronic liver disease
- Immunocompromised contacts can also be offered hepatitis A vaccine along with the recommended serum immune globulin

(Rationale: IG administered at the same time as HAV vaccine does not interfere with the seroconversion rate, but may result in lower antibody levels. These antibody levels are still protective. The use of IG will provide immediate protection if the exposure has been more distant or the viral dose high, situations in which anti-HAV is
needed quickly and which are difficult to determine. The use of vaccine will provide additional protection, with excellent seroconversion rates. The goal in providing this post-exposure follow up is to provide immediate protection to prevent disease from the specific exposure and not for ongoing protection. Additional doses of vaccine are indicated in the routine HAV vaccine schedule).

PIDAC has also made recommendations for children in group settings for consideration:

- If the index case is a child attending a group setting such as a child care centre or kindergarten class, the following individuals should be offered hepatitis A vaccine for post-exposure prophylaxis: the children in the class, caregivers in the class and the family members and other close contacts of the children in the class
- If a child who attends a group setting such as a child care centre or kindergarten class is a close contact of a case of hepatitis A, it is recommended that the following individuals be offered hepatitis A vaccine for post-exposure prophylaxis: caregivers in the class and the children in the class.

Contacts are generally referred to their health care provider to receive the vaccine as prophylaxis. The vaccine can be provided to the physician by the local health unit. In outbreak scenarios, local board of health may decide to provide the vaccine and offer immunization clinics.

If the case is a food handler, consider offering hepatitis A vaccine prophylaxis to other food handlers (best given within 2 weeks after exposure) at the same establishment and to patrons who ate food handled by the infected food handler who were exposed during the period of communicability.

Hepatitis A vaccine or IG prophylaxis is not routinely recommended for healthcare workers in contact with a case or for workers in offices or factories, or in schools unless there is evidence of transmission. HAV prophylaxis should be considered in children up to kindergarten age because of improper toileting and hygiene practices.

Management of Outbreaks

Provide public health management of outbreaks or clusters in order to identify the source of illness, stop the outbreak and limit secondary spread. Timely identification of the source of hepatitis A infection, identification of contacts and provision of prophylaxis is crucial in outbreak management.

**Two or more cases linked to same source in time and place is suggestive of an outbreak.**

As per this Protocol, outbreak management shall comprise of, but not be limited to the following general steps:

- Confirm diagnosis and verify the outbreak;
- Establish an outbreak team;
• Develop an outbreak case definition;
• Implement prevention and control measures;
• Implement and tailor communication and notification plans depending on the scope of the outbreak;
• Conduct epidemiological analysis on data collected;
• Conduct environmental inspections of implicated premise where applicable;
• Coordinate and collect appropriate clinical specimens where applicable;
• Prepare a written report, and
• Declare the outbreak over in collaboration with the outbreak team.

7) References


(4) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.


(8) Ministry of Health and Long Term Care, Advisory Committee on Communicable Diseases, “Enteric Disease Screening Recommendations and Case Management Guidelines on Foodhandlers and Patient Care Workers”, 1990 or as current (Currently being revised as “Guidelines for the Management of Enteric Diseases in Healthcare Workers, Food Handlers and Day Care Staff and Attendees”).
8) Additional Resources


Appendix A: Disease-Specific Chapters

Chapter: Hepatitis B
<table>
<thead>
<tr>
<th><strong>Hepatitis B</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>☑ Communicable</td>
</tr>
<tr>
<td>✗ Virulent</td>
</tr>
</tbody>
</table>

**Health Protection and Promotion Act:**  
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

**Health Protection and Promotion Act:**  
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

<table>
<thead>
<tr>
<th>1) Aetiologic Agent:</th>
<th>Hepatitis B virus (HBV) is the causative agent. It is a DNA virus, composed of a nucleocapsid core (HBcAg), surrounded by an outer lipoprotein coat containing the surface antigen (HBsAg) (1).</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>2) Case Definition:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surveillance Case Definition</td>
</tr>
</tbody>
</table>
| Outbreak Case Definition | The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition:  
   1. Clinical, laboratory and/or epidemiological criteria  
   2. A time frame for occurrence  
   3. A geographic location(s) or place(s) where cases live or became ill/exposed  
   4. Special attributes of cases (e.g. age, underlying conditions) and or aetiologic agent  
Cases may be classified by levels of probability (i.e. confirmed, probable or suspect). |

<table>
<thead>
<tr>
<th>3) Identification:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Presentation</td>
</tr>
<tr>
<td>Diagnosis</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4) Epidemiology:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occurrence</td>
</tr>
</tbody>
</table>
Incidence of acute hepatitis B in Canada is estimated to be 2.3 per 100,000. Prevalence is estimated to be 0.5 – 1.0% (3). In Ontario, the rates of Hepatitis B are higher among males and among those aged 30-39 years.

<table>
<thead>
<tr>
<th>Reservoir</th>
<th>Humans</th>
</tr>
</thead>
</table>
| Modes of Transmission | Via blood, blood products, saliva, CSF, pleural, peritoneal, semen and vaginal secretions and any other fluid containing blood (1). Routes of transmission include (3):  
  • percutaneous, principally injection drug users  
  • sexual: anal, vaginal, oral  
  • horizontal: household contacts  
  • vertical: mother to neonate |
| Incubation Period | Usually 45-180 days, average 60-90 days. It may be as short as 2 weeks to the appearance of HBsAg and rarely as long as 6-9 months. The variation is related in part to the amount of virus in the inoculum, the mode of transmission and host factors (1). |
| Period of Communicability | All persons who are HBsAg positive are potentially infectious. Blood is infective many weeks before onset of first symptoms and remains infective through the acute period of disease. |
| Susceptibility and Resistance | All non-immune people are susceptible; disease presentation is usually milder in children and may be asymptomatic in infants (1). |

5) Reporting Requirements:

| To local Board of Health | Laboratory confirmed cases shall be reported to the medical officer of health by persons required to do so under the Health Protection and Promotion Act, R.S.O. 1990. |
| To Public Health Division (PHD) | Report only case classifications specified in the case definition to PHD. Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) business days of receipt of initial notification as per iPHIS Bulletin Number 17: Timely Entry of Cases (4). The minimum data elements to be reported for each case is specified in the following:  
  • Ontario Regulation 569 (Reports) under the Health Protection and Promotion Act (HPPA);  
  • The disease-specific User Guides published by the Ministry, and |
• Bulletins and directives issued by the Ministry.

Refer to the *Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008* (or as current) for reporting requirements and data collection requirements.

### 6) Prevention and Control Measures:

#### Personal Prevention Measures

**Measures:**
- Counselling/education regarding risk behaviours
- Harm reduction strategies such as needle exchange programs
- Individual immunization with Hepatitis B vaccine by universal immunization programs
- Prenatal screening for all women for each pregnancy so that newborns can receive prophylaxis if necessary
- Promote screening of adopted children from countries with high prevalence of infection and persons in high risk group (3)

For more information on prevention measures refer to the following:

*Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008* (or as current)

Public Health Agency of Canada, *Canadian Guidelines on Sexually Transmitted Infections, 2008* edition or as current

#### Infection Prevention and Control Strategies

**Strategies:**
- Investigation and follow-up of contacts of acute and chronic cases
- Investigation and follow-up of persons with significant exposures to blood or body fluids
- Use of routine practices at all times
- Adequate sterilization of instruments used in invasive procedures including personal care services such as ear piercing and tattooing
- Appropriate disinfection measures following body fluid spills
- Infected medical and dental personal should perform exposure-prone procedures using proper and adequate precautions and under counsel and expert advise (1,3)

More information is available in the Public Health Agency of Canada, *Canadian Guidelines on Sexually Transmitted Infections, 2008* edition and the protocol listed above.

#### Management of Cases

Investigate the case to determine source of infection. Refer to Regulation 569 under the HPPA for relevant data to collect. Include the following in the management of the case:

- Acute cases of hepatitis B should abstain from sexual contact or practice safer-sex until partners and/or relevant contacts have been appropriately screened and or immunized (3)
- Cases should not donate blood
- Occupational exposures should be managed according to the individual occupational protocols

For more information on case management refer to the *Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008* (or as current), and to the Public Health Agency of Canada, *Canadian Guidelines on Sexually Transmitted Infections, 2008 edition or as current.*

### Management of Contacts

Contacts include:
- household members
- persons who share personal care items such as razors or tooth brushes, or needle sharing partners
- sexual contacts
- persons exposed to infected blood, or body fluids
- infants born to hepatitis B infected mothers

Management of contacts is done in collaboration with attending medical professional. Household and sexual contacts should be assessed and immunized as required.

For more information on contact management refer to the *Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008* (or as current), and the Public Health Agency of Canada, *Canadian Guidelines on Sexually Transmitted Infections, 2008 edition or as current.*

### Management of Outbreaks

An outbreak is defined as the occurrence of two or more cases of Hep B linked by time or a common exposure source or setting.

Provide public health management of outbreaks or clusters in order to identify the source of illness and stop the outbreak. As per this Protocol, outbreak management shall comprise of but not be limited to the following general steps:
- Confirm diagnosis and verify the outbreak
- Establish an outbreak team
- Develop an outbreak case definition
- Implement prevention and control measures
- Implement and tailor communication and notification plans depending on the scope of the outbreak
- Conduct epidemiological analysis on data collected
- Conduct environmental inspections of implicated premise where applicable
- Coordinate and collect appropriate clinical specimens where applicable
- Prepare a written report
- Declare the outbreak over in collaboration with the outbreak team currently reviewing them

### 7) References


(4) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.

8) Additional Resources


- Canadian Blood Services [Internet]. Ottawa: Canadian Blood
|---------------------------------------------------------------------------------------------------------------|
Appendix A: Disease-Specific Chapters

Chapter: Hepatitis C
**Hepatitis C**

| Communicable | ☒ |
| Virulent | ☐ |

**Health Protection and Promotion Act:**
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

**Health Protection and Promotion Act:**
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

<table>
<thead>
<tr>
<th>1) Aetiologic Agent:</th>
<th>The hepatitis C virus is a small, single-stranded RNA virus and is a member of the Flaviviridae family (2). At least 6 major genotypes and approximately 100 subtypes exist. There is limited evidence about any differences in clinical outcome between the various types; however, differences do exist in responses to antiviral therapy according to HCV genotypes (1).</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>2) Case Definition:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Surveillance Case Definition</th>
<th>See Appendix B</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Outbreak Case Definition</th>
<th>The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Clinical, laboratory and/or epidemiological criteria</td>
</tr>
<tr>
<td></td>
<td>2. A time frame for occurrence</td>
</tr>
<tr>
<td></td>
<td>3. A geographic location(s) or place(s) where cases live or became ill/exposed</td>
</tr>
<tr>
<td></td>
<td>4. Special attributes of cases (e.g. age, underlying conditions)</td>
</tr>
</tbody>
</table>

Cases should also be classified by levels of probability (i.e. confirmed, probable or suspect).

<table>
<thead>
<tr>
<th>3) Identification:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Clinical Presentation</th>
<th>Most cases are usually asymptomatic or have mild illness; presentation is similar to other hepatitis diseases and when symptoms are present, the onset is slow and insidious with anorexia, vague abdominal discomfort, nausea and vomiting and fatigue (1, 2). A high percentage (50-80%) of infected persons develop chronic infection (1).</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>See Appendix B</th>
</tr>
</thead>
</table>
4) Epidemiology:

| Occurrence | Worldwide (1). In Ontario Hepatitis C is reported more for prevalence than incidence. Most cases are reported some months/years following infection so higher or lower rates can be misleading. Cases of Hepatitis C are seen more often among men compared to women. |
| Reservoir | Humans (1) |
| Modes of Transmission | HCV is primarily transmitted by blood-to-blood contact (parenterally). Sexual and mother-to-child have been documented but appears far less efficient or frequent than the parenteral route (1). |
| Incubation Period | Ranges from 2 weeks to 6 months, most commonly 6-9 weeks (1). |
| Period of Communicability | From one or more weeks before the onset of symptoms; most persons are probably infectious indefinitely (1). |
| Susceptibility and Resistance | Susceptibility is general; the degree of immunity is unknown (1). |

5) Reporting Requirements:

| To local Board of Health | Laboratory confirmed cases shall be reported to the medical officer of health by persons required to do so under the *Health Protection and Promotion Act*, R.S.O. 1990. |
| To Public Health Division (PHD) | Report only case classifications specified in the case definition to PHD. Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) business days of receipt of initial notification as per *iPHIS Bulletin* Number 17: Timely Entry of Cases (3). The minimum data elements to be reported for each case is specified in the following:

- *Ontario Regulation 569* (Reports) under the Health Protection and Promotion Act (HPPA)
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry. |

6) Prevention and Control Measures:

| Personal Prevention Measures | Measures include: (2)
- No sharing of personal items and toilet articles such as tooth brushes and razors |
• Safe sex practices, using condoms should be encouraged at all times especially with sex partners of HCV-positive persons
• Harm reduction strategies such as needle exchange programs

Infection Prevention and Control Strategies

Strategies include:
• Use of routine practices to minimize the risk of exposure in health care settings

Management of Cases

Confirm diagnosis by reviewing and interpreting the laboratory result in collaboration with the attending physician.

Investigate the case to determine risk factors and possible source of infection.

Provide education and counselling as above to the client including information about community support agencies and a reminder not to donate blood or blood products (2). Report past blood donations / transfusions of persons found to be HCV positive to Canadian Blood Services.

Advise physicians about the availability of Hepatitis A and B vaccine at no cost for persons with chronic liver disease including carriers of Hep C.

Management of Contacts

Not applicable

Management of Outbreaks

An outbreak is defined as the occurrence of two or more cases of Hep C linked by time or a common exposure source or setting.

Provide public health management of outbreaks or clusters in order to identify the source of illness and stop the outbreak. As per this Protocol, outbreak management shall comprise of but not be limited to the following general steps:

• Confirm diagnosis and verify the outbreak
• Establish an outbreak team
• Develop an outbreak case definition
• Implement prevention and control measures
• Implement and tailor communication and notification plans depending on the scope of the outbreak
• Conduct epidemiological analysis on data collected
• Conduct environmental inspections of implicated premise where applicable
• Coordinate and collect appropriate clinical specimens where applicable
• Prepare a written report
• Declare the outbreak over in collaboration with the outbreak team currently reviewing them

7) References


(2) Pickering LK, Baker CJ, Long SS, McMillan JA, editors. Red...
8) Additional Resources


Appendix A: Disease-Specific Chapters

Chapter: Hepatitis D (Delta hepatitis)
**Hepatitis D (Delta hepatitis)**

<table>
<thead>
<tr>
<th>Communicable</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Virulent</td>
<td></td>
</tr>
</tbody>
</table>

**Health Protection and Promotion Act:**  
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

**Health Protection and Promotion Act:**  
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

<table>
<thead>
<tr>
<th>1) Aetiologic Agent:</th>
<th>Hepatitis D virus (HDV) is a virus-like particle consisting of a coat of hepatitis B virus surface antigen and a unique internal antigen, the delta antigen (2).</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>2) Case Definition:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Surveillance Case Definition</strong></td>
<td>See Appendix B</td>
</tr>
</tbody>
</table>
| **Outbreak Case Definition** | The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition:  
1. Clinical, laboratory and/or epidemiological criteria  
2. A time frame for occurrence  
3. A geographic location(s) or place(s) where cases live or became ill/exposed  
4. Special attributes of cases (e.g. age, underlying conditions)  
Cases should also be classified by levels of probability (i.e. confirmed, probable or suspect). |

<table>
<thead>
<tr>
<th>3) Identification:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clinical Presentation</strong></td>
<td>Signs and symptoms resemble those of hepatitis B infection (anorexia, fatigue, vague abdominal discomfort, joint pain, fever and jaundice) and are always associated with the coexistence of the hepatitis B virus infection. Delta virus may occur in persons with chronic HBV infection or as a super infection (1, 2).</td>
</tr>
<tr>
<td><strong>Diagnosis</strong></td>
<td>See Appendix B</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4) Epidemiology:</th>
<th></th>
</tr>
</thead>
</table>
| **Occurrence** | HDV infection occurs worldwide, epidemically and endemically in countries that have a high incidence of hepatitis B infection (1, 2).  
Hepatitis D occurs very rarely in Ontario. |
<table>
<thead>
<tr>
<th>Reservoir</th>
<th>Humans infected with hepatitis B act as a reservoir because HDV is unable to infect a cell by itself and requires co-infection with HBV to undergo complete replication (2).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modes of Transmission</td>
<td>Thought to be similar as for hepatitis B (via blood, blood products, saliva, CSF, pleural, peritoneal, semen and vaginal secretions and any other fluid containing blood) (1).</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Approximately 2-8 weeks</td>
</tr>
<tr>
<td>Period of Communicability</td>
<td>Blood is potentially infectious during all phases of active delta hepatitis infection; peak infectivity probably occurs just prior to onset of acute illness, when particles containing the delta antigen are readily detected in the blood (1).</td>
</tr>
<tr>
<td>Susceptibility and Resistance</td>
<td>All persons susceptible to hepatitis B infection or those who have chronic hepatitis B infection (1).</td>
</tr>
</tbody>
</table>

### 5) Reporting Requirements:

**To local Board of Health**  
Laboratory confirmed cases shall be reported to the medical officer of health by persons required to do so under the Health Protection and Promotion Act, R.S.O. 1990.

**To Public Health Division (PHD)**  
Report only case classifications specified in the case definition to PHD.

Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) business days of receipt of initial notification as per iPHIS Bulletin Number 17: Timely Entry of Cases (3).

The minimum data elements to be reported for each case is specified in the following:

- *Ontario Regulation 569* (Reports) under the Health Protection and Promotion Act (HPPA);
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry

### 6) Prevention and Control Measures:

REFER TO THE CHAPTER ON HEPATITIS B FOR THE FOLLOWING SECTIONS

- Personal Prevention Measures
- Infection Prevention and Control Strategies
### Management of Cases

<table>
<thead>
<tr>
<th>7) References</th>
</tr>
</thead>
<tbody>
<tr>
<td>(3) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.</td>
</tr>
</tbody>
</table>

### Management of Contacts

<table>
<thead>
<tr>
<th>8) Additional Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canadian Liver Foundation [Internet]. Ottawa: Canadian Liver Foundation; 2009 [cited 2009 Feb 1]. Available from <a href="http://www.liver.ca/Home.aspx">http://www.liver.ca/Home.aspx</a></td>
</tr>
</tbody>
</table>
Appendix A: Disease-Specific Chapters

Chapter: Herpes, neonatal
<table>
<thead>
<tr>
<th>Herpes, neonatal</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑Communicable</td>
</tr>
<tr>
<td>☑Virulent</td>
</tr>
</tbody>
</table>

**Health Protection and Promotion Act:**
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

<table>
<thead>
<tr>
<th>1) Aetiologic Agent:</th>
<th>Herpes simplex virus (HSV) in the virus family Herpes-viridae. HSV types 1 and 2 can be differentiated immunologically (1).</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>2) Case Definition:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Surveillance Case Definition</td>
<td><a href="#">See Appendix B</a></td>
</tr>
<tr>
<td>Outbreak Case Definition</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3) Identification:</th>
<th></th>
</tr>
</thead>
</table>
| Clinical Presentation | Neonatal infections can be divided into 3 clinical presentations (2):
  - Disseminated infections involving the liver and lungs
  - Localized central nervous system (CNS) disease
  - Infections limited to skin, eyes or mouth |
| Diagnosis | [See Appendix B](#) |

<table>
<thead>
<tr>
<th>4) Epidemiology:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Occurrence</td>
<td>Worldwide; 50-90% of adults possess circulating antibodies against HSV-1; initial infection with HSV-1 usually occurs before the fifth year of life (1). Cases of neonatal herpes have fluctuated in the province of Ontario over the years, and continue to remain fairly low, with approximately 5 cases per year.</td>
</tr>
<tr>
<td>Reservoir</td>
<td>Humans</td>
</tr>
<tr>
<td>Modes of Transmission</td>
<td>Transmission to the neonate usually occurs during passage through the infectious birth canal and less commonly in utero.</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>From 2-12 days (1); in newborns, the infection may be present at birth or may occur as late as four weeks of age (2).</td>
</tr>
<tr>
<td>Period of Communicability</td>
<td>Infected newborns are infectious for the duration of the illness.</td>
</tr>
</tbody>
</table>
### Susceptibility and Resistance

Humans are probably universally susceptible (1).

### 5) Reporting Requirements:

<table>
<thead>
<tr>
<th>To local Board of Health</th>
<th>Confirmed cases shall be reported to the medical officer of health by persons required to do so under the <em>Health Protection and Promotion Act</em>, R.S.O. 1990.</th>
</tr>
</thead>
</table>
| To Public Health Division (PHD) | Report only case classifications specified in the case definition to PHD.  
Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) business days of receipt of initial notification as per *iPHIS Bulletin Number 17: Timely Entry of Cases* (3).  
The minimum data elements to be reported for each case is specified in the following:  
- *Ontario Regulation 569* (Reports) under the Health Protection and Promotion Act (HPPA);  
- The disease-specific User Guides published by the Ministry, and  
- Bulletins and directives issued by the Ministry. |

### 6) Prevention and Control Measures:

<table>
<thead>
<tr>
<th>Personal Prevention Measures</th>
<th>Refer to the Society of Obstetricians and Gynaecologists of Canada resource listed below for more information.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infection Prevention and Control Strategies</td>
<td>Contact precautions are recommended for neonates in hospital or rooming in with mother in a private room (2).</td>
</tr>
<tr>
<td>Management of Cases</td>
<td>No case management for herpes neonatal. Reported for prevalence purposes only. Refer to Ontario Regulation 569 under the HPPA for relevant data to collect.</td>
</tr>
<tr>
<td>Management of Contacts</td>
<td>Not applicable (1)</td>
</tr>
<tr>
<td>Management of Outbreaks</td>
<td>Not applicable (1)</td>
</tr>
</tbody>
</table>

### 7) References


### 8) Additional Resources


<table>
<thead>
<tr>
<th><strong>Influenza</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>☒ Communicable</td>
</tr>
<tr>
<td>☐ Virulent</td>
</tr>
</tbody>
</table>

**Health Protection and Promotion Act:**
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

**Health Protection and Promotion Act:**
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

1) **Aetiologic Agent:**

Causative agents include three types of influenza virus: A, B, and C. Type A includes 15 subtypes of which 2 (H1 and H3) are associated with widespread seasonal epidemics; Types A and B are of public health importance since they both have been responsible for epidemics (1).

Influenza A subtypes are classified by the antigenic properties of surface glycoproteins, hemagglutinin (H) and neuraminidase (N). Frequent mutation of the genes encoding these surface glycoproteins results in emergence of variants that are described by geographic site of isolation, year of isolation and culture number; some examples include: A/New Caledonia/20/99(H1N1), A/Moscow/10/99(H3N2)-like virus, B/Hong Kong/330/2001 (1).

Since 1997 influenza avian infections have been identified in sporadic human cases with high fatality. Transmission gradually increased among poultry and poultry outbreaks of influenza A were occurring in several Asian countries (1).

2) **Case Definition:**

<table>
<thead>
<tr>
<th><strong>Surveillance Case Definition</strong></th>
<th>See Appendix B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outbreak Case Definition</strong></td>
<td>The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition:</td>
</tr>
<tr>
<td></td>
<td>1. Clinical, laboratory and/or epidemiological criteria</td>
</tr>
<tr>
<td></td>
<td>2. A time frame for occurrence</td>
</tr>
<tr>
<td></td>
<td>3. A geographic location(s) or place(s) where cases live or became ill/exposed</td>
</tr>
<tr>
<td></td>
<td>4. Special attributes of cases (e.g. age, underlying conditions)</td>
</tr>
<tr>
<td></td>
<td>Cases should also be classified by levels of probability (i.e. confirmed, probable or suspect).</td>
</tr>
</tbody>
</table>
### 3) Identification:

**Clinical Presentation**

Influenza is an acute respiratory illness. Symptoms include sudden onset of high fever, headache, myalgia, lethargy, coryza, sore throat and non-productive cough. Infections in children may also be associated with some gastrointestinal symptoms such as nausea, vomiting and diarrhea. Most people resolve within 2-7 days, however the very young and old could develop complications such as pneumonia, or middle ear infections (1). Many individuals infected with the influenza virus are asymptomatic.

### Diagnosis

See Appendix B

The specimen of choice for seasonal influenza virus is the nasopharyngeal swab (NPS) taken within the first four days of illness (1).


### 4) Epidemiology:

**Occurrence**

Worldwide; as sporadic cases, epidemics occur almost annually and pandemics rarely. In Canada, the influenza season usually runs from November to April (2).

The Ontario Influenza Bulletin provides information on influenza activity in Ontario it is produced weekly from November to May and every other week in the ‘off-season’.


PHAC Flu Watch provides Canada-wide influenza activity data:


**Reservoir**

Humans are the primary reservoir for human infection. Birds and mammalian reservoirs such as swine are likely sources of new human subtypes thought to emerge through genetic reassortment as well as possibly horses (1).

**Modes of Transmission**

Influenza virus particles travel in droplets larger than 5 microns in diameter, which are released or shed from infected persons when they sneeze, cough, or talk. These large droplets do not travel very far and it is thought that they spread no farther than one metre (6). Infection occurs in another person who is within the one metre range (as in a close contact) as the droplets with virus particles enter the mucous membranes of the eyes, nose or mouth. Droplets may also deposit themselves on objects and spread infection to those touching the surfaces and bringing the virus to their mucous membranes (2, 3). Virus may persist for hours as suspended droplets when the temperature is cold and the humidity is low.
<table>
<thead>
<tr>
<th>Section</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incubation Period</td>
<td>Usually 1-3 days (1)</td>
</tr>
<tr>
<td>Period of Communicability</td>
<td>May become infectious during the 24 hours prior to onset of symptoms (5); viral shedding in nasal secretions usually peaks during the first 3 days of illness and ceases within 7 days but can be prolonged in young children and the immunocompromised (5).</td>
</tr>
<tr>
<td>Susceptibility and Resistance</td>
<td>Vaccine preventable; new vaccine required annually the components of which depend on circulating strains. Immunity is generally achieved within 2 weeks following immunization and lasts less than a year. Immunity to a strain of a specific subtype can provide significant immunity against a different strain of the same subtype (1).</td>
</tr>
</tbody>
</table>

5) Reporting Requirements:

<table>
<thead>
<tr>
<th>To local Board of Health</th>
<th>All laboratory confirmed cases shall be reported to the medical officer of health by persons required to do so under the Health Protection and Promotion Act, R.S.O. 1990.</th>
</tr>
</thead>
</table>
| To Public Health Division       | Report only case classifications specified in the case definition to PHD. For laboratory confirmed cases of novel (not seasonal) influenza, the board of health must phone the Public Health Division call centre and enter the data into iPHIS or any other method specified by the ministry within one (1) business day of receipt of initial notification of a case as per the iPHIS Bulletin Number 17: Timely Entry of Cases (7). All other influenza reports are to be entered within five (5) business days. The minimum data elements to be reported for each case is specified in the following:  
  - *Ontario Regulation 569 (Reports) under the Health Protection and Promotion Act (HPPA)*  
  - The disease-specific User Guides published by the Ministry, and  
  - Bulletins and directives issued by the Ministry. |

6) Prevention and Control Measures:

| Personal Prevention Measures   | **The best prevention measure is annual immunization:** Immunization is the most effective means to reduce the impact of influenza. All Ontario residents aged 6 months and older are eligible to receive publicly funded influenza vaccine yearly. The National Advisory Committee on Immunization (NACI) statement on influenza is published annually and is available on the Public Health Agency of Canada (PHAC) website: http://www.phac-aspc.gc/naci-ccni/index.html For health care workers refer to the Ontario Hospital Association, |
Other measures include:

- Travel Considerations: People at high risk of influenza complications embarking on travel to destinations where influenza is likely to be circulating should receive immunization (5)
- General public education about the importance of hand hygiene, using proper respiratory etiquette, e.g. covering one’s mouth when coughing or sneezing and coughing and sneezing into the arm or using disposable tissues

### Infection Prevention and Control Strategies

<table>
<thead>
<tr>
<th>Infection Control Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Promotion of hand hygiene and care with personal hygiene has been shown to be effective in reducing disease transmission</td>
</tr>
<tr>
<td>• Education about staying home from work or school when ill</td>
</tr>
<tr>
<td>• Droplet precautions for cases in healthcare facilities</td>
</tr>
</tbody>
</table>

### Management of Cases

Refer to *Ontario Regulation 569* under the HPPA for relevant data to collect and where possible and feasible inquire about immunization status with current influenza vaccine.

Treatment is under the direction of the attending health care provider.

Advise the individual to stay away from work and school when ill and limit exposure to others, especially those at high risk for complications.

### Management of Contacts

**Not applicable for sporadic community cases.**

### Management of Outbreaks

The most important control measure to prevent serious morbidity and mortality from influenza epidemics is appropriate immunization annually.

For outbreak management in institutions refer to Ontario Ministry of Health and Long-Term Care. *A Guide to the Control of Respiratory Infection Outbreaks in Long-Term Care Homes.* Toronto: Queen’s Printer for Ontario, 2004.

### 7) References


4. Ontario Hospital Association; Ontario Medical Association. Influenza surveillance protocol for Ontario hospitals. Toronto: Ontario Hospital...


(7) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.

8) Additional Resources


Centers for Disease Control and Prevention. Influenza (Flu) [Internet]. Atlanta: Centers for Disease Control and Prevention; 2009 [cited 2009 Feb 6]. Available from http://www.cdc.gov/flu/.


Ministry of Health and Long-Term Care. A guide to the control of respiratory infection outbreaks in long-term care homes. Toronto:
<table>
<thead>
<tr>
<th>References</th>
</tr>
</thead>
</table>
Appendix A: Disease-Specific Chapters

Chapter: Lassa Fever
<table>
<thead>
<tr>
<th>Lassa Fever</th>
</tr>
</thead>
<tbody>
<tr>
<td>☒ Communicable</td>
</tr>
<tr>
<td>☒ Virulent</td>
</tr>
</tbody>
</table>

**Health Protection and Promotion Act, Section 1 (1)**

**Health Protection and Promotion Act:**
- Ontario Regulation 558/91 – Specification of Communicable Diseases
- Ontario Regulation 559/91 – Specification of Reportable Diseases

<table>
<thead>
<tr>
<th>1) Aetiologic Agent:</th>
<th>Lassa fever is an acute viral illness lasting 1-4 weeks; caused by the lassa virus, an arenavirus, serologically related to lymphocytic choriomeningitis, Machupo, Junin, Guanarito and Sabia viruses (1).</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>2) Case Definition:</th>
</tr>
</thead>
</table>

**Surveillance case Definition**

See Appendix B

**Outbreak Case Definition**

The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition:

1. Clinical, laboratory and/or epidemiological criteria
2. A time frame for occurrence
3. A geographic location(s) or place(s) where cases live or became ill/exposed
4. Special attributes of cases (e.g. age, underlying conditions)

Cases should also be classified by levels of probability (i.e. confirmed, probable or suspect).

<table>
<thead>
<tr>
<th>3) Identification:</th>
</tr>
</thead>
</table>

**Clinical Presentation**

Onset is gradual, with malaise, fever, headache, sore throat, cough, nausea, vomiting, diarrhea, myalgia, chest and abdominal pain; fever is persistent or spikes intermittently. Inflammation and exudation of the pharynx and conjunctivae are common (1).

About 80% of human infections are mild or asymptomatic and the remaining have severe multisystem disease (1).

**Diagnosis**

See Appendix B
**4) Epidemiology:**

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occurrence</td>
<td>Lassa fever is endemic to Guinea, Liberia, regions of Nigeria and Sierra Leone (1). No cases have been reported in Ontario.</td>
</tr>
<tr>
<td>Reservoir</td>
<td>Wild rodents; in western Africa, the multimammate mouse of the <em>Mastomys</em> species complex (1).</td>
</tr>
<tr>
<td>Modes of Transmission</td>
<td>Primarily through aerosol or direct contact with excreta of infected rodents deposited on surfaces such as floors, beds or in food and water (1). It can also be spread person to person through sexual contact and in hospitals from infected persons’ pharyngeal secretions or urine or from contaminated needles (1).</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>Commonly 6-21 days (1).</td>
</tr>
<tr>
<td>Period of Communicability</td>
<td>Person to person spread may theoretically occur during the acute febrile phase when virus is present in the throat. Virus can be excreted in urine for 3-9 weeks from onset of illness (1).</td>
</tr>
<tr>
<td>Susceptibility and Resistance</td>
<td>All ages are susceptible; the duration of immunity following infection is unknown (1).</td>
</tr>
</tbody>
</table>

**5) Reporting Requirements:**

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>To local Board of Health</td>
<td>Suspect and laboratory confirmed cases shall be reported immediately to the medical officer of health by persons required to do so under the <em>Health Protection and Promotion Act</em>, R.S.O. 1990.</td>
</tr>
</tbody>
</table>
| To Public Health Division (PHD) | The board of health shall notify the PHD of the MOHLTC immediately by phone upon receiving report. Report only case classifications specified in the case definition to PHD. Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) business days of receipt of initial notification as per *iPHIS Bulletin* Number 17: Timely Entry of Cases (3). The minimum data elements to be reported for each case is specified in the following:  
  - *Ontario Regulation* 569 (Reports) under the Health Protection and Promotion Act (HPPA)  
  - The disease-specific User Guides published by the |
<table>
<thead>
<tr>
<th><strong>6) Prevention and Control Measures:</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal Prevention Measures</strong></td>
<td>For details on personal prevention measures refer to the Ontario VHF Contingency Plan 2002.</td>
</tr>
<tr>
<td><strong>Infection Prevention and Control Strategies</strong></td>
<td>Strategies:</td>
</tr>
<tr>
<td></td>
<td>• Strict isolation precautions for hospitalized cases with isolation room preferably negative pressure room and precautions for body fluids and excreta maintained (1).</td>
</tr>
<tr>
<td><strong>Management of Cases</strong></td>
<td>Investigate the case to determine source of infection. Refer to ON Regulation 569 under the HPPA for relevant data to collect and ensure to inquire about the following:</td>
</tr>
<tr>
<td></td>
<td>• Symptoms and date of symptom onset</td>
</tr>
<tr>
<td></td>
<td>• Earliest and latest exposure date</td>
</tr>
<tr>
<td></td>
<td>• Occupational history and</td>
</tr>
<tr>
<td></td>
<td>• Travel history</td>
</tr>
<tr>
<td></td>
<td>Contact identification and tracing:</td>
</tr>
<tr>
<td></td>
<td>• Contact history during period of communicability</td>
</tr>
<tr>
<td></td>
<td>• Assessment of type of contact and probability of transmission</td>
</tr>
<tr>
<td></td>
<td>• Identification of contacts for follow-up</td>
</tr>
<tr>
<td></td>
<td>• Occupational history</td>
</tr>
<tr>
<td></td>
<td>Specific treatment with Ribavirin within the first 6 days of illness (1) is under the direction of the attending health care provider in consultation with tropical disease specialist.</td>
</tr>
<tr>
<td><strong>Management of Contacts</strong></td>
<td>Contacts include: people living with, caring for, testing laboratory specimens from or having non-casual contact with the case, in the 3 weeks after the onset of illness (1).</td>
</tr>
<tr>
<td></td>
<td>Establish close surveillance of contacts including taking body temperature 2 times daily for 3 weeks after last exposure and if temperature above 38.3 degrees C or 101 degrees F, hospitalize immediately in strict isolation (1). Determine contacts place of residence during 3 weeks prior to onset and search for unreported or undiagnosed cases (1).</td>
</tr>
<tr>
<td><strong>Management of Outbreaks</strong></td>
<td>One case constitutes an outbreak. Outbreak management would be a collaborative effort under the direction of provincial and national authority.</td>
</tr>
<tr>
<td></td>
<td>Outbreak measures could include: (1)</td>
</tr>
<tr>
<td></td>
<td>• Rodent control</td>
</tr>
<tr>
<td></td>
<td>• Adequate infection control and precautions in hospital and health facilities</td>
</tr>
<tr>
<td></td>
<td>• Distribution of ribavirin</td>
</tr>
</tbody>
</table>
(3) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17. |
Appendix A: Disease-Specific Chapters

Chapter: Legionellosis
**Legionellosis**

| Communicable | ☒ | Virulent | ☐ |

**Health Protection and Promotion Act:**  
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

**Health Protection and Promotion Act:**  
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

| 1) Aetiologic Agent: | *Legionellae* species are fastidious aerobic bacilli that stain gram negative after recovery on artificial media. More than 35 species have been recognized of which *Legionella pneumophila* (*L. pneumophila*) is most commonly associated with disease in humans (1, 2). |

| 2) Case Definition: | Surveillance Case Definition | See Appendix B |

Outbreak Case Definition | The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition:

1. Clinical, laboratory and/or epidemiological criteria
2. The time frame for occurrence
3. The geographic location(s) or place(s) where cases live or became ill/exposed
4. Special attributes of cases (e.g. age, underlying conditions)  
Cases may be classified by levels of probability (i.e. confirmed, probable or suspect)

| 3) Identification: | Clinical Presentation | There are two clinically and epidemiologically distinct clinical syndromes: Legionnaires’ disease (pneumonia) and Pontiac fever (1, 2).  
Legionnaires’ Disease varies in its presentation, clinical manifestations and severity between individuals. A typical clinical presentation includes subacute onset of malaise, anorexia, headache, fever and myalgia. Fever may be high and rise rapidly; there may also be a non-productive cough, abdominal pain and diarrhoea. The illness progresses to pneumonia and other multi-system involvement (1, 2).  
Pontiac fever is an acute, self-limiting influenza-like illness with the |
initial symptoms of Legionnaire’s disease, but without pneumonia or progression to multi-system involvement. Rapid recovery without sequela may represent reaction to inhaled antigen rather than bacterial invasion (1, 2).

<table>
<thead>
<tr>
<th>Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>See Appendix B</td>
</tr>
</tbody>
</table>

**Note:**
- Seroconversion requires up to eight weeks for antibody levels to peak
- A four fold increase in antibody levels requires two samples taken 3-6 weeks apart
- Positive urinary antigen for *L. pneumophila*.

Urinary antigen testing is the most rapid and sensitive test however only detects infection with *L. pneumophila* (1). Cases with positive urine antigen are recommended to have confirmatory cultures.

Consider the diagnosis of legionellosis infection in any cluster of respiratory illness with pneumonia, or individual presenting with a respiratory illness and pneumonia.

### 4) Epidemiology:

<table>
<thead>
<tr>
<th>Occurrence</th>
</tr>
</thead>
</table>
| The earliest documented case of legionellosis occurred in 1947. The first documented outbreak was in Minnesota in 1957. The legionella bacterium was first identified in 1976 when 34 members of the American Legion died following a conference in Philadelphia (1).

Cases have been reported in Canada, the US, Europe, Australia, Africa and South America. In Ontario, cases, outbreaks and clusters are typically observed in late summer and the fall. Outbreaks of legionellosis in the USA usually occur with low attack rates in the population at risk (1). In Ontario, the experience has been similar. |

<table>
<thead>
<tr>
<th>Reservoir</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Legionellae</em> are ubiquitous in nature, especially in aquatic environments; outbreaks and sporadic cases have been linked to air-conditioning cooling towers, evaporative condensers, humidifiers, whirlpool spas, respiratory therapy devices, ponds and soil from their banks, decorative fountains and potable water systems which can be found in hospitals and among other places (1, 2).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Modes of Transmission</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Legionella</em> are opportunistic pathogens most commonly associated with water-droplet transmission to humans through inhalation of aerosolized infected water (2).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Incubation Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>For Legionnaire disease it is 2-10 days, most often 5-6 days (1). For Pontiac fever it is 5-66 hours, most often 24-48 hours (1).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Period of Communicability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person-to-person transmission has not been documented (1).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Susceptibility and Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illness occurs most frequently with increasing age (most cases are at</td>
</tr>
</tbody>
</table>
least 50 years of age). Persons who smoke, have diabetes, lung, or renal disease are at most risk. The disease is rare in persons under 20 years of age. Outbreaks have occurred among institutionalized patients/residents (1).

### 5) Reporting Requirements:

<table>
<thead>
<tr>
<th>To local Board of Health</th>
<th>Laboratory confirmed and suspect cases shall be reported to the medical officer of health by persons required to do so under the <em>Health Protection and Promotion Act</em>, R.S.O. 1990.</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Public Health Division (PHD)</td>
<td>Report only case classifications specified in the case definition to PHD.</td>
</tr>
<tr>
<td></td>
<td>Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within one (1) business day of receipt of initial notification as per <em>iPHIS Bulletin</em> Number 17: Timely Entry of Cases (3).</td>
</tr>
<tr>
<td></td>
<td>The minimum data elements to be reported for each case is specified in the following:</td>
</tr>
<tr>
<td></td>
<td>• <em>Ontario Regulation 569</em> (Reports) under the Health Protection and Promotion Act (HPPA),</td>
</tr>
<tr>
<td></td>
<td>• The disease-specific User Guides published by the Ministry, and</td>
</tr>
<tr>
<td></td>
<td>• Bulletins and directives issued by the Ministry.</td>
</tr>
</tbody>
</table>

### 6) Prevention and Control Measures:

<table>
<thead>
<tr>
<th>Personal Prevention Measures</th>
<th>Prevention Measure:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Avoidance of exposure to aerosolized contaminated water.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Infection Prevention and Control Strategies</th>
<th>Strategies:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Total eradication of <em>legionellae</em> from all artificial systems is not possible because of the high prevalence of the organism in water; however, the risk can be minimized by appropriate maintenance and disinfection of water cooling towers and adequate treatment of water supplies where these sources have been implicated.</td>
</tr>
<tr>
<td></td>
<td>• If hospitalized, routine practices are recommended.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Management of Cases</th>
<th>Investigate the case to determine source of infection. Refer to Regulation 569 under the HPPA for relevant data to collect and make sure to inquire about the following in the epidemiological investigation:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Symptoms and date of symptom onset</td>
</tr>
<tr>
<td></td>
<td>• Travel history</td>
</tr>
<tr>
<td></td>
<td>• History of exposure to air conditioners, humidifiers, water fountains or spas and other high risk area during the 10 days</td>
</tr>
</tbody>
</table>
prior to illness

• Any risk factors such as smoking or any medical conditions
• Earliest and latest exposure dates
• Occupation
• Residency or attendance at a facility or institution

Exposure investigation:

• Determine if the case was community or institutionally acquired and whether a common source of exposure has occurred
• Environmental sampling should be reserved for investigations involving disease clusters or an outbreak where there is a potential common exposure
• Provide education about the illness and how it is acquired

Determine who should be notified and how often and if a media release is required.

Treatment is under the direction of the attending health care provider.

Management of Contacts

Not applicable: Person to person transmission of legionellosis has not been documented.

Management of Outbreaks

When two or more cases are linked in time and place an investigation should be conducted to determine if a cluster or outbreak is occurring.

As per this Protocol, outbreak management shall comprise of, but not be limited to the following general steps:

• Confirm diagnosis and verify the outbreak;
• Establish an outbreak team;
• Develop an outbreak case definition;
• Implement prevention and control measures;
• Implement and tailor communication and notification plans depending on the scope of the outbreak;
• Conduct epidemiological analysis on data collected;
• Conduct environmental inspections of implicated premise where applicable;
• Coordinate and collect appropriate clinical specimens where applicable;
• Prepare a written report, and
• Declare the outbreak over in collaboration with the outbreak team.

For more information on outbreak investigations in the community and special settings such as health care facilities, refer to the following resources:

Recommendations of CDC and Healthcare Infection Control Practices Advisory Committee (HICPAC) on guidelines for environmental infection control in healthcare facilities – See additional resources.
(3) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17. |
|---|---|
Appendix A: Disease-Specific Chapters

Chapter: Leprosy
<table>
<thead>
<tr>
<th>Leprosy</th>
</tr>
</thead>
<tbody>
<tr>
<td>× Communicable</td>
</tr>
</tbody>
</table>

### Health Protection and Promotion Act, Section 1 (1)

### Health Protection and Promotion Act:
Ontario Regulation 558/91 – Specification of Communicable Diseases

### Health Protection and Promotion Act:
Ontario Regulation 559/91 – Specification of Reportable Diseases

#### 1) Aetiologic Agent:

*Mycobacterium leprae* (*M. leprae*) is the bacterium which causes leprosy. It is an obligate intracellular, acid-fast bacillus that can be Gram-stain variable (2).

#### 2) Case Definition:

**Surveillance Case Definition**

See Appendix B

**Outbreak Case definition**

Not applicable

#### 3) Identification:

**Clinical Presentation**

A chronic bacterial disease characterized by the involvement primarily of skin as well as peripheral nerves and the mucosa of the upper airway. Clinical forms of the disease represent a spectrum reflecting the cellular immune response to *Mycobacterium leprae*. The following characteristics are typical of the major forms of the disease: (1, 2)

- Tuberculoid: one or a few well-demarcated, hypopigmented and anesthetic skin lesions, frequently with active spreading edges and a clearing centre; peripheral nerve swelling or thickening also may occur
- Lepromatous: a number of erythematous papules and nodules or an infiltration of the face, hands and feet with lesions in a bilateral and symmetrical distribution that progress to thickening of the skin
- Borderline (dimorphous): skin lesions characteristic of both the tuberculoid and lepromatous forms and
- Indeterminate: early lesions, usually hypopigmented macules, without developed tuberculoid or lepromatous features

**Diagnosis**

See Appendix B
### 4) Epidemiology:

| Occurrence                  | More common in tropical and subtropical areas (1).  
<table>
<thead>
<tr>
<th></th>
<th>Leprosy is rare in Ontario with few cases having been reported over the past decade.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Humans (1)</td>
</tr>
<tr>
<td>Modes of Transmission</td>
<td>The mode of transmission remains unclear but it is not highly communicable. Likely transmitted from nasal mucosa of an infected person to the skin and respiratory tract of another person via droplets, from the nose and mouth, during close and frequent contact with untreated cases (2).</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>9 months to 20 years with the average incubation period probably 4 years for tuberculoid leprosy and 8 years for lepromatous leprosy (1).</td>
</tr>
<tr>
<td>Period of Communicability</td>
<td>Clinical and laboratory evidence suggest that infectiousness is lost in most instances within a day of treatment with multidrug therapy (1).</td>
</tr>
<tr>
<td>Susceptibility and Resistance</td>
<td>Infection among close contacts of cases is frequent, however clinical disease occurs only in a small proportion of those infected; the form of leprosy depends on the ability to develop cell-mediated immunity (1).</td>
</tr>
</tbody>
</table>

### 5) Reporting Requirements:

<table>
<thead>
<tr>
<th>To local Board of Health</th>
<th>Suspect and confirmed cases shall be reported to the medical officer of health by persons required to do so under the Health Protection and Promotion Act, R.S.O. 1990.</th>
</tr>
</thead>
</table>
| To Public Health Division (PHD) | Report only case classifications specified in the case definition to PHD.  
|                            | Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry **within five (5) business days of receipt of initial notification** as per iPHIS Bulletin Number 17: Timely Entry of Cases (4). |
|                            | The minimum data elements to be reported for each case is specified in the following:  
|                            | • *Ontario Regulation 569 (Reports)* under the Health Protection and Promotion Act (HPPA)  
|                            | • The disease-specific User Guides published by the Ministry, and  
|                            | • Bulletins and directives issued by the Ministry. |
### 6) Prevention and Control Measures:

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal Prevention Measures</strong></td>
<td>The best preventative measure is early diagnosis and treatment of cases (1). Health education should stress the availability of effective multidrug therapy, the non-infectivity of persons under continuous treatment and the importance of completing treatment. The MOHLTC provides medications at no cost for the treatment of leprosy.</td>
</tr>
<tr>
<td><strong>Infection Prevention and Control Strategies</strong></td>
<td>If hospitalized, routine practices are indicated. Hand hygiene is recommended for all people in contact with a case, as well as disinfection of nasal secretions, handkerchiefs and other fomites, until treatment is established (2).</td>
</tr>
<tr>
<td><strong>Management of Cases</strong></td>
<td>Investigate the case to determine source of infection. Refer to Regulation 569 under the HPPA for relevant data to collect and ensure to inquire about the following: • History of immigration from an endemic area • Past history of leprosy • Travel to an area of the world where leprosy is endemic and • Prolonged exposure to a family member or other contact with leprosy Public health intervention is minimal especially after initiation of treatment when communicability is low; no restrictions in employment or attendance at school are indicated for persons whose disease is regarded as non-infectious. Treatment recommended by World Health Organization (WHO) for lepromatous leprosy is triple therapy with rifampin, dapsone and clofazimine for twelve months and should be under the direction of an infectious disease specialist. As above, medications are provided at no cost in Ontario.</td>
</tr>
<tr>
<td><strong>Management of Contacts</strong></td>
<td>Contacts are defined as persons who have been in close, continuous household contact for a month or more within 5 years prior to diagnosis or during any period of inadequate treatment. Persons residing with cases in areas of endemicity are particularly vulnerable (3). Initial examination of contacts should take place, and then periodic examination of household and other close contacts for skin lesions is recommended annually for up to five years after the last contact with an infectious case (1).</td>
</tr>
<tr>
<td><strong>Management of Outbreaks</strong></td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
Section 3, Summaries of infectious diseases; p. 421-4.


(4) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.

---

### 8) Additional Resources


Appendix A: Disease-Specific Chapters

Chapter: Listeriosis
# Listeriosis

- **Communicable**
- **Virulent**

**Health Protection and Promotion Act:**
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

**Health Protection and Promotion Act:**
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

## 1) Aetiologic Agent:

Listeriosis is an opportunistic infection caused by the agent *Listeria monocytogenes* (*L. monocytogenes*), an aerobic, nonspore-forming, motile, Gram-positive bacillus that produces a narrow zone of hemolysis on a blood agar medium (2). Human infections are usually caused by serovars 1/2a, 1/2b, 1/2c and 4b (1).

## 2) Case Definition:

**Surveillance Case Definition**

See Appendix B

**Outbreak Case Definition**

The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following when establishing an outbreak case definition:

1. Clinical, laboratory and/or epidemiological criteria;
2. The time frame for occurrence;
3. The geographic location(s) or place(s) where cases live or became ill/exposed, and
4. Special attributes of cases (e.g. age, underlying conditions) and/or of the aetiologic agent.

Cases may be classified by levels of probability (e.g. confirmed, probable and/or suspect).

## 3) Identification:

**Clinical Presentation**

A person with Listeriosis usually has fever, muscle aches, diarrhea, and sometimes, nausea and vomiting. The bacteria may infect the brain and the membrane lining the brain causing meningoencephalitis. The onset of meningoencephalitis may be sudden, with fever, intense headache, nausea, and vomiting. Complications include septicemia, endocarditis (the bacteria infects the membrane lining the cavities of the heart), and internal and external abscesses. Infected pregnant women may have minimal symptoms, characterized by a mild flu-like illness.

An infected pregnant woman may unknowingly pass on the illness to...
her unborn child in utero. Infection during pregnancy may lead to premature delivery, infection of the newborn that may lead to meningitis, spontaneous abortion or stillbirth.

Thirty percent of infant infections are fatal. If onset of illness occurs within the first four days of life, the case-fatality rate is 50% (3).

Note: individuals may present with mild enteric symptoms, which could progress to more severe forms of disease.

<table>
<thead>
<tr>
<th>Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>See Appendix B</td>
</tr>
<tr>
<td>Diagnosis is confirmed by isolation of the bacterium from CSF, blood, amniotic fluid, placenta, meconium, lochia, gastric washings and other sterile sites of infection (1).</td>
</tr>
</tbody>
</table>

4) Epidemiology:

<table>
<thead>
<tr>
<th>Occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occurrence is worldwide. Cases usually occur sporadically; however, several outbreaks have been recognized in recent years (3).</td>
</tr>
<tr>
<td>Listeriosis is not a common disease in Ontario. There have been an average of approximately 40 cases per year between 2003 and 2007. Between one and eight cases occur every month, with no clear seasonal pattern.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reservoir</th>
</tr>
</thead>
<tbody>
<tr>
<td>The bacteria are found in soil, water, animals and humans. Asymptomatic fecal carriage is common in humans (1). Bacteria can thrive and multiply at refrigeration temperatures.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Modes of Transmission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main route of transmission is foodborne, through ingestion of contaminated food such as ready-to-eat meats, unpasteurized milk and soft cheeses, and vegetables (2). Vegetables can become contaminated from the soil or from manure used as fertilizer.</td>
</tr>
<tr>
<td>In-utero or perinatal transmission can occur. Inhalation of the organism has been reported and papular lesions on hands and arms may occur from direct contact with infectious material. Nosocomial transmission associated with contaminated equipment have resulted in a nursery outbreak (1, 2).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Incubation Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable; cases have occurred 3 - 70 days following a single exposure to an implicated product. Estimated median incubation is 3 weeks (1).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Period of Communicability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infected persons can shed the bacteria in stool for several months; mothers of infected newborns may shed the infectious agent in vaginal discharges or urine for 7-10 days after delivery (1).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Susceptibility and Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Those at highest risk are fetuses and neonates, the elderly, immunocompromised persons and pregnant women. Children and young adults are generally resistant; adults less so after age 40. Disease is frequently superimposed on other conditions such as</td>
</tr>
</tbody>
</table>
cancer, organ transplantation, diabetes and AIDS. There is little evidence of acquired immunity, even after prolonged severe infection (1).

5) Reporting Requirements:

<table>
<thead>
<tr>
<th>To local Board of Health</th>
<th>Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the <em>Health Protection and Promotion Act</em>, R.S.O. 1990</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Public Health Division (PHD)</td>
<td>Report only case classifications specified in the case definition to PHD using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within one (1) business day of receipt of initial notification as per <em>iPHIS Bulletin Number 17: Timely Entry of Cases</em> (4). The minimum data elements to be reported for each case is specified in the following sources:</td>
</tr>
<tr>
<td></td>
<td>• <em>Ontario Regulation 569 (Reports)</em> under the <em>Health Protection and Promotion Act</em> (HPPA);</td>
</tr>
<tr>
<td></td>
<td>• The disease-specific User Guides published by the Ministry, and</td>
</tr>
<tr>
<td></td>
<td>• Bulletins and directives issued by the Ministry.</td>
</tr>
</tbody>
</table>

6) Prevention and Control Measures:

<table>
<thead>
<tr>
<th>Personal Prevention Measures</th>
<th>Preventative measures (1, 2):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Education of pregnant women and immunocompromised persons to avoid high risk foods such as ready-to-eat foods, smoked fish, soft cheeses and unpasteurized dairy products</td>
</tr>
<tr>
<td></td>
<td>• Thoroughly cook raw foods from animal sources</td>
</tr>
<tr>
<td></td>
<td>• Thoroughly wash raw fruits and vegetables before eating</td>
</tr>
<tr>
<td></td>
<td>• Keep uncooked meats separate from prepared foods and foods that are not cooked before consumption</td>
</tr>
<tr>
<td></td>
<td>• Wash hands, utensils and food preparation surfaces after contact with raw or uncooked foods</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Infection Prevention and Control Strategies</th>
<th>Strategies:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Routine precautions for hospitalized cases</td>
</tr>
<tr>
<td></td>
<td>• Patients with invasive listeriosis do not require isolation</td>
</tr>
<tr>
<td></td>
<td>• Proper cleaning and disinfection of equipment in neonatal units</td>
</tr>
</tbody>
</table>

| Management of Cases | Investigate cases of listeriosis to determine the source of infection. Refer to Section 5: *Reporting Requirements* above for relevant data to be collected during case investigation. The following disease-specific information should also be obtained during case management: |
- Symptoms and date of symptom onset
- History of out-of-province or international travel including earliest and latest exposure dates
- Food history for the 3 weeks prior to onset of symptoms
- Occupation
- Resident of an institution and history of multiple institutional admissions

**Treatment:**
Listeriosis is treated with antibiotics. Depending on the form of the disease, treatment may take up to six weeks or more. Antibiotics given to pregnant women with Listeriosis can often reduce the risk of infection in the newborn or the unborn child. There is no vaccine to prevent Listeriosis.

Refer to the resources listed below for more information.

**Exposure investigation:**
- Collect samples of suspected food sources for laboratory analysis
- Conduct appropriate inspections of implicated potential sources of infection

*No testing is recommended for asymptomatic exposed individuals.*

**Case counselling:**
- Provide information on listeriosis and how to prevent further spread (refer to the MOHLTC fact sheet listed below)

---

**Management of Contacts**
Listeriosis is rarely spread person to person; persons exposed to same source should be investigated particularly if at risk such as elderly, immunocompromised and pregnant women.

**Management of Outbreaks**
Provide public health management of outbreaks or clusters in order to identify the source of illness, stop the outbreak and limit secondary spread.

*Two or more unrelated cases of the same serotype of listeriosis with a common exposure is suggestive of an outbreak.*

As per this Protocol, outbreak management shall comprise of, but not be limited to the following general steps:
- Confirm diagnosis and verify the outbreak;
- Establish an outbreak team;
- Develop an outbreak case definition;
- Implement prevention and control measures;
- Implement and tailor communication and notification plans depending on the scope of the outbreak;
- Conduct epidemiological analysis on data collected;
- Conduct environmental inspections of implicated premise where applicable;
- Coordinate and collect appropriate clinical specimens where applicable;
- Prepare a written report, and
- Declare the outbreak over in collaboration with the outbreak team.

### 7) References


### 8) Additional Resources


Appendix A: Disease-Specific Chapters

Chapter: Lyme Disease
# Lyme Disease

- **Communicable**
- **Virulent**

### Health Protection and Promotion Act:
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

### Health Protection and Promotion Act:
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

## 1) Aetiologic Agent:
Lyme disease is a tick-borne zoonotic disease caused by the bacterium, *Borrelia burgdorferi* (*B. burgdorferi*), a spirochete first identified in North America in 1982 (1, 2).

## 2) Case Definition:

<table>
<thead>
<tr>
<th>Surveillance Case Definition</th>
<th>See Appendix B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outbreak Case Definition</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

## 3) Identification:

### Clinical Presentation
Lyme borreliosis is generally divided into 3 stages in which infected persons may experience any of the following symptoms: (1,2)

- **Early localized disease**
  - Erythema migrans (EM) or “bull’s eye” rash at the site of a recent tick bite, fever, malaise, headache, myalgia, neck stiffness, and arthralgia

- **Early disseminated disease**
  - Multiple erythema migrans in approximately 15% of people occurs several weeks after infective tick bite, cranial nerve palsies, lymphocytic meningitis, conjunctivitis, arthralgia, myalgia, headache, fatigue, carditis (heart block)

- **Late disease**
  - May develop in people with early infection that was undetected or not adequately treated. Involves the heart, nervous system and joints; arrhythmias, heart block, significant myocardial dysfunction; recurrent arthritis affecting large joints (i.e. knees); peripheral neuropathy; central nervous system manifestations – meningitis; encephalopathy (i.e. behavior changes, sleep disturbance, headaches)

### Diagnosis
See Appendix B

Note: Diagnosis is based on clinical findings and epidemiological
findings supported by two-stage serological tests, ELISA and then Western blot.

Serological evidence using the two-tier ELISA and Western Blot criteria (as described by the guidelines of the Canadian Public Health Laboratory Network) is confirmatory, providing, for reasons of positive predictive value, that the patient has EM or objective signs and symptoms of disseminated Lyme disease.

<table>
<thead>
<tr>
<th>4) Epidemiology:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Occurrence</strong></td>
</tr>
<tr>
<td>Lyme disease has been found in the USA, Canada, Europe, the former Soviet Union, China and Japan (1). Epidemiologic data for Ontario indicate that infection occurs primarily during summer, with a peak in June and July, but may occur throughout the year, depending on seasonal abundance of the tick locally. While cases can occur anywhere in Ontario, the following areas have been identified as endemic for Lyme disease: the north shore of Lake Erie, particularly in areas around Long Point, Turkey Point and Rondeau Provincial Park and the St. Lawrence Islands National Park area. New endemic areas are being investigated.</td>
</tr>
<tr>
<td><strong>Reservoir</strong></td>
</tr>
<tr>
<td>Deer and small mammals such as rodents serve as important hosts to the tick vector, <em>Ixodes scapularis</em>, the primary <em>B. burgdorferi</em> vector in eastern Canada and Ontario. This tick is commonly known as a deer tick or blacklegged tick (1).</td>
</tr>
<tr>
<td><strong>Modes of Transmission</strong></td>
</tr>
<tr>
<td>Tick-borne: transmission usually does not occur until the tick has been attached for at least 24 hours (1).</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
</tr>
<tr>
<td>For EM rash, from 3 - 32 days after tick exposure with a mean of 7 - 10 days; early stages of the illness may not be apparent and the person may present with later manifestations (1).</td>
</tr>
<tr>
<td><strong>Period of Communicability</strong></td>
</tr>
<tr>
<td>There is no evidence of person to person spread (1).</td>
</tr>
<tr>
<td><strong>Susceptibility and Resistance</strong></td>
</tr>
<tr>
<td>All persons are probably susceptible, particularly persons that live in or travel to Lyme disease endemic areas (1).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5) Reporting Requirements:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>To local Board of Health</strong></td>
</tr>
<tr>
<td>Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the <em>Health Protection and Promotion Act</em>, R.S.O. 1990.</td>
</tr>
<tr>
<td><strong>To Public Health Division (PHD)</strong></td>
</tr>
<tr>
<td>Report only case classifications specified in the case definition with exposure information to PHD. Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within one (1) business day of receipt of initial notification as per <em>iPHIS Bulletin</em> Number 17: Timely Entry of Cases (3).</td>
</tr>
</tbody>
</table>
The minimum data elements to be reported for each case is specified in the following:

- **Ontario Regulation 569** (Reports) under the Health Protection and Promotion Act (HPPA);
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry.

### 6) Prevention and Control Measures:

#### Personal Prevention Measures

Provide public education and advice on preventative measures including: (1, 2)

- Education about the mode of tick transmission and the means for personal protection such as tucking pants into socks, wearing light coloured, long sleeve shirts and long pants in wooded areas; use of tick repellents that contain DEET. A light coating will do. The concentration of DEET should be no greater than 30% for adults and no greater than 10% for children
- Avoiding tick-infested areas when possible
- Removing ticks from domestic animals

#### Infection Prevention and Control Strategies

The board of health shall develop and utilize a local vector-borne management strategy in order to mitigate risk. This strategy shall include measures such as:

- Local risk assessments
- Public education and source reduction when and where applicable

For more information on vector-borne management strategies refer to the [CDC Vector Borne Infections Division](http://www.cdc.gov/ncidod/dvbid/Lyme/index.htm) Available from:

#### Management of Cases

Refer to **Ontario Regulation 569** for relevant data to collect and determine the most likely location of exposure. Inquire about:

- Travel to endemic area and activities in previous 32 days
- Outdoor recreational activities and outdoor occupations
- Symptoms and date of symptom onset and presence or history of EM-like rash; and
- Date of tick bite

Treatment is under the direction of the attending health care provider. Provide education about the infection and how it is acquired.

#### Management of Contacts

None

#### Management of Outbreaks

Not applicable
7) References


(3) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.

8) Additional Resources


Appendix A:
Disease-Specific Chapters

Chapter: Malaria
### Malaria

| Communicable | ☒ | Virulent | ☐ |

**Health Protection and Promotion Act:**  
Ontario Regulation 558/91 – Specification of Communicable Diseases

**Health Protection and Promotion Act:**  
Ontario Regulation 559/91 – Specification of Reportable Diseases

<table>
<thead>
<tr>
<th>1) Aetiologic Agent:</th>
<th>Malaria is caused by protozoan parasites of the genus <em>Plasmodium</em> (<em>P</em>). Four species of <em>Plasmodium</em> infect humans: <em>P. vivax</em>, <em>P. ovale</em>, <em>P. malariae</em> and <em>P. falciparum</em> (1, 2).</th>
</tr>
</thead>
</table>

| 2) Case Definition: | |

**Surveillance Case definition**  
See Appendix B

**Outbreak Case definition**  
Not applicable

| 3) Identification: | |

**Clinical Presentation**  
The classic symptoms of malaria are high fever with chills, rigor, sweats and headache, which may be paroxysmal (2). Symptoms can occur in cycles of 48-72 hours if not treated; symptoms may also include cough, diarrhoea, respiratory distress, vomiting and muscle pain. Complications may include renal failure, liver failure and other system failure resulting in death (1, 2).

The most serious malarial infection, falciparum malaria, usually presents a protean clinical picture including one or more of the following: fever, chills, sweats, anorexia, nausea, lassitude, headache, muscle and joint pain, cough and diarrhea. Anaemia and or splenomegaly often develop after some days (1).

The primary attack lasts for weeks or months; relapses may also occur. Infection may remain for years or lifelong without any recurrence of febrile episodes (1).

**Diagnosis**  
See Appendix B

Note: Malaria can be diagnosed by the demonstration of malaria parasites in blood samples usually through microscopy (1).

Diagnosis is made by positive results for *Plasmodium* sp. in blood smears or positive results for *Plasmodium* sp. antigen (presumptive).

Attention should be given to the sensitivity results.
### 4) Epidemiology:

| Occurrence | Incidence of malaria infection appears to be on the increase worldwide. It is endemic in areas of Asia, Africa, Central and South America. It is the major cause of illness in many tropical and subtropical areas. Increased international travel, increased risk of transmission in areas where malaria control has been reduced, and the spread of drug resistant strains of malaria all contribute to the increased incidence (1, 2).

Malaria is not endemic to Ontario and reported cases in Ontario are attributed to recent immigration or travel to malaria endemic countries. |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Humans (1)</td>
</tr>
</tbody>
</table>
| Modes of Transmission | The disease is transmitted to humans through the bite of an infected female *Anopheles* mosquito (1).

The disease may also be transmitted through injection or transfusion of infected blood; congenital transmission rarely occurs (1). |
| Incubation Period | The time between an infective bite and the appearance of clinical symptoms for *P. falciparum* is 9 - 14 days; 12 - 18 days for *P. vivax* and *P. ovale* and 18 - 40 days for *P. malariae* (1).

Delayed primary attacks by some *P. vivax* strains may occur 6 - 12 months after exposure (1). |
| Period of Communicability | Mosquitoes may acquire the parasites from infected humans as long as the gametocytes are present in the blood; this varies with parasite species and with response to therapy. Untreated or insufficiently treated patients may be a source of mosquito infection for several years in *P. malariae*, up to 5 years in *P. vivax*, and generally not more than 1 year in *P. falciparum* malaria (1).

Transfusion transmission may occur as long as asexual forms remain in the circulating blood (with *P. malariae* up to 40 years or longer) (1).

Stored blood can remain infective for at least one month (1). |
| Susceptibility and Resistance | Susceptibility is universal (1). Those most at risk are persons travelling to malaria-endemic areas who are not protected by chemoprophyaxis.

It appears that African-Americans show a natural resistance to *P. vivax* and persons with sickle cell traits show a natural resistance to *P. falciparum* (1). |

### 5) Reporting Requirements:

| To local Board of Health | Confirmed and suspected cases shall be reported to the medical |
officer of health by persons required to do so under the *Health Protection and Promotion Act*, R.S.O. 1990.

| To Public Health Division | Report only case classifications specified in the case definition to PHD.  
Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) business days of receipt of initial notification as per *iPHIS Bulletin* Number 17: Timely Entry of Cases (3).  
The minimum data elements to be reported for each case is specified in the following:  
- *Ontario Regulation 569* (Reports) under the Health Protection and Promotion Act (HPPA)  
- The disease-specific User Guides published by the Ministry, and  
- Bulletins and directives issued by the Ministry. |

| 6) Prevention and Control Measures: |  
| Personal Prevention Measures | Preventative measures (2)  
- Refer travellers to a travel clinic or tropical medicine clinic for up to date information about malaria endemic areas and malaria prophylaxis  
- Use protective clothing, bed nets and repellents with DEET in high risk areas  
- Advise about seeking early diagnosis and treatment for a febrile illness during or following travel to endemic areas |

| Infection Prevention and Control Strategies | Blood donors should be questioned for a history of malaria or recent immigration from or travel to a malaria-endemic country and if yes, should be deferred. |

| Management of Cases | Refer to Regulation 569 under the HPPA for relevant data to collect. Investigate the case to determine source of infection and inquire about the following:  
- Symptoms and date of symptom onset  
- Travel history within last 10 months  
- History of recent blood transfusion within previous 60 days  
- History of needle sharing  
- History of recent immigration from endemic area and  
- History of previous malarial illness  
Treatment is under the direction of the attending health care provider.  
Provide education about the illness and how to prevent the spread. |
### Management of Contacts

<table>
<thead>
<tr>
<th>Management of Contacts</th>
<th>Not applicable</th>
</tr>
</thead>
</table>

### Management of Outbreaks

<table>
<thead>
<tr>
<th>Management of Outbreaks</th>
<th>Not applicable</th>
</tr>
</thead>
</table>

### 7) References


### 8) Additional Resources


Appendix A:
Disease-Specific Chapters

Chapter: Measles
# Measles

*Communicable*  

**Health Protection and Promotion Act:**  
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

**Health Protection and Promotion Act:**  
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

<table>
<thead>
<tr>
<th>1) <strong>Aetiological Agent:</strong></th>
<th>The measles virus is a member of the genus Morbillivirus of the family Paramyxoviridae (1).</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>2) <strong>Case Definition:</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Surveillance Case Definition</strong></td>
<td>See Appendix B</td>
</tr>
</tbody>
</table>
| **Outbreak Case Definition** | The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition:  
1. Clinical, laboratory and/or epidemiological criteria;  
2. A time frame for occurrence;  
3. A geographic location(s) or place(s) where cases live or became ill/exposed, and  
4. Special attributes of cases (e.g. age, underlying conditions).  
Cases should also be classified by levels of probability (i.e. confirmed, probable or suspect). |

<table>
<thead>
<tr>
<th>3) <strong>Identification:</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clinical Presentation</strong></td>
<td>Symptoms of measles begin 7 to 18 days after exposure to a case of measles and include fever, runny nose, cough, drowsiness, irritability and red eyes (conjunctivitis). Small white spots (known as &quot;Koplik's spots&quot;) appear on the inside of the mouth and throat. Then, 3 to 7 days after the start of the symptoms a red, blotchy (maculopapular) rash appears on the face and then progresses down the body. Complications include diarrhea, respiratory problems, pneumonia, otitis media and encephalitis (1, 5). Sub-acute sclerosing panencephalitis (SSPE) develops very rarely as a late sequela (2).</td>
</tr>
<tr>
<td><strong>Diagnosis</strong></td>
<td>See Appendix B</td>
</tr>
</tbody>
</table>
4) Epidemiology:

**Occurrence**

Measles cases occur worldwide and year round. In temperate climates the majority of cases occur in late winter and early spring. Since the introduction of the measles vaccine, the number of cases has dropped by as much as 99% in developed countries with effective immunization programs. In developing countries, measles continues to be the leading killer of children < 5 years of age (5). In developed countries, one case in every 1,000-3,000 results in death. In developing countries, the case fatality rate is estimated to be 3-5% (1).

The incidence of measles has declined in Ontario since a two-dose MMR vaccination program was administered in 1996. From 1998-2007, an average of 5 cases were reported per year. Most cases occur due to importation or importation spread.

**Reservoir**

Humans (1)

**Modes of Transmission**

The virus is highly contagious and is spread by airborne droplet nuclei, close personal contact or direct contact with the respiratory secretions of a case. Articles of clothing or bedding freshly soiled with infectious discharge occasionally transmit the disease (5). Measles virus can remain active and contagious in the air or on infected surfaces for up to two hours. Measles is one of the most highly communicable infectious diseases (1).

**Incubation Period**

About 10 days, but may be 7-18 days from exposure to onset of fever, usually 14 days until rash appears; rarely as long as 19-21 days (1).

**Period of Communicability**

Usually about 4 days before the rash to 4 days after the onset of rash (1).

**Susceptibility and Resistance**

After infection, immunity is generally life long (1). Immunization with 2 valid doses of measles containing vaccine provides almost 100% protection against measles. In Ontario, cases are most common among un-immunized and under immunized children and adults.

5) Reporting Requirements:

**To local Board of Health**

Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the Health Protection and Promotion Act, R.S.O. 1990.

**Note:**

Laboratory confirmed cases are to be reported by phone to the local public health unit as soon as identified.

**To Public Health Division**

Report only case classifications specified in the case definition to PHD.

Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the
Ministry within one (1) business day of receipt of initial notification as per iPHIS Bulletin Number 17: Timely Entry of Cases (6).

The minimum data elements to be reported for each case is specified in the following:

- *Ontario Regulation 569* (Reports) under the Health Protection and Promotion Act (HPPA)
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry

### 6) Prevention and Control Measures:

#### Personal Prevention Measures

Under the Immunization of School Pupils Act, all students must have documented receipt of 2 doses of the measles vaccine, generally given as MMR after the 1st birthday and the second dose can be given at 18 months or at least 28 days after the first dose (refer to the current publicly funded immunization schedules for Ontario).

Healthcare workers should have proof of adequate protection prior to or upon employment (refer to the Ontario Hospital Association; Ontario Medical Association. Measles surveillance protocol for Ontario hospitals. Toronto: Ontario Hospital Association; 2008).

#### Infection Prevention and Control Strategies

Strategies:

- For hospitalized cases, in addition to routine practices, airborne transmission precautions are indicated for 4 days after onset of rash in otherwise healthy persons and for the duration of illness in immunocompromised persons (2)
- All suspect cases of measles will be investigated immediately in order to confirm the diagnosis, identify the source of infection, identify other cases and protect susceptible contacts in the community

#### Management of Cases

Confirm the diagnosis and ensure that appropriate specimens have been collected for diagnosis according to case definition.

Investigate the case to determine source of infection. Collect data as per *Ontario Regulation 569*. Investigate and follow-up with possible contacts.

There is no specific treatment for persons with measles infection. Treatment is supportive with particular attention to the possible complications of measles, particularly pneumonia and encephalitis (2).

Persons with measles should be excluded from day nurseries, schools, and health care settings for 4 days after appearance of rash.
| Management of Contacts | A contact of a measles case is considered to be:  
- Any susceptible person who shared the same air space for any length of time, including two hours after the case left the air space (e.g. home, school, day care, school bus, doctor’s office, emergency room, etc) during the period of communicability  

Susceptible persons are all individuals who were born in or after 1970, if they do not have the following:  
  a) documented evidence of two doses of measles-containing vaccine (the first dose given on or after the first birthday and at least an interval of one month between the two doses) or  
  b) history of physician or iPHIS documented measles infection or  
  c) laboratory evidence of immunity.  

Immunization with MMR vaccine of susceptible contacts within 72 hours after exposure may prevent measles. Measles immune globulin (Ig) may be given to specified high risk persons in the first 3 days after exposure and may be given within 6 days of exposure to prevent or modify infection (1). Quarantine is not generally recommended in a highly immunized population. |
| Management of Outbreaks | An outbreak is defined as greater than the expected number of confirmed cases that are spatially and temporally linked.  

Public Health Division provides support in the management of an outbreak when the Health Unit requires additional MMR vaccine, requests assistance or if the outbreak spans more than one Health Unit.  

As per this Protocol, outbreak management shall comprise of but not be limited to the following general steps:  
- Confirm diagnosis and verify the outbreak;  
- Establish an outbreak team;  
- Develop an outbreak case definition;  
- Implement prevention and control measures;  
- Implement and tailor communication and notification plans depending on the scope of the outbreak;  
- Conduct epidemiological analysis on data collected;  
- Conduct environmental inspections of implicated premise where applicable;  
- Coordinate and collect appropriate clinical specimens where applicable;  
- Prepare a written report, and  
- Declare the outbreak over in collaboration with the outbreak team.  

For an outbreak in a school, susceptible students can be excluded under Section 12 of the Immunization of School Pupils Act. |
8) Additional Resources


Gregg MB, editor. Field epidemiology. 2nd ed. New York: Oxford...
University Press; 2002.

Appendix A: Disease-Specific Chapters

Chapter: Meningitis, acute: i) bacterial; ii) viral, and iii) other
## Meningitis, acute: i) bacterial; ii) viral, and iii) other

- Communicable
- Virulent

### Health Protection and Promotion Act:
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

### Health Protection and Promotion Act:
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

### 1) Aetiologic Agent:

**Bacterial meningitis** is caused by the following bacteria:
- *Haemophilis influenza* (non-b types)
- *Staphlococcus aureus*
- *E. coli, Enterobacter aerogenes, Proteus morganii* and *Klebsiella pneumoniae*

Viral meningitis may be caused by a variety of viruses, many of which are associated with other diseases that can cause the illness. These include:
- enteroviruses, coxsackievirus, echovirus, and arboviruses,
- measles, mumps, herpes simplex, varicella and
- lymphocytic choriomeningitis virus

At least half the cases of viral meningitis have no obvious causative agent (1).

### 2) Case Definition:

#### Surveillance Case Definition

See Appendix B

#### Outbreak Case Definition

The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition:

1. Clinical, laboratory and/or epidemiological criteria;
2. A time frame for occurrence;
3. A geographic location(s) or place(s) where cases live or became ill/exposed, and
4. Special attributes of cases (e.g. age, underlying conditions).

Cases should also be classified by levels of probability (i.e. confirmed, probable or suspect).

### 3) Identification:

#### Clinical Presentation

Meningitis has a very sudden onset, usually with high fever, severe headache, vomiting, confusion, seizures, progressive lethargy, drowsiness, stiff neck, and skin rash especially on hands and feet (1).
Petechial rashes and other types of rashes may also occur depending on causative agent (1). Newborns and infants may not have all the classic symptoms above. They may present with irritability, may refuse meals, have unusual sleep patterns and constant crying; newborns and infants may also have the soft spots on their heads bulge and a lower than normal body temperature (1).

## Diagnosis

See Appendix B

### 4) Epidemiology:

#### Occurrence

Both bacterial and viral meningitis occurs worldwide as epidemic and sporadic cases; more common in late summer and early autumn; true incidence of viral meningitis is unknown (1). In Ontario, the group of conditions encompassing encephalitis and meningitis (of viral, bacterial, other, or unspecified origin) have been reported at an average of 447 cases each year from 1998-2007.

#### Reservoir

For bacterial it is humans (1). For viral it varies depending on specific infectious agent (1).

#### Modes of Transmission

 Depends on infectious agent, however, usually by direct contact, droplets, carrier state and discharges from nose or throat (1).

#### Incubation Period

Depends on causative agent for both bacterial and viral (see specific diseases) (1).

#### Period of Communicability

For bacterial, usually as long as organisms are present; effective antibiotic treatment reduces communicability after 24-48 hours (1). For viral, it varies according to causative agent (1).

#### Susceptibility and Resistance

Universal; susceptibility decreases with age; those not immunized with relevant vaccines are also susceptible (1).

### 5) Reporting Requirements:

- **To local Board of Health**: Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the *Health Protection and Promotion Act*, R.S.O. 1990.

  **Note:**

  All positive cultures/tests from normally sterile sites for any of the organisms indicated above must be reported to the local medical officer of health by the laboratory as soon as identified.

  Sensitivity results shall also be noted and reported to the medical officer of health.

- **To Public Health Division**: Report only case classifications specified in the case definition to PHD.
Meningitis due to *Haemophilus influenzae* type b, *Neisseria meningitidis*, *Streptococcus pneumoniae* or *Listeria monocytogenes* shall be reported under the corresponding diseases.

Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) business days of receipt of initial notification as per *iPHIS Bulletin Number 17: Timely Entry of Cases* (2).

The minimum data elements to be reported for each case is specified in the following:

- Ontario Regulation 569 (Reports) under the Health Protection and Promotion Act (HPPA)
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry.

### 6) Prevention and Control Measures:

<table>
<thead>
<tr>
<th>Personal Prevention Measures</th>
<th>For bacterial meningitis the following measures can apply:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Vaccination for the causative organisms listed above where there is available immunization as per the Publicly Funded Immunization Schedules for Ontario, and the Canadian Immunization Guide (CIG) recommendations (see references and resources listed below)</td>
</tr>
<tr>
<td></td>
<td>- Avoid crowded living quarters whenever practical, especially in institutions and barracks (1)</td>
</tr>
<tr>
<td></td>
<td>- Educate members of the public on cough etiquette, hand hygiene and the risk of sharing items contaminated with saliva, e.g. cutlery, water bottles, lipstick, etc.</td>
</tr>
</tbody>
</table>

For viral meningitis there are no specific preventative measures available.

<table>
<thead>
<tr>
<th>Infection Prevention and Control Strategies</th>
<th>Strategies:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Appropriate precautions depending on causative agent while in hospital including appropriate hand washing</td>
</tr>
<tr>
<td></td>
<td>- For bacterial meningitis, routine practices and respiratory droplet precautions are recommended until 24 hours after the start of treatment depending on the causative organism</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Management of Cases</th>
<th>Investigate the case to determine source of infection. Refer to Regulation 569 under the HPPA for relevant data to collect and include the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Symptoms and date of symptom onset</td>
</tr>
<tr>
<td></td>
<td>- Travel history</td>
</tr>
<tr>
<td></td>
<td>- History of exposure</td>
</tr>
<tr>
<td></td>
<td>- Earliest and latest exposure dates</td>
</tr>
<tr>
<td></td>
<td>- Occupation</td>
</tr>
</tbody>
</table>
Contact identification and tracing:
- Contact history during period of communicability
- Assessment of type of contact and probability of transmission
- Identification of contacts for follow-up
- Occupation of contact
- Residency/attendance at a facility or institution

For bacterial meningitis, treatment with the appropriate and strain sensitive antibiotic as per the direction of the attending health care provider.

For viral meningitis, public health measures include public education, surveillance and collection of appropriate data as above.

Provide education to the case about the illness and methods to prevent the spread of infection as listed above.

<table>
<thead>
<tr>
<th>Management of Contacts</th>
<th>Contacts are those persons who live in the same household, attend the same child day care setting or have had sexual and other intimate contact, such as sharing eating utensils, or drinks, with the case (1).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Contact management would include:</td>
</tr>
<tr>
<td></td>
<td>• Surveillance for signs and symptoms and prophylaxis depending on the causative agent. (Refer to the specific disease as appropriate)</td>
</tr>
<tr>
<td></td>
<td>• Education of contacts with regards to the signs, symptoms, what to do if symptoms do occur, and the route of transmission depending on causative agent</td>
</tr>
<tr>
<td></td>
<td>• Immunization of contacts would depend on the specific infectious agent (1)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Management of Outbreaks</th>
<th>An outbreak is defined as greater than the expected number of cases that are spatially and temporally linked. The Public Health Division provides support in the management of an outbreak only if the Health Unit requires vaccine, requests assistance of the PHD or if the outbreak spans more than one Health Unit. However, please note that since there are several causative agents it may be difficult to determine the presence of an outbreak of bacterial meningitis.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Clusters of cases of viral meningitis sometimes do occur; Advising the public and the medical community of the presence of increased incidence of cases would promote prompt assessment and diagnosis.</td>
</tr>
<tr>
<td></td>
<td>Provide public health management of outbreaks or clusters in order to identify the source of illness, stop the outbreak and limit secondary spread.</td>
</tr>
<tr>
<td></td>
<td>As per this Protocol, outbreak management shall comprise of but not be limited to the following general steps:</td>
</tr>
<tr>
<td></td>
<td>• Confirm diagnosis and verify the outbreak;</td>
</tr>
<tr>
<td></td>
<td>• Establish an outbreak team;</td>
</tr>
</tbody>
</table>
- Develop an outbreak case definition;
- Implement prevention and control measures;
- Implement and tailor communication and notification plans depending on the scope of the outbreak;
- Conduct epidemiological analysis on data collected;
- Conduct environmental inspections of implicated premise where applicable;
- Coordinate and collect appropriate clinical specimens where applicable;
- Prepare a written report, and
- Declare the outbreak over in collaboration with the outbreak team.

### 7) References

(2) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.

### 8) Additional Resources


Appendix A: Disease-Specific Chapters

Chapter: Meningococcal disease, invasive
Meningococcal disease, invasive

- Communicable
- Virulent

Health Protection and Promotion Act:
Ontario Regulation 558/91 – Specification of Communicable Diseases

Health Protection and Promotion Act:
Ontario Regulation 559/91 – Specification of Reportable Diseases

1) Aetiologic Agent

*Neisseria meningitidis*, (meningococcus) is a Gram-negative diplococcus bacterium with multiple serogroups; serogroups A, B, C, Y, and W-135 are most commonly known to cause invasive disease (1).

2) Case Definition:

**Surveillance Case Definition**

See Appendix B

**Outbreak Case Definition**

The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition:

1. Clinical, laboratory and/or epidemiological criteria;
2. A time frame for occurrence;
3. A geographic location(s) or place(s) where cases live or became ill/exposed, and
4. Special attributes of cases (e.g. age, serogroup, underlying conditions).

Cases should also be classified by levels of probability (i.e. confirmed, probable or suspect).

3) Identification:

**Clinical Presentation**

Invasive meningococcal disease (IMD) is an acute bacterial infection. Invasive disease most often results in meningitis or sepsicaemia and sometimes both, but other clinical manifestations may include orbital cellulitis, septic arthritis, pericarditis or pneumonia with bacteremia (4, 5, 6).

Symptoms depend on the clinical illness but all are characterized by a sudden onset of fever and the rapid progression to more serious symptoms. Symptoms of meningitis include intense headache, photophobia, nausea and often vomiting, stiff neck and impaired consciousness. In infants and young children, symptoms may also include irritability, poor feeding, and drowsiness. A rash, which may
begin as a pink maculopapular eruption, becomes petechial (seen in
about 70% of cases) and may progress to purpura fulminans.
Symptoms may also include delirium and coma (4, 5, 6).

In meningococcemia, onset is generally abrupt with fever, chills,
myalgia, prostration and a rash. It can occur alone or with extension to
the meninges (1). In children, early signs are cold hands and feet, leg
pain and abnormal skin colour. Infants may be irritable, drowsy with or
without impaired consciousness and breathing may be rapid (4, 5, 6).

Diagnosis

See Appendix B

4) Epidemiology:

Occurrence
Worldwide, epidemics are irregular (1). In Ontario, from 1998-2007,
an average of 66 cases of IMD were reported each year. The disease
is more common in the winter months. The incidence rates of IMD
serogroups have changed over time, with group B, for which a
vaccination is not available, currently occurring most frequently in the
province.

Disease occurs commonly in children and young adults, more
commonly in males than females, and more commonly among newly
aggregated adults under crowded living conditions.

Reservoir
Humans (1). *N. meningitidis* can live in the nose and throat of healthy
persons, known as asymptomatic carriers (1).

Modes of Transmission
Direct contact with the nose and throat secretions of an infected
person, and often with an asymptomatic carrier or by respiratory
droplets (1). Close and prolonged contact, such as kissing, sneezing,
and sharing eating and drinking utensils facilitates the spread of
disease.

Incubation Period
Variable; 2-10 days, commonly 3-4 days (1).

Period of Communicability
Usually 7 days prior to onset of symptoms to 24 hours after the
initiation of appropriate antibiotic therapy (1).

Susceptibility and Resistance
Susceptibility to clinical disease appears to be low as evidenced by the
high ratio of carriers to cases (1). Susceptibility decreases with age;
incidences are highest in infants, adolescence and young adults.
There is an increased and prolonged risk of secondary infections in
close contacts, particularly in household contacts.

5) Reporting Requirements:

To Local Board of Health
Confirmed and suspected cases shall be reported to the medical
officer of health by persons required to do so under the *Health

Note: Laboratory confirmed cases are to be reported by phone.
To Public Health Division (PHD)

Report only case classifications specified in the case definition to PHD.

Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within one (1) day of receiving the initial report as per iPHIS Bulletin Number 17: Timely Entry of Cases (8) and create the case as a person under investigation (PUI) until diagnostic information is received. These would include the following cases of IMD:

- i) Any case that is suspected to be part of a potential cluster/outbreak
- ii) An anticipated media release or a case that has evoked media attention
- iii) Any sporadic or outbreak-related case for which the testing laboratory is unable to culture the organism after 48 hours incubation
- iv) Any sporadic or outbreak-related case where assistance is required for appropriate testing and
- v) There is evidence of a cluster of cases and when the serogroup is identified indicating the need for immunization.

The minimum data elements to be reported for each case is specified in the following:

- Ontario Regulation 569 (Reports) under the Health Protection and Promotion Act (HPPA);
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry.

6) Prevention and Control Measures:

**Personal Prevention Measures**

- Use of appropriate meningococcal vaccine as per the Publicly Funded Immunization Schedules
- Travellers to parts of the world where meningococcal infection is endemic or epidemic should be advised with regards to meningococcal vaccination

Refer to CCDR, Supplement, “Guidelines for the Prevention and Control of Meningococcal Disease”, PHAC May 2005, Vol.: 3151 for educational strategies during an increased number of reported cases as in a cluster of cases in addition to the following:

- Educate the public about the need to reduce exposure to droplet infection and to reduce direct contact with the oral and nasal secretions of others
- Educate the public regarding the symptoms of invasive
**Meningococcal disease** (i.e. fever, headache, stiff neck, and petechial rash) and

- Advise all symptomatic individuals to seek prompt medical attention

---

**Infection Prevention and Control Strategies**

Hospitalized persons should be placed under droplet precautions until 24 hours after initiation of appropriate antibiotic therapy in addition to routine practices (2, 7).

---

**Management of Cases**

Refer to ON Regulation 569 under the HPPA regarding factors to investigate. Investigation of the reported case should begin as soon as possible after receiving report; priority should be given to identifying the close contacts as defined below.

- Apply case definition;
- Obtain laboratory report of positive culture with sensitivities if possible;
- Determine the specific serogroup;
- Investigate risk factors for acquisition including but not limited to 10 days prior to onset:
  - history of travel, location, dates
  - immunization status
- Identify close contacts (see definition below);
- Investigate risk factors for disease transmission including:
  - work with vulnerable populations
  - daycare attendees or workers
  - health care providers
  - those who have direct contact with immunocompromised patients and infants less than one year of age
- Educate the case about transmission of infection, and
- Treatment with antibiotics and follow up is under the direction of the attending health care provider. Note any treatment prescribed including name of medication, dose, and duration of treatment, start and finish dates.

Refer to the CCDR, Supplement, “Guidelines for the Prevention and Control of Meningococcal Disease”, PHAC May 2005, Vol.: 3151 for more information on case management.

---

**Management of Contacts**

A contact is defined as an individual who has had close contact with a case for the period of time in which the case was infectious, that is, 7 days prior to the onset of symptoms to 24 hours after the initiation of appropriate antibiotic therapy (2).

Contacts include:

- Household contacts of a case;
- Persons who have direct contamination of their nose or mouth with the oral/nasal secretions of a case such as in kissing on the mouth, shared cigarettes, toothbrushes, eating utensils, drinking bottles, or musical instrument mouth pieces;
- Health care workers who have had intensive unprotected contact (without wearing a mask) with infected person such as...
in intubation, resuscitation or closely examining the oropharynx;
- Children and staff in child care and nursery school facilities, and
- Airline passengers sitting immediately on either side of the case, but not across the aisle, when the total time spent aboard the aircraft was at least 8 hours.

All close contacts should be identified and listed as contacts. Ensure that all close contacts are offered prophylactic antibiotics, which should be given as soon as possible, preferably within 24 hours and up to 10 days after the last contact with the case.

Provide counselling and education to contacts about the risk of disease, the signs and symptoms to watch for and information on the prophylactic antibiotic.

**Chemoprophylaxis for Invasive Meningococcal Disease (2)**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dosage</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rifampin</strong></td>
<td>Adults and children (&gt;=60 kg) 600 mg po q12h for 2 days (4 doses) Children &gt; 1 month (&lt;=60 kg) Maximum of 10 mg/kg po q12h for 2 days (4 doses) Infants &lt;1 month 5 mg/kg per dose po q12h for 2 days (4 doses)</td>
<td>Recommended - Contraindicated in pregnancy and persons with liver disease. - Interferes with oral contraceptives, some anticonvulsants and anticoagulants. - Stains soft contact lenses.</td>
</tr>
<tr>
<td><strong>Ceftriaxone</strong></td>
<td>&gt;12 years 250 mg IM in a single dose &lt;12 years 125 mg IM in a single dose</td>
<td>Alternative for pregnant women, persons with liver disease or allergy to rifampin. - Dilute in 1% lidocaine to reduce pain at injection site.</td>
</tr>
<tr>
<td><strong>Ciprofloxacin</strong></td>
<td>&gt;18 years 500 mg po in a single dose -</td>
<td>Alternative for persons allergic to rifampin or ceftriaxone or unable to give IM injection. - Contraindicated in pregnancy and lactation. - A single dose medication regimen may improve compliance in some populations. - Safe in liver disease.</td>
</tr>
</tbody>
</table>

In addition to the prophylaxis in the above chart, close contacts should receive immunization with the serogroup-specific meningococcal

Chemoprophylaxis is not recommended for casual contacts such as school or classroom contacts, transportation and work place contacts or social contacts who are not close contacts (2).

### Management of Outbreaks

An outbreak is defined as increased transmission of *N. meningitidis* in a population, manifested by an increase in cases of the same serogroup.

**A cluster** is defined as 2 or more cases of the same serogroup that are closer in time and space than expected for the population or group under surveillance (3).

Provide public health management of infectious diseases outbreaks or clusters in order to identify the source of illness, stop the outbreak and limit secondary spread.

As per this protocol, outbreak management shall comprise of but not be limited to the following general steps:

- Confirm diagnosis and verify the outbreak;
- Establish an outbreak team;
- Develop an outbreak case definition;
- Implement prevention and control measures;
- Implement and tailor communication and notification plans depending on the scope of the outbreak;
- Conduct epidemiological analysis on data collected;
- Conduct environmental inspections of implicated premise where applicable;
- Coordinate and collect appropriate clinical specimens where applicable;
- Prepare a written report, and
- Declare the outbreak over in collaboration with the outbreak team.

Decision to immunize contacts of a vaccine preventable case will be made in consultation with the Public Health Division.

### 7) References


(8) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.

8) Additional Resources


National Advisory Committee on Immunization (NACI). Statement on

Appendix A: Disease-Specific Chapters

Chapter: Mumps
### Mumps

<table>
<thead>
<tr>
<th>Communicable</th>
<th>☒</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virulent</td>
<td></td>
</tr>
</tbody>
</table>

#### Health Protection and Promotion Act:
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

#### Health Protection and Promotion Act:
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

<table>
<thead>
<tr>
<th>1) Aetiologic Agent:</th>
<th>Mumps is caused by an RNA virus of the genus Rubulavirus in the Paramyxoviridae family (2).</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>2) Case Definition:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Surveillance Case Definition</strong></td>
</tr>
<tr>
<td><strong>Outbreak Case Definition</strong></td>
</tr>
</tbody>
</table>

1. Clinical, laboratory and/or epidemiological criteria;
2. A time frame for occurrence, and
3. A geographic location(s) or place(s) where cases live or became ill/exposed
4. Special attributes of cases (e.g. age, underlying conditions).

Cases should also be classified by levels of probability (i.e. confirmed, probable or suspect).

<table>
<thead>
<tr>
<th>3) Identification:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clinical Presentation</strong></td>
</tr>
<tr>
<td><strong>Diagnosis</strong></td>
</tr>
<tr>
<td><strong>Occurrence</strong></td>
</tr>
</tbody>
</table>
The incidence of mumps has declined in Ontario since a two-dose MMR vaccination program was administered in 1996. From 1998-2007, an average of 25 cases were reported per year. Mumps is becoming more common among university and college aged young adults, and less common among younger children.

<table>
<thead>
<tr>
<th>Reservoir</th>
<th>Humans (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modes of Transmission</td>
<td>Person-to-person through direct contact with respiratory droplets from the mouth or nose of an infected person. When an infected person coughs or sneezes, these droplets enter the nose or mouth of another person. Mumps can also be spread through saliva, sharing drinks and kissing. The virus can also survive on surfaces. Touching these surfaces and then touching your nose or mouth can also result in infection (4).</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>The average length of the incubation period is 16-18 days, however it can range from 14-25 days (1).</td>
</tr>
<tr>
<td>Period of Communicability</td>
<td>A person with mumps is able to spread infection from 7 days before to 9 days after symptoms develop. Asymptomatic transmission of mumps may also occur (4). Maximum infectiousness occurs between 2 days before and 4 days after onset of illness (1).</td>
</tr>
<tr>
<td>Susceptibility and Resistance</td>
<td>After infection immunity is generally lifelong (1). Immunization with the mumps containing vaccine provides around 80% protection against mumps.</td>
</tr>
</tbody>
</table>

5) Reporting Requirements:

| To Local Board of Health | Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the Health Protection and Promotion Act, R.S.O. 1990 (HPPA). |
| To Public Health Division (PHD) | Report only case classifications specified in the case definition to PHD. Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) business days of receipt of initial notification as per iPHIS Bulletin Number 17: Timely Entry of Cases (5).

The minimum data elements to be reported for each case is specified in the following:

- *Ontario Regulation 569* (Reports) under the HPPA;
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry.

6) Prevention and Control Measures:

| Personal Prevention Measures | Under the *Immunization of School Pupils Act*, all students must have documented receipt of 1 dose of Mumps containing vaccine after the 1st
<table>
<thead>
<tr>
<th>Infection Prevention and Control Strategies</th>
<th>For hospitalized cases, in addition to routine practices, droplet precautions are recommended until 9 days after onset of parotid swelling (2).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management of Cases</td>
<td>Refer to ON Regulation 569 under the HPPA regarding appropriate data to collect. Include the following in the investigation:</td>
</tr>
<tr>
<td></td>
<td>- Apply case definition</td>
</tr>
<tr>
<td></td>
<td>- Confirm the diagnosis and ensure appropriate clinical specimens have been collected as listed above</td>
</tr>
<tr>
<td></td>
<td>- Identify close contacts</td>
</tr>
<tr>
<td></td>
<td>- Investigate risk factors for acquisition including but not limited to:</td>
</tr>
<tr>
<td></td>
<td>- immunization history</td>
</tr>
<tr>
<td></td>
<td>- history of recent travel</td>
</tr>
<tr>
<td></td>
<td>- source of infection</td>
</tr>
<tr>
<td></td>
<td>Exclude the case from school, work and other activities for 9 days after parotitis begins (day 1 is onset of parotitis) (1, 2).</td>
</tr>
<tr>
<td></td>
<td>There is no specific treatment for mumps other than supportive (2).</td>
</tr>
<tr>
<td></td>
<td>For more detailed information on case management see the Interim Ontario Guidelines for Public Health Management of Mumps, May 25, 2007.</td>
</tr>
<tr>
<td>Management of Contacts</td>
<td>A contact of a mumps case is any susceptible person who has had close contact with the case during the period of communicability.</td>
</tr>
<tr>
<td></td>
<td>Contact management:</td>
</tr>
<tr>
<td></td>
<td>- Assess immunization status of identified contacts and immunize where appropriate;</td>
</tr>
<tr>
<td></td>
<td>- Alert contacts about signs and symptoms that can occur within 25 days after exposure, and</td>
</tr>
<tr>
<td></td>
<td>- Advise contact to seek medical attention upon symptom onset and inform the local public health unit.</td>
</tr>
<tr>
<td></td>
<td>Susceptible Health Care Workers (HCW) should follow the OHA/OMA protocol.</td>
</tr>
<tr>
<td></td>
<td>For more detailed information on contact management see the Interim Ontario Guidelines for Public Health Management of Mumps, May 25, 2007.</td>
</tr>
<tr>
<td>Management of Outbreaks</td>
<td>An outbreak is defined by the usual epidemiological principles of a greater than expected number of cases that are spatially and temporally linked.</td>
</tr>
<tr>
<td></td>
<td>PHD provides support in the management of an outbreak only if the Health Unit requires additional MMR vaccine, requests assistance of the PHD or if the outbreak spans more than one Health Unit.</td>
</tr>
<tr>
<td></td>
<td>For more detailed information on outbreak management see the Interim Ontario Guidelines for Public Health Management of Mumps, May 25,</td>
</tr>
</tbody>
</table>
As per this protocol, outbreak management shall comprise of but not be limited to the following general steps:

- Confirm diagnosis and verify the outbreak;
- Establish an outbreak team;
- Develop an outbreak case definition;
- Implement prevention and control measures;
- Implement and tailor communication and notification plans depending on the scope of the outbreak;
- Conduct epidemiological analysis on data collected;
- Conduct environmental inspections of implicated premise where applicable;
- Coordinate and collect appropriate clinical specimens where applicable;
- Prepare a written report, and
- Declare the outbreak over in collaboration with the outbreak team.

For an outbreak in a school, susceptible students can be excluded under Section 12 of the Immunization of School Pupils Act.

7) References


(5) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.

8) Additional Resources


Ministry of Health and Long Term Care. Diagnostic tests recommendations for Mumps. Toronto, ON: Queen’s Printer for Ontario; 2007. Available at:


Appendix A: Disease-Specific Chapters

Chapter: Ophthalmia neonatorum
### Ophthalmia neonatorum

- **Communicable**
- **Virulent**

#### Health Protection and Promotion Act:
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

#### Health Protection and Promotion Act:
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

<table>
<thead>
<tr>
<th>1) Aetiological Agent:</th>
<th>Eye infection of newborn infant acquired during birth and caused by a maternal infection with <em>Neisseria gonorrhoeae</em> (<em>N. gonorrhoea</em>), and/or <em>Chlamydia trachomatis</em> (<em>C. trachomatis</em>) (1).</th>
</tr>
</thead>
<tbody>
<tr>
<td>2) Case Definition:</td>
<td><strong>Surveillance Case Definition</strong> See Appendix B</td>
</tr>
<tr>
<td></td>
<td><strong>Outbreak Case Definition</strong> Not applicable</td>
</tr>
<tr>
<td>3) Identification:</td>
<td><strong>Clinical Presentation</strong> Acute, inflammatory condition of the eye, occurring within 3 weeks of life. Signs and symptoms include, purulent conjunctivitis, and swollen red eyelids (1).</td>
</tr>
<tr>
<td></td>
<td><strong>Diagnosis</strong> See Appendix B</td>
</tr>
<tr>
<td>4) Epidemiology:</td>
<td><strong>Occurrence</strong> Varies widely according to maternal infection; infrequent where eye prophylaxis is adequate (1). Cases of ophthalmia neonatorum have fluctuated in the province of Ontario over the years, and continue to remain fairly low, with about 7 reported cases per year.</td>
</tr>
<tr>
<td></td>
<td><strong>Reservoir</strong> Infected maternal genital tract (1).</td>
</tr>
<tr>
<td></td>
<td><strong>Modes of Transmission</strong> Contact with the infected birth canal during childbirth (1).</td>
</tr>
<tr>
<td></td>
<td><strong>Incubation Period</strong> Usually 1-5 days for gonococcal infection; 5-12 days for chlamydial infection (1).</td>
</tr>
<tr>
<td></td>
<td><strong>Period of Communicability</strong> While discharge persists, if untreated; no longer communicable after 24 hours of treatment (1).</td>
</tr>
</tbody>
</table>
## Susceptibility and Resistance

Susceptibility is general (1).

### 5) Reporting Requirements:

<table>
<thead>
<tr>
<th>To Local Board of Health</th>
<th>Suspect and confirmed cases shall be reported to the medical officer of health by persons required to do so under the <em>Health Protection and Promotion Act</em>, R.S.O. 1990.</th>
</tr>
</thead>
</table>
| To Public Health Division (PHD) | Report only case classifications specified in the case definition to PHD.  
Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) business days of receipt of initial notification as per *iPHIS Bulletin Number 17: Timely Entry of Cases* (2).  
The minimum data elements to be reported for each case is specified in the following:  
- *Ontario Regulation 569 (Reports)* under the *Health Protection and Promotion Act* (HPPA);  
- The disease-specific User Guides published by the Ministry, and  
- Bulletins and directives issued by the Ministry. |

### 6) Prevention and Control Measures:

| Personal Prevention Measures | Preventative measures (1):  
- Recognition and treatment of maternal infection  
- The use of an established, effective preparation for protection of babies’ eyes at birth is mandated in Regulation 557 under the HPPA - “Eyes of the Newborn”. |
| Infection Prevention and Control Strategies | Contact isolation for the first 24 hours after treatment (1). |
| Management of Cases | Collect relevant data.  
Case and contact management of maternal infection.  
Treatment is under the direction of the attending health care provider.  
Mother and infant should also be treated for appropriate infection (1). |
| Management of Contacts | See above, case and contact management of maternal infection. |
| Management of Outbreaks | Not applicable (1). |
7) References


(2) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.

8) Additional Resources


Appendix A: Disease-Specific Chapters

Chapter: Paratyphoid Fever
### Paratyphoid Fever

| Communicable | ☒ | Virulent | ☐ |

**Health Protection and Promotion Act:**  
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

**Health Protection and Promotion Act:**  
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

| 1) Aetiologic Agent: | Paratyphoid fever is caused by *Salmonella enterica subsp, Enterica serovar Paratyphi* A and B (commonly *S. Paratyphi*). |
| 2) Case Definition: | **Surveillance Case Definition**  
See Appendix B  

**Outbreak Case Definition**  
The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following when establishing an outbreak case definition:

1. Clinical, laboratory and/or epidemiological criteria;  
2. The time frame for occurrence;  
3. The geographic location(s) or place(s) where cases live or became ill/exposed, and  
4. Special attributes of cases (e.g. age, underlying conditions) and/or the aetiologic agent.  

Cases may be classified by levels of probability (i.e. confirmed, probable and/or suspect). |
| 3) Identification: | **Clinical Presentation**  
Paratyphoid fever is a systemic bacterial disease which usually presents with fever, headache, malaise, anorexia, and diminished frequency of stool which is more common than diarrhoea, plus bradycardia, enlargement of spleen and rose spots on trunk (1).  
The clinical picture varies from mild illness with low-grade fever to severe clinical disease with abdominal discomfort and multiple complications. Peyer patches in the ileum can ulcerate with intestinal haemorrhage or perforation, especially late in untreated cases (1). |
| Diagnosis | **See Appendix B**  
Culture positive blood, feces or urine for the paratyphoid bacilli confirms diagnosis. Blood may be positive as early as the first week of illness; feces and urine after the first week (1). |
### 4) Epidemiology:

<table>
<thead>
<tr>
<th>Occurrence</th>
<th>Worldwide (1). Paratyphoid is not known to be endemic in Ontario. Occurrence does not demonstrate the typical summer peak noted for other enteric diseases because it is almost always associated with travel to endemic regions of the world, such as South Asia, Indo-China and some developing countries. The number of cases of paratyphoid fever in Ontario has remained stable since 2004.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Humans, rarely animals (1).</td>
</tr>
<tr>
<td>Modes of Transmission</td>
<td>Fecal-oral route. Transmitted via ingestion of food and water contaminated by feces and urine of cases and carriers; also by ingestion of contaminated milk, raw fruit and vegetables and shellfish harvested from contaminated water. Flies may be vectors (1).</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>The incubation period for paratyphoid is 1-10 days (1).</td>
</tr>
<tr>
<td>Period of Communicability</td>
<td>Communicable as long as organisms are excreted, which is from the appearance of prodromal symptoms, throughout illness and for periods of up to two weeks after onset. Few persons with paratyphoid organisms become chronic carriers (1).</td>
</tr>
<tr>
<td>Susceptibility and Resistance</td>
<td>Susceptibility is general and is increased in individuals with gastric achlorhydria and possibly in those who are HIV positive. Relative specific immunity follows recovery from clinical disease and inapparent infection (1).</td>
</tr>
</tbody>
</table>

### 5) Reporting Requirements:

| To Local Board of Health | Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the *Health Protection and Promotion Act*, R.S.O. 1990. |
| To Public Health Division (PHD) | Report only case classifications specified in the case definition to PHD using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) *business days of receipt of initial notification* as per *iPHIS Bulletin* Number 17: *Timely Entry of Cases* (2). The minimum data elements to be reported for each case is specified in the following sources: |
| | **Ontario Regulation 569** (Reports) under the Health Protection and Promotion Act (HPPA); |
| | The disease-specific User Guides published by the Ministry, and |
| | Bulletins and directives issued by the Ministry. |
### Prevention and Control Measures:

| Personal Prevention Measures | Prevention measures:  
- Education on proper hygiene, especially hand washing after defecation and before food preparation and eating  
- While travelling in endemic areas: avoid consumption of raw or undercooked shellfish, particularly shellfish harvested from fecally contaminated water; consume fresh produce that has been washed and consume thoroughly cooked food derived from animal sources  
- Shellfish should be boiled or steamed for at least 10 minutes before consumption  
- Travellers should be referred to travel clinics to assess their personal risk and appropriate preventive measures |
|-----------------------------|--------------------------------------------------------------------------------------------------|
| Infection Prevention and Control Strategies | If hospitalized, routine practices and contact precautions are recommended (1).  
Properly implemented exclusion requirements can contribute to the prevention and control of secondary cases. Exclusion criteria are detailed below. |
| Management of Cases | Investigate cases of paratyphoid fever to determine the source of infection. Refer to Section 5: Reporting Requirements above for relevant data to be collected during case investigation. The following disease-specific information should also be obtained during case management:  
- Symptoms and date of symptom onset;  
- History of out-of-province or international travel, or close contact with a recent traveller/visitor to an endemic country. Include earliest and latest exposure dates, and  
- Food history for the 10 day period prior to symptom onset.  
Educate the case about transmission of infection and proper hand hygiene.  
**Exclusion Criteria:**  
Exclude all cases of *S. Paratyphoid* from food handling, healthcare and daycare activities until three consecutive stool specimens are negative. They are to be collected at least one week apart and at least 24 hours after cessation of symptoms. If treated then specimens must be collected at least two weeks after completion of antibiotic treatment.  
Treatment with antibiotics and follow up is under the direction of the attending health care provider. Note details of medication name, dose and duration of treatment.  
Carriers: If after 6 samples, a case continues to test positive, then he or she could be considered a carrier. A carrier must be excluded |
from food-handling, health care and child care activities until the carrier state is eradicated. This requires three consecutive negative stool cultures, collected one month apart at least 48 hours after the cessation of antibiotic therapy. Also, three negative urine cultures are required for cases acquired in schistosomiasis endemic areas.

<table>
<thead>
<tr>
<th>Management of Contacts</th>
<th>Close contacts include household members, any members of a travel party to endemic regions, and sexual partners. These contacts should be seen by their health care provider and screened for illness (that is, stool specimens sent for testing). Exclude symptomatic contacts from working in high risk (food handling, health care, and day care settings) until cleared with two consecutive negative stool specimens collected at least 24 hours apart. If contacts work in high-risk settings and are asymptomatic, they should be screened, but not excluded.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management of Outbreaks</td>
<td>Provide public health management of outbreaks or clusters in order to identify the source of illness, stop the outbreak and limit secondary spread. <strong>Two or more cases not related to travel, linked to a common source is suggestive of an outbreak of paratyphoid.</strong> As per this Protocol, outbreak management shall comprise of but not be limited to the following general steps: • Confirm diagnosis and verify the outbreak; • Establish an outbreak team; • Develop an outbreak case definition; • Implement prevention and control measures; • Implement and tailor communication and notification plans depending on the scope of the outbreak; • Conduct epidemiological analysis on data collected; • Conduct environmental inspections of implicated premise where applicable; • Coordinate and collect appropriate clinical specimens where applicable; • Prepare a written report, and • Declare the outbreak over in collaboration with the outbreak team.</td>
</tr>
</tbody>
</table>

|-------------|---------------------------------------------------------------|


Ministry of Health and Long Term Care, Advisory Committee on Communicable Diseases, Enteric Disease Screening Recommendations and Case Management Guidelines on Foodhandlers and Patient Care Workers, 1990 (Currently being revised as “Guidelines for the Management of Enteric Diseases in Healthcare Workers, Food Handlers and Day Care Staff and Attendees”).


Appendix A: Disease-Specific Chapters

Chapter: Pertussis (Whooping Cough)
Pertussis (Whooping Cough)

| Communicable | ☑ | Virulent | ☐ |

Health Protection and Promotion Act:
Ontario Regulation 558/91 – Specification of Communicable Diseases

Health Protection and Promotion Act:
Ontario Regulation 559/91 – Specification of Reportable Diseases

| 1) Aetiologic Agent: | Pertussis is caused by, a Gram-negative, pleomorphic bacillus, *Bordetella pertussis*, *(B. pertussis)* (1, 2). |
| 2) Case Definition: | |
| | Surveillance Case Definition | See Appendix B |
| | Outbreak Case Definition | The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition: |
| | | 1. Clinical, laboratory and/or epidemiological criteria; |
| | | 2. A time frame for occurrence; |
| | | 3. A geographic location(s) or place(s) where cases live or became ill/exposed, and |
| | | 4. Special attributes of cases (e.g. age, underlying conditions). |
| | | Cases should also be classified by levels of probability (i.e. confirmed, probable or suspect). |
| 3) Identification: | |
| | Clinical Presentation | This acute bacterial infection attacks the tracheobronchial tree of the respiratory tract. It is divided into three stages: |
| | | 1) Catarrhal Stage is characterized by mild upper respiratory tract symptoms with a mild occasional cough that lasts approximately 1-2 weeks and then progresses to the next stage; |
| | | 2) Paroxysmal Stage presents with an increase in the severity and frequency of the cough; paroxysms are characterized by repeated violent coughs and this is where the high pitched inspiratory whoop may occur commonly followed by vomiting and can last 1 to 2 months; fever is absent or minimal, and |
| | | 3) Convalescent Stage is the gradual recovery period where the cough becomes less paroxysmal and disappears. This may take weeks to months. |
Complications among adolescents and adults include syncope, sleep disturbance, incontinence, rib fractures and pneumonia. Pertussis is most severe when it occurs during the first 6 months of age (2).

### Diagnosis

See Appendix B

#### 4) Epidemiology:

**Occurrence**

Pertussis is endemic worldwide; outbreaks occur periodically regardless of geographic location and this could be because of a change in the number of susceptible persons in the population due to waning immunity, particularly in older children and adults (1, 2).

Whooping cough occurs frequently in Ontario, with an average of 860 cases reported each year from 1998-2007. Cases are most common among children.

**Reservoir**

Humans are the only known reservoir (1); adolescents and adults are considered to play a major role in the transmission of infection to infants and children (2).

**Modes of Transmission**

Transmission occurs by direct contact with discharges from respiratory secretions of infected persons via droplets (1).

**Incubation Period**

Usually 7-10 days, can range from 5-21 days (2).

**Period of Communicability**

Highly communicable in the early catarrhal stage and beginning of the paroxysmal stage (first 2 weeks) and then communicability gradually decreases and becomes negligible in about 3 weeks (1).

No longer communicable after 5 days of effective treatment (1).

**Susceptibility and Resistance**

Non-immunized or partially immunized individuals are susceptible to pertussis. Previously immunized adolescents and adults (due to waning immunity) may also be susceptible. These individuals often are a source of infection for young children. Infection does not induce long term immunity. Secondary attack rates can occur, of up to 90% in non-immune household contacts (1).

#### 5) Reporting Requirements:

**To local Board of Health**

Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the Health Protection and Promotion Act, R.S.O. 1990.

**To Public Health Division (PHD)**

Report only case classifications specified in the case definition to PHD.

Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five business days of receipt of initial notification.
as per iPHIS Bulletin Number 17: Timely Entry of Cases (6).

The minimum data elements to be reported for each case is specified in the following:

- *Ontario Regulation 569 (Reports)* under the Health Protection and Promotion Act (HPPA);
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry.

### 6) Prevention and Control Measures:

#### Personal Prevention Measures

Immunization with acellular pertussis vaccine is the mainstay for the control of pertussis. Refer to the current Publicly Funded Immunization Schedules for Ontario for information on routine childhood immunization with pertussis vaccine.

The Provincial Infectious Diseases Advisory Committee (PIDAC) recommends the following:

- Ensure vaccine providers are aware that the tetanus-diphtheria-acellular pertussis vaccine (TdaP) can be safely administered after a recent tetanus-diphtheria-acellular pertussis containing vaccine. This will ensure that unnecessary delays in administering TdaP are avoided due to unsubstantiated concerns about recent tetanus-diphtheria boosters.

- Note: As per PIDAC Subcommittee on Immunization, a recent National Advisory Committee on Immunization (NACI) statement has indicated that the tetanus-diphtheria-acellular pertussis vaccine can be safely administered regardless of the interval from the last tetanus-diphtheria booster for adolescents.

Provide education to the public about the risk of pertussis infection especially to infants and educate the public about respiratory etiquette that is, coughing into tissues and sleeves and about proper hand hygiene.

#### Infection Prevention and Control Strategies

For hospitalized cases, in addition to routine practices, droplet precautions are recommended for five days after the initiation of effective therapy (3).

#### Management of Cases

Refer to ON Regulation 569 under the HPPA for relevant data to collect and ensure to include the following:

- Immunization history of the reported case;
- Identifying the possible source of infection, and
- Identify vulnerable contacts (see definition below).

Apply case definition to confirm the report.
Investigate risk factors for disease transmission including:

- work with vulnerable populations;
- daycare attendees or workers;
- health care providers, and
- those who have direct contact with immunocompromised patients and infants less than one year of age.

Treatment with antibiotics and follow up is under the direction of the attending health care provider. Antibiotics should be administered as soon as possible after onset of illness; there is no limit to the start date for treatment of symptomatic, untreated cases of pertussis whose culture or PCR results are positive (4). Cases are no longer considered infectious after 5 days of treatment.

Provide education about transmission of infection and proper respiratory etiquette. Advise cases to avoid contact with young children, infants, and women in their 3rd trimester of pregnancy, especially those who have not been immunized, until the completion of 5 days of appropriate antibiotic therapy or 21 days post cough onset. Advise symptomatic individuals to remain at home until they are well.

Refer to the OHA/OMA Surveillance Protocol on pertussis when dealing with cases that work in health care settings.

Exclusion is not a proven effective strategy; however, in high-risk situations (where there are vulnerable persons) exclusion until five days after the start of antibiotic therapy, or if no treatment is given, until after 21 days with negative results from culture or PCR, should be at the discretion of the Medical Officer of Health (4).

Management of Contacts

There is no evidence that antibiotic prophylaxis of contacts changes the epidemic course of pertussis in the community, therefore, it is only recommended for the following contacts of confirmed pertussis cases who are (4):

- household contacts (including attendees at family day care centers) where there is a vulnerable person defined as an infant < 1 year of age [vaccinated or not] or a pregnant woman in the third trimester
- for out of household exposures, vulnerable persons, defined as infants less than one year of age regardless of immunization status and pregnant women in their third trimester who have had face-to-face exposure and/or have shared confined air for > 1 hour

The local health unit will identify persons who meet the contact definition above and advise them about chemoprophylaxis and refer them to their physician for prescriptions. Prophylaxis is the same as treatment and should be given within 21 days after exposure (4).

Prophylaxis:
Macrolide antibiotics such as azithromycin and erythromycin may prevent or moderate clinical pertussis when given during the incubation period or in the early catarrhal stage. During the paroxysmal phase of the disease, antibiotics may not shorten the clinical course but may reduce the possibility of complications. Antibiotics eliminate the organism after a few days of use and thus reduce transmission.

The following antimicrobials are indicated (as per the Public Health Agency of Canada. *National consensus conference on pertussis*. Canada Communicable Disease Report 2003; Vol 29S3: 1-39) (6).

<table>
<thead>
<tr>
<th>Antimicrobial</th>
<th>Children Dosing</th>
<th>Adults Dosing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azithromycin</td>
<td>10 mg/kg (max 500 mg) once daily for 1 day, then 5 mg/kg (max 250 mg) once daily for 4 days</td>
<td>500 mg on day 1, then 250 mg once daily for 4 days</td>
</tr>
<tr>
<td>Clarithromycin</td>
<td>15 mg/kg per day (max 1 g/day) orally, in 2 divided doses for 7 days</td>
<td>500 mg twice daily for 7 days</td>
</tr>
<tr>
<td>Erythromycin</td>
<td>40-50 mg/kg per day, orally in 4 divided doses for 7-10 days</td>
<td>500 mg orally 4 times daily for 7 days</td>
</tr>
</tbody>
</table>

For exposed health care workers refer to the OHA/OMA reference listed below.

### Management of Outbreaks

An outbreak is defined by the usual epidemiological principles of a greater than expected number of cases that are spatially and temporally linked.

Vaccination is not recommended for outbreak management, but the opportunity should be taken to update the immunization status of contacts if required (4). As well, recommend immunization to all those who are not up to date in their pertussis immunization.

As per this protocol, outbreak management shall comprise of but not be limited to the following general steps:
- Confirm diagnosis and verify the outbreak;
- Establish an outbreak team;
- Develop an outbreak case definition;
- Implement prevention and control measures;
- Implement and tailor communication and notification plans depending on the scope of the outbreak;
- Conduct epidemiological analysis on data collected;
- Conduct environmental inspections of implicated premise where applicable;
- Coordinate and collect appropriate clinical specimens where
Infectious Diseases Protocol, 2009 – Appendix A

<table>
<thead>
<tr>
<th>7) References</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Prepare a written report, and</td>
</tr>
<tr>
<td>• Declare the outbreak over in collaboration with the outbreak team.</td>
</tr>
<tr>
<td>(6) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8) Additional Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>---</td>
</tr>
</tbody>
</table>
Appendix A: Disease-Specific Chapters

Chapter: Plague
### Plague

- Communicable
- Virulent

#### Health Protection and Promotion Act, Section 1 (1)

#### Health Protection and Promotion Act:
*Ontario Regulation 558/91 – Specification of Communicable Diseases*

#### Health Protection and Promotion Act:
*Ontario Regulation 559/91 – Specification of Reportable Diseases*

| 1) Aetiology Agent: | The causative agent of Plague is *Yersinia pestis* (*Y. pestis*), a gram negative coccobacillus (1, 2). 
Aerosolized plague is a potential bioterrorism weapon. |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2) Case Definition:</td>
<td></td>
</tr>
</tbody>
</table>
**Surveillance Case definition**
- See Appendix B |
| **Outbreak Case Definition** | 
- The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following when establishing an outbreak case definition:
  1. Clinical, laboratory and/or epidemiological criteria
  2. The time frame for occurrence;
  3. The geographic location(s) or place(s) where cases live or became ill/exposed, and
  4. Special attributes of cases (e.g. age, underlying conditions) and/or the aetiologic agent. 
- Cases may be classified by levels of probability (i.e. confirmed, probable and/or suspect). |
| 3) Identification: | Clinical illness is characterized by fever, chills, headache, malaise, prostration, and leukocytosis manifesting in one or more of the three main forms of plague in humans: (1,2)
  1) Bubonic plague: The most common form of human plague, resulting from a flea bite. It presents as acute lymphadenitis in lymph nodes that drain the site of a fleabite (forms a bubo) and occurs more often in inguinal nodes and less commonly in axillary and cervical nodes. Lymph nodes become swollen and tender and may suppurate; fever is present.
  2) Septicemic plague: All forms of plague, including those without... |
lymphadenopathy may progress to septicemic plague with dissemination by the bloodstream to diverse parts of the body

3) Pneumonic plague: An infection of the lungs caused by the plague bacillus.

Secondary involvement of the lungs results in pneumonia; mediastinitis or pleural effusion may develop. Secondary pneumonic plague is of special significance, since respiratory droplets may serve as the source of person-to-person transfer with resultant primary pneumonic or pharyngeal plague (1).

Untreated bubonic plague has a fatality rate of 50% (1); pneumonic and septicemic plagues are fatal if not treated (1).

<table>
<thead>
<tr>
<th>Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>See Appendix B</td>
</tr>
</tbody>
</table>

4) Epidemiology:

<table>
<thead>
<tr>
<th>Occurrence</th>
<th>Plague is endemic in Africa, South America, Western USA, Asia, and South Eastern Europe (1). Plague transmission in Canada is extremely rare. The last reported cases occurred in 1924 (3).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Wild rodents, such as ground squirrels, rabbits and hares, wild carnivores and domestic cats (1).</td>
</tr>
</tbody>
</table>
| Modes of Transmission | Bubonic: Bite from an infected flea, which is the most common mode of transmission, or by handling tissues of an infected animal (2).

Pneumonic: Inhalation of droplets or contact with sputum from an infected person or animal (2).

Note: Septicemic plague: All forms of plague may progress to septicemic plague. |
| Incubation Period | From 1-7 days for bubonic plague and 1-4 days for primary plague pneumonia (1). |
| Period of Communicability | Bubonic plague is not usually transmitted directly; pneumonic plague can be highly communicable under appropriate climatic conditions (1).

Fleas may remain infective for months (1). |
| Susceptibility and Resistance | Susceptibility is general and immunity after recovery is relative and may not protect against a large infective dose (1). |

5) Reporting Requirements:

| To Local Board of Health | Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the Health Protection and Promotion Act, R.S.O. 1990. |
To Public Health Division (PHD)  Report only case classifications specified in the case definition to PHD using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) business days of receipt of initial notification as per iPHIS Bulletin Number 17: Timely Entry of Cases (4).

The minimum data elements to be reported for each case is specified in the following sources:

- *Ontario Regulation 569 (Reports) under the Health Protection and Promotion Act (HPPA);*
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry.

### 6) Prevention and Control Measures:

| Personal Prevention Measures | Preventative measures (1, 2):
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Avoid exposure to fleas and take precautions to protect against flea bites by using insect repellents when traveling in endemic areas, and</td>
</tr>
<tr>
<td></td>
<td>• Control fleas on indoor pets.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Infection Prevention and Control Strategies</th>
<th>Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Use routine practices for hospitalized cases as well as droplet precautions until pneumonia is excluded and appropriate therapy has been initiated; droplet precautions should be continued for 48 hours after initiation of effective treatment in cases with pneumonic plague (2).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Management of Cases</th>
<th>Investigate cases of plague to determine the source of infection. Refer to Section 5: Reporting Requirements above for relevant data to be collected during case investigation. The following disease-specific information should also be obtained during case management:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• History of travel in the relevant incubation period;</td>
</tr>
<tr>
<td></td>
<td>• Exposure to fleas, rodents, wild carnivores or domestic cats;</td>
</tr>
<tr>
<td></td>
<td>• High risk occupation such as veterinary medicine and trapping, and</td>
</tr>
<tr>
<td></td>
<td>• Exposure to other potential cases (1).</td>
</tr>
</tbody>
</table>

Treatment is under the direction of the attending health care provider.

Provide education about the infection and how it is spread. Advise on the use of insecticides on clothing and luggage of infected persons (1).
| Management of Contacts | Contacts are those that have been in the same household or have had face-to-face contact with a case of pneumonic plague (1).

Contacts of pneumonic plague:
- Provide antibiotic prophylaxis and place under surveillance for 7 days; those who refuse prophylaxis should be placed in quarantine with careful surveillance for 7 days (1).

Contacts of bubonic plague are those that have had contact with pus and other fluids from bubos:
- Apply insecticides to the individual and consider for prophylaxis treatment as above (1). |
| Management of Outbreaks | Provide public health management of outbreaks or clusters in order to identify the source of illness, stop the outbreak and limit secondary spread.

**Two or more cases linked in time and place is suggestive of an outbreak**

As per this protocol, outbreak management shall comprise of but not be limited to the following general steps:
- Confirm diagnosis and verify the outbreak;
- Establish an outbreak team;
- Develop an outbreak case definition;
- Implement prevention and control measures;
- Implement and tailor communication and notification plans depending on the scope of the outbreak;
- Conduct epidemiological analysis on data collected;
- Conduct environmental inspections of implicated premise where applicable;
- Coordinate and collect appropriate clinical specimens where applicable;
- Prepare a written report, and
- Declare the outbreak over in collaboration with the outbreak team. |


(4) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17. |
8) Additional Resources

<table>
<thead>
<tr>
<th>Resource</th>
<th>Source</th>
</tr>
</thead>
</table>
Appendix A: Disease-Specific Chapters

Chapter: Pneumococcal disease, invasive
### Pneumococcal disease, invasive

| Communicable | ☒ |
| Virulent | ☐ |

**Health Protection and Promotion Act:**  
Ontario Regulation 558/91 – Specification of Communicable Diseases

**Health Protection and Promotion Act:**  
Ontario Regulation 559/91 – Specification of Reportable Diseases

#### 1) Aetiological Agent:

*Streptococcus pneumoniae*, also known as pneumococcus, is a Gram-positive encapsulated coccus of which 90 serotypes are known to cause disease (1, 2, 3). Current data suggest that the 11 most common serotypes cause at least 75% of invasive disease (1).

#### 2) Case Definition:

| Surveillance Case Definition | See Appendix B |
| Outbreak Case Definition | The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition:

1. Clinical, laboratory and/or epidemiological criteria;
2. A time frame for occurrence;
3. A geographic location(s) or place(s) where cases live or became ill/exposed, and
4. Special attributes of cases (e.g. age, underlying conditions).

Cases should also be classified by levels of probability (i.e. confirmed, probable or suspect).

#### 3) Identification:

| Clinical Presentation | Invasive pneumococcal disease (IPD) most often presents in adults as bacteremic pneumonia, meningitis and other clinical manifestations such as endocarditis, or septic arthritis (1, 3). In children, IPD usually occurs as bacteraemia without a clinical focus, pneumonia and meningitis (3).

Symptoms of pneumonia in adults may include: a sudden onset with shaking chills, fever, shortness of breath or rapid breathing, chest pain and a productive cough. In infants and young children symptoms may not be specific and may include fever, cough, rapid breathing and grunting (1, 3).

Meningitis due to pneumococcus in persons over 2 years of age presents with high fever, headache and stiff neck, which can develop over several |
hours or in 1-2 days. Other symptoms include nausea, vomiting, discomfort with bright lights, confusion and sleepiness. In newborns and small infants the above symptoms may be absent but they could present with irritability, feeding poorly, vomiting and inactivity (1).

**Diagnosis**

See Appendix B

### 4) Epidemiology:

**Occurrence**

Endemic throughout the world and it occurs particularly in infancy, old age and in persons with underlying medical conditions (1). It occurs in all climates and seasons, but the incidence is highest in winter and spring (1).

In the last two years, outbreaks of serotype 5 have been reported in Western Canada amongst illicit drug users. Ontario has had an average of 912 cases reported each year from 1998-2007.

Immunization of all children < 2 years old has been shown to decrease the incidence of invasive pneumococcal disease - in the US since the program was implemented - for the vaccine serotypes (6).

**Reservoir**

Pneumococci are ubiquitous; reservoir is humans; usually colonized in upper respiratory tract of healthy persons (carriers) (1). Children carry *S. pneumoniae* more often than adults do.

**Modes of Transmission**

Transmission is mostly through the spread of respiratory droplets from the nose or mouth, by direct oral contact or indirectly through articles freshly soiled with respiratory discharges from infected persons; it can also spread from persons not ill who are carriers. Illness among casual contacts is infrequent (1). Both children and adults may be asymptomatic carriers for variable lengths of time because pneumococcal are common inhabitants of the respiratory tract (2, 3).

**Incubation Period**

Incubation period may be as short as 1-3 days (1).

**Period of Communicability**

Presumably until discharges from mouth and nose no longer contain virulent pneumococci in significant numbers. Antibiotic treatment will stop communicability within 24-48 hours (1).

**Susceptibility and Resistance**

The risk of disease is highest in persons 65 years of age and older, children less than 2 years of age, and those persons with certain medical conditions that put them at increased risk for invasive pneumococcal disease (see the Canadian Immunization Guide).

### 5) Reporting Requirements:

**To Local Board of Health**

All positive cultures/tests for *Streptococcus pneumoniae* obtained from specimens from normally sterile sites as indicated above shall be reported to the medical officer of health by persons required to do so under the *Health Protection and Promotion Act*, R.S.O. 1990.

Sensitivity and antibiotic resistance results shall also be reported to, and noted by, the medical officer of health.
To Public Health Division (PHD) Report only case classifications specified in the case definition to PHD.

Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within **five business days of receipt of initial notification** as per *iPHIS Bulletin Number 17: Timely Entry of Cases* (7).

The minimum data elements to be reported for each case is specified in the following:

- *Ontario Regulation 569 (Reports)* under the Health Protection and Promotion Act (HPPA);
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry.

### 6) Prevention and Control Measures:

#### Personal Prevention Measures

**Measures:**

- Immunization as per the Canadian Immunization Guide (CIG) recommendations, the NACI recommendations (see references and resources listed below) and the Publicly Funded Immunization Schedules for Ontario, is key to the prevention of invasive pneumococcal infection (4)
- Avoid crowding in living quarters whenever practical, especially in institutions and barracks (1, 3)
- Educate members of the public about the risk of sharing items contaminated with saliva, e.g. cutlery, water bottles, lipstick, etc
- Educate mothers about the benefits of breast feeding their infants in order to pass on the protective antibodies

In Ontario, the pneumococcal 23 valent polysaccharide vaccine was introduced in 1999 for all persons who are residents of long-term care homes; all persons 2 to 64 years of age with specified medical conditions; and all persons 65 years and older. The pneumococcal 7 valent conjugate (pneu-C-7) vaccine was introduced into the routine immunization program in January 2005. All children less than 2 years of age and all children less than 5 years of age with specified high risk medical conditions are eligible to receive the pneu-C-7 vaccine.

#### Infection Prevention and Control Strategies

**Strategies:**

- Routine practices are recommended, including for cases with infections caused by drug resistant *S. pneumoniae* for hospitalized cases (5).
- Educate physicians and other health care professionals about the risks of pneumococcal disease for individuals with specified underlying medical conditions and others identified as at risk and remind them of the Pneumococcal Immunization Programs.

#### Management of Cases

Refer to Regulation 569 under the HPPA for relevant data to collect. Case investigation should include the following:
- Investigate to determine if the case received immunization as recommended;
- Determine risk factors for infection;
- Determine the serotype;
- Provide education about the illness and ways to prevent spread and provide vaccine information, and
- Treatment is under the direction of the attending health care provider.

Management of Contacts

No special management required unless the contact is in the setting of an institutional outbreak.

Management of Outbreaks

An outbreak is defined by the usual epidemiological principles of a greater than expected number of cases that are spatially and temporally linked.

Provide public health management of outbreaks or clusters in order to identify the source of illness, stop the outbreak and limit secondary spread. Offer immunization to high risk individuals as per the publicly funded immunization schedules for Ontario.

As per this protocol, outbreak management shall comprise of but not be limited to the following general steps:
- Confirm diagnosis and verify the outbreak;
- Establish an outbreak team;
- Develop an outbreak case definition;
- Implement prevention and control measures;
- Implement and tailor communication and notification plans depending on the scope of the outbreak;
- Conduct epidemiological analysis on data collected;
- Conduct environmental inspections of implicated premise where applicable;
- Coordinate and collect appropriate clinical specimens where applicable;
- Prepare a written report, and
- Declare the outbreak over in collaboration with the outbreak team.

For outbreaks in institutions refer to the ministry resources listed below.

7) References


(7) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.

8) Additional Resources


Appendix A: Disease-Specific Chapters

Chapter: Poliomyelitis, acute
### Poliomyelitis, acute

<table>
<thead>
<tr>
<th>Communicable</th>
</tr>
</thead>
</table>

**Health Protection and Promotion Act:**
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

**Health Protection and Promotion Act:**
**Ontario Regulation 559/91 – Specification of Reportable Disease**

<table>
<thead>
<tr>
<th>1) Aetiologic Agent:</th>
<th>Poliomyelitis is caused by the Poliovirus, a member of the genus, Enterovirus. There are three types: Poliovirus type 1, 2, and 3, and they can all cause paralysis (1).</th>
</tr>
</thead>
</table>

| 2) Case Definition: | **Surveillance Case Definition**  
See Appendix B  
  
**Outbreak Case Definition**  
The outbreak case definition varies with the outbreak under investigation.  
Consideration should be given to the following in establishing an outbreak case definition:  
1. Clinical, laboratory and/or epidemiological criteria;  
2. A time frame for occurrence;  
3. A geographic location(s) or place(s) where cases live or became ill/exposed, and  
4. Special attributes of cases (e.g. age, underlying conditions).  

Cases should also be classified by levels of probability (i.e. confirmed, probable or suspect). |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| 3) Identification: | **Clinical Presentation:**  
Acute viral illness, severity ranging from sub clinical infection to paralytic disease. Over 90% of cases are asymptomatic or may have only fever. Symptoms of minor illness include fever, headache, malaise, nausea and vomiting. If disease progresses to major illness, there may be severe muscle pain and stiffness of the neck and back with flaccid paralysis (1).  

The most characteristic feature of polio paralysis is its asymmetric distribution, which affects some muscle groups while sparing others. |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>See Appendix B</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>4) Epidemiology:</th>
<th></th>
</tr>
</thead>
</table>
### Occurrence
Cases of wild type poliovirus and vaccine associated illness still occur in parts of Asia and Africa (1). In Canada, the most recent paralytic wild type case occurred in 1988 as a result of an imported strain from Pakistan. The most recent documentation of wild type polio occurred in 1996 in a child who had travelled to India. Canada was certified polio-free in 1994, and Ontario has had no cases of paralytic polio since that time.

### Reservoir
Humans, most frequently in-apparent cases, especially children (1).

### Modes of Transmission
Polio is transmitted through the fecal-oral route or respiratory route (2).

### Incubation Period
Commonly 7-14 days for paralytic cases; there has been a reported range of 3 to possibly 35 days (1).

### Period of Communicability
Not precisely defined, however it is communicable for as long as the virus is shed in the throat and the stool; the virus can be most infective 7-10 days before and after onset of symptoms (1).

Poliovirus is shed in throat secretions as early as 36 hours to 12 days after exposure and in the stool 72 hours to six weeks after exposure. Cases are most infectious during the days before and after onset of symptoms (1).

### Susceptibility and Resistance
Susceptibility is universal in those not immunized (1).

#### 5) Reporting Requirements:

<table>
<thead>
<tr>
<th>To Local Board of Health</th>
<th>Confirmed and suspected cases shall be reported immediately to the medical officer of health by persons required to do so under the <em>Health Protection and Promotion Act</em>, R.S.O. 1990.</th>
</tr>
</thead>
</table>
| To Public Health Division (PHD) | The board of health shall notify the PHD of the MOHLTC **immediately** by phone upon receiving report. Report only case classifications specified in the case definition to PHD. Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within (1) one business day of receipt of initial notification as per *iPHIS Bulletin Number 17: Timely Entry of Cases* (5). The minimum data elements to be reported for each case is specified in the following:  
  - *Ontario Regulation 569* (Reports) under the HPPA;  
  - The disease-specific User Guides published by the Ministry, and  
  - Bulletins and directives issued by the Ministry. |

#### 6) Prevention and Control Measures:

<p>| Personal Prevention Measures | Primary immunization with inactivated poliovirus vaccine, as per the <em>Canadian Immunization Guide</em> (3) and the publicly funded immunization schedules for Ontario (4), is the mainstay for prevention of poliovirus infection. |</p>
<table>
<thead>
<tr>
<th>Infection Prevention and Control Strategies</th>
<th>Strategies:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• For hospitalized cases, in addition to routine practices, contact precautions are indicated, especially for infants and young children for the duration of hospitalization;</td>
</tr>
<tr>
<td></td>
<td>• Contact precautions are recommended, especially when handling throat discharges, feces, and contaminated articles, including proper hand hygiene (2).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Management of Cases</th>
<th>Investigate the case to determine the source of infection. Refer to Regulation 569 under the HPPA for relevant data to collect including the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Symptoms, and date of symptom onset;</td>
</tr>
<tr>
<td></td>
<td>• Assess polio immunization status (total number of doses of oral and/or inactivated polio vaccine received);</td>
</tr>
<tr>
<td></td>
<td>• Obtain relevant medical history including immunocompromised status or abnormal neurological history;</td>
</tr>
<tr>
<td></td>
<td>• In cases of wild-virus disease, assess for travel to or residing in another country within 30 days prior to the onset of this illness, and household member or other close contacts who have traveled to or resided in another country within 30 days prior to the onset of the child’s illness;</td>
</tr>
<tr>
<td></td>
<td>• In cases of vaccine-associated disease, assess for: receipt of oral polio vaccine (OPV) seven to 30 days prior to the onset of current illness, recent (seven to 60 days) presence in an area where a mass immunization campaign had been in progress, and household members or other close contacts who have received OPV seven to 60 days prior to the onset of this child’s illness;</td>
</tr>
<tr>
<td></td>
<td>• Occupation, and</td>
</tr>
<tr>
<td></td>
<td>• Identification of contacts for follow-up (see below).</td>
</tr>
</tbody>
</table>

Exclude cases that are food handlers until proof of immunity is demonstrated or negative stool sample is obtained. No specific treatment is available, however attention should be given during acute illness to complications of paralysis (1).

<table>
<thead>
<tr>
<th>Management of Contacts</th>
<th>Contacts are:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Persons living in the same household or having close contact with the case (e.g., sharing sleeping arrangements or playing together for &gt; four hours) within 30 days before the case’s onset of illness;</td>
</tr>
<tr>
<td></td>
<td>• Children attending the same daycare as the case, and</td>
</tr>
<tr>
<td></td>
<td>• Persons having contact with stool or fecal matter of the case within 30 days before the case’s onset of illness, without using infection control precautions.</td>
</tr>
</tbody>
</table>

Even though contacts may already be infected, they should be assessed for immunization status and if not fully immunized receive updated doses (1). Consider exclusion of contacts from food handling until proof of immunity is provided. Quarantine measures have not been found to be of value in the community (1).

| Management of Outbreaks | A single confirmed case of acute poliomyelitis constitutes an outbreak. Provide public health management of outbreaks or clusters in order to identify the source of illness, stop the outbreak and limit secondary spread. |
For outbreak in a school, susceptible students can be excluded under Section 12 of the *Immunization of School Pupils Act*.

As per this protocol, outbreak management shall comprise of but not be limited to the following general steps:

- Confirm diagnosis and verify the outbreak;
- Establish an outbreak team;
- Develop an outbreak case definition;
- Implement prevention and control measures;
- Implement and tailor communication and notification plans depending on the scope of the outbreak;
- Conduct epidemiological analysis on data collected;
- Conduct environmental inspections of implicated premise where applicable;
- Coordinate and collect appropriate clinical specimens where applicable;
- Prepare a written report, and
- Declare the outbreak over in collaboration with the outbreak team.

### 7) References


5. Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.

### 8) Additional Resources


Appendix A: Disease-Specific Chapters

Chapter: Psittacosis/Ornithosis
### Psittacosis/Ornithosis

| Communicable | ☒ | Virulent | ☐ |

**Health Protection and Promotion Act:**
Ontario Regulation 558/91 – Specification of Communicable Diseases

**Health Protection and Promotion Act:**
Ontario Regulation 559/91 – Specification of Reportable Diseases

<table>
<thead>
<tr>
<th>1) Aetiologic Agent:</th>
<th>Psittacosis/Ornithosis is caused by <em>Chlamydophila psittaci</em> (formerly <em>Chlamydia psittaci</em>), an obligate intracellular bacterial pathogen (2).</th>
</tr>
</thead>
</table>

### 2) Case Definition:

#### Surveillance Case Definition

See Appendix B

#### Outbreak Case Definition

The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition:

1. Clinical, laboratory and/or epidemiological criteria;
2. The time frame for occurrence;
3. The geographic location(s) or place(s) where cases live or became ill/exposed, and
4. Special attributes of cases (e.g. age, underlying conditions).

Cases may be classified by levels of probability (i.e. confirmed, probable and/or suspect).

### 3) Identification:

#### Clinical Presentation

Onset of psittacosis is usually abrupt with fever, headache, photophobia, and myalgia and upper or lower respiratory tract symptoms, and non-productive cough. Complications can occur occasionally and include, encephalitis, myocarditis and thrombohlebitis (1, 2). Mild forms of the illness may be mistaken for common respiratory infection and may go unnoticed (3).

#### Diagnosis

See Appendix B


### 4) Epidemiology:

Infectious Diseases Protocol, 2009 – Appendix A
| **Occurrence** | Worldwide; most human cases are sporadic and many infections are probably not diagnosed (1). Cases of Psittacosis / Ornithosis have fluctuated in the province of Ontario over the years and remain fairly low, with less than 5 cases reported from 2003 to 2007. |
| **Reservoir** | This agent can be carried by many species of wild and domestic birds. Most human cases have been caused by psittacine birds such as parakeets, parrots and lovebirds and less often by poultry, pigeons, canaries and sea birds (1). Healthy birds can be carriers and shed the infectious agent, particularly when subjected to stress through crowding and shipping (1). |
| **Modes of Transmission** | Infection is generally acquired by inhaling dust from dried feces or dried ocular and nasal secretions from infected birds. Direct contact with birds is not required; rare person-to-person spread has occurred (1). |
| **Incubation Period** | From 1-4 weeks (1). |
| **Period of Communicability** | Birds may shed the agent intermittently and sometimes continuously for weeks or months (1). |
| **Susceptibility and Resistance** | Susceptibility is general; persons in contact with infected birds are at highest risk and older adults may be more severely affected (1); there is no evidence that persons with antibodies are protected, post infective immunity is incomplete or transitory (1). |

5) **Reporting Requirements:**

To Local Board of Health

Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the *Health Protection and Promotion Act*, R.S.O. 1990.

To Public Health Division (PHD)

Report only case classifications specified in the case definition to PHD using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry *within five (5) business days of receipt of initial notification* as per iPHIS Bulletin Number 17: Timely Entry of Cases (4).

The minimum data elements to be reported for each case is specified in the following:

- *Ontario Regulation 569 (Reports)* under the Health Protection and Promotion Act (HPPA);
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry.

6) **Prevention and Control Measures:**
<table>
<thead>
<tr>
<th>Personal Prevention Measures</th>
<th>Preventive measures:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Educate the public about the risk of household or occupational exposure to infected pet birds;</td>
</tr>
<tr>
<td></td>
<td>• Use of cage cleaning and feeding methods that minimize air circulation of feathers, dust and droppings;</td>
</tr>
<tr>
<td></td>
<td>• Wear gloves and dust masks when cleaning cages and birdfeeders, and</td>
</tr>
<tr>
<td></td>
<td>• Treat and eliminate infections of pet birds and disinfecting premises.</td>
</tr>
</tbody>
</table>

| Infection Prevention and Control Strategies | Routine practices are recommended for hospitalized cases. |
| Management of Cases | Investigate the case to determine source of infection and type of exposure. Regulation 569 under the HPPA for relevant data to collect and ensure to inquire about the following: |
|                       | • History of occupational exposure, and |
|                       | • History of exposure to birds such as the parrot family, other caged birds, or on poultry farms and contact with bird droppings. |
|                       | Identify others that may have had the same exposure. If contact with a known source has occurred, trace the origin of the suspected birds in collaboration with the Canadian Food Inspection Agency (CFIA). |
|                       | Isolation of case is not required. The case should be instructed on using proper hand hygiene and proper cough etiquette (1). Treatment with antibiotics is under the direction of the attending health care provider. |

| Management of Contacts | No public health follow-up required of contacts of human cases, however people exposed to common sources of infection should be observed for the development of symptoms, such as fever, respiratory tract symptoms, and coughing. Early diagnostic tests should be performed and therapy should be initiated if symptoms appear. |

| Management of Outbreaks | An outbreak is defined as two or more cases linked in place and time. |
|                        | As per this protocol, outbreak management shall comprise of but not be limited to the following general steps: |
|                        | • Confirm diagnosis and verify the outbreak; |
|                        | • Establish an outbreak team; |
|                        | • Develop an outbreak case definition; |
|                        | • Implement prevention and control measures; |
|                        | • Implement and tailor communication and notification plans depending on the scope of the outbreak; |
|                        | • Conduct epidemiological analysis on data collected; |
|                        | • Conduct environmental inspections of implicated premise where applicable; |
- Coordinate and collect appropriate clinical specimens where applicable;
- Prepare a written report, and
- Declare the outbreak over in collaboration with the outbreak team.

Refer to the document “Management of Psittacosis-Ornithosis in Birds” (MOHLTC 2004) for the management of outbreaks in birds.

### 7) References


### 8) Additional Resources


Appendix A: Disease-Specific Chapters

Chapter: Q Fever
### Q Fever

- Communicable
- Yes
- Virulent

#### Health Protection and Promotion Act: Ontario Regulation 558/91 – Specification of Communicable Diseases

#### Health Protection and Promotion Act: Ontario Regulation 559/91 – Specification of Reportable Diseases

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1) Aetiologic Agent:</strong></td>
<td>Q fever is caused by <em>Coxiella burnetti</em> (<em>C. burnetti</em>), an intracellular rickettsial organism. It is classified in the gamma subgroup of Proteobacteria (3). The organism has unusual stability, can reach high concentrations in animal tissues, particularly placenta, and is highly resistant to many disinfectants (1). May be used as a bioterrorism agent.</td>
</tr>
<tr>
<td><strong>2) Case Definition:</strong></td>
<td></td>
</tr>
<tr>
<td>Surveillance Case Definition</td>
<td>See Appendix B</td>
</tr>
<tr>
<td>Outbreak Case Definition</td>
<td>For use during outbreaks - The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition:</td>
</tr>
<tr>
<td></td>
<td>1. Clinical, laboratory and/or epidemiological criteria; 2. The time frame for occurrence; 3. The geographic location(s) or place(s) where cases live or became ill/exposed, and 4. Special attributes of cases (e.g. age, underlying conditions).</td>
</tr>
<tr>
<td></td>
<td>Cases may be classified by levels of probability (i.e. confirmed, probable and/or suspect).</td>
</tr>
<tr>
<td><strong>3) Identification:</strong></td>
<td></td>
</tr>
<tr>
<td>Clinical Presentation</td>
<td>Q fever presents in 2 distinct forms: acute, which typically follows initial exposure, and chronic, which occurs months to years after acute infection. Approximately 60% of initial infections are asymptomatic (2). Symptoms for acute Q fever include abrupt onset of fever, chills, sweats, severe headache (especially behind the eyes), weakness, anorexia, myalgia and cough. Weight loss and weakness can be pronounced (1, 2). The illness typically lasts 1 to 4 weeks and then resolves gradually (2).</td>
</tr>
</tbody>
</table>
Chronic Q fever occurs in approximately 1% of acutely ill people and manifests as endocarditis with people who have heart disease. Other complications include hepatitis and death if untreated (2).

### Diagnosis

See Appendix B


4) Epidemiology:

#### Occurrence

Q fever has been reported from all continents; the true incidence is greater than the reported number of cases because of the mild clinical manifestation of many cases, limited clinical suspicion and lack of laboratory services (1).

The number of cases of Q Fever per year has fluctuated in the province of Ontario and remains fairly low, with an average of 5 cases reported per year from 2003 to 2007.

#### Reservoir

Sheep, cattle, goats, cats, dogs, some wild mammals (e.g. rodents), birds and ticks are natural reservoirs (1). Infected animals, including sheep and cats are usually asymptomatic but shed massive numbers of organisms in placental tissues at parturition (1).

#### Modes of Transmission

When infected, animals shed the bacteria in urine, feces, milk and especially birth products such as placenta (1, 2).

Humans are most often affected through the process of inhaling contaminated aerosols; organisms are shed in high numbers during the birthing process of infected animals in amniotic fluid and the placenta. Humans inhale dust contaminated by these products. The dust can be carried downwind one km or more. This allows for sporadic cases to occur. Infections may also occur from direct exposure to infected animals or tissues or through exposure to contaminated materials such as wool, straw or even laundry (1, 2). Raw milk from infected cows may be a source but is not common; direct transmission by blood or marrow transfusion has been reported (1).

#### Incubation Period

Depends on the size of the infectious doses, usually 2-3 weeks (1). Chronic Q fever can develop years after an initial infection (2).

#### Period of Communicability

Direct person to person transmission occurs rarely, if ever (1).

#### Susceptibility and Resistance

Susceptibility is general (1). Those who recover from infection may possess lifelong immunity against re-infection (1).

5) Reporting Requirements:

To Local Board of Health

Confirmed and suspected cases shall be reported to the medical
officer of health by persons required to do so under the *Health Protection and Promotion Act*, R.S.O. 1990.

**To Public Health Division (PHD)**

Report only case classifications specified in the case definition to PHD using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry **within five (5) business days of receipt of initial notification** as per *iPHIS Bulletin* Number 17: Timely Entry of Cases (3).

The minimum data elements to be reported for each case is specified in the following:

- *Ontario Regulation 569* (Reports) under the Health Protection and Promotion Act (HPPA);
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry.

### 6) Prevention and Control Measures:

<table>
<thead>
<tr>
<th>Personal Prevention Measures</th>
<th>Preventative measures:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Education of workers in high risk occupations such as sheep and dairy farmers, veterinary researchers, abattoir workers, veterinarians, meat workers, about the sources of infection and the need for adequate disinfection and disposal of animal products of conception (1);</td>
</tr>
<tr>
<td></td>
<td>• Recommend that infections in domesticated animal population be identified by a veterinarian;</td>
</tr>
<tr>
<td></td>
<td>• Education on proper hygiene practices, and</td>
</tr>
<tr>
<td></td>
<td>• Consumption of only pasteurized milk and dairy products from cows, goats and sheep.</td>
</tr>
</tbody>
</table>

| Infection Prevention and Control Strategies | Routine practices are recommended for hospitalized cases. |

<table>
<thead>
<tr>
<th>Management of Cases</th>
<th>Investigate the case to determine source of infection. Refer to <em>Ontario Regulation 569</em> for relevant data to collect and ensure to inquire about the following in the epidemiological investigation:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Symptoms and date of symptom onset;</td>
</tr>
<tr>
<td></td>
<td>• Travel history;</td>
</tr>
<tr>
<td></td>
<td>• History of exposure during 2-3 weeks prior to symptom onset</td>
</tr>
<tr>
<td></td>
<td>• Earliest and latest exposure date;</td>
</tr>
<tr>
<td></td>
<td>• Occupation, and</td>
</tr>
<tr>
<td></td>
<td>• Residency/living near a farm or livestock operation.</td>
</tr>
</tbody>
</table>

Treatment is under the direction of the attending health care provider; acute cases generally require treatment with doxycycline or chloramphenicol for 15-21 days (1).
<table>
<thead>
<tr>
<th>Management of Contacts</th>
<th>Provide cases with information about the infection and how it spreads as listed above. If a source has been identified ask the case for a list of persons who may also have come in contact with the infectious item or area. None, except if exposed to same source, then as above.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management of Outbreaks</td>
<td>Outbreaks are generally of short duration; control measures include primarily the elimination of sources of infection, observation of exposed persons and provision of antibiotics (1). An outbreak is defined as two or more cases linked in place and time. As per this Protocol, outbreak management shall comprise of but not limited to the following general steps: Confirm diagnosis and verify the outbreak; Establish an outbreak team; Develop an outbreak case definition; Implement prevention and control measures; Implement and tailor communication and notification plans depending on the scope of the outbreak; Conduct epidemiological analysis on data collected; Conduct environmental inspections of implicated premise where applicable; Coordinate and collect appropriate clinical specimens where applicable; Prepare a written report, and Declare the outbreak over in collaboration with the outbreak team.</td>
</tr>
</tbody>
</table>
Appendix A: Disease-Specific Chapters

Chapter: Rabies
<table>
<thead>
<tr>
<th>Rabies</th>
</tr>
</thead>
<tbody>
<tr>
<td>✗ Communicable</td>
</tr>
<tr>
<td>☐ Virulent</td>
</tr>
</tbody>
</table>

**Health Protection and Promotion Act:**  
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

**Health Protection and Promotion Act:**  
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

<table>
<thead>
<tr>
<th>1) Aetiologic Agent:</th>
<th>Rabies disease is caused by the rabies virus; an RNA virus classified in the <em>Rhabdoviridae</em> family (2) from the genus <em>Lyssavirus</em> (1).</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>2) Case Definition:</th>
</tr>
</thead>
</table>

**Surveillance Case Definition**  
See Appendix B

**Outbreak Case Definition**  
The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following when establishing an outbreak case definition:

1. Clinical, laboratory and/or epidemiological criteria;
2. The time frame for occurrence;
3. The geographic location(s) or place(s) where cases live or became ill/exposed, and
4. Special attributes of cases (e.g. age, underlying conditions) and/or the aetiologic agent.

Cases may be classified by levels of probability (i.e. confirmed, probable or suspect).

<table>
<thead>
<tr>
<th>3) Identification:</th>
</tr>
</thead>
</table>

**Clinical Presentation**  
During the incubation period after exposure, the person does not experience disease symptoms and the wound from the bite may heal. The prodrome begins when the virus enters the peripheral nerves and spinal cord and can last 2 – 10 days. Onset of clinical symptoms is generally heralded by a sense of apprehension and excitability with headache, fever, malaise and indefinite sensory changes and pain at the site of the bite (1). The excitation phase that follows is characterized by hypertension, increased salivation and swallowing dysfunction (hydrophobia). This may be followed by generalized paralysis (3). The acute neurological phase of the disease is characterized by encephalomyelitis that almost always progresses to coma or death, often due to respiratory paralysis, if no medical intervention is given (1).
Diagnosis

See Appendix B

Rabies is suggested by a history of animal exposure and or bite and confirmed by recovery of virus from saliva and salivary gland, CSF or CNS tissue of an infected person. It can also be confirmed by direct immunofluorescence to detect viral antigen in brain tissue.

Presumptive diagnosis may be based on serological tests (1, 3).

4) Epidemiology:

| Occurrence | Rabies occurs worldwide, and continues to be a serious problem in India, Asia and Africa. Worldwide, there is an estimated 65,000-87,000 deaths a year almost all in developing countries (1). In the United States and Canada, rabies most commonly involves raccoons, skunks, foxes, coyotes and bats (4). Human rabies infection is very rare in Canada. The last reported cases of human rabies occurred in 2007 in Alberta, 2003 in BC and in 2000 in Quebec, all from bat rabies strain. |
| Reservoir | In North America the main reservoir species are wild animals such as foxes, coyotes, wolves, ferrets, skunks, raccoons, and bats (1, 3). |
| Modes of Transmission | It is primarily a disease of animals, but can be transmitted to humans through the saliva of infected animals through bites, scratches or other contact with mucosal membrane or open skin (4). Person to person transmission is theoretically possible but rare and not well documented (1). Airborne spread has been demonstrated in caves where bats roost and in laboratory settings, but this occurs very rarely (1). Transmission through corneal transplant from unsuspected rabies cases has occurred (2). |
| Incubation Period | Usually 3-8 weeks; rarely as short as 9 days or as long as 7 years (1). The incubation period depends on wound severity, wound site in relation to nerve supply and distance from the brain, the amount and strain of virus, protection provided by clothing and other factors such as adequate wound cleansing (1). |
| Period of Communicability | Rabid animals are infectious from the time the virus reaches the salivary glands and up until death. Death usually occurs within one week of onset of clinical signs. Different species may shed virus in saliva for different lengths of time prior to onset of clinical signs: dogs/cats/ferrets up to seven days; longer with wild-life (1). |
| Susceptibility and Resistance | All mammals are susceptible to rabies (1). Humans appear to be more resistant to infection as evidenced in a study where 40% of untreated individuals bitten by proven rabid animals developed the disease (1). |
5) Reporting requirements:

<table>
<thead>
<tr>
<th>To Local Board of Health</th>
<th>Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the <em>Health Protection and Promotion Act</em>, R.S.O. 1990.</th>
</tr>
</thead>
</table>
| To Public Health Division (PHD) | The board of health, upon receiving a report of a suspected or confirmed human case of rabies, shall immediately telephone the PHD. Report only case classifications specified in the case definition to PHD using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within one (1) business day of receipt of initial notification as per *iPHIS Bulletin Number 17: Timely Entry of Cases* (5). The minimum data elements to be reported for each case is specified in the following sources:  
  - *Ontario Regulation 569 (Reports)* under the *Health Protection and Promotion Act* (HPPA);  
  - The disease-specific User Guides published by the Ministry, and  
  - Bulletins and directives issued by the Ministry. |

6) Prevention and Control Measures:

| Personal Prevention Measures | Preventative measures: (1)  
  - Avoid contact with stray, wild, sick, dead or strangely acting animals;  
  - Promote immunization of cats and dogs against rabies;  
  - Promote the reporting of aggressive animals, or animals that have bitten people, to the local board of health;  
  - Individuals who are at high risk of exposure such as veterinarians, wildlife and park personnel, or travellers to areas where rabies is endemic, should receive pre-exposure immunization;  
  - Wash animal bite wounds immediately with soap and clean running water and seek medical attention promptly, and  
  - Individual people should not try to capture bats found in their house and should bat proof their homes. |
| Infection Prevention and Control Strategies | Use routine practices for hospitalized cases for the duration of illness (2). |
| Management of Cases | Investigate all persons exposed to suspected rabid animals to determine source of infection. Refer exposed persons to their health care provider for assessment of rabies risk and provide rabies post-exposure prophylaxis to requesting physician if indicated. |
Refer to the *Rabies Prevention and Control Protocol, 2008* (or as current) for the management of persons exposed to possible rabid animals.

The following disease-specific information should also be obtained during the investigation:
- Determine the possible source including animal involved;
- Identify other persons and animals exposed to the source animal;
- Note the type of exposure (bite, scratch, other or provoked vs. unprovoked);
- Note the geographic location of exposure, and
- Determine the immunization status of animal (if possible) and of the person.

If the disease is traced to imported or domestic animals, contact the Canadian Food Inspection Agency (CFIA).

For rabies cases, death is invariably the outcome.

<table>
<thead>
<tr>
<th>Management of Contacts</th>
<th>In hospital, health care workers should be educated about the potential hazard of infection from saliva, and the use of personal protective equipment to avoid exposure.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>If indicated, refer to the Ontario guidelines listed below for post exposure prophylaxis information.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Management of Outbreaks</th>
<th>Provide public health management of outbreaks in order to identify the exposure and prevent other exposed persons from developing rabies.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>A single case of rabies in a person constitutes an outbreak and should be managed with urgency to identify other persons exposed to the same source or that came into contact with infected body fluids belonging to the case.</strong></td>
</tr>
<tr>
<td></td>
<td>As per this Protocol, outbreak management shall comprise of but not be limited to the following general steps:</td>
</tr>
<tr>
<td></td>
<td>- Confirm diagnosis and verify the outbreak;</td>
</tr>
<tr>
<td></td>
<td>- Establish an outbreak team;</td>
</tr>
<tr>
<td></td>
<td>- Develop an outbreak case definition;</td>
</tr>
<tr>
<td></td>
<td>- Implement prevention and control measures;</td>
</tr>
<tr>
<td></td>
<td>- Implement and tailor communication and notification plans depending on the scope of the outbreak;</td>
</tr>
<tr>
<td></td>
<td>- Conduct epidemiological analysis on data collected;</td>
</tr>
<tr>
<td></td>
<td>- Conduct environmental inspections of implicated premise where applicable;</td>
</tr>
<tr>
<td></td>
<td>- Coordinate and collect appropriate clinical specimens where applicable;</td>
</tr>
<tr>
<td></td>
<td>- Prepare a written report, and</td>
</tr>
<tr>
<td></td>
<td>- Declare the outbreak over in collaboration with the outbreak team.</td>
</tr>
</tbody>
</table>
### 7) References


(5) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.

### 8) Additional Resources


Ministry of Health and Long-Term Care. Guidelines for management of suspected rabies exposures. Toronto: Queen’s Printer for Ontario;
<table>
<thead>
<tr>
<th>Reference</th>
<th>Date</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rabies in Ontario; 2009 [cited 2009 Feb 7]. Available from</td>
<td></td>
<td></td>
</tr>
<tr>
<td>treatment and the correct technique of intradermal immunization against</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interactive and Information Mapping System [Internet]. Geneva: World</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health Organization; 2009 [cited 2009 Feb 17]. Available from</td>
<td></td>
<td></td>
</tr>
<tr>
<td>United States, 2008: recommendations of the Advisory Committee on</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Health Agency of Canada, Travel Medicine Program. Travel Health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[Internet]. Ottawa: Public Health Agency of Canada; 2008. Rabies; 2005</td>
<td></td>
<td></td>
</tr>
<tr>
<td>May 1 [cited 2009 Feb 2]. Available from</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix A: Disease-Specific Chapters

Chapter: Respiratory infection outbreaks in institutions
### Respiratory infection outbreaks in institutions

| Communicable | ☒ | Virulent | ☐ |

**Health Protection and Promotion Act:**
Ontario Regulation 558/91 – Specification of Communicable Diseases

**Health Protection and Promotion Act:**
Ontario Regulation 559/91 – Specification of Reportable Diseases

### 1) Aetiologic Agent:

Outbreaks of respiratory infections in institutions are caused by a variety of respiratory viruses such as influenza A and B, respiratory syncytial virus (RSV), parainfluenza, rhinovirus and adenovirus. Common bacteria that cause respiratory outbreaks in institutions are Chlamydia pneumoniae, Legionella spp. and Mycoplasma Pneumoniae (Atypical Pneumonia).

### 2) Case Definition

<table>
<thead>
<tr>
<th>Surveillance Case Definition</th>
<th>See Appendix B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outbreak Case Definition</td>
<td>Each respiratory infection outbreak requires its own case definition. This should be developed based on the outbreak’s characteristics, reviewed during the course of the outbreak, and modified if necessary, to ensure that the majority of cases are captured by the definition.</td>
</tr>
</tbody>
</table>

### 3) Identification:

For the following sections:

Refer to “A Guide to the Control of Respiratory Infection Outbreaks in Long-Term Care Homes”, Public Health Division and LTCH Branch, MOHLTC, October 2004, or as current.

<table>
<thead>
<tr>
<th>Clinical Presentation</th>
<th>These viruses often cause similar acute respiratory symptoms. Clinical evidence could include but is not limited to the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Upper respiratory tract illness (includes common cold, pharyngitis);</td>
</tr>
<tr>
<td></td>
<td>• Runny nose or sneezing;</td>
</tr>
<tr>
<td></td>
<td>• Stuffy nose (i.e. congestion);</td>
</tr>
<tr>
<td></td>
<td>• Sore throat, hoarseness or difficulty swallowing;</td>
</tr>
<tr>
<td></td>
<td>• Dry cough;</td>
</tr>
<tr>
<td></td>
<td>• Swollen or tender glands in the neck (cervical lymphadenopathy);</td>
</tr>
<tr>
<td></td>
<td>• Fever/abnormal temperature for the resident may be present, but is not required;</td>
</tr>
<tr>
<td></td>
<td>• Tiredness (malaise);</td>
</tr>
<tr>
<td></td>
<td>• Muscle aches (myalgia);</td>
</tr>
</tbody>
</table>
### Diagnosis

See Appendix B

### 4) Epidemiology:

| Occurrence | Worldwide; Seasonal peaks during winter and early spring. Respiratory infection outbreaks in institutions in Ontario show a seasonal distribution similar to that seen worldwide. While there is variation from year to year the season generally begins in October and ends in April.
|---------------------------------------------------------------|
| Reservoir | Humans
| Modes of Transmission | Person to person; droplet transmission as well as contact with fomites may also occur depending on causative agent.
| Incubation Period | Varies depending on the causative agent.
| Period of Communicability | Varies depending on the causative agent.
| Susceptibility and Resistance | All persons are susceptible, however susceptibility is greater in the very young and the institutionalized elderly.

### 5) Reporting Requirements:

| To Local Board of Health | Confirmed and suspected outbreaks shall be reported as soon as identified to the medical officer of health by persons required to do so under the Health Protection and Promotion Act, R.S.O. 1990.
|---------------------------------------------------------------|
| To Public Health Division (PHD) | Report only outbreaks as specified in the case definition to PHD.

Preliminary report of outbreaks shall be made using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within one (1) business day of receipt of initial notification as per iPHIS Bulletin Number 17: Timely Entry of Cases. The final outbreak report shall be submitted within 15 business days of the outbreak being declared over. Outbreaks in institutions that are caused by Reportable Diseases (e.g. legionellosis) shall be reported under their respective Reportable Diseases.

The minimum data elements to be reported for each case is specified in the following:

- Ontario Regulation 569 (Reports) under the Health
Protection and Promotion Act (HPPA);
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry.

### 6) Prevention and Control Measures:

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal Prevention Measures</strong></td>
<td>For this section refer also to the <em>Institutional/Facility Outbreak Prevention and Control Protocol, 2008</em> (or as current) and to “A Guide to the Control of Respiratory Infection Outbreaks in Long-Term Care Homes”, Public Health Division and LTCH Branch, MOHLTC, October 2004, or as current.</td>
</tr>
<tr>
<td><strong>Infection Prevention and Control Strategies</strong></td>
<td>For this section refer also to the <em>Institutional/Facility Outbreak Prevention and Control Protocol, 2008</em> (or as current) and to “A Guide to the Control of Respiratory Infection Outbreaks in Long-Term Care Homes”, Public Health Division and LTCH Branch, MOHLTC, October 2004, or as current.</td>
</tr>
<tr>
<td><strong>Management of Cases</strong></td>
<td>Cases are managed as part of the outbreak as per this Protocol and “A Guide to the Control of Respiratory Infection Outbreaks in Long-Term Care Homes”, Public Health Division and LTCH Branch, MOHLTC, October 2004. If the outbreak is caused by a reportable organism, (e.g. Influenza) refer also to the disease-specific chapter for that organism.</td>
</tr>
<tr>
<td><strong>Management of Contacts</strong></td>
<td>Contacts are managed as part of the outbreak as per this Protocol and “A Guide to the Control of Respiratory Infection Outbreaks in Long-Term Care Homes”, Public Health Division and LTCH Branch, MOHLTC, October 2004.</td>
</tr>
<tr>
<td><strong>Management of Outbreaks</strong></td>
<td>Outbreaks are managed in collaboration with the institution and as per this protocol and “A Guide to the Control of Respiratory Infection Outbreaks in Long-Term Care Homes”, Public Health Division and LTCH Branch, MOHLTC, October 2004 as well as the <em>Institutional/Facility Outbreak Prevention and Control Protocol, 2008</em> (or as current).</td>
</tr>
</tbody>
</table>

### 7) Resources and References

Ministry of Health and Long-Term Care. Timely entry of cases. **iPHIS Bulletin. 2007 May 11;17.**


Ministry of Health and Long Term Care. Institutional/facility outbreak
prevention and control protocol. Toronto: Queen’s Printer for Ontario; 2008. Available from
http://www.health.gov.on.ca/english/providers/program/pubhealth/oph_standards/ophs/progstds/protocols/institutional_facility_outbreak.pdf (or as current)


Appendix A: Disease-Specific Chapters

Chapter: Rubella
### Rubella

| Communicable | ☒ |
| Virulent |  |

#### Health Protection and Promotion Act:
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

#### Health Protection and Promotion Act:
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

| 1) Aetiologic Agent: | Rubella virus (family Togaviridae; genus Rubivirus) is the cause of this vaccine preventable disease (1). |
| 2) Case Definition: |  |
| Surveillance Case Definition | See Appendix B |
| Outbreak Case Definition | The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition:  
1. Clinical, laboratory and/or epidemiological criteria;  
2. A time frame for occurrence;  
3. A geographic location(s) or place(s) where cases live or became ill/exposed, and  
4. Special attributes of cases (e.g. age, underlying conditions).  
Cases should also be classified by levels of probability (i.e. confirmed, probable, suspect, or PUI). |
| 3) Identification: |  |
| Clinical Presentation: | A mild febrile viral disease presenting with an erythematous maculopapular rash and few constitutional symptoms including low-grade fever, headache, malaise, mild coryza and conjunctivitis. The rash starts on the face, becomes generalized in 24 hours and lasts a median of 3 days (1, 2). Up to 50% of rubella infections are sub-clinical (1).  
Lymphadenopathy, which may precede the rash, often involves posterior-auricular, or suboccipital lymph nodes, can be generalized and lasts between 5 to 8 days. Encephalitis and thrombocytopenia are rare complications (2).  
Rubella is important because of its ability to produce anomalies in the developing fetus if infection is acquired in the first trimester of pregnancy (1) (see chapter on congenital rubella). |
4) Epidemiology:

Occurrence

Worldwide; rubella occurs primarily in unimmunized groups and outbreaks are most frequent in late winter and early spring (2).

Vaccination was introduced in Canada in 1969; since the mid 1970s, incidence in Canada has remained relatively low.

The incidence of rubella has declined in Ontario since a two-dose MMR vaccination program was introduced in 1996. From 1998-2007, the number of confirmed cases ranged from 2 to 17 per year, with the exception of 313 cases in 2005, where a rubella outbreak occurred in an un-immunized community, mostly among school-age children.

Reservoir

Humans (1)

Modes of Transmission

Person to person via direct or droplet contact from nasopharyngeal secretions. Infants with congenital rubella syndrome may shed virus for months after birth (1).

Incubation Period

From 14-17 days, with a range of 14-21 days (1).

Period of Communicability

For about 1 week before onset and at least 4 days after onset of rash, sometimes 5-7 days after onset of rash; rubella is a highly communicable infection (1).

Susceptibility and Resistance

Unimmunized individuals are susceptible to infection; immunity is usually permanent after immunization and natural infection (1).

5) Reporting Requirements:

To Local Board of Health

Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the Health Protection and Promotion Act, R.S.O. 1990.

Note:
Laboratory confirmed cases are to be reported by phone to the local medical officer of health as soon as identified.

To Public Health Division (PHD)

The local health unit shall notify the PHD by phone as soon as possible after receiving a report of a suspect or probable case of Rubella, and after ruling out any other similar illness.

Report only case classifications specified in the case definition to PHD.

Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the
Ministry within one business day of receipt of initial notification as per *iPHIS Bulletin* Number 17: Timely Entry of Cases (3).

The minimum data elements to be reported for each case is specified in the following:

- *Ontario Regulation 569* (Reports) under the Health Protection and Promotion Act (HPPA);
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry.

<table>
<thead>
<tr>
<th>6) Prevention and Control Measures:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal Prevention Measures</strong></td>
</tr>
<tr>
<td>Prevention Measures:</td>
</tr>
<tr>
<td>• Immunization is the mainstay for preventing rubella infection. Control of rubella infection is needed primarily to prevent congenital rubella syndrome in susceptible pregnant females (1);</td>
</tr>
<tr>
<td>• Children should be immunized as per the current Publicly Funded Immunization Schedules for Ontario, and</td>
</tr>
<tr>
<td>• Education of women of childbearing years about the importance of knowing their rubella immunization status and prenatal screening of all women to determine susceptibility, especially female adolescents and women who immigrate from countries where rubella vaccine is not routinely used (Asian, African, Caribbean and South and Central American countries) (2).</td>
</tr>
<tr>
<td><strong>Infection Prevention and Control Strategies</strong></td>
</tr>
<tr>
<td>Strategies:</td>
</tr>
<tr>
<td>• Healthcare workers should provide proof of immunity prior to employment to protect all susceptible health care workers (2), and</td>
</tr>
<tr>
<td>• For hospitalized cases, in addition to routine practices, droplet precautions are recommended for 7 days after onset of the rash (2).</td>
</tr>
<tr>
<td><strong>Management of Cases</strong></td>
</tr>
<tr>
<td>Confirm the case and determine immunization status. Investigate for possible source of infection. Collect appropriate data as per the HPPA, ON Reg 569, and include the following in the investigation:</td>
</tr>
<tr>
<td>- Symptoms and date of symptom onset</td>
</tr>
<tr>
<td>- Travel history</td>
</tr>
<tr>
<td>- History of exposure or risk behaviours</td>
</tr>
<tr>
<td>- Earliest and latest exposure dates</td>
</tr>
<tr>
<td>- Occupation</td>
</tr>
<tr>
<td>- Residency/attendance at a facility or institution</td>
</tr>
<tr>
<td>Contact identification and tracing:</td>
</tr>
<tr>
<td>- Contact history during period of communicability</td>
</tr>
</tbody>
</table>
### Management of Contacts

A contact of a rubella case is any susceptible person who has had close contact with the case during the period of communicability.

**Contact management:**
- Pregnant contacts should be advised to consult with their physician promptly;
- Physician should confirm rubella susceptibility status and where this is negative, perform serology to determine if infected (1);
- Assess immunization status of identified contacts and immunize where appropriate;
- Alert contacts about signs and symptoms, and
- Advise contact to seek medical attention upon symptom onset and inform the local public health unit.

### Management of Outbreaks

An outbreak is defined by the usual epidemiological principles of a greater than expected number of cases that are spatially and temporally linked. Provide public health management of outbreaks or clusters in order to identify the source of illness, stop the outbreak and limit secondary spread.

As per this Protocol outbreak management shall comprise of, but not be limited to, the following general steps:

- Confirm diagnosis and verify the outbreak;
- Establish an outbreak team;
- Develop an outbreak case definition;
- Implement prevention and control measures;
- Implement and tailor communication and notification plans depending on the scope of the outbreak;
- Conduct epidemiological analysis on data collected;
- Conduct environmental inspections of implicated premise where applicable;
- Coordinate and collect appropriate clinical specimens where applicable;
- Prepare a written report, and
- Declare the outbreak over in collaboration with the outbreak team.
- For an outbreak in a school, susceptible students can be excluded under Section 12 of the *Immunization of School*.
### 7) References


### 8) Additional Resources


Appendix A: Disease-Specific Chapters

Chapter: Rubella, congenital syndrome
### Rubella, congenital syndrome

- **Communicable**
- **Virulent**

#### Health Protection and Promotion Act:
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

#### Health Protection and Promotion Act:
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

<table>
<thead>
<tr>
<th>1) Aetiological Agent:</th>
<th>Rubella virus (family Togaviridae; genus Rubivirus) (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2) Case Definition:</td>
<td></td>
</tr>
<tr>
<td>Surveillance Case Definition</td>
<td><a href="#">See Appendix B</a></td>
</tr>
<tr>
<td>Outbreak Case Definition</td>
<td>Not applicable</td>
</tr>
<tr>
<td>3) Identification:</td>
<td></td>
</tr>
<tr>
<td>Clinical Presentation</td>
<td>Congenital rubella syndrome (CRS) is manifested by sensorineural deafness, cataracts, pigmentary retinopathy, and patent ductus arteriosus and many other defects including glaucoma, peripheral pulmonic stenosis, endocrinopathies including diabetes, hyperimmunoglobulinemia M, microcephaly and intellectual disability. The severity and type of defect generally depends on the time of infection during gestation. Damage caused by congenital rubella does not stop at birth and some clinical manifestations worsen or develop later (2).</td>
</tr>
<tr>
<td>Diagnosis</td>
<td><a href="#">See Appendix B</a></td>
</tr>
<tr>
<td>4) Epidemiology:</td>
<td></td>
</tr>
<tr>
<td>Occurrence</td>
<td>Occurs in up to 90% of infants born to women infected with rubella virus during the first trimester of pregnancy (1, 2). Defects are rare with infection after 20th week of gestation (1).</td>
</tr>
<tr>
<td></td>
<td>CRS occurs rarely in Ontario, with a range of zero to two reported cases per year from 1998-2007. The last two cases were reported in 2004.</td>
</tr>
<tr>
<td>Reservoir</td>
<td>Humans; source is maternal viremia (1).</td>
</tr>
<tr>
<td>Modes of Transmission</td>
<td>Transplacental passage of rubella virus from maternal blood (3).</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>Not applicable (2).</td>
</tr>
<tr>
<td>----------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td><strong>Period of Communicability</strong></td>
<td>Birth to 9-12 months of age, rarely longer. A small number of infants with congenital rubella continue to shed virus in nasopharyngeal secretions and urine for 1 year or more and can transmit infection to susceptible contacts (3).</td>
</tr>
<tr>
<td><strong>Susceptibility and Resistance</strong></td>
<td>Fetuses of pregnant women who are susceptible and are exposed to rubella (2).</td>
</tr>
</tbody>
</table>

5) Reporting Requirements:

- **To local Board of Health**
  Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the *Health Protection and Promotion Act, R.S.O. 1990.*

- **To Public Health Division (PHD)**
  Report only case classifications specified in the case definition to PHD.

Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry **within five (5) business days of receipt of initial notification** as per iPHIS Bulletin Number 17: Timely Entry of Cases (4).

The minimum data elements to be reported for each case is specified in the following:

- *Ontario Regulation 569* (Reports) under the Health Protection and Promotion Act (HPPA);
- The disease-specific User Guides published by the Ministry, and,
- Bulletins and directives issued by the Ministry.

6) Prevention and Control Measures:

- **Personal Prevention Measures**
  Not applicable

- **Infection Prevention and Control Strategies**
  Prevention strategies:
  - Immunization with Rubella vaccine now given as MMR vaccine (1) as per the Canadian Immunization Guide and the current Publicly Funded Immunization Schedules for Ontario;
  - Healthcare workers should provide evidence of adequate immunization for rubella as per the Ontario Hospital Association/Ontario Medical Association, *OHA/OMA Communicable Diseases Surveillance Protocols for Ontario Hospitals, 2004,* and
  - Routine practices and respiratory isolation precautions are recommended for hospitalized cases.

- **Management of Cases**
  Refer to *Ontario Regulation 569* for relevant data to collect. Ensure that the investigation includes:
  - Confirming the diagnosis as per the case definition;
  - Determining the mother’s immunization and antenatal
serological status, and

• Determining the possible source and exposure to rubella during her pregnancy including clinical details of her infection and possible setting/location of exposure.

Infants with congenital rubella should be isolated from non-immune pregnant women, infants and children, and should be considered infectious until there are 2 sets of negative tests. Urine and nasopharyngeal (NP) specimens in addition to serology should be collected shortly after birth and again in 1-2 months. If the test results are not negative the infant is considered infectious and should continue to be isolated from non-immune persons. Regular testing should be done until tests are negative.

There is no specific treatment for congenital rubella except for symptomatic and supportive care (3).

Management of Contacts

A contact is any susceptible person who has had close contact with the newborn during the period of communicability.

• Pregnant contacts should be advised to consult with their physician or midwife. Physician should confirm rubella susceptibility status and where this is negative, perform serology to determine if infected.
• Assess immunization status of identified contacts and immunize where appropriate.
• Alert contacts about signs and symptoms.
• Advise contact to seek medical attention upon symptom onset and inform the local public health unit.

Management of Outbreaks

Not applicable

7) References


(4) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.

8) Additional Resources


Steering Committee on Infection Control Guidelines. Prevention and control of occupational infections in health care. An infection control


Appendix A: Disease-Specific Chapters

Chapter: Salmonellosis
Salmonellosis

| Communicable | ☒ | Virulent | ☐ |

**Health Protection and Promotion Act:**
Ontario Regulation 558/91 – Specification of Communicable Diseases

**Health Protection and Promotion Act:**
Ontario Regulation 559/91 – Specification of Reportable Diseases

| 1) Aetiologic Agent: | Salmonellosis is caused by the bacterium, *Salmonella*, a Gram-negative non-spore forming bacillus that has more than 2,000 serotypes, belonging to the *Enterobacteriaceae* family (1, 2). The new nomenclature for Salmonella is *Salmonella enterica* subsp *enterica*. Serovars include Typhimurium, Enteriditis, etc. (1). |

| 2) Case Definition: | |

**Surveillance Case Definition**
See Appendix B

**Outbreak Case Definition**
The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following when establishing an outbreak case definition:

1. Clinical, laboratory and/or epidemiological criteria
2. The time frame for occurrence
3. The geographic location(s) or place(s) where cases live or became ill/exposed
4. Special attributes of cases (e.g. age, underlying conditions) and/or the aetiologic agent

Cases may be classified by levels of probability (i.e. confirmed, probable and/or suspect).

| 3) Identification: | |

**Clinical Presentation**
Symptoms can occur within 6-72 hours, however usually appear 12-36 hours after consumption of contaminated food or beverage. Symptoms include sudden onset of headache, fever, abdominal pain, diarrhea, nausea and sometimes vomiting. Dehydration especially among the young, the elderly, and those with impaired immune systems can be severe, resulting in hospitalization. In these patients, the infection may spread to the bloodstream; occasionally, the bacteria may localize in any tissue of the body, producing abscesses and other systemic complications. Death is uncommon except in the very old, the very young, and in persons with compromised immune systems (1, 2, 3).
### Diagnosis

See Appendix B

Diagnosis is made through the isolation of *Salmonella* organisms from stool, rectal swabs, urine, blood or any other sterile site.

### 4) Epidemiology:

#### Occurrence

Occurrence is worldwide. It is estimated that only 1% of all infections are ever clinically recognized. The incidence rate of infection is highest among infants and young children. About 60-80% of all cases occur sporadically; however, large outbreaks in hospitals, institutions for children, restaurants, nursing homes, and the community, are common, and usually arise from food contaminated at source or during handling by an ill person or carrier, although person-to-person transmission can occur (3).

Salmonellosis is the second most common enteric infection in Ontario, with an average of almost 2,500 cases occurring per year. The number of cases typically peaks in the summer months. *S. Typhimurium* and *S. Enteriditis* are the leading causes of salmonellosis in Ontario.

#### Reservoir

Domestic and wild animals, including poultry, swine, cattle, rodents, and pets such as iguanas, tortoises, turtles, terrapins, snakes, chicks, dogs and cats (1).

Acute cases, convalescent carriers and mild and unrecognized cases constitute an important source of illness (1).

#### Modes of Transmission

Most types of *Salmonella* live in the intestines of animals and birds. Infection is acquired by the ingestion of organisms in food contaminated by the stool of an infected animal or person.

The most common food vehicles include poultry and poultry products, raw milk and raw milk products, contaminated water, meat and meat products, raw and undercooked eggs and egg products, and raw fruits and vegetables.

Pets are another common source of infection. The bacteria can be carried by iguanas, turtles, tortoises, chicks, and sometimes cats and dogs. Farm animals may become infected by contaminated feeds and fertilizers.

Fecal-oral transmission from person-to-person can also occur when diarrhea is present, and can be a concern, especially in institutional settings (3).

#### Incubation Period

From 6-72 hours, usually about 12-36 hours (1).

#### Period of Communicability

Throughout the course of infection; extremely variable, usually several days to several weeks (1). A temporary carrier state occasionally continues for months, especially in infants. Depending
on the serotypes, approximately 1% of infected adults and 5% of children less than 5 years of age may excrete the organism for more than one year (1).

Susceptibility and Resistance

Susceptibility is general and usually increased by achlorhydria, antacid treatment, gastrointestinal surgery, prior or current broad-spectrum antibiotic therapy, neoplastic disease, and other immunosuppressive conditions including malnutrition (1).

5) Reporting Requirements:

To local Board of Health

Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the Health Protection and Promotion Act, R.S.O. 1990.

To Public Health Division (PHD)

Report only case classifications specified in the case definition to PHD using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within one (1) business day of receipt of initial notification as per iPHIS Bulletin Number 17: Timely Entry of Cases (4).

The minimum data elements to be reported for each case is specified in the following:

- Ontario Regulation 569 (Reports) under the Health Protection and Promotion Act (HPPA);
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry.

6) Prevention and Control Measures:

Personal Prevention Measures

Preventive measures (1):

- Minimize cross contamination by washing cutting boards and utensils with warm soapy water between uses, and especially after contact with raw poultry, meat, fruits and vegetables, and ready-to-eat foods
- Wash hands after using sanitary facilities, after handling raw foods, pets and other animals, and before handling other foods
- Thoroughly cook all food derived from animal sources, especially poultry, eggs and other poultry products and meats
- Avoid preparing or serving food while ill
- Treat or boil water intended for consumption
- Consume only pasteurized milk and dairy products made from pasteurized milk

Infection Prevention and Control Strategies

Strategies:

- Implement routine practices and contact precautions for incontinent and diapered cases for the duration of hospitalization (2)
• Educate food handlers and the general public about the importance of hand washing before, during and after food preparation; proper food handling and storage especially avoiding cross contamination between raw and cooked foods; maintaining a sanitary kitchen (1)

Management of Cases

Investigate cases of salmonellosis to determine the source of infection. Refer to Section 5: Reporting Requirements above for relevant data to be collected during case investigation. The following disease-specific information pertaining to the 3 days prior to onset of symptoms should also be obtained during case management:

• Symptoms and date of symptom onset;
• History of out-of-province or international travel, including earliest and latest exposure dates;
• Food and other exposure histories for the 3 day period prior to symptom onset;
• Known exposure to a carrier or unreported case in the 3 days before symptom onset;
• History of occupation involving vulnerable populations, food handling, childcare and healthcare, and
• History of farm visits.

For uncomplicated enterocolitis, no treatment is generally indicated except rehydration and electrolyte replacement (1). Antibiotic therapy does not shorten the duration of disease, can prolong the duration of fecal excretion, may not eliminate the carrier state, and may lead to resistant strains or more severe infections. Exceptions for treatment include infants up to 2 months, the elderly, the debilitated, those with sickle cell disease, persons with HIV, or patients with continued high fever or manifestations of extraintestinal infection (1, 2).

Note any treatment prescribed including name of medication, dose, and duration of treatment, start and finish dates.

Provide education about transmission of infection, proper hand hygiene, and safe food handling.

If available, collect and test suspected food items and prevent further consumption by recalling, holding or otherwise disposing of the suspected items.

Exclusion Criteria:

• Exclude symptomatic individuals from food handling, and from direct care of infants, elderly, immunocompromised and institutionalized patients until symptom free for 24 hours
• Return to work is not conditional upon submission of stool specimens or results of stool examination with the exception of health care workers (HCW) who work with high risk patients such as nursery personnel
• For these HCW cases, refer them to their respective
Management of Contacts

Consider household members as close contacts of a case. Provide education about transmission of infection and proper hand hygiene.

Symptomatic contacts that work in high risk settings should be assessed by their health care provider to determine if infected, and should be excluded as above.

Management of Outbreaks

Provide public health management of outbreaks or clusters in order to identify the source of illness, stop the outbreak and limit secondary spread.

Two or more unrelated cases of the same serotype of salmonellosis with a common exposure is suggestive of an outbreak.

As per this Protocol, outbreak management shall comprise of but not be limited to the following general steps:

- Confirm diagnosis and verify the outbreak;
- Establish an outbreak team;
- Develop an outbreak case definition;
- Implement prevention and control measures;
- Implement and tailor communication and notification plans depending on the scope of the outbreak;
- Conduct epidemiological analysis on data collected;
- Conduct environmental inspections of implicated premise where applicable;
- Coordinate and collect appropriate clinical specimens where applicable;
- Prepare a written report, and
- Declare the outbreak over in collaboration with the outbreak team.

7) References


8) Additional Resources


**Ministry of Health and Long Term Care, Advisory Committee on Communicable Diseases, *Enteric Disease Screening Recommendations and Case Management Guidelines on Foodhandlers and Patient Care Workers, 1990* (Currently being revised as “Guidelines for the Management of Enteric Diseases in Healthcare Workers, Food Handlers and Day care Staff and Attendees”)


Appendix A: Disease-Specific Chapters

Chapter: Severe Acute Respiratory Syndrome (SARS)
### Severe Acute Respiratory Syndrome (SARS)

- **Communicable**
- **Virulent**

**Health Protection and Promotion Act:**
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

**Health Protection and Promotion Act:**
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

**Health Protection and Promotion Act:**
**Ontario Regulation 95/03 – Specification of Virulent Diseases**

<table>
<thead>
<tr>
<th>1) Aetiologic Agent:</th>
<th>SARS is caused by a coronavirus similar on electron microscopy to animal coronaviruses (1). Coronaviruses are large, enveloped RNA viruses (2).</th>
</tr>
</thead>
<tbody>
<tr>
<td>2) Case Definition:</td>
<td></td>
</tr>
<tr>
<td>Surveillance Case Definition</td>
<td><a href="#">See Appendix B</a></td>
</tr>
</tbody>
</table>
| Outbreak Case Definition | The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition:  

  1. Clinical, laboratory and/or epidemiological criteria;  
  2. A time frame for occurrence;  
  3. A geographic location(s) or place(s) where cases live or became ill/exposed, and  
  4. Special attributes of cases (e.g. age, underlying conditions).  

Cases should be classified by levels of probability (i.e. confirmed, probable or suspect). |
| 3) Identification:     |                                                                                                                                  |
| Clinical Presentation  | SARS illness generally presents with malaise, myalgia and fever, quickly followed by respiratory symptoms including cough and shortness of breath. Diarrhea may occur. Symptoms may worsen for several days coinciding with viraemia at 10 days after onset (1).  

Nearly all confirmed infected adult cases developed pneumonia or acute respiratory distress syndrome (2). |
| Diagnosis              | [See Appendix B](#)                                                                                                            |

**Note:** Serology and virology tests confirm SARS and include PCR, ELISA and IFA;
Clinical specimens include Nasal Pharyngeal Swabs (NPS) and stools.
Clinical presentation and epidemiological evidence supports the diagnosis.

4) Epidemiology:

| Occurrence | First recognized in February 2003; the disease is thought to have originated in the Guandong province of China, with emergence into human populations sometime in November 2002. By July 2003, major outbreaks had occurred at 6 sites: Canada, China (Guandong Province, and Special Administrative Region of Hong Kong) Taiwan, Singapore, and Viet Nam (1).
The disease occurred in more than 20 additional sites throughout the world, following major airline routes. Most cases occurred in hospitals and among families and close contacts of hospital workers (1).
There have been no cases of SARS identified anywhere in the world since the 2003 outbreaks.
More information on the occurrence of SARS is available at: [http://www.health.gov.on.ca/english/providers/program/pubhealth/sars/sars_mn.html](http://www.health.gov.on.ca/english/providers/program/pubhealth/sars/sars_mn.html) and in the other resources and references listed below. |
| Reservoir | Unknown (1) |
| Modes of Transmission | SARS is transmitted from person to person by close contact (i.e. within 1 or 2 metres); caring for, living with, or direct contact with infectious respiratory secretions or body fluids of a suspected, or confirmed case of SARS.
The SARS virus is thought to be transmitted most readily through respiratory droplets produced when an infected individual coughs or sneezes and possibly through fomites (a surface or object contaminated with infectious droplets).
In one instance, the virus is thought to have been transmitted from person to person through some environmental vehicle, possibly aerosolised sewage or transport of sewerage by mechanical vectors. Retrospective studies of this particular mode of transmission continue (1). |
| Incubation Period | 3 – 10 days (1) |
| Period of Communicability | Not yet completely understood. Initial studies suggest that transmission does not occur before onset of clinical signs and symptoms, and that maximum period of communicability is less than 21 days. During the 2003 outbreak, health workers were at great risk of disease acquisition, especially when exposed to aerosol-generating procedures such as intubations or nebulisation. In 2003, health care workers served as an entry point of the disease into the community in North America (1). |
| Susceptibility and Resistance | Unknown but susceptibility is assumed to be universal. At present race and gender do not appear to alter susceptibility. Because of the small number of cases reported among children, it has not been possible to assess the influence of age (1). The clinical course appears to be much milder and shorter among cases less than 12 years of age (2). |
### 5) Reporting Requirements:

<table>
<thead>
<tr>
<th>To Local Board of Health</th>
<th>Confirmed and suspected cases shall be reported <strong>by phone immediately</strong> to the medical officer of health by persons required to do so under the <em>Health Protection and Promotion Act</em>, R.S.O. 1990.</th>
</tr>
</thead>
</table>
| To Public Health Division (PHD) | The local board of health shall notify the Public Health Division **by phone as soon as possible after receiving a report** of a suspect or probable case of SARS, and after ruling out any other similar illness (PHD Call center: 416-212-6361). Report only case classifications specified in the case definition to PHD. Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry **within one (1) business day of receipt of initial notification** as per *iPHIS Bulletin* Number 17: Timely Entry of Cases (5). The minimum data elements to be reported for each case are specified in the following:  
  - *Ontario Regulation 569* (Reports) under the Health Protection and Promotion Act (HPPA);  
  - The disease-specific User Guides published by the Ministry, and  
  - Bulletins and directives issued by the Ministry. |

### 6) Prevention and Control Measures:

| Personal Prevention Measures | Measures:  
  - Since there is no SARS vaccine, the most effective measure to prevent SARS is to prevent transmission from infected persons to susceptible persons;  
  - All individuals presenting to a health care facility with symptoms of a febrile respiratory illness (FRI) should receive information about, and the importance of, respiratory etiquette and hand hygiene, and  
  - Ensure early recognition and prevention of transmission of SARS-CoV and other respiratory viruses at the initial encounter with a health care facility using the assessment protocol including travel history found in the PIDAC document Ontario Ministry of Health and Long-Term Care, Provincial Infectious Diseases Advisory Committee. Preventing Febrile Respiratory Illnesses, Protecting Patients and Staff. Sept 2005 Revised Aug 2006. |
| Infection Prevention and Control Strategies | Strategies focus on the use of routine infection prevention and control practices in healthcare settings and among health care workers  
  - All health care workers (HCWs) should be educated in regards to Routine Practices related to infection prevention and control.  
  - All HCWs should wear appropriate Personal Protective Equipment (PPE) when assessing patients with suspect respiratory illness. Educate health care staff about the importance of strict adherence to, and |
proper use of, routine infection prevention and control measures especially hand hygiene as well as isolation procedures and use of appropriate PPE.

Encourage and maintain respiratory hygiene and cough etiquette in order to reduce transmission of all forms of respiratory pathogens, including SARS-CoV. Persons with signs and symptoms of respiratory infection should:

- Cover their nose and mouth when coughing and sneezing;
- Use tissues to contain respiratory secretions;
- Dispose of tissue in the nearest waste receptacle after use, and
- Perform hand hygiene after contact with respiratory secretions and contaminated objects and materials.

Cases should not go to work, school, or other public areas until 10 to 14 days after fever and respiratory symptoms have resolved.

<table>
<thead>
<tr>
<th>Management of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investigate the case to determine source of infection. Refer to Ontario Regulation 569 for relevant data to collect. Case detection, patient isolation and contact tracing can reduce the number of people exposed to each infectious SARS case and eventually break the chain of transmission.</td>
</tr>
<tr>
<td>- Epidemiological investigation</td>
</tr>
<tr>
<td>o Symptoms and date of symptom onset</td>
</tr>
<tr>
<td>o Travel history</td>
</tr>
<tr>
<td>o History of exposure or risk factors</td>
</tr>
<tr>
<td>o Earliest and latest exposure dates</td>
</tr>
<tr>
<td>o Occupational history</td>
</tr>
<tr>
<td>o Residency/attendance at a facility or institution</td>
</tr>
<tr>
<td>- Contact identification and tracing</td>
</tr>
<tr>
<td>o Contact history during period of communicability</td>
</tr>
<tr>
<td>o Assessment of type of contact and probability of transmission</td>
</tr>
<tr>
<td>o Identification of contacts for follow-up including patients with febrile respiratory illness (FRI) or suspected FRI</td>
</tr>
<tr>
<td>o Occupational history</td>
</tr>
<tr>
<td>o Residency/attendance at a facility or institution</td>
</tr>
</tbody>
</table>

While receiving institutional health care, SARS-infected cases should be placed on droplet precautions. Appropriate PPE should be worn and appropriate personal protective measures performed (e.g. hand hygiene) by health care workers caring for patients infected with SARS.

There are no specific treatment recommendations for SARS. (The application of intensive supportive therapy and empirical antimicrobial therapy, to cover other infective agents is the usual approach).

While ribavirin, corticosteroids, oseltamivir, protease inhibitors and other medications have been used in the treatment of SARS, thus far there is no consensus on an optimal treatment regimen.

Cases should not go to work, school, or other public areas until 10 to 14 days after fever and respiratory symptoms have resolved. During this time, infection prevention and control precautions for SARS patients should be followed.

Refer to the PHAC document, Public Health Management of SARS Cases and...
### Management of Contacts

A contact is a person who cared for, lived with, or had direct contact with the respiratory secretions, body fluids and/or excretion of a suspected or confirmed SARS case (1).

Identify all contacts of each case and follow-up each daily, including health checks and possible voluntary home quarantine.

Provide information on the signs and symptoms and means of transmission to each contact (1).

Place under active surveillance for 10 days and recommend voluntary quarantine at home and record temperature daily, stressing that fever is usually the first symptom (1).

Public Health staff should call the contact daily to assess fever and status.

#### Management of symptomatic contacts:

- Immediate clinical investigation (including chest x-ray and laboratory investigation) at a site where appropriate infection prevention and control precautions can be ensured. Symptomatic contacts would be a probable or suspect case and would likely be hospitalized, and
- Monitor results of clinical investigation including radiographic evidence of infiltrates consistent with pneumonia or respiratory distress and laboratory results, which may result in a change of case status (i.e., change to “probable” or “confirmed” case or exclusion of the case based on determination of an alternative diagnosis that can fully explain the illness).

#### Management of asymptomatic contacts:

- If asymptomatic and afebrile for 10 days discontinue quarantine.
- If it has been less than 10 days since their last contact with the potential exposure source, then instruct to self-monitor for symptoms for the remainder of the 10 days.


### Management of Outbreaks

One suspected, probable or confirmed case of SARS will constitute an outbreak. Provide public health management of outbreaks or clusters in collaboration with Public Health Division in order to identify the source of illness, stop the outbreak and limit secondary spread.

As per this Protocol outbreak management shall comprise of but not be limited to the following general steps:

- Confirm diagnosis and verify the outbreak;
- Establish an outbreak team;
- Develop an outbreak case definition;
- Implement prevention and control measures;
- Implement and tailor communication and notification plans depending
- Conduct epidemiological analysis on data collected;
- Conduct environmental inspections of implicated premise where applicable;
- Coordinate and collect appropriate clinical specimens where applicable;
- Prepare a written report, and
- Declare the outbreak over in collaboration with the outbreak team.

Refer to the PHAC document, Public Health Management of SARS Cases and Contacts Interim Guidelines

### 7) References


5. Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.

### 8) Additional Resources


Appendix A: Disease-Specific Chapters

Chapter: Shigellosis
### Shigellosis

- **Communicable**
- **Virulent**

#### Health Protection and Promotion Act:
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

#### Health Protection and Promotion Act:
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

| 1) Aetiologic Agent: | Shigellosis is an acute bacterial disease, also known as bacillary dysentery caused by an anaerobic Gram-negative bacilli in the family Enterobacteriaceae. Four species with more than 40 serotypes have been identified (1, 2).

A - *Shigella dysenteriae*
B - *Shigella flexneri*
C - *Shigella boydii*
D - *Shigella sonnei*

Species A, B, and C are further classified into 12, 14, and 18 serotypes and subtypes, respectively.

The infectious dose for humans is low; as few as 10-100 bacteria have been shown to cause disease (1). |
|---|---|

| 2) Case Definition: | **Surveillance Case Definition**
See Appendix B |

**Outbreak Case Definition**

The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following when establishing an outbreak case definition:

1. Clinical, laboratory and/or epidemiological criteria;
2. The time frame for occurrence;
3. The geographic location(s) or place(s) where cases live or became ill/exposed, and
4. Special attributes of cases (e.g. age, underlying conditions) and/or aetiologic agent.

Cases may be classified by levels of probability (e.g. confirmed, probable and/or suspect). |
|---|---|

| 3) Identification: | **Clinical Presentation:**
An acute bacterial disease involving the distal small intestine and |

Infectious Diseases Protocol, 2009 – Appendix A
colon, characterized by watery, loose stools, accompanied by fever, nausea and vomiting in mild cases. Sometimes, toxemia, abdominal cramps and tenesmus with mucoid stools with or without blood in more severe cases (2). Illness is usually self-limiting, lasting an average of 4 – 7 days (1). Severity and case-fatality vary with the age of the host and the serotype of *Shigella* (1).

<table>
<thead>
<tr>
<th>Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>See Appendix B</strong></td>
</tr>
</tbody>
</table>

Diagnosis is made by the isolation of *Shigella* spp. from feces or rectal swab. *Shigella* remains viable outside the body for only a short period of time, therefore specimens need to be processed rapidly after collection (1).

More information on diagnostic testing is available in the Ministry of Health Long-Term Care, Public Health Laboratory. *Specimen Collection Guide, Testing Guidelines, June 2008.*

### 4) Epidemiology:

<table>
<thead>
<tr>
<th>Occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occurrence is worldwide (3). In developed countries, <em>S. sonnei</em> is the most commonly reported species. Between 2003 and 2007, an average of 270 cases of shigellosis occurred each year in Ontario.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reservoir</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humans (1)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Modes of Transmission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary mode of transmission is fecal-oral. Transmission occurs through person-to-person contact, contact with contaminated inanimate objects, ingestion of contaminated food or water and through sexual contact (2). Direct transmission is common in children and from infected persons who do not thoroughly clean their hands and under fingernails following defecation. Indirect transmission is usually via contaminated food or water and less commonly via inanimate objects (1). Risk of transmission occurs particularly among men having sex with men and in areas of overcrowding where sanitation is poor, such as jails, institutions for children, daycare centres and mental hospitals. Multi-antibiotic resistant strains have appeared worldwide, resulting from widespread use of antibiotics. Foodborne outbreak of shigellosis associated with an infected food handler has occurred in Ontario.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Incubation Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usually 1-3 days but may range from 12 - 96 hours and up to one week for <em>S. Dysenteriae</em> 1 (1).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Period of Communicability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Susceptibility is general; the elderly, the debilitated and the malnourished of all ages are particularly susceptible to severe disease and death (1).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Susceptibility and Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>During acute infection and until the infectious agent is no longer present in feces, usually within 4 weeks after illness. Secondary attack rates in households can be as high as 40% (1). Asymptomatic carriers may transmit infection (1). Appropriate antimicrobial treatment usually reduces duration of carriage to a few days (1).</td>
</tr>
</tbody>
</table>
5) Reporting Requirements:

<table>
<thead>
<tr>
<th>To Local Board of Health</th>
<th>Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the Health Protection and Promotion Act, R.S.O. 1990.</th>
</tr>
</thead>
</table>
| To Public Health Division (PHD) | Report only case classifications specified in the case definition to PHD using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within one (1) business day of receipt of initial notification as per iPHIS Bulletin Number 17: Timely Entry of Cases (4). The minimum data elements to be reported for each case is specified in the following sources:  
  - Ontario Regulation 569 (Reports) under the Health Protection and Promotion Act (HPPA);  
  - The disease-specific User Guides published by the Ministry, and  
  - Bulletins and directives issued by the Ministry. |

6) Prevention and Control Measures:

<table>
<thead>
<tr>
<th>Personal Prevention Measures</th>
<th>Preventive measures: (1, 2)</th>
</tr>
</thead>
</table>
|                             | • Practice good hygiene, especially hand washing, before food preparation and eating, and after using sanitary facilities;  
                             | • The use of alcohol-based hand rubs may be effective where access to soap and clean water is limited;  
                             | • Emphasize proper food handling practices including cold storage of salads and other foods that require refrigeration;  
                             | • Use proper food handling techniques that minimize contamination;  
                             | • Wash fresh fruits and vegetables using clean running water;  
                             | • Follow proper diapering procedures, and  
                             | • Educate the general public and especially travellers about consuming foods and beverages from unsafe sources. |

| Infection Prevention and Control Strategies | Strategies:  
• Contact precautions are indicated for the duration of the illness in addition to routine practices for hospitalized cases;  
• Promote and emphasize frequent and proper hand washing with soap and water, and  
• Exclude infected persons from food handling and care giving in child care and health care settings, and from attending these settings. |

| Management of Cases: | Investigate cases of shigellosis to determine the source of infection. Refer to Section 5: Reporting Requirements above for relevant data |
The following disease-specific information pertaining to the 3 days prior to onset should also be obtained during case management:

- Symptoms and date of symptom onset;
- History of travel, including earliest and latest exposure dates;
- Food and history of other exposures for the 3 day period prior to symptom onset;
- Known exposure to an individual with signs and symptoms compatible with shigellosis, and
- History of occupation involving susceptible populations, food handling, childcare and healthcare.

Identify close contacts (see definition below).

Educate the case regarding the transmission of infection and proper hand hygiene.

Treatment and follow up is under the direction of the attending health care provider.

**Exclusion Criteria:**
- Exclude symptomatic and asymptomatic cases who are food handlers, care givers or daycare attendees until 2 successive negative stool samples or rectal swabs collected at least 24 hours apart **AND** at least 24 hours after cessation of symptoms **OR** 48 hours after completion of antibiotic therapy are found to be negative for *Shigella*.

**Management of Contacts**

Contacts are household members of a case or persons who have had close contact with a case (3). Symptomatic contacts should be assessed by their health care provider and should be excluded from occupations as listed above for cases. Contacts should be instructed about disease transmission, appropriate personal hygiene, routine practices and contact precautions.

**Management of Outbreaks**

As with most enteric diseases, an outbreak is defined as the occurrence of two or more cases of enteric illness linked by time, common exposure or source and most often location.

Provide public health management of outbreaks or clusters in order to identify the source of illness, stop the outbreak and limit secondary spread.

As per this protocol, outbreak management shall comprise of but not be limited to the following general steps:

- Confirm diagnosis and verify the outbreak;
- Establish an outbreak team;
- Develop an outbreak case definition;
- Implement prevention and control measures;
- Implement and tailor communication and notification plans depending on the scope of the outbreak;
- Conduct epidemiological analysis on data collected;
• Conduct environmental inspections of implicated premise where applicable;
• Coordinate and collect appropriate clinical specimens where applicable;
• Prepare a written report, and
• Declare the outbreak over in collaboration with the outbreak team.

7) References


(4) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.

8) Additional Resources


Ministry of Health and Long Term Care, Advisory Committee on Communicable Diseases, Enteric Disease Screening Recommendations and Case Management Guidelines on Foodhandlers and Patient Care Workers, 1990 (Currently being revised as “Guidelines for the Management of Enteric Diseases in Healthcare Workers, Food Handlers and Day care Staff and Attendees”)


Appendix A:
Disease-Specific Chapters

Chapter: Smallpox
Smallpox

Communicable

Virulent

Health Protection and Promotion Act, Section 1 (1)

Health Protection and Promotion Act:
Ontario Regulation 558/91 – Specification of Communicable Diseases

Health Protection and Promotion Act:
Ontario Regulation 559/91 – Specification of Reportable Diseases

1) Aetiologic Agent:

Infectious agent is the *variola virus*, a species of *Orthopoxvirus* (1).

The virus used in the live smallpox vaccine is known as the *vaccinia virus* also a member of the genus *Orthopoxvirus* (2).

In 1979, the World Health Organization declared that smallpox (variola) had been eradicated successfully worldwide however, it does remain as a potential bioterrorism weapon (2).

2) Case Definition:

Surveillance Case Definition

See Appendix B

Outbreak Case Definition

A single confirmed case of smallpox constitutes an outbreak.

Consideration should be given to the following in establishing an outbreak case definition:

1. Clinical, laboratory and/or epidemiological criteria;
2. A time frame for occurrence;
3. A geographic location(s) or place(s) where cases live or became ill/exposed, and
4. Special attributes of cases (e.g. age, underlying conditions).

Cases should also be classified by levels of probability (i.e. confirmed, probable or suspect).

3) Identification:

Clinical Presentation

Smallpox is a systemic viral disease. The clinical presentation has been described as sudden onset with fever, malaise, headache, prostration, severe backache and occasional abdominal pain and vomiting; followed by a characteristic skin eruption after 2-4 days when the fever begins to fall. A rash progresses through successive stages of macules, papules, vesicles, pustules, then crusted scabs that fall off 3 - 4 weeks later (1).
### Diagnosis

See Appendix B

Variola virus can be detected in vesicular or pustular fluid by culture or by polymerase chain reaction assay. Electron microscopy detects *Orthopoxvirus* infection but cannot distinguish between viruses (2). Scrapings of lesions and occasional blood sera can be used for diagnosis (1).

### 4) Epidemiology:

#### Occurrence

Formerly, smallpox was a widespread worldwide disease, however the last occurrence of endemic smallpox was in Somalia in 1977 and the last case in the world was a laboratory acquired infection in 1978 in England (1).

There have been no confirmed cases of smallpox reported in Ontario since the global eradication of smallpox in 1979.

#### Reservoir

Smallpox was exclusively a human disease with no known other reservoir (1). Currently virus exists only in certain laboratories.

#### Modes of Transmission

Smallpox is spread most commonly in droplets from the oropharynx of infected individuals. Rare transmission from aerosol and direct contact with infected lesions, clothing or bedding has been reported (2).

#### Incubation Period

From 7-19 days; commonly 10-14 days from infection to onset of illness (first symptoms/prodrome period), then 2-4 more days to onset of rash (1).

#### Period of Communicability

From the time of development of the earliest lesions to disappearance of all scabs, about 3 weeks. The risk of transmission appears to have been highest at the appearance of the earliest lesions through droplet spread from the oropharyngeal enanthem (1).

#### Susceptibility and Resistance

All unvaccinated individuals are susceptible (1).

### 5) Reporting Requirements:

#### To local Board of Health

Suspect, probable, and confirmed cases should be reported immediately by phone to the medical officer of health by persons required to do so under the *Health Protection and Promotion Act*, *R.S.O. 1990*.

#### To Public Health Division (PHD)

The board of health shall notify the PHD of the MOHLTC immediately by phone upon receiving report (PHD Call Centre: 416-212-6361).

Report only case classifications specified in the case definition to PHD.

Cases should be reported using the integrated Public Health
Information System (iPHIS), or any other method specified by the Ministry within one (1) business day of receipt of initial notification as per *iPHIS Bulletin* Number 17: Timely Entry of Cases (4).

The minimum data elements to be reported for each case is specified in the following:

- *Ontario Regulation 569* (Reports) under the Health Protection and Promotion Act (HPPA);
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry.

### 6) Prevention and Control Measures:

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Infection Prevention and Control Strategies</td>
<td>Smallpox is transmitted from person to person by infected aerosols and air droplets spread in face-to-face contact with an infected person after fever has begun. Airborne transmission via fine particle aerosol can also occur. The disease can also be transmitted by contaminated clothes and bedding, though the risk of infection from this source is much lower. As a result, it has been recommended that reusable linen should be autoclaved before laundering with hot water to which bleach has been added (5) Patients diagnosed with smallpox should be isolated in negative pressure rooms. All persons who have been in close contact with a smallpox case should be vaccinated. Contact and airborne precautions are required. <strong>Smallpox is not known to be spread by insects or animals.</strong> For further information, please refer to: <a href="http://www.who.int/mediacentre/factsheets/smallpox/en/">http://www.who.int/mediacentre/factsheets/smallpox/en/</a> <a href="http://www.bt.cdc.gov/agent/smallpox/basics/outbreak.asp">http://www.bt.cdc.gov/agent/smallpox/basics/outbreak.asp</a></td>
</tr>
<tr>
<td>Management of Cases</td>
<td>The World Health Organization regards even a single case of smallpox anywhere in the world as a global health emergency (3). Investigate the case to determine source of infection. Refer to <em>Ontario Regulation 569</em> for relevant data to collect and investigate as per the plan listed below:</td>
</tr>
</tbody>
</table>
Key search and contain measures that fall within provincial, territorial and local jurisdiction that are outlined in the PHAC Plan, “Emergency response to an outbreak of smallpox, Sept 21, 2004” (http://www.phac-aspc.gc.ca/media/issues/smallpox_e.html), include:

- Early detection, diagnosis and notification of cases;
- Immediate isolation of suspect, probable or confirmed cases;
- Rapid set-up of local Smallpox Control Centres for "command and control" functions by local health authorities;
- In collaboration with National Smallpox Response Force members, provide for the immediate vaccination and deployment of local smallpox personnel;
- Specimen collection, storage and local transport to Public Health Agency of Canada's National Microbiology Laboratory (NML) in Winnipeg, Manitoba;
- Establishment and management of Smallpox Isolation Sites for smallpox cases;
- Tracing, vaccination and surveillance of contacts of smallpox patients;
- Rapid set-up of Smallpox Assessment Centres to divert potentially contagious smallpox patients away from crowded medical facilities;
- Where necessary, rapid set-up of Vaccination Clinics, and
- Local and regional public communications activities, particularly those focused on public notification and education on local smallpox control measures.

NOTE:
As the appearance of even a single smallpox case would signal a deliberate release, the response would include the activation of the emergency management system in place in the province, including the Emergency Management Unit of the Ministry of Health and Long-Term Care and relevant health emergency response plans, as well as those additional ministries with responsibilities for security, law enforcement, or other relevant areas of concern, as identified in the Emergency Management and Civil Protection Act and associated Order in Council. The Ministry Emergency Response Plan (MERP) provides information on how the ministry would respond to an emergency. Please see the following link for further information:
http://www.health.gov.on.ca/english/providers/program/emu/emerg_prep/emerg RESP_plan.html

Management of Contacts
Key search and contain measures that fall within provincial, territorial and local jurisdiction that are outlined in the PHAC Plan, “Emergency response to an outbreak of smallpox, Sept 21, 2004” (http://www.phac-aspc.gc.ca/media/issues/smallpox_e.html), for contact management include:

- Early detection and immediate notification of suspect, probable or confirmed cases of smallpox to local public health units;
- Immediate isolation of suspect, probable or confirmed cases;
- Immediate deployment of smallpox responders from National
Smallpox Response Force (NSRF) to the area(s) of smallpox outbreak. Members of NSRF will have been pre-vaccinated and trained for smallpox duties by Public Health Agency of Canada. Other than during a smallpox outbreak, NSRF members will work and reside across the country according to a proportionally representative formula. Membership selection for NSRF will rest with CMOHs, and will be based on the vaccination protocol's screening criteria;

- Upon deployment to a smallpox outbreak area, NSRF members will immediately vaccinate all those directly exposed to a deliberate smallpox virus release, all known direct contacts to suspected or presumed cases, and all local personnel who will be performing any duties;
- Upon receiving their smallpox vaccination, local smallpox personnel will commence intensive contact tracing; followed by immediate vaccination, fever and rash surveillance (and possibly isolation) of all contacts to the cases. "Contacts" is defined here as a) those who have experienced direct face-to-face (within two metres) contact with a case from onset of fever to separation of scabs, and b) household contacts (or other close contacts) to the direct contacts. Assistance with these activities will be provided by NSRF members who have been deployed to the outbreak area;
- Rapid set-up of isolation facilities, and
- Rapid set-up of local Smallpox Assessment Centres in affected areas in order to divert potentially contagious smallpox patients from crowded medical facilities.

**Management of Outbreaks**

In the event of a smallpox outbreak within Canada or worldwide, Canada will employ a “search and contain” strategy (3).

**Key federal government measures to support the search and containment of smallpox in the event of an outbreak are as follows:**

- Immediate international notification and consultation with the World Health Organization, the Pan American Health Organization, and the U.S. Centres for Disease Control and Prevention;
- Maintain a group of pre-vaccinated and trained National Smallpox Response Force who work across the country in various health professions and are deployed by Public Health Agency of Canada in the event of a smallpox outbreak;
- Mobilize and transport vaccine stocks (including VIG, bifurcated needles, and cards showing successful "takes") to outbreak sites;
- Supply provisional medication, supplies, mobile beds, etc. from Health Canada's Emergency Stockpile System, upon request from provinces and territories;
- Activate Health Canada's 24/7 Emergency Operations Centre, which will include toll-free smallpox advice lines for professionals and the public, a smallpox reporting and surveillance system, and advice on media communications from Public Health Agency of Canada;
• Engage in constant international consultation.
• Where necessary, designate federal facilities for smallpox isolation and quarantine services;
• Manage smallpox in populations under federal jurisdiction (Native Reserves, DND, prisons, international travelers, etc.), and
• Ensure consistent, coordinated and effective public communications together with provincial and territorial governments and other involved health partners.

If deemed necessary, the government of Canada will invoke the Emergencies Act, and the National Counter-Terrorism Plan.

7) References


(4) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.


8) Additional Resources


Centers for Disease Control and Prevention. What You Should Know
About a Smallpox Outbreak.
http://www.bt.cdc.gov/agent/smallpox/basics/outbreak.asp
Appendix A: Disease-Specific Chapters

Chapter: Syphilis
Syphilis

Communicable

Virulent

Health Protection and Promotion Act, Section 1 (1)

Health Protection and Promotion Act:
Ontario Regulation 558/91 – Specification of Communicable Diseases

Health Protection and Promotion Act:
Ontario Regulation 559/91 – Specification of Reportable Diseases

<table>
<thead>
<tr>
<th>1) Aetiologic Agent:</th>
<th>The spirochete <em>Treponema pallidum</em>, subspecies <em>pallidum</em> is the infective agent (1).</th>
</tr>
</thead>
</table>

2) Case Definition:

<table>
<thead>
<tr>
<th>Surveillance Case Definition</th>
<th>See Appendix B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outbreak Case Definition</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

3) Identification:

<table>
<thead>
<tr>
<th>Clinical Presentation</th>
<th>An acute and chronic treponemal disease characterized clinically by a primary lesion, a secondary eruption involving skin and mucous membranes, long periods of latency, and late lesions of skin, bone, viscera, the CNS and cardiovascular system (2).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The primary lesion (chancre) usually appears 3 weeks after exposure (1). Four stages in syphilis infection include: primary, secondary, early latent and late latent (1).</td>
</tr>
<tr>
<td></td>
<td>• Primary syphilis is characterized by one or more painless superficial ulcerations or chancre at site of exposure and regional lymphadenopathy.</td>
</tr>
<tr>
<td></td>
<td>• Secondary syphilis develops following resolution of primary lesion and is characterized by macular, maculopapular or papular lesions or a rash, typically involving palms, soles and flexor areas of extremities and regional lymphadenopathy.</td>
</tr>
<tr>
<td></td>
<td>• Latent Syphilis is serological evidence of infection in the absence of symptoms and is further defined as follows:</td>
</tr>
<tr>
<td></td>
<td>o Early latent syphilis, latent syphilis acquired within the preceding year, and</td>
</tr>
<tr>
<td></td>
<td>o Late latent syphilis, all other cases of latent syphilis.</td>
</tr>
</tbody>
</table>
Late latent syphilis or syphilis of unknown duration if left untreated can progress to tertiary or neurosyphilis. Tertiary syphilis is rare, may manifest as mucocutaneous/osseous lesions where cardiovascular involvement and neurosyphilis is present, and typically is not infectious.

Primary, secondary, and early latent syphilis are considered infectious.

Congenital syphilis, contracted from an infected mother via transplacental transmission or during the birthing process, can result in stillbirth, hydrops fetalis or preterm birth, as well as other systemic complications within the first 4-8 weeks of life.

| Diagnosis | See Appendix B |

### 4) Epidemiology:

<table>
<thead>
<tr>
<th>Occurrence</th>
<th>Widespread; in developed countries, Syphilis is usually more prevalent in urban than rural areas and in some cultures, in males more than in females (1). In Ontario it has recently been more prevalent among men who have sex with men (MSM), with transmission occurring through oral and anal contact. Overall, syphilis rates were declining in Ontario until 2002 when rates began to climb among MSM with the highest reported rates occurring among men in the 30 – 39 age range. Persons from endemic countries infected with other treponemes such as yaws, pinta and bejel can cause biological false positive serological results (2).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Humans (1)</td>
</tr>
<tr>
<td>Modes of Transmission</td>
<td>Spread by sexual contact, including vaginal, oral and anal sex, and also from an infected mother to her infant before or at the time of birth (1).</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>From 10 to 3 months; usually 3 weeks (1)</td>
</tr>
<tr>
<td>Period of Communicability</td>
<td>Communicability exists when moist mucocutaneous lesions of primary and secondary syphilis are present (1)</td>
</tr>
<tr>
<td>Susceptibility and Resistance</td>
<td>Universal susceptibility; approximately 30% of exposures result in infection (1)</td>
</tr>
</tbody>
</table>

### 5) Reporting Requirements:

| To Local Board of Health | Laboratory confirmed cases shall be reported to the medical officer of health by persons required to do so under the Health Protection and Promotion Act, R.S.O. 1990. |
For reporting requirements and data collection requirements refer to the *Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008* (or as current).

| To Public Health Division (PHD) | Report only case classifications specified in the case definition to PHD. Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry **within five (5) business days of receipt of initial notification** as per *iPHIS Bulletin Number 17: Timely Entry of Cases* (3). The minimum data elements to be reported for each case is specified in the following:

- *Ontario Regulation 569 (Reports)* under the Health Protection and Promotion Act (HPPA);
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry. |

**6) Prevention and Control Measures:**

| Personal Prevention Measures | Measures:  
- Education about safer sex practices including use of barrier methods;
- Early detection of infection by testing of people at risk;
- Effective treatment of persons with transmissible syphilis and their contacts (1), and
- Prenatal screening for syphilis should continue to be recommended as one of the routine tests provided during a prenatal workup.  

For more information on prevention measures refer to the ministry document: the *Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008* (or as current), and the references listed below. |

| Infection Prevention and Control Strategies | Strategies:  
- Cases should refrain from sexual activity until treatment is completed and lesions disappear;
- Identified sexual partners should be examined and treated (1), and
- Education of high-risk populations about safer sexual practices and screening.  

For more information on infection prevention and control measures refer to the ministry document: the *Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008* (or as current), and the references listed below. |
### Management of Cases

Investigate the case to determine source of infection. Refer to Ontario Regulation 569 for relevant data to collect.

Management depends on the stage of syphilis infection (refer to the resources listed below).

If applicable, provide education about the infection and methods of preventing further spread.

Benzathine Penicillin G is the drug of choice to treat syphilis (1). Treatment and follow up, repeat serology and the management of complications, is under the direction of the attending health care provider.

For more information on case management refer to the ministry document:

*Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008* (or as current) and the references listed below.

### Management of Contacts

Sexual contacts should be identified and interviewed. The extent of contact tracing depends on the clinical stage of infection (1):

- For primary syphilis, all sexual contacts during the 3 months preceding onset of symptoms;
- For secondary syphilis, contacts during the preceding 6 months;
- For early latent syphilis, those of the preceding year;
- For late latent syphilis, marital partners and children of infected mothers as appropriate, and
- For congenital syphilis, assess the mother and her sexual partners.

For management of contacts refer to the *Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008* (or as current), and the other resources and references listed below.

### Management of Outbreaks

Not applicable

### 7) References


### 8) Additional Resources

Ministry of Health and Long-Term Care. Sexual health and sexually transmitted infections prevention and control protocol. Toronto:

Appendix A:
Disease-Specific Chapters

Chapter: Tetanus
## Tetanus

| Communicable | ☑ |
| Virulent     |  |

### Health Protection and Promotion Act:

### Ontario Regulation 559/91 – Specification of Reportable Diseases

<table>
<thead>
<tr>
<th><strong>1) Aetiologic Agent:</strong></th>
<th>Tetanus is caused by an extremely potent neurotoxin produced by <em>Clostridium tetani</em> (1, 2).</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2) Case Definition:</strong></td>
<td><strong>Surveillance Case Definition</strong> See Appendix B</td>
</tr>
<tr>
<td></td>
<td><strong>Outbreak Case Definition</strong> Not applicable</td>
</tr>
<tr>
<td><strong>3) Identification:</strong></td>
<td><strong>Clinical Presentation</strong> Tetanus is an acute and often fatal disease caused by an extremely potent neurotoxin produced by <em>Clostridium tetani</em> (2). The disease presents with characteristic painful and convulsive spasms of skeletal muscles. Muscle stiffness usually begins in the jaw (lockjaw) and moves to the neck muscles, and then becomes generalized (3). Spasms last for 3-4 weeks, but complete recovery takes much longer. Rrigidity is sometimes confined to the region of injury (2).</td>
</tr>
<tr>
<td></td>
<td><strong>Diagnosis</strong> See Appendix B</td>
</tr>
<tr>
<td><strong>4) Epidemiology:</strong></td>
<td><strong>Occurrence</strong> World wide; the disease is more common in agricultural regions and in areas where contact with animal excreta is more likely and immunization inadequate (1). Tetanus occurs rarely in Ontario, with a range of zero to three reported cases per year from 1998-2007. Despite its rarity, a single case does not constitute an outbreak, as tetanus cannot be transferred directly from person to person.</td>
</tr>
<tr>
<td></td>
<td><strong>Reservoir</strong> The organism is a normal member of intestinal flora in animals and humans; the source of infection is soil or fomites contaminated with animal or human feces containing the spores which can contaminate wounds of all types; tetanus spores are ubiquitous in the environment (1, 2).</td>
</tr>
<tr>
<td><strong>Modes of Transmission</strong></td>
<td>Spores are introduced into the body through puncture wounds or lacerations that have been contaminated with soil, street dust, or the feces of animals or humans. Spores are also transmitted into the body by contaminated street drug paraphernalia and contaminated skin (1, 2).</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Incubation Period</strong></td>
<td>Usually 3-21 days, with a range from 1 day to several months, depending on the character, extent and location of the wound. The average incubation period is 10 days; most cases occur 14 days after exposure. In general, shorter incubation periods are associated with more heavily contaminated wounds, more severe disease and a worse prognosis (1).</td>
</tr>
<tr>
<td><strong>Period of Communicability</strong></td>
<td>No direct person to person transmission (1).</td>
</tr>
<tr>
<td><strong>Susceptibility and Resistance</strong></td>
<td>Vaccine preventable disease; susceptibility is general in unimmunized or inadequately immunized persons. Active immunity is induced by the tetanus toxoid and persists for at least 10 years after full immunization (1). To maintain high levels of immunity, booster doses are required every 10 years. Recovery from tetanus may not result in immunity; second attacks can occur and primary immunization is indicated after recovery (1).</td>
</tr>
</tbody>
</table>

**5) Reporting Requirements:**

<table>
<thead>
<tr>
<th><strong>To local Board of Health</strong></th>
<th>Confirmed and suspected cases shall be reported <strong>immediately</strong> to the medical officer of health by persons required to do so under the <em>Health Protection and Promotion Act</em>, R.S.O. 1990.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>To Public Health Division (PHD)</strong></td>
<td>The board of health shall notify the PHD of the MOHLTC <strong>immediately</strong> by phone upon receiving report. Report only case classifications specified in the case definition to PHD. Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five business days of receipt of initial notification as per <em>iPHIS Bulletin</em> Number 17: Timely Entry of Cases (6). The minimum data elements to be reported for each case is specified in the following:</td>
</tr>
</tbody>
</table>

- *Ontario Regulation 569 (Reports)* under the Health Protection and Promotion Act (HPPA);
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry. |
6) Prevention and Control Measures:

<table>
<thead>
<tr>
<th>Personal Prevention Measures</th>
<th>Prevention Measures:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• All persons should receive primary immunization with tetanus vaccine as per the Canadian Immunization Guide and the current Publicly Funded Immunization Schedules for Ontario.</td>
</tr>
<tr>
<td></td>
<td>• Adults should receive a booster dose of tetanus containing vaccine every 10 years (4).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Infection Prevention and Control Strategies</th>
<th>Strategies: Routine practices are recommended for hospitalized cases</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Regardless of immunization status, wounds should be cleaned and debrided properly if dirt or necrotic tissue is present. As an essential part of tetanus prophylaxis, wounds should receive prompt surgical attention and/or treatment to remove all devitalized tissue and foreign material. It is not necessary or appropriate to debride puncture wounds as extensively (5).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Management of Cases</th>
<th>Investigate the case to determine source of infection. Refer to Ontario Regulation 569 under the HPPA for relevant data to collect and ensure to include the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Immunization history.</td>
</tr>
<tr>
<td></td>
<td>• Identification of recent injury i.e., puncture wound or laceration.</td>
</tr>
<tr>
<td></td>
<td>• Assessing for recent history of intravenous drug use.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Management of Contacts</th>
<th>No follow up is required; tetanus is not transmitted person to person.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management of Outbreaks</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

7) References


<table>
<thead>
<tr>
<th>Sources</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>8) Additional Resources</strong></td>
<td></td>
</tr>
</tbody>
</table>
Appendix A: Disease-Specific Chapters

Chapter: Transmissible Spongiform Encephalopathy, including:
i. Creutzfeldt-Jakob Disease, all types; ii. Gerstmann-Sträussler-Scheinker Syndrome; iii. Fatal Familial Insomnia, and iv. Kuru
### Transmissible Spongiform Encephalopathy, including: i. Creutzfeldt-Jakob Disease, all types; ii. Gerstmann-Sträussler-Scheinker Syndrome; iii. Fatal Familial Insomnia, and iv. Kuru

**Communicable**

**Virulent**

#### Health Protection and Promotion Act:

**Ontario Regulation 558/91 – Specification of Communicable Diseases**

#### Health Protection and Promotion Act:

**Ontario Regulation 559/91 – Specification of Reportable Diseases**

<table>
<thead>
<tr>
<th>1) Aetiologic Agent:</th>
<th>Aetiology is not clear, but the infectious agents are thought to be unique proteins called prions which replicate by an unknown mechanism (1).</th>
</tr>
</thead>
<tbody>
<tr>
<td>2) Case Definition:</td>
<td><strong>Surveillance Case Definition</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Outbreak Case Definition</strong></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>3) Identification:</td>
<td><strong>Clinical Presentation</strong></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
recently described and associated with bovine spongiform encephalopathy (BSE) infected cattle (3).

### Diagnosis

See Appendix B

### 4) Epidemiology:

#### Occurrence

Worldwide; the highest age specific average mortality rate occurs in the 65-79 age group (1). Over 130 cases of vCJD have been reported mainly from the United Kingdom.

There have been no confirmed cases of variant CJD in Ontario. Canada had a reported case circa 2002. There are several classic CJD cases reported annually in Ontario.

#### Reservoir

Human cases constitute the only known reservoir for classic sCJD and the reservoir for vCJD is believed to be BSE-infected cattle (1).

#### Modes of Transmission

The mode of transmission for sporadic disease is unknown; some cases of CJD have occurred iatrogenically, some types of TSEs are genetic and vCJD is believed to be transmitted from BSE-infected cattle (1).

#### Incubation Period

Route of exposure influences incubation period; 15 – 120 months with direct CNS exposure (1).

#### Period of Communicability

Transmissibility and period of communicability varies with disease, tissue involved and stage of disease. CNS and other tissues are infectious throughout symptomatic illness; lymphoid and other organs are probably infectious before signs of illness appear. There is evidence that blood may be infective in some forms of experimental prion disease (1).


#### Susceptibility and Resistance

Genetic differences in susceptibility, resembling those of autosomal dominant traits, have been shown to explain patterns of occurrence of the disease in families (1).

### 5) Reporting Requirements:

#### To local Board of Health

Suspect and confirmed cases of TSE shall be reported to the medical officer of health by persons required to do so under the *Health Protection and Promotion Act*, R.S.O. 1990.

#### To Public Health Division (PHD)

Report only case classifications specified in the case definition to PHD.
Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within **five (5) business days of receipt of initial notification** as per *iPHIS Bulletin Number 17: Timely Entry of Cases* (4).

The minimum data elements to be reported for each case is specified in the following:

- *Ontario Regulation 569* (Reports) under the Health Protection and Promotion Act (HPPA);
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry.

<table>
<thead>
<tr>
<th>6) Prevention and Control Measures:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal Prevention Measures</strong></td>
</tr>
<tr>
<td><strong>Preventative measures include:</strong></td>
</tr>
<tr>
<td>- Infected persons as well as their family members should be excluded from donating blood, organs and other body tissues.</td>
</tr>
<tr>
<td>- Persons diagnosed with this infection who have made donations as listed above are to be reported to Canadian blood services (CBS) to enable look back and recall procedures.</td>
</tr>
<tr>
<td><strong>Infection Prevention and Control Strategies</strong></td>
</tr>
<tr>
<td>- Surgical instruments that have been in contact with high risk tissue from infected persons such as brain, spinal cord, cornea, retina, pituitary, dura mater and CSF should be considered contaminated and must be inactivated and followed with appropriate disinfection and sterilization procedures.</td>
</tr>
<tr>
<td>- Single use cardiac catheters, pacemakers and other single use devices should not be re-used after being used on an infected person.</td>
</tr>
<tr>
<td><strong>Management of Cases</strong></td>
</tr>
<tr>
<td>Investigate the case to determine source of infection. Refer to <em>Ontario Regulation 569</em> for relevant data to collect and ensure to inquire about the following:</td>
</tr>
<tr>
<td>- history of invasive neurological or neuro-surgical procedures,</td>
</tr>
</tbody>
</table>
corneal transplants

- any possible exposure to human growth hormone or transplacental tissue
- a family history of dementia

Investigation of cases is in collaboration with Public Health Agency of Canada and the PHD.

There is no specific treatment available (3).

Refer to Public Health Agency of Canada. *Infection Control Guidelines, Classic CJD in Canada*; CCDR Vol 28S5, November 2002


<table>
<thead>
<tr>
<th>Management of Contacts</th>
<th>No public health action required.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management of Outbreaks</td>
<td>Enter suspected/confirmed case into iPHIS. Review case for potential ICP issues for follow up in institutional settings.</td>
</tr>
</tbody>
</table>

7) References


8) Additional Resources

Appendix A: Disease-Specific Chapters

Chapter: Trichinosis
### Trichinosis

**Communicable**

**Virulent**

#### Health Protection and Promotion Act:
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

#### Health Protection and Promotion Act:
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

<table>
<thead>
<tr>
<th><strong>1) Aetiologic Agent:</strong></th>
<th>Trichinosis is a foodborne parasitic infection caused by the intestinal roundworm (a nematode), <em>Trichinella spiralis</em> (<em>T. spiralis</em>), whose larvae migrate to muscles and become encapsulated in muscles. There are many species of <em>Trichinella</em> capable of causing infection in mammals but the <em>T. spiralis</em> is the most common cause of human infection (1, 2).</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>2) Case Definition:</strong></th>
<th></th>
</tr>
</thead>
</table>

#### Surveillance Case Definition

See Appendix B

#### Outbreak Case Definition

The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition:

1. Clinical, laboratory and/or epidemiological criteria;
2. The time frame for occurrence;
3. The geographic location(s) or place(s) where cases live or became ill/exposed, and
4. Special attributes of cases (e.g. age, underlying conditions) and/or the aetiologic agent.

Cases may be classified by levels of probability (e.g. confirmed, probable and/or suspect).

<table>
<thead>
<tr>
<th><strong>3) Identification:</strong></th>
<th></th>
</tr>
</thead>
</table>

#### Clinical Presentation

Clinical illness in humans is highly variable and can range from inapparent infection to a fulminating, fatal disease, depending on the number of larvae ingested (1, 2).

During the first week after ingesting infected meat, the person may be asymptomatic or experience abdominal discomfort, nausea, vomiting and or diarrhea. Two to 8 weeks later, as larvae migrate into tissues, fever, myalgia, periorbital edema, urticarial rash, and conjunctival and subungual hemorrhages may develop (3).
Diagnosis  
See Appendix B

Diagnosis is based on clinical presentation and epidemiological evidence and can be confirmed by blood tests and skeletal muscle biopsy (1, 2). Skeletal muscle biopsy taken more than 10 days after infection (most often positive after the fourth or fifth week of infection) frequently provides conclusive evidence of infection (1). Serum antibody titres rarely become positive before the second week of illness; testing paired acute and convalescent serum specimens usually is diagnostic (2).


4) Epidemiology:

Occurrence  
Worldwide, but variable in incidence depending in part on practices of eating and preparing pork or wild animal meat (1).

Several outbreaks have been reported in France and Italy due to infected horse meat (1).

Trichinosis is a rare disease in Ontario, with less than one reported case per year. Only two cases were reported between the years 2003-2007.

Reservoir  
Swine, dogs, cats, horses, rats and many wild animals such as bear, wolf, fox and wild boar (1).

Modes of Transmission  
Eating raw or undercooked meat of animals containing the Trichinella larvae, in particular pork, pork products and beef products (1).

Incubation Period  
Systemic symptoms usually appear about 8 – 15 days after ingestion of infected meat; this varies from 5 – 45 days depending on the number of parasites involved. GI symptoms may appear within a few days (1).

Period of Communicability  
Not transmitted person to person; animal hosts may remain infective for months and meat from these animals remains infective until the larvae are killed by sufficient cooking, freezing or irradiation (1).

Susceptibility and Resistance  
Susceptibility is universal; infection results in partial immunity (1).

5) Reporting Requirements:

To Local Board of Health  
Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the Health Protection and Promotion Act, R.S.O. 1990.

To Public Health Division (PHD)  
Report only case classifications specified in the case definition to
PHD using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) business days of receipt of initial notification as per iPHIS Bulletin Number 17: Timely Entry of Cases (4).

The minimum data elements to be reported for each case is specified in the following sources:

- *Ontario Regulation 569* (Reports) under the Health Protection and Promotion Act (HPPA);
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry.

6) Prevention and Control Measures:

<table>
<thead>
<tr>
<th>Personal Prevention Measures</th>
<th>Preventive measures:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Educate food handlers, hunters and the general public about proper food preparation in general and specifically about cooking pork and wild game thoroughly;</td>
</tr>
<tr>
<td></td>
<td>• Cook all pork and pork products to an internal temperature of 71° C;</td>
</tr>
<tr>
<td></td>
<td>• Properly clean and sanitize utensils including meat grinders, chopping boards and knives after use;</td>
</tr>
<tr>
<td></td>
<td>• Do not feed garbage (swill) to swine, and</td>
</tr>
<tr>
<td></td>
<td>• Use only certified trichinae-free pork in raw pork products.</td>
</tr>
</tbody>
</table>

I Infection Prevention and Control Strategies

For hospitalized cases, routine precautions are recommended (3).

Management of Cases:

Investigate cases of trichinellosis to determine the source of infection. Refer to Section 5: *Reporting Requirements* above for relevant data to be collected during case investigation. The following disease-specific information should also be obtained during case management:

- Symptoms and date of symptom onset;
- History of out-of-province or international travel, including earliest and latest exposure dates;
- Food history including consumption of raw or undercooked meat, and
- History of similar illness in household members.

Provide education about the illness and how to prevent spread.

Specific treatment is under the direction of the attending health care provider. Albendazole or mebendazole are effective in the intestinal stage and the muscular stage. Corticosteroids are indicated only in severe cases to alleviate symptoms of inflammatory reaction when the CNS or heart is involved; however they delay elimination of adult worms from the intestine. In rare cases where infected meat is known to have been consumed, prompt administration of anthelminthics treatment may prevent development of symptoms (1).
Albendazole is available through the Public Health Agency of Canada Special Access Program (SAP)


Management of Contacts
None, unless exposed to the same source; not transmitted person to person (2).

Management of Outbreaks
Provide public health management of outbreaks or clusters in order to identify the source of illness, stop the outbreak and limit secondary spread.

Two or more cases linked in time and place to a common exposure is suggestive of an outbreak.

As per this Protocol, outbreak management shall comprise of but not limited to the following general steps:
- Confirm diagnosis and verify the outbreak;
- Establish an outbreak team;
- Develop an outbreak case definition;
- Implement prevention and control measures;
- Implement and tailor communication and notification plans depending on the scope of the outbreak;
- Conduct epidemiological analysis on data collected
- Conduct environmental inspections of implicated premise where applicable;
- Coordinate and collect appropriate clinical specimens where applicable;
- Prepare a written report, and
- Declare the outbreak over in collaboration with the outbreak team.

7) References


(4) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.

(5) Health Canada. Guidance document for industry and

### 8) Additional Resources


Appendix A: Disease-Specific Chapters

Chapter: Tuberculosis
Tuberculosis

☒ Communicable
☒ Virulent

Health Protection and Promotion Act, Section 1 (1)

Health Protection and Promotion Act:
Ontario Regulation 558/91 – Specification of Communicable Diseases

Health Protection and Promotion Act:
Ontario Regulation 559/91 – Specification of Reportable Diseases

1) Aetiologic Agent:

The infectious agent of tuberculosis infection and disease in humans is the *Mycobacterium tuberculosis complex*, which consists of *M. tuberculosis*, and includes *M. tuberculosis* subsp. *canetti*, *M. africanum*, *M. caprae*, *M. microti*, *M. pinnipedii*, and *M. bovis* (1). *M. bovis* includes the vaccine strain *M. bovis* BCG however, *M. bovis* BCG is not in the Canadian case definition of TB.

Mycobacteria are aerobic, non-spore forming and non-motile bacteria (1).

Other nontuberculous mycobacteria causing disease in humans are not communicable and not reportable in Ontario, with the exception of leprosy (1).

2) Case Definition:

Surveillance Case Definition

See Appendix B

Outbreak Case Definition

The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing a tuberculosis outbreak case definition:

1. Clinical, laboratory and/or epidemiological criteria
2. Time frame for occurrence
3. Geographic location(s) or place(s) where cases live or became ill/exposed
4. Special attributes of cases (e.g. age, underlying conditions)

Cases should also be classified by levels of probability (i.e. confirmed, probable or suspect).

3) Identification:

Clinical Presentation

The initial infection usually goes unnoticed; tuberculin skin test
sensitivity may appear 3-8 weeks following infection (1). Early lung lesions commonly heal, leaving no residual changes except occasional pulmonary lesions suggestive of granulomas that may or may not be calcified, hilar lymph node calcifications, or scarring. About 10% of these latent TB infections (LTBI), who don’t have other risk factors, will eventually develop active disease, 5% of them during the first 2 years; 90% of untreated infected persons will never develop active TB. If HIV co-infection, risk is 10% per year (1). Appropriate completion of treatment for LTBI can considerably reduce the lifetime risk of clinical TB disease and is effective in persons with HIV co-infection (1).

Pulmonary symptoms may include:

- Persistent cough (of more than 3 weeks)
- Sputum production, sometimes with hemoptysis
- Chest pain
- Shortness of breath

Systemic symptoms consistent with TB include:

- Fever, chills and night sweats
- Loss of appetite and weight loss and
- Fatigue

Extrapulmonary symptoms are dependent on the site affected, for example, TB of the spine might produce backache; TB of the kidney may cause flank pain, frequency and dysuria and TB involving lymph nodes presents with swelling in the affected lymph nodes. Extrapulmonary TB should be suspected in anyone with systemic symptoms who is at high risk for TB (1).

Diagnosis

See Appendix B

4) Epidemiology:

Occurrence

Occurrence is worldwide. Tuberculosis (TB) cases in Ontario account for approximately half of the cases of tuberculosis reported in Canada each year.

In Ontario, the highest incidence of TB is seen in the city of Toronto. Provincially, upwards of 90% of TB cases occur among the foreign born. Persons at greater risk of developing active TB after being infected include: persons with immunosuppressive conditions (such as HIV), homeless individuals, Aboriginal persons and children under 5 years old.

The incidence of multi-drug resistant TB (MDR-TB) in the province has fluctuated around approximately 10 cases per year. To date,
Ontario and Alberta are the only provinces in Canada that have had cases of extensively drug resistant TB (XDR-TB).

<table>
<thead>
<tr>
<th>Reservoir</th>
<th>The reservoir for <em>M. tuberculosis</em> is humans. Animals may be infected but are rarely a source of infection. Sporadic cases may result from inadvertent exposure of abattoir workers, veterinarians and wild game handlers to infected animals (1).</th>
</tr>
</thead>
</table>
| Modes of Transmission                          | Transmission of tubercle bacilli in airborne droplet nuclei (1 to 5 microns in diameter) occurs via respiratory efforts such as coughing, sneezing, singing or speaking (1).  
This generally requires prolonged or repeated exposure to an infectious case. Laryngeal tuberculosis is rare however it is highly infectious. Health care workers may potentially be exposed during bronchoscopy, intubation and autopsy (1).  
Bovine tuberculosis results from exposure to cattle infected with *M. bovis*, usually through ingestion of unpasteurized milk or dairy products, and sometimes through airborne droplet nuclei that can be spread to farmers and animal handlers.  
Extrapulmonary TB is generally not communicable (1). Concurrent pulmonary involvement, however, should always be ruled out in any case of extrapulmonary TB. |
| Incubation Period                               | Variable. 5% of infected individuals develop primary or progressive primary active disease within 18-24 months after infection, and 5% develop post primary disease over the remainder of their lifetime. While the subsequent risk of active pulmonary or extrapulmonary TB is greatest within the first two years after infection, latent infection will persist for a lifetime. HIV co-infection and other immunocompromising conditions as well as age under 5 years, increases the risk for the development of TB disease following infection (1). |
| Period of Communicability                       | Is variable; in theory as long as viable tubercle bacilli are discharged in the sputum. Some untreated or inadequately treated patients may be intermittently sputum-positive for years. The degree of communicability depends on the number of bacilli discharged, virulence of the bacilli, adequacy of ventilation, exposure of bacilli to sun or UV light and opportunities for aerosolization through coughing, sneezing, talking, singing or during procedures such as intubations, bronchoscopes and autopsy (1).  
For smear positive or symptomatic infections the period of communicability may be 3 months before symptom onset; asymptomatic smear negative with no evidence of cavities are infectious 4 weeks prior to date of diagnosis. |
Effective antibiotic treatment for a fully susceptible organism generally eliminates communicability within 2 – 4 weeks. Effective treatment is measured by negative smears and clinical improvement.

Children with primary TB are generally not infectious (1).

| Susceptibility and Resistance | Susceptibility is essentially universal. The risk of acquiring progressive disease due to infection with the tubercle bacillus is related to multiple factors including degree of exposure, nutritional and immune status of the host, and other factors including genetic factors. The first 12-24 months after infection constitutes the most hazardous period for the development of clinical disease (1). The risk of developing disease is highest in children under 5 years of age, lowest in later childhood and high again among young adults, the very old and persons who are immunosuppressed, particularly those who are HIV positive, have diabetes, certain types of cancer, and other conditions (1). |

<table>
<thead>
<tr>
<th>5) Reporting Requirements:</th>
</tr>
</thead>
<tbody>
<tr>
<td>To local Board of Health</td>
</tr>
<tr>
<td>To Public Health Division (PHD)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
Refer to the *Tuberculosis Prevention and Control Protocol, 2008* (or as current) (4) for more details on reporting of data elements for cases and suspect cases and contacts.

### 6) Prevention and Control Measures:

<table>
<thead>
<tr>
<th>Section</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal Prevention Measures</strong></td>
<td>Refer to the following ministry documents and the other references listed below for information on prevention and education:</td>
</tr>
<tr>
<td></td>
<td><em>Tuberculosis Prevention and Control Protocol, 2008</em> (or as current) (4)</td>
</tr>
<tr>
<td></td>
<td><em>Guidelines to Reduce TB Transmission in Homeless Shelters and Drop-In Centres</em> (5)</td>
</tr>
<tr>
<td><strong>Infection Prevention and Control Strategies</strong></td>
<td>Refer to the following ministry documents and the other references listed below for information on infection prevention and control strategies:</td>
</tr>
<tr>
<td></td>
<td><em>Tuberculosis Prevention and Control Protocol, 2008</em> (or as current) (4)</td>
</tr>
<tr>
<td></td>
<td><em>Guidelines to Reduce TB Transmission in Homeless Shelters and Drop-In Centres</em> (5)</td>
</tr>
<tr>
<td><strong>Management of Cases</strong></td>
<td>Refer to the following ministry documents and the other references listed below for information on prevention and education:</td>
</tr>
<tr>
<td></td>
<td><em>Tuberculosis Prevention and Control Protocol, 2008</em> (or as current) (4)</td>
</tr>
<tr>
<td></td>
<td><em>Guidelines to Reduce TB Transmission in Homeless Shelters and Drop-In Centres</em> (5)</td>
</tr>
<tr>
<td><strong>Management of Contacts</strong></td>
<td>Refer to the following ministry documents and the other references listed below for information on prevention and education:</td>
</tr>
<tr>
<td></td>
<td><em>Tuberculosis Prevention and Control Protocol, 2008</em> (or as current) (4)</td>
</tr>
<tr>
<td></td>
<td><em>Guidelines to Reduce TB Transmission in Homeless Shelters and Drop-In Centres</em> (5)</td>
</tr>
</tbody>
</table>
### Management of Outbreaks

Refer to the following ministry documents and the other references listed below for information on prevention, education and outbreak management:

- **Canadian Tuberculosis Standards** (1)
- **Tuberculosis Prevention and Control Protocol, 2008** (or as current) (4)
- **Guidelines to Reduce TB Transmission in Homeless Shelters and Drop-In Centres** (5)

### 7) References


### 8) Additional Resources

<table>
<thead>
<tr>
<th>Resource</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ministry of Health and Long-Term Care. iPHIS tuberculosis (TB) user guide.</td>
<td>Toronto, ON: Queen’s Printer for Ontario; 2008.</td>
</tr>
</tbody>
</table>
Appendix A: Disease-Specific Chapters

Chapter: Tularemia
Tularemia

Health Protection and Promotion Act:
Ontario Regulation 558/91 – Specification of Communicable Diseases

Health Protection and Promotion Act:
Ontario Regulation 559/91 – Specification of Reportable Diseases

1) Aetiologic Agent:

Tularaemia (also known as rabbit fever) is a zoonotic bacterial disease caused by the bacterium Francisella tularensis (F. tularensis), which is a small, Gram-negative nonmotile coccobacillus (1).

May be used as a potential bioterrorism agent.

2) Case Definition:

Surveillance Case Definition

See Appendix B

Outbreak Case Definition

The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition:

1. Clinical, laboratory and/or epidemiological criteria
2. A time frame for occurrence
3. A geographic location(s) or place(s) where cases live or became ill/exposed
4. Special attributes of cases (e.g. age, underlying conditions)

Cases may be classified by levels of probability (i.e. confirmed, probable and/or suspect)

3) Identification:

Clinical Presentation

Clinical presentation is typically sudden with an abrupt onset of fever, chills, myalgia and headache. Illness usually conforms to one of several tularemic syndromes, including the following: (1, 2)

- Ulcero-glandular – cutaneous ulcer with regional lymphadenopathy at the entry site (most common)
- Glandular – regional lymphadenopathy with no ulcer
- Oculo-glandular – conjunctivitis with preauricular lymphadenopathy
- Oropharyngeal – stomatitis or pharyngitis, or tonsillitis and cervical lymphadenopathy
- Intestinal – intestinal pain, vomiting, and diarrhea
• Pneumonic – primary pleuropulmonary disease
• Typhoidal – febrile illness without early localizing signs and symptoms

Diagnosis
See Appendix B

4) Epidemiology:

Occurrence
Tularaemia is not internationally reportable. However it has been reported throughout North America and in many parts of continental Europe, the former Soviet Union, China and Japan (1).

Tularaemia is very rarely reported in Ontario. Five cases of tularaemia were reported in Ontario between 2003 and 2005. No cases were reported in 2006 and 2007.

Reservoir
Wild animals, especially rabbits, hares, voles, muskrats, beavers and some domestic animals, as well as various ticks (1).

Modes of Transmission
Many routes of human exposure to tularaemia are known to exist; the common routes include inoculation of the skin or mucous membranes with blood or tissue of animals, while handling infected animals; bites from infected deerflies or ticks, or handling or eating insufficiently cooked meat of infected animals (1).

Less common means of spread include drinking contaminated water, inhaling dust from contaminated soil, or handling contaminated pelts or paws of animals (1).

Incubation Period
Related to size of innoculum; usually 3 – 5 days with a range of 1 – 14 days (1).

Period of Communicability
No person to person spread; unless treated, infectious agent may be found in blood during first 2 weeks of disease and in lesions for a month; flies infective for 14 days and ticks throughout lifetime (two years); frozen rabbit meat has remained infective for more than three years (1).

Susceptibility and Resistance
All ages are susceptible, and long term immunity follows recovery; reinfection is extremely rare and has been reported only in laboratory staff (1).

5) Reporting Requirements:

To local Board of Health
Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the Health Protection and Promotion Act, R.S.O. 1990.

To Public Health Division (PHD)
Report only case classifications specified in the case definition to PHD. Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) business days of receipt of initial
**notification** as per *iPHIS Bulletin* Number 17: Timely Entry of Cases (3).

The minimum data elements to be reported for each case is specified in the following:

- *Ontario Regulation 569* (Reports) under the Health Protection and Promotion Act (HPPA);
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry.

### 6) Prevention and Control Measures:

<table>
<thead>
<tr>
<th>Personal Prevention Measures</th>
<th>Preventative measures: (1, 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Provide education to the public about avoiding bites of deerflies, mosquitoes and ticks; using insect repellent, wearing light coloured clothing to observe ticks easier, long sleeved shirts and pants and checking for ticks frequently</td>
</tr>
<tr>
<td></td>
<td>• Provide education to hunters AND others that handle wildlife (e.g. trappers)</td>
</tr>
<tr>
<td></td>
<td>• Provide education about cooking game meat thoroughly and using impermeable gloves when dressing game</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Infection Prevention and Control Strategies</th>
<th>For hospitalized cases, routine practices are recommended (2).</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Management of Cases</th>
<th>Investigate the case to determine source of infection. Refer to <em>Ontario Regulation 569</em> for relevant data to collect and inquire about the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Contact with animals, especially muskrats and rabbits;</td>
</tr>
<tr>
<td></td>
<td>• History of bite from ticks, deerflies or mosquitoes.</td>
</tr>
</tbody>
</table>

Treatment is under the direction of the attending health care provider.

Provide education about the illness and how to prevent the spread as mentioned above.

<table>
<thead>
<tr>
<th>Management of Contacts</th>
<th>None except if exposed to same source, then same as above. Use of prophylaxis antibiotics is recommended for children and adults after exposure to an intentional release of tularaemia (2). Refer to the resources listed below for case and contact management in this situation.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Management of Outbreaks</th>
<th>Provide public health management of outbreaks or clusters in order to identify the source of illness and stop the outbreak.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Two or more cases linked in time and place to a common exposure is suggestive of an outbreak</strong></td>
</tr>
</tbody>
</table>
As per this Protocol, outbreak management shall comprise of but not be limited to the following general steps:

- Confirm diagnosis and verify the outbreak;
- Establish an outbreak team;
- Develop an outbreak case definition;
- Implement prevention and control measures;
- Implement and tailor communication and notification plans depending on the scope of the outbreak;
- Conduct epidemiological analysis on data collected;
- Conduct environmental inspections of implicated premise where applicable;
- Coordinate and collect appropriate clinical specimens where applicable;
- Prepare a written report, and
- Declare the outbreak over in collaboration with the outbreak team.

7) References


(3) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.

8) Additional Resources


Appendix A: Disease-Specific Chapters

Chapter: Typhoid Fever
### Typhoid Fever

<table>
<thead>
<tr>
<th>Communicable</th>
<th>Virulent</th>
</tr>
</thead>
</table>

**Health Protection and Promotion Act:**
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

**Health Protection and Promotion Act:**
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

<table>
<thead>
<tr>
<th>1) Aetiologic Agent:</th>
<th>Typhoid fever is caused by the Gram negative bacillus known as <em>Salmonella enterica subsp. Enterica</em> serovar <em>Typhi A and B</em> <em>(commonly S. Typhi)</em> (1).</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>2) Case Definition:</th>
<th></th>
</tr>
</thead>
</table>

**Surveillance Case Definition**

**See Appendix B**

**Outbreak Case Definition**

The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following when establishing an outbreak case definition:

1. Clinical, laboratory and/or epidemiological criteria
2. The time frame for occurrence
3. The geographic location(s) or place(s) where cases live or became ill/exposed
4. Special attributes of cases (e.g. age, underlying conditions) and/or aetiologic agent

Cases may be classified by levels of probability (i.e. confirmed, probable and/or suspect).

<table>
<thead>
<tr>
<th>3) Identification:</th>
<th></th>
</tr>
</thead>
</table>

**Clinical Presentation**

The clinical presentation of typhoid fever is highly variable, ranging from fever with little other morbidity to sepsis and complications involving many body systems. An average case of acute non-complicated typhoid fever is associated with prolonged low-grade fever, and may have any of the following: dull frontal headache, malaise, myalgia, a dry bronchitic cough, anorexia, nausea, and abdominal discomfort. Constipation is more common than diarrhea in adults but diarrhea is more common in children and those with HIV. In up to 25% of fair-skinned people small erythematous maculopapular lesions (rose spots) on the trunk are seen in the first week of fever. More severe symptoms include confusion and delirium (2, 3). Complications such as gastrointestinal bleeding, intestinal perforation, and encephalopathy occur in 10-15% of those who are ill (1).
## Diagnosis

See Appendix B

*S. Typhi* can be isolated from blood early in the disease and from urine and feces after the first week of illness (1).

### 4) Epidemiology:

<table>
<thead>
<tr>
<th>Occurrence</th>
<th>Worldwide (1). Unlike other enteric diseases, typhoid fever does not demonstrate a seasonal pattern in Ontario because it is almost always associated with travel to endemic regions of the world. Over the last five years, the number of cases of typhoid fever has gradually increased, which may reflect the growing number of Ontarians travelling to endemic regions.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir</td>
<td>Humans; family contacts may be transient or permanent carriers. The chronic carrier state is most common among persons infected during middle age, especially women, and they frequently have biliary tract abnormalities including gallstones (1).</td>
</tr>
<tr>
<td>Modes of Transmission</td>
<td>Fecal-oral route. Common vehicles include contaminated water and beverages made with contaminated water, shellfish, particularly oysters, milk, ice-cream, raw fruit and vegetables grown in fields fertilized with sewage (1, 2). Other established risk factors include history of contact with other cases especially contact with feces and contact with urine of persons infected from schistosomiasis endemic areas. Also risk of transmission increases by not using soap for washing hands and poor sanitation (2).</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>From 3 days to over 60 days; usual range is 8-14 days depending on inoculum size and on host factors (1).</td>
</tr>
<tr>
<td>Period of Communicability</td>
<td>Typhoid is communicable as long as <em>S. Typhi</em> is being excreted in stools or urine, usually from one week after symptom onset, through convalescence, and for a variable period thereafter (1). About ten percent of untreated typhoid fever cases have detectable bacteria in their stool for three months after onset of symptoms; two to five percent become chronic carriers (carriage for more than one year following illness). The frequency of long-term carriage is higher for women, those older than 50 years, and patients with cholelithiasis, carcinoma of the gall bladder, other gastrointestinal malignancies, persons with biliary abnormalities, or concurrent bladder infection with Schistosoma haematobium (2). In cases treated with appropriate antibiotics, fewer than 2% become carriers, or relapse (3).</td>
</tr>
<tr>
<td>Susceptibility and Resistance</td>
<td>Susceptibility is general and is increased in individuals with gastric achlorhydria and possibly in those who are HIV positive. Relative specific immunity follows recovery from clinical disease, inapparent infection and active immunization. In endemic area, typhoid fever is most common in preschool children and children 5-19 years of age (1).</td>
</tr>
</tbody>
</table>
### 5) Reporting Requirements:

<table>
<thead>
<tr>
<th>To local Board of Health</th>
<th>Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the <em>Health Protection and Promotion Act</em>, R.S.O. 1990.</th>
</tr>
</thead>
</table>
| To Public Health Division (PHD) | Report only case classifications specified in the case definition to PHD. Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) business days of receipt of initial notification as per *iPHIS Bulletin* Number 17: Timely Entry of Cases (5). The minimum data elements to be reported for each case is specified in the following:  
  - *Ontario Regulation 569* (Reports) under the *Health Protection and Promotion Act* (HPPA);  
  - The disease-specific User Guides published by the Ministry, and  
  - Bulletins and directives issued by the Ministry. |

### 6) Prevention and Control Measures:

| Personal Prevention Measures | Preventative measures:  
  - Education on proper hygiene, especially hand washing before food preparation and eating, and after using sanitary facilities  
  - Practice food and water precautions while travelling in endemic areas: avoid consumption of raw or undercooked shellfish, particularly shellfish harvested from water contaminated with human waste, wash fresh produce before cutting or consuming and thoroughly cook all food derived from animal sources. Shellfish should be boiled or steamed for at least 10 minutes before consumption. Refer travellers to travel clinics to assess their personal risk and appropriate preventive measures  
  - Vaccination should be considered for laboratory workers, household members of known carriers, and persons travelling to endemic high-risk areas |
| Infection Prevention and Control Strategies | If hospitalized, contact precautions are recommended when symptomatic (1). Properly implemented exclusion requirements can contribute to the prevention and control of secondary cases. Exclusion criteria are detailed below. |
| Management of Cases | Investigate cases of typhoid fever to determine the source of infection. Refer to Section 5: *Reporting Requirements* above for relevant data to be collected during case investigation. The following |
disease-specific information pertaining to the 60 days prior to onset should also be obtained during case management:

- Symptoms and date of symptom onset
- History of out-of-province or international travel; include earliest and latest exposure dates
- Typhoid fever immunization status (note vaccine information)
- Known exposure to a carrier or unreported case including recent (last 60 days) contact with visitors from or travellers to endemic country
- History of occupation involving vulnerable populations, food handling, childcare and healthcare
- Food history, including consumption of common food vehicles as listed above during 14 days prior to symptom onset
- Identify close contacts (see definition below)
- Educate the case about transmission of infection and proper hand hygiene.

- Treatment with antibiotics and follow up is under the direction of the attending health care provider. Note any treatment prescribed including name of medication, dose, and duration of treatment, start and finish dates.

**Exclusion Criteria:**

Exclude all cases of *S. Typhi* from food handling, healthcare and daycare activities until three consecutive stool specimens are negative. They are to be collected at least one week apart and at least 24 hours after cessation of symptoms. If treated then specimens must be collected at least two weeks after completion of antibiotic treatment.

Treatment with antibiotics and follow up is under the direction of the attending physician. Details of medication name and dose and duration of treatment should be noted.

Carriers: If after 6 samples, a case continues to test positive, then he or she could be considered a carrier. A carrier must be excluded from food-handling, health care and child care activities until the carrier state is eradicated. This requires three consecutive negative stool cultures, collected one month apart at least 48 hours after the cessation of antibiotic therapy. Also, three negative urine cultures are required for cases acquired in schistosomiasis endemic areas.

**Management of Contacts**

Close contacts include household members, any members of a travel party to endemic regions, and sexual partners.

Investigate close contacts:
- Note any symptoms, onset and severity.
- Determine susceptibility of contact including immune status, medical status and other risk factors.
- Identify those involved in high risk activities or settings.
These contacts should be seen by their health care providers and screened for illness (that is, stool specimens taken for testing).

Exclude symptomatic contacts from working in high risk (food handling, health care day care) settings until cleared with two consecutive negative stool specimens collected at least 24 hours apart.

If contacts work in high risk settings and are asymptomatic, they should be screened, but not excluded.

<table>
<thead>
<tr>
<th>Management of Outbreaks</th>
<th>Provide public health management of outbreaks or clusters in order to identify the source of illness, stop the outbreak and limit secondary spread.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Two or more cases linked to the same source that are not travel related or are from the same household is suggestive of an outbreak of typhoid.</strong></td>
</tr>
<tr>
<td></td>
<td>As per this Protocol, outbreak management shall comprise of but not be limited to the following general steps:</td>
</tr>
<tr>
<td></td>
<td>• Confirm diagnosis and verify the outbreak;</td>
</tr>
<tr>
<td></td>
<td>• Establish an outbreak team;</td>
</tr>
<tr>
<td></td>
<td>• Develop an outbreak case definition;</td>
</tr>
<tr>
<td></td>
<td>• Implement prevention and control measures;</td>
</tr>
<tr>
<td></td>
<td>• Implement and tailor communication and notification plans depending on the scope of the outbreak;</td>
</tr>
<tr>
<td></td>
<td>• Conduct epidemiological analysis on data collected;</td>
</tr>
<tr>
<td></td>
<td>• Conduct environmental inspections of implicated premise where applicable;</td>
</tr>
<tr>
<td></td>
<td>• Coordinate and collect appropriate clinical specimens where applicable;</td>
</tr>
<tr>
<td></td>
<td>• Prepare a written report, and</td>
</tr>
<tr>
<td></td>
<td>• Declare the outbreak over in collaboration with the outbreak team.</td>
</tr>
</tbody>
</table>

|--------------|-------------------------------------------------------------------------------------------------------------------|
### 8) Additional Resources

- Ministry of Health and Long Term Care, Advisory Committee on Communicable Diseases, *Enteric Disease Screening Recommendations and Case Management Guidelines on Foodhandlers and Patient Care Workers*, 1990 (Currently being revised as “Guidelines for the Management of Enteric Diseases in Healthcare Workers, Food Handlers and Day care Staff and Attendees”)


Appendix A: Disease-Specific Chapters

Chapter: Verotoxin-producing *E. Coli* infection indicator conditions, including Heamolytic Uraemic Syndrome (HUS)
Verotoxin-producing *E. Coli* infection indicator conditions, including Heamolytic Uraemic Syndrome (HUS)

- Communicable
- **Virulent**

### Health Protection and Promotion Act:
Ontario Regulation 558/91 – Specification of Communicable Diseases

### Health Protection and Promotion Act:
Ontario Regulation 559/91 – Specification of Reportable Diseases

<table>
<thead>
<tr>
<th>1) Aetiologic Agent:</th>
<th>Verotoxigenic <em>Escherichia coli</em> (VTEC) comprise a wide range of serotypes that produce a variety of closely related verocytotoxins, of which <em>E. coli</em> O157:H7 is most commonly associated with infection in humans.</th>
</tr>
</thead>
</table>

| 2) Case Definition: | **Surveillance Case Definition**  
See Appendix B |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Outbreak Case Definition | The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following when establishing an outbreak case definition:  
- Clinical, laboratory and/or epidemiological criteria  
- The time frame for occurrence  
- The geographic location(s) or place(s) where cases live or became ill/exposed  
- Special attributes of cases (e.g. age, underlying conditions) and/or the aetiologic agent  
Cases may be classified by levels of probability (i.e. confirmed, probable and/or suspect). |

| 3) Identification: | **Clinical Presentation**  
Self-limiting enteric disease in infants and adults; characterized by bloody or non-bloody diarrhea, abdominal cramping, vomiting, acidosis, prostration, malaise and dehydration; fever is not present in most cases and symptoms usually lasts fewer than 5 days (3).  
Most individuals recover without residual sequelae, however, complications such as hemorrhagic colitis and Hemolytic Uremic Syndrome (HUS) can occur. HUS occurs in about 8% of infected children as well as in a small number of adults, particularly the elderly (3). |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
Diagnosis

See Appendix B

The diagnosis is confirmed by a positive stool culture for E. coli O157:H7 or other E. coli serotype causing VTEC (1).

4) Epidemiology:

Occurrence

E. coli was first recognized in 1982 when an outbreak of hemorrhagic colitis occurred in the U.S. (1). In Ontario, E. coli cases demonstrate seasonal increases in the summer months. During the years 2003 to 2007, an average of 330 cases of VTEC was reported annually.

Reservoir

The most important reservoir is infected dairy and beef cattle, but other animals such as sheep, pigs and goats can also be infected. Humans may serve as a reservoir for person-to-person spread (1).

Modes of Transmission

Transmitted by the fecal-oral route mainly by ingestion of contaminated food. Ground beef is a common source of infection but other known sources include fermented meats, fresh produce such as lettuce, spinach, coleslaw, sprouts and melons and unpasteurized milk and beverages such as apple cider and orange juice.

Waterborne transmission can occur through the ingestion of contaminated drinking water or recreational water.

Animal to person transmission can occur at farms and petting zoos (4).

Person to person transmission most frequently occur in settings where personal hygiene practices are inadequate.

Incubation Period

2 – 10 days with a median of 3 – 4 days (1). HUS may develop up to 2 weeks after onset of diarrhea (2).

Period of Communicability

Variable, as long as organisms are excreted; the duration of excretion of the pathogen is typically 1 week or less in adults but can be 3 weeks in one third of children. Prolonged carriage is uncommon (1).

Susceptibility and Resistance

The infectious dose is very low (1). Little is known about differences in susceptibility and immunity, but infections occur in persons of all ages. Children under five years are most frequently diagnosed with infection and are at greatest risk of developing HUS. The elderly also appear to be at increased risk of complications (1).

5) Reporting Requirements:

To local Board of Health

Confirmed and suspected cases of VTEC and HUS shall be reported to the medical officer of health by persons required to do so under the Health Protection and Promotion Act, R.S.O. 1990.
To Public Health Division (PHD) Report only case classifications specified in the case definition to PHD using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry **within one (1) business day of receipt of initial notification** as per iPHIS Bulletin Number 17: Timely Entry of Cases (5).

The minimum data elements to be reported for each case is specified in the following sources:

- *Ontario Regulation 569* (Reports) under the Health Protection and Promotion Act (HPPA);
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry.

### 6) Prevention and Control Measures:

<table>
<thead>
<tr>
<th>Personal Prevention Measures</th>
<th>Preventative measures:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minimize cross contamination through the use of safe food handling techniques</td>
</tr>
<tr>
<td></td>
<td>Practice proper hand hygiene after using sanitary facilities, handling raw foods and farm animals (petting zoos) and before handling food</td>
</tr>
<tr>
<td></td>
<td>Thoroughly cook all food derived from animal sources, especially ground beef</td>
</tr>
<tr>
<td></td>
<td>Treat or boil water intended for consumption</td>
</tr>
<tr>
<td></td>
<td>Conduct routine bacteriological analysis of private drinking water supplies</td>
</tr>
<tr>
<td></td>
<td>Consume only pasteurized juices, milk and dairy products</td>
</tr>
<tr>
<td></td>
<td>Wash fresh fruits and vegetables under potable running water</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Infection Prevention and Control Strategies</th>
<th>Strategies:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Contact precautions and routine practices are indicated for the duration of illness for hospitalized cases</td>
</tr>
<tr>
<td></td>
<td>Provide instructions on proper hand hygiene in institutional settings</td>
</tr>
<tr>
<td></td>
<td>Educate the public and food handlers about proper food and equipment handling and about personal hygiene, especially hand washing after using the washroom, and before food preparation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Management of Cases</th>
<th>Investigate cases of <em>E. coli</em> to determine the source of infection. Refer to Section 5: <em>Reporting Requirements</em> above for relevant data to be collected during case investigation. The following disease-specific information pertaining to the 10 days prior to onset should also be obtained during case management:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Symptoms and date of symptom onset</td>
</tr>
<tr>
<td></td>
<td>History of travel, including earliest and latest exposure dates</td>
</tr>
<tr>
<td></td>
<td>Food, water and other exposure histories such as animal</td>
</tr>
</tbody>
</table>
contact in the 10 days prior to symptom onset
- Contact with a known case or person with symptoms compatible with *E. coli in the 10 days prior to symptom onset*
- History of occupation involving susceptible populations, food handling, childcare and healthcare

Provide education about disease transmission, appropriate personal hygiene and food handling practices (2).

Obtain and test suspected food items and remove from consumption to avoid further exposure.

Use of antibiotics is not recommended; treatment is usually fluid replacement and supportive (1).

Exclusion criteria should be assessed in conjunction with an evaluation of personal hygiene practices.

Exclude symptomatic food handlers and healthcare staff until diarrhea free for 24 hours.

Return to work is not conditional upon submission of 2 negative specimens with the exception of:
- Day care staff and attendees, and
- Consider requiring for health care workers that work with very high risk patients.

In these instances, 2 negative specimens collected at least 24 hours apart or 48 hours after the completion of antibiotic therapy must be submitted.

**Management of Contacts**

Contacts include household members, or other persons who have had close contact with the case or shared the suspected exposure.

Contacts should be instructed about disease transmission, appropriate personal hygiene and contact precautions.

Exclusion Criteria:
Symptomatic contacts should be assessed by their physician, tested and excluded as above where applicable.

**Management of Outbreaks**

Provide public health management of outbreaks or clusters in order to identify the source of illness, stop the outbreak and limit secondary spread.

**Two or more cases linked in time and place to a common exposure is suggestive of an outbreak**

As per this Protocol, outbreak management shall comprise of but not be limited to the following general steps:
- Confirm diagnosis and verify the outbreak;
- Establish an outbreak team;
- Develop an outbreak case definition;
• Implement prevention and control measures;
• Implement and tailor communication and notification plans depending on the scope of the outbreak;
• Conduct epidemiological analysis on data collected;
• Conduct environmental inspections of implicated premise where applicable;
• Coordinate and collect appropriate clinical specimens where applicable;
• Prepare a written report, and
• Declare the outbreak over in collaboration with the outbreak team.

7) References


(5) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.

8) Additional Resources

Ministry of Health and Long Term Care, Advisory Committee on Communicable Diseases, Enteric Disease Screening Recommendations and Case Management Guidelines on Foodhandlers and Patient Care Workers, 1990 (Currently being revised as “Guidelines for the Management of Enteric Diseases in Healthcare Workers, Food Handlers and Day care Staff and Attendees”)


Appendix A: Disease-Specific Chapters

Chapter: West Nile Virus Illness
### West Nile Virus Illness

<table>
<thead>
<tr>
<th>Communicable</th>
<th>☒</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virulent</td>
<td></td>
</tr>
</tbody>
</table>

#### Infectious Diseases Protocol

Health Protection and Promotion Act: 
Ontario Regulation 558/91 – Specification of Communicable Diseases

Health Protection and Promotion Act: 
Ontario Regulation 559/91 – Specification of Reportable Diseases

<table>
<thead>
<tr>
<th><strong>1) Aetiologic Agent:</strong></th>
<th>West Nile Virus (WNV) is a mosquito-borne virus of the genus Flavivirus; it is an RNA Flavivirus, which is related antigenically to St. Louis Encephalitis and the Japanese Encephalitis viruses (2).</th>
</tr>
</thead>
</table>

#### 2) Case Definition:

- **Surveillance Case Definition**:  
  See Appendix B

- **Outbreak Case Definition**: Not applicable

#### 3) Identification:

- **Clinical Presentation**: There are three clinical manifestations of WNV; asymptomatic, non-neurological and neurological. The majority of WNV cases are asymptomatic. About 20% of infected persons develop the usually less severe symptom complex known as WNV non-neurological syndrome. This presents with a mild flu-like illness with fever, headache and body aches, occasionally with a skin rash and swollen lymph nodes or other non-specific symptoms that last several days. Other symptoms may include nausea, vomiting, eye pain or photophobia (1).

  WNV neurological symptoms can present as an encephalitis illness as well as conditions similar to acute flaccid paralysis, and parkinsons disease.

- **Diagnosis**:  
  See Appendix B

**Note:**

Diagnosis is based on clinical presentation and serological test results.

For further information on diagnostic testing for West Nile Virus refer to the Central Public Health Laboratory Labstracts on WNV found in the current West Nile Virus Preparedness and Prevention Plan – Ontario Ministry of Health and Long-Term Care.
### 4) Epidemiology:

| Occurrence | The virus was first isolated in 1937 in the West Nile district of Uganda. The first recorded outbreak in North America happened in New York City in 1999. In Canada the virus was first confirmed in birds in 2001 and the first human case was confirmed in Ontario in September 2002. Locally acquired WNV occurs in the summer months, with the majority of cases occurring in August and September. |
| Reservoir | Birds are the main reservoir of WNV in North America. |
| Modes of Transmission | Mosquitoes are the main vectors of WNV with the *Culex* genus being the primary vector. In Ontario the main vectors of concern are *Culex pipiens* and *Culex restuans*. Indirect human transmission can occur through blood and organ donations. Most infants born to women who have contracted WNV during pregnancy have no infection or clinical abnormalities. There is only one reported case of confirmed congenital WNV infection. There is one report of WNV infection transmitted from human milk, but the infant remained asymptomatic. |
| Incubation Period | Usually 2-15 days (3) |
| Period of Communicability | No direct person-to-person transmission. Infected mosquitoes probably transmit virus throughout life (1). |
| Susceptibility and Resistance | Susceptibility appears to be general and throughout life in both sexes at all ages (1). Persons over 50 years of age have the highest risk of severe disease. |

### 5) Reporting Requirements:

| To Local Board of Health | Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the *Health Protection and Promotion Act*, R.S.O. 1990. |
| To Public Health Division | Report only case classifications specified in the case definition to PHD. Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within one (1) business day of receipt of initial notification as per *iPHIS Bulletin* Number 17: Timely Entry of Cases (4). The minimum data elements to be reported for each case is specified in the following: |
| | • Ontario Regulation 569 (Reports) under the *Health Protection and Promotion Act* (HPPA); |
| | • The disease-specific User Guides published by the Ministry, and |
| | • Bulletins and directives issued by the Ministry. |
6) Prevention and Control Measures:

| Personal Prevention Measures | Provide public education regarding:  
|                              | • The use of insect repellent when outdoors. Consider using federally registered personal insect repellents on exposed skin, such as those containing DEET. A light coating will do. The concentration of DEET should be no greater than 30% for adults and no greater than 10% for children.  
|                              | • Wearing long sleeve shirts and long pants and light coloured clothes.  
|                              | • Cleaning up mosquito-friendly areas around your home regularly such as standing water.  
| For more information on prevention measures refer to the current West Nile Virus Preparedness and Prevention Plan - Ontario Ministry of Health and Long-Term Care |

| Infection Prevention and Control Strategies | The board of health shall develop and utilize a local vector-borne management strategy in order to mitigate risk. This strategy shall include measures such as:  
|                                             | • Local risk assessments;  
|                                             | • Public education, and  
|                                             | • Source reduction when and where applicable.  
| For more information on vector-borne management strategies refer to the most current provincial WNV plan posted at: West Nile Virus Preparedness and Prevention Plan - Ontario Ministry of Health and Long-Term Care |

| Management of Cases | Investigate the case to determine source of infection. Refer to Ontario Regulation 569 for relevant data to collect and determine the most likely location of exposure.  
|                    | As per this Protocol, notify the Canadian Blood Services (CBS) and Trillium Gift-of-Life of any positive human results with blood/organ histories of a vector-borne disease. |

| Management of Contacts | Not applicable |

| Management of Outbreaks | For outbreak management refer to this protocol as well as the West Nile Virus Preparedness and Prevention Plan - Ontario Ministry of Health and Long-Term Care. |

7) References


8) Additional Resources


Appendix A: Disease-Specific Chapters

Chapter: Yellow Fever
### Yellow Fever

- **Communicable**
- **Virulent**

**Health Protection and Promotion Act:**
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

**Health Protection and Promotion Act:**
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

<table>
<thead>
<tr>
<th>1) Aetiology Agent:</th>
<th>Yellow fever is caused by the Yellow Fever virus: genus <em>Flavivirus</em> and family <em>Flaviridae</em> (1).</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>2) Case Definition:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Surveillance Case Definition</th>
<th>See Appendix B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outbreak Case definition</td>
<td>not applicable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3) Identification:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Clinical Presentation:</th>
<th>Yellow fever is an acute viral disease of short duration and varying severity. The mildest cases may be clinically indeterminate (1).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Typically, the clinical presentation is characterized by sudden onset of fever, chills, headache, backache, generalized muscle pain, prostration, nausea and vomiting. The pulse may be slow and weak out of proportion to the elevated temperature (Faget sign). Jaundice is moderate early in the disease and intensifies later (1).</td>
</tr>
<tr>
<td></td>
<td>Most infections resolve after the 5th day, however some cases progress after a brief remission of hours to a day into the ominous stage of intoxication manifested by hemorrhagic symptoms including epistaxis, gingival bleeding, hematemesis (coffee ground or black), melaena and liver and renal failure. 20-50% of jaundiced cases are fatal (1).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>See Appendix B</th>
</tr>
</thead>
</table>

**Note:**
Diagnosis is made by isolation of the yellow fever virus from blood samples; this is supported by clinical and epidemiological evidence (1).

<table>
<thead>
<tr>
<th>4) Epidemiology:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Occurrence</th>
<th>Yellow fever exists in nature in two transmission cycles, a sylvatic or jungle cycle that involves mosquitoes and nonhuman primates, and an urban cycle involving <em>Aedes aegypti</em> mosquitoes and humans (1).</th>
</tr>
</thead>
</table>

**Infectious Diseases Protocol, 2009 – Appendix A**
Yellow fever is not endemic to Ontario and reported cases in Ontario are attributed to recent immigration or travel to yellow fever endemic countries. It is endemic in tropical areas of Africa and Latin America (1).

<table>
<thead>
<tr>
<th>Reservoir</th>
<th>Humans in urban areas; in forest areas, vertebrates other than humans, mainly monkeys and possibly marsupials (1).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modes of Transmission</td>
<td>Yellow fever is transmitted via the bite of infected mosquitoes, primarily those of the genus <em>Aedes</em> (1). There is no human to human transmission.</td>
</tr>
<tr>
<td>Incubation Period</td>
<td>3-6 days (1)</td>
</tr>
<tr>
<td>Period of Communicability</td>
<td>Mosquitoes can acquire the virus from an infected person shortly before onset of fever and for the first 3 – 5 days of illness (1). The disease is highly communicable where many susceptible people and abundant vector mosquitoes coexist; it is not communicable through contact or common vehicles (1). <em>Aedes aegypti</em> mosquitoes require 9 to 12 days after a blood meal to become infectious and remain so for life (1).</td>
</tr>
<tr>
<td>Susceptibility and Resistance</td>
<td>Vaccine preventable; recovery from yellow fever is followed by lasting immunity; mild unapparent infections are common in endemic areas; previous infections with dengue give some degree of immunity (1).</td>
</tr>
</tbody>
</table>

**5) Reporting Requirements:**

<table>
<thead>
<tr>
<th>To Local Board of Health</th>
<th>Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the <em>Health Protection and Promotion Act, R.S.O. 1990</em>.</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Public Health Division (PHD)</td>
<td>Report only case classifications specified in the case definition to PHD. Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) business days of receipt of initial notification as per <em>iPHIS Bulletin Number 17: Timely Entry of Cases</em> (2).</td>
</tr>
</tbody>
</table>

The minimum data elements to be reported for each case is specified in the following:

- *Ontario Regulation 569 (Reports)* under the Health Protection and Promotion Act (HPPA);
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry.

**6) Prevention and Control Measures:**

<table>
<thead>
<tr>
<th>Personal Prevention Measures</th>
<th>Preventive measures: (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Immunization of travellers with yellow fever vaccine when appropriate and travelling to endemic areas.</td>
</tr>
<tr>
<td>Infection Prevention and control Strategies</td>
<td>Defer blood donations from persons with a history of yellow fever or recent immigration from, or travel to, endemic countries.</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Management of Cases</td>
<td>Refer to <em>Ontario Regulation 569</em> for relevant data to collect. Investigate the case to determine source of infection as well as the following:</td>
</tr>
</tbody>
</table>
|                                          | - Apply case definition  
- Investigate risk factors for acquisition including but not limited to 3-6 days prior to onset: 
  - history of travel, specific geographic location, season, and duration of exposure 
  - immunization status 
  - history of mosquito bites |
|                                          | Provide education about transmission of infection and use of personal protective measures against mosquito bites. |
|                                          | There is no specific treatment for yellow fever except for supportive treatment (1). |
| Management of Contacts                   | Not applicable                                                                                                                                 |
| Management of Outbreaks                  | Not applicable                                                                                                                                 |

7) References


8) Additional Resources


Appendix A: Disease-Specific Chapters

Chapter: Yersinisosis
### Yersiniosis

<table>
<thead>
<tr>
<th>Communicable</th>
<th>Virulent</th>
</tr>
</thead>
</table>

**Health Protection and Promotion Act:**
**Ontario Regulation 558/91 – Specification of Communicable Diseases**

**Health Protection and Promotion Act:**
**Ontario Regulation 559/91 – Specification of Reportable Diseases**

#### 1) Aetiologic Agent:
Yersiniosis is caused by a Gram-negative enterobacteriaceae of the genus Yersinia. Two species, *Yersinia enterocolitica* (most common in Canada) and *Yersinia pseudotuberculosis*, are the causative agents of yersiniosis. *Y. enterocolitica* and *Y. pseudotuberculosis* should not be confused with *Y. pestis*, the causative agent of the plague.

*Y. enterocolitica* can multiply under refrigeration and microaerophilic conditions.

#### 2) Case Definition:

**Surveillance Case Definition**
See Appendix B

**Outbreak Case Definition**
The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition:

1. Clinical, laboratory and/or epidemiological criteria
2. The time frame of occurrence
3. The geographic location(s) or place(s) where cases live or became ill/exposed
4. Special attributes of cases (e.g. age, underlying conditions and/or the aetiologic agent)

Cases may be classified by levels of probability (e.g. confirmed, probable or suspect).

#### 3) Identification:

**Clinical Presentation**
*Yersinia enterocolitica* infections typically manifest as fever and diarrhea in young children. Stool often contains leukocytes, blood and mucus. In older children and adults a pseudo-appendicitis syndrome, with fever, abdominal pain, tenderness in the right lower quadrant of the abdomen and leukocytosis predominates (2).

*Yersinia pseudotuberculosis* presents with fever, scarlatini-form rash and abdominal symptoms and acute pseudo-appendicieal abdominal
pain is common. Clinical features can mimic those of Kawasaki
disease (2).

Complications include post infection arthritis and systemic infections
(2).

<table>
<thead>
<tr>
<th>Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>See Appendix B</td>
</tr>
</tbody>
</table>

*Y. entercolitica* and *Y. pseudotuberculosis* can be recovered from
stool, throat swabs, mesenteric lymph nodes, peritoneal fluid, and
blood. *Y. entercolitica* also has been isolated from synovial fluid, bile,
urine, cerebrospinal fluid, sputum and wounds (2). Stool cultures
generally are positive during the first two weeks of illness (2).

### 4) Epidemiology:

<table>
<thead>
<tr>
<th>Occurrence</th>
</tr>
</thead>
</table>
| Worldwide. *Y. pseudotuberculosis* is primarily a zoonotic disease of
wild and domesticated birds and mammals. Globally, *Y. entercolitica*
is the species most commonly associated with human
infection (1). |

Human cases have been reported in association with disease in
household pets, particularly puppies and kittens (1) and this is also
prevalent in Canada. Outbreaks, worldwide, have been associated
with chocolate milk, tofu and pork chitterlings (1).

Between 2003 and 2007, an average of over 320 cases occurred per
year in Ontario.

<table>
<thead>
<tr>
<th>Reservoir</th>
</tr>
</thead>
</table>
| The principal reservoir of *Y. entercolitica* is swine (2).
*Y. pseudotuberculosis* is widespread among avian and mammalian
hosts, particularly rodents and other small mammals (1). |

<table>
<thead>
<tr>
<th>Modes of Transmission</th>
</tr>
</thead>
</table>
| Fecal-oral transmission via contaminated food and water or by
contact with infected people or animals such as puppies and kittens;
raw pork and pork products are known sources of infection (1). |

<table>
<thead>
<tr>
<th>Incubation Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probably 3–7 days, generally less than 10 days (1).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Period of Communicability</th>
</tr>
</thead>
</table>
| Secondary transmission appears rare; fecal shedding occurs as long
as symptoms persist, usually 2–3 weeks; if untreated, persons may
shed 2–3 months; prolonged asymptomatic carriage has been
reported (1). |

<table>
<thead>
<tr>
<th>Susceptibility and Resistance</th>
</tr>
</thead>
</table>
| Diarrhea is more severe in children; complications in adolescents
and older adults are more severe and septicemia occurs more often
in people with iron overload or immunosuppression (1). |

### 5) Reporting Requirements:

<table>
<thead>
<tr>
<th>To local Board of Health</th>
</tr>
</thead>
</table>
| Confirmed and suspected cases shall be reported to the medical
officer of health by persons required to do so under the *Health
To Public Health Division (PHD)

Report only case classifications specified in the case definition to PHD using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within one (1) business day of receipt of initial notification as per iPHIS Bulletin Number 17: Timely Entry of Cases (3).

The minimum data elements to be reported for each case is specified in the following sources:

- *Ontario Regulation 569* (Reports) under the Health Protection and Promotion Act (HPPA);
- The disease-specific User Guides published by the Ministry, and
- Bulletins and directives issued by the Ministry.

### 6) Prevention and Control Measures:

<table>
<thead>
<tr>
<th>Personal Prevention Measures</th>
<th>Preventive measures:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Ensure thorough cooking and safe handling of meats, especially pork</td>
</tr>
<tr>
<td></td>
<td>- Use proper hand hygiene after using sanitary facilities, toileting and diapering, handling pets, and before and after handling food</td>
</tr>
<tr>
<td></td>
<td>- Consume only pasteurized milk and milk products</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Infection Prevention and Control Strategies</th>
<th>Strategies: (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Contact precautions are indicated for diapered or incontinent children and hospitalized cases for the duration of diarrheal illness</td>
</tr>
<tr>
<td></td>
<td>- Cohort food preparation and child care responsibilities in relevant settings</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Management of Cases</th>
<th>Investigate cases of Yersiniosis to determine source of infection. Refer to Section 5: Reporting Requirements above for relevant data to be collected during case investigation. The following disease specific information should also be obtained during case management:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Detailed exposure history (food and animal contact)</td>
</tr>
<tr>
<td></td>
<td>- Educate cases about disease transmission and appropriate personal hygiene</td>
</tr>
<tr>
<td></td>
<td>- Exclude symptomatic food handlers, healthcare staff and daycare staff and attendees until diarrhea free for 24 hours or 48 hours after completion of antibiotic therapy</td>
</tr>
<tr>
<td></td>
<td>- Treatment is under the direction of the attending health care provider</td>
</tr>
</tbody>
</table>

| Management of Contacts | Assess household members for symptoms and if symptomatic advise to seek medical care. Management of symptomatic contacts is the same as for cases. |
Management of Outbreaks

Provide public health management of outbreaks or clusters in order to identify the source of illness and stop the outbreak.

Two or more cases linked in time and place to a common exposure is suggestive of an outbreak

As per this Protocol, outbreak management shall comprise of but not be limited to the following general steps:

- Confirm diagnosis and verify the outbreak;
- Establish an outbreak team;
- Develop an outbreak case definition;
- Implement prevention and control measures;
- Implement and tailor communication and notification plans depending on the scope of the outbreak;
- Conduct epidemiological analysis on data collected;
- Conduct environmental inspections of implicated premise where applicable;
- Coordinate and collect appropriate clinical specimens where applicable;
- Prepare a written report, and
- Declare the outbreak over in collaboration with the outbreak team.

7) References


(3) Ministry of Health and Long-Term Care. Timely entry of cases. iPHIS Bulletin. 2007 May 11;17.

8) Additional Resources


Ministry of Health and Long Term Care, Advisory Committee on Communicable Diseases, Enteric Disease Screening Recommendations and Case Management Guidelines on Foodhandlers and Patient Care Workers, 1990 (Currently being revised as “Guidelines for the Management of Enteric Diseases in Healthcare Workers, Food Handlers and Day care Staff and
Attendees"


Appendix B: Provincial Case Definitions for Reportable Diseases
# Table of Contents

Acquired Immunodeficiency Syndrome (AIDS) ....................................................... 1  
Adverse Events Following Immunization (AEFIs) .................................................. 6  
Amebiasis ............................................................................................................. 16  
Anthrax .............................................................................................................. 21  
Botulism ............................................................................................................ 25  
Brucellosis ......................................................................................................... 30  
*Campylobacter* enteritis .................................................................................... 34  
Chancroid ........................................................................................................... 38  
Chickenpox (Varicella) ....................................................................................... 42  
*Chlamydia trachomatis* infections ..................................................................... 46  
Cholera ............................................................................................................... 50  
*Clostridium difficile* associated disease (CDAD) outbreaks in public hospitals .... 54  
Cryptosporidiosis ............................................................................................... 60  
Cyclosporiasis .................................................................................................... 64  
Cytomegalovirus infection, congenital .................................................................. 68  
Diphtheria .......................................................................................................... 72  
Encephalitis, including: i) Primary, viral; ii) Post-infectious; iii) Vaccine-related; iv) Subacute sclerosing panencephalitis, and v) Unspecified .................................................. 76  
Food poisoning, all causes .................................................................................. 80  
Gastroenteritis, institutional outbreaks .................................................................. 84  
Giardiasis, except asymptomatic cases .................................................................. 88  
Gonorrhoea ......................................................................................................... 92  
Group A Streptococcal disease, invasive ............................................................. 96  
Group B Streptococcal disease, neonatal ............................................................. 100  
*Haemophilus influenzae* b disease, invasive ..................................................... 104  
Hantavirus pulmonary syndrome ....................................................................... 108
Hemorrhagic fevers, including: i) Ebola virus disease; ii) Marburg virus disease, and iii) Other viral causes

Hepatitis A

Hepatitis B

Hepatitis C

Hepatitis D (Delta hepatitis)

Herpes, neonatal

Influenza

Lassa Fever

Legionellosis

Leprosy

Listeriosis

Lyme Disease

Malaria

Measles

Meningitis, acute: i) bacterial; ii) viral, and iii) other

Meningococcal disease, invasive

Mumps

Ophthalmia neonatorum

Paratyphoid Fever

Pertussis (Whooping Cough)

Plague

Pneumococcal disease, invasive

Poliomyelitis, acute

Psittacosis/Ornithosis

Q Fever

Rabies

Respiratory infection outbreaks in institutions

Rubella

Rubella, congenital syndrome

Salmonellosis
Severe Acute Respiratory Syndrome (SARS) .......................................................... 238
Shigellosis .................................................................................................................. 243
Smallpox .................................................................................................................... 247
Syphilis ....................................................................................................................... 251
Tetanus ....................................................................................................................... 257
Transmissible Spongiform Encephalopathy, including: i) Creutzfeldt-Jakob Disease, all types; ii) Gerstmann-Sträussler-Scheinker Syndrome; iii) Fatal Familial Insomnia, and iv) Kuru ................................................................. 261
Trichinosis .................................................................................................................. 272
Tuberculosis ................................................................................................................ 276
Tularemia .................................................................................................................... 281
Typhoid Fever .......................................................................................................... 285
Verotoxin-producing E. coli infection indicator conditions, including Haemolytic Uraemic Syndrome (HUS) ............................................................ 289
West Nile Virus Illness ............................................................................................... 293
Yellow Fever ............................................................................................................. 301
Yersiniosis ............................................................................................................... 305
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Acquired Immunodeficiency Syndrome (AIDS)
Acquired Immunodeficiency Syndrome (AIDS)

1.0 Provincial Reporting
Confirmed cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed Case of Human Immunodeficiency Virus (HIV) Infection

Children < 18 months:
- Detection of HIV nucleic acid (by deoxyribonucleic acid [DNA] polymerase chain reaction [PCR]) or p24 antigen (p24 Ag) in two separate samples collected one month and four months after delivery

Adults, Adolescents and Children >18 months:
- Detection of HIV antibody with confirmation
  OR
- Detection of HIV nucleic acid or p24 antigen

3.2 Confirmed Case of Acquired Immunodeficiency Syndrome (AIDS)
- A positive test for HIV infection with confirmation
  AND
- Definitive diagnosis of one or more AIDS indicative diseases (See Section 5.2)

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
Any of the following will constitute a confirmed case of HIV:

Children < 18 months (on 2 separate samples):
- Positive for HIV nucleic acid
- Positive for HIV p24 Ag (>1 months)
- Positive HIV culture

Adults, Adolescents and Children >18 months:
- Positive for HIV-1, HIV-2 antibody with confirmation for HIV antibody (e.g. Western blot or immunofluorescent technique)
- Positive for HIV nucleic acid
- Positive for HIV p24 Ag
- Positive HIV culture

4.2 Approved/Validated Tests
- Tests for anti-HIV-1, anti-HIV-2 antibodies (enzyme immunoassay [EIA], Western blot, line immunoassay [LIA], radioimmunoprecipitation assay [RIPA], rapid tests)
- Nucleic acid amplification test (NAT) for HIV ribonucleic acid (RNA)/deoxyribonucleic acid (DNA)
- HIV p24 Ag test

Infectious Diseases Protocol, 2009 – Appendix B
4.3 Indications and Limitations

- In children <18 months of age born to HIV positive mothers, all positive results should be repeated with a second specimen for confirmation. All negative tests should be repeated at 6-12 months to verify negative status.

5.0 Clinical Evidence

5.1 HIV

**Acute infection**—Fever, arthralgia, myalgia, rash, lymphadenopathy, sore throat, fatigue, headache, oral ulcers and/or genital ulcers, weight loss, nausea, vomiting or diarrhea.

**Chronic Symptomatic**—oral hairy leukoplakia, unexplained fever, fatigue or lethargy, unexplained weight loss, chronic diarrhea, unexplained lymphadenopathy, cervical dysplasia, dyspnea and dry cough, loss of vision, recurrent or chronic candida (oral, esophageal, vaginal), dysphagia, red/purple nodular or mucosal lesions, encephalopathy, herpes zoster, unexplained anemia of chronic disease, increased frequency or severity of herpes simplex infection.

5.2 AIDS Indicative Diseases for Adults and Adolescents > 15 years of Age

- Bacterial pneumonia (recurrent)*
- Candidiasis (bronchi, trachea or lungs)
- Candidiasis (esophageal)†
- Cervical cancer (invasive)*
- Coccidiodomycosis (disseminated or extrapulmonary)*
- Cryptococcosis (extrapulmonary)
- Cryptosporidiosis chronic intestinal (> 1 month duration)
- Cytomegalovirus diseases (other than in liver, spleen or nodes)
- Cytomegalovirus retinitis (with loss of vision)*†
- Encephalopathy, HIV-related (dementia)*
- Herpes simplex: chronic ulcer(s) (> 1 month duration) or bronchitis, pneumonitis or esophagitis
- Histoplasmosis (disseminated or extrapulmonary)*
- Isosporiasis, chronic intestinal (> 1 month duration)*
- Kaposi’s sarcoma†
- Lymphoma, Burkitt’s (or equivalent term)*
- Lymphoma, immunoblastic (or equivalent term)*
- Lymphoma (primary in brain)
- *Mycobacterium avium complex or *M. kansasii* (disseminated or extrapulmonary)*
- *Mycobacterium of other species or unidentified species*†
- *M. tuberculosis* (disseminated or extrapulmonary)*
- *M. tuberculosis* (pulmonary)*
- *Pneumocystis carinii* pneumonia†,
- Progressive multifocal leukoencephalopathy
- Salmonella septicemia (recurrent)*
- Toxoplasmosis of brain†
- Wasting syndrome due to HIV*

For pediatric cases only (< 15 years old)
• Bacterial infections (multiple or recurrent, excluding recurrent bacterial pneumonia)*
• Lymphoid interstitial pneumonia and/or pulmonary lymphoid hyperplasia†

* Must have laboratory evidence of HIV infection
† May be diagnosed presumptively if laboratory evidence of HIV infection is present
¥ This has been renamed as Pneumocystis jirovecii

6.0 ICD Code(s)
   ICD 10 Code B24

7.0 Comments
   N/A

8.0 References
   • Ministry of Health and Long-Term Care, Public Health Division. iPHIS manual. Toronto, ON: Queen’s Printer for Ontario; 2005.

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Adverse Events Following Immunization (AEFIs)
Adverse Events Following Immunization (AEFIs)

1.0 Provincial Reporting
   Confirmed cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification
   The following present the confirmed case classifications for an adverse event following immunization:

3.1 Local Reaction Following an Injection:
   - Swelling at or near injection site
   - Abscess at injection site
   - Nodule at injection site
   - Cellulitis
   - Induration at or near injection site

3.2a Anaphylaxis
   - ≥1 minor cardiovascular OR respiratory criterion
   - ≥1 minor criterion from each of ≥2 different systems/categories
   - OR
   - ≥1 major cardiovascular AND ≥1 major respiratory criterion
   - OR
   - ≥1 major cardiovascular OR respiratory criterion
     - AND
     - ≥1 minor criterion involving ≥1 different system/category (other than cardiovascular or respiratory system)
     - OR
   - ≥1 major dermatological AND ≥1 minor cardiovascular AND/OR respiratory criterion
     - OR
   - ≥1 major dermatological
     - AND
     - ≥1 major cardiovascular AND/OR ≥1 major respiratory criterion

3.2b Allergic Reaction
   - ≥1 minor dermatological (hives)

Infectious Diseases Protocol, 2009 – Appendix B
• ≥1 minor respiratory criterion (wheezing)
  OR
• ≥1 major dermatological (local of generalized edema)

3.3 Neurologic Reaction
• Encephalopathy/ Encephalitis
  OR
• Meningitis
  OR
• Seizure(s)
  OR
• Guillain-Barré Syndrome
  OR
• Bell's Palsy
  OR
• Paralysis other than Bell’s Palsy

3.4 Other Defined AEFIs of Interest
• Hypotonic-Hyporeactive Episode
  OR
• Persistent crying
  OR
• Rashes
  OR
• Arthritis
  OR
• Thrombocytopenia
  OR
• Parotitis
  OR
• Oculo Respiratory Syndrome (ORS)

3.5 Other Severe or Unusual Event(s) Not Listed Above (e.g., Intussusception)
Any adverse event believed to be temporally related to immunization that does not fit any of the categories listed above and for which no other cause is clearly established. Report events of clinical interest which require medical attention, and particularly events that are (i) fatal, (ii) life-threatening, (iii) require hospitalization, or (iv) result in residual disability.

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
Local Reaction Following an Injection
• Gram stain or positive culture of microbiological organisms

4.2 Approved/Validated Tests
Local Reaction Following an Injection
• Standard culture
• Gram stain
4.3 Indications and Limitations
N/A

5.0 Clinical Evidence

5.1 Local Reaction Following an Injection:

i. **Swelling at or near injection site:**
   - Visible enlargement of injected limb with or without objective measurement. Swelling is caused by fluid infiltration in tissue and is typically soft.

ii. **Abscess at injection site:**
   - Localized soft tissue collection of material occurring at the site of injection.
     - Abscess of infectious etiology – spontaneous or surgical drainage of material from mass and lab confirmation i.e. gram stain or positive culture, of microbiological organisms
     - Sterile abscess - spontaneous or surgical drainage of material from mass negative for infectious etiology

iii. **Nodule at injection site:**
   - The presence of a discrete or well demarcated soft tissue mass or lump that is firm in the absence of abscess formation, erythema, or warmth.
   - There may be additional less discrete softer swelling surrounding the nodule at the injection site.

iv. **Cellulitis:**
   Acute infectious and expanding inflammatory condition of the skin with at least three of the following four signs:
   - Localized pain or tenderness
   - Erythema
   - Induration or swelling
   - Warmth
   **AND**
   - The reaction is at the injection site

v. **Induration at or near injection site:**
   - Palpable thickening, firmness or hardening of soft tissue.
   It may clearly include the injection site or may not clearly include the injection site.
### 5.2 Anaphylaxis and Other Allergic Reactions:

#### Table 1: Minor Criteria

<table>
<thead>
<tr>
<th>Dermatologic or mucosal -</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>o Generalized pruritus without skin rash</td>
<td></td>
</tr>
<tr>
<td>o Generalized prickle sensation</td>
<td></td>
</tr>
<tr>
<td>o Localized injection site urticaria</td>
<td></td>
</tr>
<tr>
<td>o Red and itchy eyes</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cardiovascular -</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>o Reduced peripheral circulation as indicated by the combination of at least 2 of tachycardia and</td>
<td></td>
</tr>
<tr>
<td>o A capillary refill time of &gt;3 seconds without hypotension</td>
<td></td>
</tr>
<tr>
<td>o A decreased level of consciousness</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Respiratory –</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>o Persistent dry cough</td>
<td></td>
</tr>
<tr>
<td>o Hoarse voice</td>
<td></td>
</tr>
<tr>
<td>o Difficulty breathing without wheeze or stridor</td>
<td></td>
</tr>
<tr>
<td>o Sensation of throat closure</td>
<td></td>
</tr>
<tr>
<td>o Sneezing, rhinorrhea</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gastrointestinal –</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>o Diarrhea</td>
<td></td>
</tr>
<tr>
<td>o Abdominal pain</td>
<td></td>
</tr>
<tr>
<td>o Nausea</td>
<td></td>
</tr>
<tr>
<td>o Vomiting</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Laboratory –</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>o Mast cell tryptase elevation &gt; upper normal limit</td>
<td></td>
</tr>
</tbody>
</table>
Table 2: Major Criteria

<table>
<thead>
<tr>
<th>Dermatologic or mucosal -</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Generalized urticaria (hives) or generalized erythema</td>
</tr>
<tr>
<td>o Angioedema*, localized or generalized</td>
</tr>
<tr>
<td>o Generalized pruritis with skin rash</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cardiovascular -</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Measured hypotension</td>
</tr>
<tr>
<td>o Clinical diagnosis of uncompensated shock, indicated by the combination of at least 3 of the following:</td>
</tr>
<tr>
<td>o Tachycardia</td>
</tr>
<tr>
<td>o Capillary refill time &gt;3 seconds</td>
</tr>
<tr>
<td>o Reduced central pulse volume</td>
</tr>
<tr>
<td>o Decreased level of consciousness or loss of consciousness</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Respiratory –</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Bilateral wheeze</td>
</tr>
<tr>
<td>o Stridor</td>
</tr>
<tr>
<td>o Upper airway swelling (lip, tongue, throat, uvula, or larynx)</td>
</tr>
<tr>
<td>o Respiratory distress – 2 or more of the following:</td>
</tr>
<tr>
<td>o Tachypnea</td>
</tr>
<tr>
<td>o Increased use of accessory respiratory muscles (sternocleidomastoid, intercostals, etc.)</td>
</tr>
<tr>
<td>o Recession</td>
</tr>
<tr>
<td>o Cyanosis</td>
</tr>
<tr>
<td>o Grunting</td>
</tr>
</tbody>
</table>

5.3 Neurologic Reaction

i. **Encephalopathy/ Encephalitis may be manifested by any of the following:**
   - Depressed/altered level of consciousness, lethargy or personality change lasting for ≥24hrs
   - Lethargy
   - Focal or multifocal neurologic sign(s)
   - CSF pleocytosis >5 wbc/mm³
   - EEG consistent with encephalitis
   - Brain pathology consistent with encephalitis
   - Neuroimaging consistent with encephalitis

ii. **Meningitis**
   An infection or inflammation of the membranes covering the brain and spinal cord, characterized by acute onset of fever with neck stiffness and pain, severe headache and vomiting.
iii. **Seizure(s)**
- Sudden loss of consciousness with or without fever
- Paroxysms of generalized tonic skeletal muscle contractions and clonic jerking usually associated with decreased consciousness.

iv. **Guillian-Barré Syndrome**
Acute febrile polyneuritis or acute idiopathic polyneuritis. Usually a symmetrical ascending paralysis with associated sensory disturbances.

v. **Bell’s Palsy**
Bell’s palsy involves damage to the seventh cranial (facial) nerve. This nerve controls the movement of the muscles of the face. Symptoms usually start suddenly, and range from mild to severe and may include any of the following:
- Change in facial expression (for example, grimacing)
- Difficulty with eating and drinking
- Drooling due to lack of control over muscles of the face
- Droopy eyelid or corner of mouth
- Dry eye or mouth
- Face feels stiff or pulled to one side
- Facial paralysis of one side of the face, makes it hard to close one eye
- Headache
- Loss of sense of taste
- Pain behind or in front of the ear
- Sensitivity to sound (hyperacusis) on the affected side of the face
- Twitching in face
- Weakness in face

vi. **Paralysis other than Bell’s Palsy**
Abnormal loss of muscle function or of sensation.

### 5.4 Other Defined AEFIs of Interest

i. **Hypotonic-Hyposensitive Episode**
- <2yrs old
- Limpness
- Reduced responsiveness / unresponsiveness
- Pallor/Cyanosis

ii. **Persistent crying**
- The presence of crying which is continuous
  **AND**
- Unaltered for ≥ 3 hours.

iii. **Rashes**
- Generalized
- Localized at injection site
- Localized at non-injection site

iv. **Arthritis**
Joint pain lasting at least 24 hours, includes the following.
- Joint swelling
- Joint redness
- Sensation of warmth over the joint
• Inflammatory changes in synovial fluid

v. Thrombocytopenia:
• Platelet count less than 150 x 109 L-1
  AND
• Confirmed by blood smear exam
  OR
• The presence of clinical signs and symptoms of excessive and spontaneous bleeding (e.g., petechiae, purpura, epistaxis, hematoma, prolonged bleeding after cuts or surgery)

vi. Parotitis
Parotid gland swelling with pain and/or tenderness.

vii. Oculo Respiratory Syndrome (ORS)
Symptoms must include bilateral red eyes AND at least one respiratory sign/symptom with or without facial edema, occurring within 24 hours of influenza vaccination.

Respiratory sign/symptoms can include any of the following:
• cough,
• sore throat,
• difficulty swallowing,
• wheeze,
• difficulty breathing,
• hoarseness and
• chest tightness.

5.5 Other Severe or Unusual Event(s) Not Listed Above (e.g., Intussusception)

• Surgical criteria
  The demonstration of invagination of the intestine at surgery; and/or
• Radiologic criteria:
  The demonstration of invagination of the intestines by either air or liquid contrast enema; or the demonstration of an intra-abdominal mass by abdominal ultrasound with specific characteristic features that is proven to be reduced by hydrostatic enema on postreduction ultrasound; and/or
• Autopsy criteria:
  The demonstration of invagination of the intestine.

6.0 ICD Code(s)
  ICD 10 Code T88.1

7.0 Comments

Neurologic Reaction:

Guillain-Barré Syndrome
• Indicate whether EMG and/or LP done and results, as well as any other relevant investigation including tests to look for possible causes, especially Campylobacter.

Bell’s Palsy
• About 60 - 80% of cases go away completely within a few weeks to months. Sometimes the condition results in permanent changes.

8.0 References

• Ministry of Health and Long-Term Care, Public Health Division. iPHIS manual. Toronto, ON: Queen’s Printer for Ontario; 2005.

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Amebiasis
Amebiasis

1.0 Provincial Reporting
Confirmed and probable cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed Case
Laboratory confirmation of infection with or without clinically compatible signs and symptoms:
- Demonstration of hypertrophied *Entamoeba histolytica* (*E. histolytica*) trophozoites in preserved stool samples
  OR
- Positive for *E. histolytica* by stool antigen ELISA on unpreserved stool samples
  OR
- Positive serological test(s) for *E. histolytica*, titre ≥ 1:512
  OR
- Demonstration of trophozoites in intestinal tissue biopsy or ulcer scrapings (e.g., Iron-Haematoxylin [IH] stained smears)
  OR
- Demonstration of trophozoites in extra-intestinal tissues (e.g., Haematoxylin & Eosin [H & E] stained sections)

3.2 Probable Case
- Clinically compatible signs and symptoms in a person with an epidemiologic link to one or more laboratory-confirmed cases
  OR
- A person with or without clinically compatible signs and symptoms and the presence of *E. histolytica/dispar* cysts and trophozoites by microscopy

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
Any of the following will constitute a confirmed case of Amebiasis:

*Intestinal amebiasis*
- Demonstration of ingested red blood cells in hypertrophied trophozoites of *E. histolytica* in preserved stool samples
  OR
- Demonstration of positive ELISA for *E. histolytica* on unpreserved stool samples
  OR
- Demonstration of positive serological test(s) for *E. histolytica*, titre ≥ 1:512
  OR
- Demonstration of hypertrophied trophozoites in tissue biopsies or ulcer scrapings by histological staining or Iron-Haematoxylin staining techniques
Invasive amebiasis

- Demonstration of hypertrophied *E. histolytica* trophozoites in extra-intestinal tissue
  OR
- Demonstration of positive serological test(s) for *E. histolytica*, titre ≥ 1:512

4.2 Approved/Validated Tests

- O&P screening (Iron-Haematoxylin staining and F-E concentration) on stool samples preserved in Sodium acetate-acetic acid-formalin (SAF) fixative. (If hypertrophied trophozoites of *E. histolytica* found in IH stained smear, no further confirmatory tests required. If positive for *E. histolytica*/dispar by screen, then ELISA on unpreserved stool sample to distinguish between *E. histolytica* from *E. dispar*.)
- Stool antigen detection using ELISA on unpreserved stool samples, to distinguish between *E. histolytica* & *E. dispar*.
- Serological tests (e.g., IgG ELISA test, indirect haemagglutination [IHA] test)
- IH staining of smears prepared from colonic fluids or biopsies preserved SAF fixative
- H&E staining on intestinal or extra-intestinal sections

4.3 Indications and Limitations

- Permanent staining such as IH are for the trophozoite forms; it may not detect the presence of cyst forms, especially when they are few in numbers
- The antigen of *E. histolytica* can only be detected in “fresh” unpreserved stool specimens, not in old or preserved ones
- Colonic fluids may yield positive results provided they are preserved in SAF fixative immediately after collection, *E. histolytica* trophozoites usually show in IH smears prepared from this type of specimens
- H&E sections show the presence of *E. histolytica* trophozoites in the infected tissue but the procedure is time consuming and a negative smear is inconclusive
- Patients with early infections may not exhibit a detectable IgG response. IgM testing is not available.
- Serology tends to be positive with invasive disease (e.g., colitis, hepatic abscess). However, diarrhea alone rarely causes serology to be positive at >1:512.
- Only serum samples are suitable for serology.

5.0 Clinical Evidence

Infection of the large intestine by *E. histolytica* may result in an individual ranging in severity of symptoms from asymptomatic through to mild diarrhea and fulminant dysentery.

Mild symptoms may include intermittent diarrhea (can be bloody), cramps, vomiting and general malaise.

More severe amebic dysentery includes a sudden onset of fever, severe abdominal cramps, and an average of 15 to 20 stools per day consisting of liquid faeces flecked with bloody mucus. Death may occur from peritonitis resulting from gut perforation or from cardiac failure.

Invasive infections may affect various organs. Invasive infection (e.g., hepatic amebiasis, ameboma) may also occur. Invasive amebiasis will always be symptomatic with fever, abdominal pain, malaise and elevated liver function tests (for liver disease).
6.0 ICD Code(s)
   ICD 10 Code A06

7.0 Comments
   • According to the 2005 case definition, individuals that had an epidemiologic link to a confirmed case met the confirmed case definition. However, based on the 2008 case definition, these cases are now classified as probable.
   • Non-hypertrophied “E. histolytica/dispar” in stool is not considered as conclusive evidence. Additional testing is required to differentiate between E. histolytica and E. dispar.

8.0 References
   • Ministry of Health and Long-Term Care, Public Health Division. iPHIS manual. Toronto, ON: Queen’s Printer for Ontario; 2005.

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Anthrax
Anthrax

1.0 Provincial Reporting
   Confirmed, probable and suspect cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

3.1 Confirmed Case
   Laboratory confirmation of infection with clinically compatible signs and symptoms:
   • Culture of *Bacillus anthracis* from a clinical specimen (e.g., blood)
   OR
   • Identification of *B. anthracis* in a clinical specimen (e.g., blood) using the fluorescent antibody technique

3.2 Probable Case
   Clinically compatible signs and symptoms in a person in whom *B. anthracis* deoxyribonucleic acid (DNA) is detected and with an epidemiologic link to a confirmed case or suspected source

3.3 Suspect Case
   Clinically compatible signs and symptoms in a person with an epidemiologic link to a confirmed case or suspected source

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
   Any of the following will constitute a confirmed case of Anthrax:
   • Positive *B. anthracis* culture with confirmation (See Section 4.2)
   • Positive *B. anthracis* direct fluorescent antibody (DFA) test

4.2 Approved/Validated Tests
   • Standard culture for *B. anthracis* with confirmation
   • DFA for *B. anthracis*
   • Nucleic acid amplification test (NAT) for *B. anthracis*
   • Confirmatory methods include combinations of Gram stain, motility, morphology, haemolysis, spores, demonstration of capsule and lysis by gamma phage

4.3 Indications and Limitations
   • Potential for false negative NAT exists if virulence gene is lacking

5.0 Clinical Evidence
   Three clinical forms are recognized: cutaneous, pulmonary or respiratory and gastrointestinal:
   • With the cutaneous form, the skin begins to itch and a papule appears at the inoculation site. This papule then evolves into a depressed black eschar.
• The pulmonary form begins with mild upper respiratory tract symptoms. Some three to five days later the symptoms become acute with fever, shock and results in death.
• Gastrointestinal anthrax is manifested by violent gastroenteritis with vomiting and bloody stools.

6.0 ICD Code(s)
ICD 10 Code A22

7.0 Comments
N/A

8.0 References
• Ministry of Health and Long-Term Care, Public Health Division. iPHIS manual. Toronto, ON: Queen’s Printer for Ontario; 2005.

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Botulism
Botulism

1.0 Provincial Reporting
   Confirmed, probable and suspect cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

3.1 Confirmed Case
   A confirmed case requires definitive laboratory evidence.

3.1.1. Confirmed Case of Foodborne Botulism
   Laboratory confirmation of intoxication with clinically compatible signs and symptoms:
   • Detection of botulinum toxin in serum, stool, gastric aspirate or food
     OR
   • Isolation of Clostridium botulinum (C. botulinum) from stool or gastric aspirate

3.1.2. Confirmed Case of Wound Botulism
   Laboratory confirmation of infection with clinically compatible signs and symptoms:
   • Detection of botulinum toxin in serum
     OR
   • Isolation of C. botulinum from a wound
     AND
   • Presence of a freshly infected wound in the 2 weeks before clinically compatible signs and symptoms and no evidence of consumption of food contaminated with C. botulinum

3.1.3. Confirmed Case of Intestinal/Colonization Botulism
   • Laboratory confirmation with clinically compatible signs and symptoms in a patient aged ≥ 1 year with severely compromised gastrointestinal tract functioning (i.e., abnormal bowel) due to various diseases such as colitis, or occurring in association with other conditions or procedures (e.g., intestinal bypass procedures) that may create local or widespread disruption in the normal intestinal flora
     OR
   • Detection of botulinum toxin in stool or serum
     OR
   • Isolation of C. botulinum from the patient’s stool, or at autopsy

3.1.4 Confirmed Case of Infant Botulism
   Laboratory confirmation with clinically compatible signs and symptoms in a person less than one year of age:
   • Detection of botulinum toxin in stool or serum
     OR
   • Isolation of C. botulinum from the patient’s stool, or at autopsy
3.2 Probable Case
- Clinically compatible signs and symptoms in a person with an epidemiologic link to a laboratory-confirmed case of foodborne botulism

3.3 Suspect Case
- Overwhelming clinical evidence of botulism, as determined by a Medical Officer of Health, in the absence of laboratory confirmation or an epidemiologic link

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
Any of the following will constitute a confirmed case of Botulism:
- Detection of botulinum toxin, with or without culture
- Isolation of *C. botulinum*

4.2 Approved/Validated Tests
- Standard culture for *C. botulinum* with demonstration of neurotoxin where neurotoxin is detected in culture supernatant using mouse bioassay
- *C. botulinum* neurotoxin mouse bioassay

4.3 Indications and Limitations
- *C. botulinum* neurotoxin may not be detectable in serum. Administration of antitoxin prior to withdrawal of blood will result in a negative assay.
- Two other species of the genus, *C. baratti* and *C. butyricum* may produce the neurotoxin and should be entered as a case.
- Culture without toxin assay by mouse bioassay is not useful. Group I *C. botulinum* cannot be distinguished from *C. sporogenes* without toxin assay.
- Isolates and/or clinical specimens should be referred to the Botulism Reference Service for Canada
- Enzyme immunoassay (EIA) for botulinum toxin is not as sensitive as the mouse bioassay and therefore should not replace the mouse bioassay for neurotoxin detection in clinical specimens; however, EIA could be used to detect neurotoxin production from cultures.

5.0 Clinical Evidence

- **Foodborne/Wound/Intestinal**: Ingestion of botulinum toxin results in an illness of variable severity. Common symptoms are diplopia, blurred vision, bulbar weakness, dry mouth and difficulty swallowing and speaking. Descending and symmetric paralysis may progress rapidly, often requiring respiratory support.
- **Infant**: Clinically compatible signs and symptoms in infants are characterized but not limited to the following: constipation, lethargy, loss of appetite, weakness, altered/weak cry, decreased gag reflex, ptosis, hypotonia and loss of head control.

6.0 ICD Code(s)

6.1 ICD-10 Code(s)
A05.1 Botulism

6.2 ICD-9/ICD-9CM Code(s)
005.1 Botulism

7.0 Comments
- One case is considered an outbreak
• Note that infants under the age of one can also be diagnosed with foodborne botulism if the illness is due to toxin in the food
• Botulism toxin can be inhaled or ingested through water. These cases must also be reported.

8.0 References

• Ministry of Health and Long-Term Care, Public Health Division. iPHIS manual. Toronto, ON: Queen’s Printer for Ontario; 2005.

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Brucellosis
Brucellosis

1.0 Provincial Surveillance
Confirmed and probable cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed Case
Laboratory confirmation of infection with clinically compatible signs and symptoms:
• Isolation of *Brucella* sp. from an appropriate clinical specimen (e.g., blood, tissue)
  OR
• A significant (i.e., fourfold or greater) rise in *Brucella* agglutination titre between acute and convalescent serum specimens obtained 2 or more weeks apart and tested at the same laboratory

3.2 Probable Case
• Clinically compatible signs and symptoms in a person with an epidemiologic link to a confirmed case
  OR
• Clinically compatible signs and symptoms with supportive serology (i.e., *Brucella* agglutination test titre of 1:160 or higher in one or more serum specimens obtained after onset of symptoms)

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
Any of the following will constitute a confirmed case of Brucellosis:
• Positive *Brucella* sp. culture with confirmation (See Section 4.2)
• A significant (i.e., fourfold or greater) rise in *Brucella* sp. antibody titre

4.2 Approved/Validated Tests
• Standard culture for *Brucella* sp. with confirmation
• *Brucella* serology
• Confirmatory methods include Tbilisi phage susceptibility, dye tolerance testing, slide agglutination, and nucleic acid amplification test (NAT)

4.3 Indications and Limitations
• Additional tests may include NAT for *Brucella* sp. based on availability.

5.0 Clinical Evidence
Clinically compatible signs and symptoms are characterized by acute or insidious onset of fever, night sweats, undue fatigue, anorexia, weight loss, headache, and arthralgia.

6.0 ICD Code(s)
ICD 10 Code A23
7.0 Comments
N/A

8.0 References


Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: *Campylobacter enteritis*
**Campylobacter enteritis**

1.0 Provincial Reporting
   Confirmed and probable cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

   3.1 Confirmed Case
   Laboratory confirmation of infection with or without clinically compatible signs and symptoms:
   - Isolation of *Campylobacter* spp. from an appropriate clinical specimen (e.g., stool, urine, body fluids)

   3.2 Probable Case
   Clinically compatible signs and symptoms in a person with an epidemiologic link to a laboratory-confirmed case

4.0 Laboratory Evidence

   4.1 Laboratory Confirmation
   The following will constitute a confirmed case of Campylobacteriosis:
   - Positive culture for *Campylobacter* spp.

   4.2 Approved/Validated Tests
   - Standard culture for *Campylobacter* spp.

   4.3 Indications and Limitations
   - Commercial nucleic acid amplification test (NAT) assays for *Campylobacter* spp. are presently not available
   - Further strain characterization is indicated for epidemiological, public health and control purposes

5.0 Clinical Evidence
   Clinically compatible signs and symptoms are characterized by diarrhea, abdominal pain, malaise, fever, nausea, and/or vomiting

6.0 ICD Code(s)

   6.1 ICD-10 Code(s)
   A04.5 *Campylobacter* enteritis

   6.2 ICD-9/ICD-9CM Code(s)
   008.43 *Campylobacter*

7.0 Comments
   N/A
8.0 References


Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Chancroid
Chancroid

1.0 Provincial Reporting
   Confirmed and probable cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

   3.1 Confirmed Case
   Laboratory confirmation of *Haemophilus ducreyi* in a specimen taken from an appropriate anatomical site (e.g., cervix, genital area, vaginal wall), with clinically compatible signs and symptoms

   3.2 Probable Case
   Clinically compatible signs and symptoms in a person with an epidemiologic link to a laboratory-confirmed case

4.0 Laboratory Evidence

   4.1 Laboratory Confirmation
   The following will constitute a confirmed case of Chancroid:
   - Positive *Haemophilus ducreyi* culture

   4.2 Approved/Validated Tests
   - Standard culture using gram stain (Note: The gram stain morphology will have a “school of fish-like” appearance)

   4.3 Indications and Limitations
   - N/A

5.0 Clinical Evidence
   Single or multiple painful, necrotizing ulcers at site of infection. There may also be tender inguinal lymphatic nodes.

6.0 ICD Code(s)
   ICD 10 Code A57

7.0 Comments
   N/A

8.0 References
   - National Notifiable Diseases Surveillance System. Case Definitions. [Internet]. Chancroid (*Haemophilus ducreyi*); 1996. Atlanta, GA: Centers for Disease...
Infectious Diseases Protocol, 2009 – Appendix B


Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Chickenpox (Varicella)
Chickenpox (Varicella)

1.0 Provincial Reporting
Confirmed cases of disease

2.0 Type of Surveillance
Case-by-case and aggregate reporting

3.0 Case Classification

3.1 Confirmed Case
Laboratory confirmation of infection with clinically compatible signs and symptoms in the absence of recent immunization with varicella-containing vaccine:
• Isolation or direct antigen detection of varicella-zoster virus (VZV) from an appropriate clinical specimen (e.g., vesicle/lesion fluid or swab submitted in viral transport media)
  OR
• Detection of VZV DNA by nucleic acid amplification test (NAT)
  OR
• Seroconversion or a significant rise by any standard serologic assay in varicella-zoster Immunoglobulin G (IgG) titre between acute and convalescent sera
  OR
• Positive serologic test for varicella-zoster Immunoglobulin M (IgM) antibody
  OR
• Clinically compatible signs and symptoms

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
Any of the following will constitute a confirmed case of Chickenpox:
• Positive for varicella-zoster virus (VZV) IgM antibody
• Seroconversion or rise in VZV specific IgG titre
• Positive VZV culture with immunofluorescence (IF)
• Positive NAT for VZV

4.2 Approved/Validated Tests
• Standard VZV culture
• Commercial tests for anti-VZV IgG and IgM antibody
• NAT for VZV DNA

4.3 Indications and Limitations
Care must be taken when reviewing serological data without reference to the clinical picture as the response to VZV reactivation (shingles) may be the same as to primary chickenpox

5.0 Clinical Evidence
Clinically compatible signs and symptoms are characterized by a pruritic rash with rapid evolution from macules to papules, vesicles, and crusts; all stages may be
Simultaneously present; lesions are superficial, may appear in crops, and have a predominantly central to peripheral distribution.

6.0 ICD Code(s)

6.1 ICD-10 Code(s)
   B01 Varicella
   B02 Zoster

6.2 ICD-9/ICD-9CM Code(s)
   052 Chickenpox
   053 Herpes zoster

7.0 Comments
   • Varicella zoster virus may be identified in other clinical specimens (e.g., respiratory specimens, sterile sites). Consult with laboratory for further direction
   • The disease is endemic in Ontario, therefore, clinical illness meets the case definition for confirmed case

8.0 References
   • Ministry of Health and Long-Term Care, Public Health Division. iPHIS manual. Toronto, ON: Queen’s Printer for Ontario; 2005.

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: *Chlamydia trachomatis* infections
**Chlamydia trachomatis infections**

1.0 Provincial Reporting  
Confirmed cases of disease

2.0 Type of Surveillance  
Case-by-case

3.0 Case Classification  

3.1 Confirmed Case  
*Chlamydia trachomatis* detected in an appropriate clinical specimen (e.g., urogenital tract, rectal specimen)

4.0 Laboratory Evidence  

4.1 Laboratory Confirmation  
Any of the following will constitute a confirmed case of *C. trachomatis* infection:  
- Positive *C. trachomatis* culture  
- Positive for *C. trachomatis* nucleic acid amplification test (NAT)  
- Positive for *C. trachomatis* antigen  
- Positive for *C. trachomatis* IgM antibodies (for diagnosis of *C. trachomatis* pneumonia in infants <3 months of age only)

4.2 Approved/Validated Tests  
- Consult with laboratory with regards to testing and appropriate specimens

4.3 Indications and Limitations  
- Commercially available approved/validated tests should only be used on approved specimen types (e.g., cervical, urethral); results from non-approved specimen types would need validation  
- Culture has been the preferred method for medico-legal purposes. NAT may be suitable, provided that positive results are confirmed by a different set of primers.

5.0 Clinical Evidence  
A clinical consultation is necessary for diagnosis

6.0 ICD Code(s)  
ICD 10 Code A56

7.0 Comments  
Conjunctivitis in infants caused by *C. trachomatis* should be reported as ophthalmia neonatorum

8.0 References  

• Ministry of Health and Long-Term Care, Public Health Division. iPHIS manual. Toronto, ON: Queen’s Printer for Ontario; 2005.


Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Cholera
1.0 Provincial Reporting
Confirmed and probable cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed Case
Laboratory confirmation of infection with clinically compatible signs and symptoms:
- Isolation of cholera toxin producing *Vibrio cholerae* serovar O1 or O139 from an appropriate specimen (e.g., vomitus, stool)

3.2 Probable Case
Clinically compatible signs and symptoms in a person with an epidemiologic link to a laboratory-confirmed case

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
The following will constitute a confirmed case of Cholera:
- Positive culture for toxigenic *V. cholerae*

4.2 Approved/Validated Tests
- Standard culture for *V. cholerae*
- Serotyping for O antigen

4.3 Indications and Limitations
- Toxigenicity of *V. cholerae* isolates should be established
- Further strain characterization, including antibiotic susceptibility testing, is indicated for epidemiological, public health and control purposes

5.0 Clinical Evidence
Clinically compatible signs and symptoms illness are characterized by mild or moderate diarrhea in roughly 90% of individuals. In 5-10% of cases, infected individuals develop severe, watery diarrhea and/or vomiting. The resulting loss of fluids in an infected individual can rapidly lead to severe dehydration. If not treated, death can occur within hours. Stools are typically colourless with flecks of mucous referred to as “rice water” diarrhea.

6.0 ICD Code(s)
ICD 10 Code A00

7.0 Comments
N/A
8.0 References


Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: *Clostridium difficile* associated disease (CDAD) outbreaks in public hospitals
1.0 Provincial Reporting
Confirmed outbreaks and outbreak-associated cases occurring in hospitals under the Public Hospitals Act

2.0 Type of Surveillance
Outbreak and case level data

3.0 Outbreak Classification

3.1 Confirmed Outbreak Definition

**Facility-level Outbreak:**
- A facility-level outbreak must be declared when the baseline CDAD rate* is at or above the 80th percentile of the average rate for comparator facilities calculated on a quarterly basis.
  - OR
- Facilities that are under the 80th percentile for their category but have experienced a doubling of their new nosocomial cases of CDAD for two consecutive months should trigger investigation and notification of public health.

* The baseline CDAD rate for a facility is the cumulative number of new nosocomial cases of CDAD associated with the facility (as defined below) divided by the number of patient days for the facility and expressed as a rate per 1,000 patient days.

**Ward or Unit-level Thresholds:**
- Six or more new nosocomial cases of CDAD associated with the reporting facility within a 30 day period on a single ward or unit constitutes an outbreak.

**NOTE:** Hospitals should use their existing baseline first as an indicator to determine whether an outbreak exists at the ward/unit or facility level.

3.2 Suspect Outbreak Definition
Three or more new nosocomial cases of CDAD associated with the reporting facility within a seven day period on a single ward or unit shall be treated as a cluster. Investigation and review should be actively undertaken and the facility Infection Prevention and Control team must notify and liaise with the local Public Health Unit.

3.3 Confirmed Case Definition
- Diarrhea* with laboratory confirmation of a positive toxin assay (A/B) for *Clostridium difficile*;
  - OR
- Visualization of pseudomembranes on sigmoidoscopy or colonoscopy;
  - OR
- Histological/pathological diagnosis of pseudomembranous colitis.
Diarrhea is defined as:
- loose/watery bowel movements (conform to the shape of the container), and
- the bowel movements are unusual or different for the patient, and
- there is no other recognized etiology for the diarrhea (for example, laxative use)

The following definitions should be used to determine whether the case is nosocomial:

3.3.1 **New nosocomial case of CDAD associated with reporting facility**
- A case that meets the case definition for CDAD;
  AND
- CDAD was not present on admission (i.e., onset of symptoms >72 hours after admission);

OR
- The infection was present at time of admission but was related to a previous admission to the same facility within the last 4 weeks.
  AND
- The case has not had CDAD in the past 8 weeks.

3.3.2 **New nosocomial case of CDAD associated with other health care facilities**
- A case that meets the case definition for CDAD;
  AND
- CDAD was present on admission;

OR
- The case had symptom onset <72 hours after admission;
  AND
- The case was exposed to any other health care facility (including LTC) other than the reporting facility within the last 4 weeks;
  AND
- The case has not had CDAD in the past 8 weeks.

3.3.3 **New case of CDAD associated with source other than a health care facility or indeterminate source**
- A case that meets the case definition for CDAD;
  AND
- CDAD was present on admission;

OR
- The case had symptom onset <72 hours after admission;
  AND
- There was no exposure to any health care facility within the last 4 weeks

OR
- The source of infection cannot be determined;
  AND
- The case has not had CDAD in the past 8 weeks.

4.0 Laboratory Evidence
4.1 Laboratory Confirmation

- Laboratory confirmation is not required to be classified as a confirmed ward/unit or facility-level outbreak

Positive toxin assay test is needed at the case level, with the presentation of diarrhea

4.2 Approved/Validated Tests

- *Clostridium difficile* (*C. difficile*) positive toxin assay (A/B) test

4.3 Indications and Limitations

- Laboratory testing for CDAD usually involves detection of the cytotoxin(s) (A and B) produced by *C. difficile*. Cultures for *C. difficile* are not routinely done.
- Stool specimen collection should occur as soon as possible after the onset of symptoms.
- Specimens are to be collected from patients who are more than 12 months old.
- Quick turnaround time for *C. difficile* cytotoxin testing is essential and should be pre-arranged with the microbiology laboratory serving the facility.
- A single negative test should not be relied on to rule out *C. difficile*. If a single test is negative, a second specimen should be sent.
- *C. difficile* toxin testing is not reliable as a test of cure. Toxin may be detected long after clinical symptoms have resolved.
- Formed stool specimens will be rejected unless the laboratory requisition indicates the patient may have pseudomembranous colitis.

5.0 Clinical Evidence

**Clinically compatible signs and symptoms are characterized by the following:**

- Diarrhea (as defined above)
- Fever
- Loss of appetite
- Nausea and
- Abdominal pain or tenderness

*C. difficile* infection can lead to diseases ranging from mild diarrhea to toxic megacolon and death.

6.0 ICD Code(s)

ICD 10 Code J22a

7.0 Comments

N/A

8.0 References

- Ontario Ministry of Health and Long Term Care, Provincial Infectious Diseases Advisory Committee (PIDAC), Best Practices Document for the Management of *Clostridium difficile* in all health care settings, PIDAC, MOHLTC, revised Nov. 2007
- Ontario Public Health Laboratories, Labstract- *Clostridium difficile*- Specimen Acceptance and Testing During Outbreaks, November 2008
- Ontario Public Health Laboratories, Labstract- *Clostridium difficile* toxin testing- Specimen Acceptance Criteria, August 2008

Date of Last Revision: January 2009
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Cryptosporidiosis
Cryptosporidiosis

1.0 Provincial Reporting
   Confirmed and probable cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

3.1 Confirmed Case
   Laboratory confirmation of infection, with or without clinically compatible signs and symptoms, from an appropriate clinical specimen (e.g., stool, intestinal fluid, small bowel biopsy):
   • Demonstration of Cryptosporidium oocysts
     OR
   • Detection of Cryptosporidium deoxyribonucleic acid (DNA)
     OR
   • Demonstration of Cryptosporidium antigen by an approved method (e.g., enzyme immunoassay [EIA], immunochromatographic test [ICT])

3.2 Probable Case
   Clinically compatible signs and symptoms in a person with an epidemiologic link to a laboratory-confirmed case

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
   Any of the following will constitute a confirmed case of Cryptosporidiosis:
   • Positive for Cryptosporidium oocysts
   • Positive for Cryptosporidium DNA
   • Positive for Cryptosporidium antigen

4.2 Approved/Validated Tests
   • Microscopy
   • Direct fluorescent antibody (DFA)
   • Nucleic acid amplification test (NAT) for Cryptosporidium
   • Cryptosporidium immunoassays (EIA, ICT)

4.3 Indications and Limitations
   • Cryptosporidium oocysts can be recovered from microscopic examination of concentrated material from faecal specimens but it is difficult when the number of oocysts is low.
   • Trichrome and iron haematoxylin stains are not the methods of choice. Auramine-rhodamine stains may be useful for screening.
   • Presumptive identification should be confirmed by modified acid fast stains (e.g., Safranin) or immunoassays
• While Cryptosporidium parvum and Cryptosporidium hominis are the leading causes of cryptosporidiosis, other species are known to cause diarrheal illness in immunocompromised individuals.

5.0 Clinical Evidence
 Clinically compatible signs and symptoms are characterized by diarrhea (often profuse and watery), abdominal cramps, anorexia, fever, nausea, general malaise and vomiting

6.0 ICD Code(s)

6.1 ICD-10 Code(s)
A07.2 Cryptosporidiosis

6.2 ICD-9/ICD-9CM Code(s)
007.4 Cryptosporidiosis

7.0 Comments
N/A

8.0 References
• Ministry of Health and Long-Term Care, Public Health Division. iPHIS manual. Toronto, ON: Queen’s Printer for Ontario; 2005.

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Cyclosporiasis
# Cyclosporiasis

## 1.0 Provincial Reporting
Confirmed cases of disease

## 2.0 Type of Surveillance
Case-by-case

## 3.0 Case Classification

### 3.1 Confirmed Case
Laboratory confirmation of infection, with or without clinically compatible signs and symptoms, from an appropriate clinical specimen (e.g., stool, duodenal/jejunal aspirate, small bowel biopsy):
- Demonstration of *Cyclospora cayetanensis* oocysts (by morphologic criteria) or *Cyclospora* deoxyribonucleic acid (DNA), by polymerase chain reaction (PCR)

### 3.2 Probable Case
Clinically compatible signs and symptoms in a person with an epidemiologic link to a laboratory-confirmed case

## 4.0 Laboratory Evidence

### 4.1 Laboratory Confirmation
The following will constitute a confirmed case of Cyclosporiasis:
- Microscopic demonstration of *Cyclospora cayetanensis* oocysts.

### 4.2 Approved/Validated Tests
- Microscopy
- PCR

### 4.3 Indications and Limitations
- Nucleic acid amplification test (NAT) is under development for diagnostic use but is not currently being performed in Canada

## 5.0 Clinical Evidence
Clinically compatible signs and symptoms are characterized by watery diarrhea (> five bowel movements within a 24 hour period), loss of appetite, weight loss, abdominal bloating and cramping, increased flatus, nausea, fatigue, and low-grade fever. Vomiting may also occur. Relapses and asymptomatic infections can occur. Some evidence suggests that symptoms may be more severe and long-lasting in immunocompromised individuals.

## 6.0 ICD Code(s)

### 6.1 ICD-10 Code(s)
- A07.8 Other specified protozoal intestinal diseases (includes *Cyclospora cayetanensis*)

---

Infectious Diseases Protocol, 2009 – Appendix B
6.2 ICD-9/ICD-9CM Code(s)
007.5 Cyclosporiasis

7.0 Comments
This disease is not endemic in Canada, therefore should be investigated as most likely associated with imported food or travel.

8.0 References

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Cytomegalovirus infection, congenital
Cytomegalovirus infection, congenital

1.0 Provincial Reporting
   Confirmed and probable cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

3.1 Confirmed Case
   • Liveborn (within first three weeks of life) with clinically compatible signs and symptoms and laboratory evidence of cytomegalovirus (CMV) from an appropriate clinical site (e.g., urine, saliva, secretions or tissue)
   OR
   • Stillborn with laboratory evidence of CMV

3.2 Probable Case
   Presence of one or more clinically compatible signs and symptoms, obtained in the first 3 months of life and the exclusion of other diseases that produce these abnormalities.

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
   Any of the following will constitute a confirmed case of CMV infection:
   • Positive CMV culture from any clinical specimen (e.g., urine, saliva, secretions or tissue)
   • Positive for CMV nucleic acid from any clinical specimen
   • Demonstration of typical cytomegalic inclusion-bearing cells in sediments of body fluids
   • Serological evidence of CMV Immunoglobulin M (IgM) is suggestive. A significant (i.e., fourfold or greater) rise in CMV Immunoglobulin G (IgG) antibody titre level.

4.2 Approved/Validated Tests
   • Standard culture for CMV with confirmation
   • Nucleic acid amplification test (NAT) for CMV

4.3 Indications and Limitations
   • N/A

5.0 Clinical Evidence
   Infection with CMV often passes undiagnosed as a febrile illness without specific characteristics. Clinically compatible signs and symptoms defined as one or more of the following:
   • Haematologic: petechiae or purpura
   • Hepatomegaly
   • Splenomegaly
   • Microcephaly
- Chorioretinitis
- Intra-cranial calcifications
- Jaundice at birth
- Hearing impairment
- Platelet count of less than or equal 75,000/mm$^3$

6.0 ICD Code(s)
ICD 10 Code P35.1

7.0 Comments
Manifestations of infection vary depending on the age and immunocompetence of the individual at the time of infection

8.0 References

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Diphtheria
Diphtheria

1.0 Provincial Reporting
Confirmed and probable cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed Case
Clinically compatible signs and symptoms in a person with an upper respiratory tract infection or infection at another site PLUS at least one of the following:
• Isolation of *Corynebacterium diphtheriae* with confirmation of toxin from an appropriate clinical specimen (e.g., nasopharyngeal, nasal or cutaneous sites, exudate of membrane)
  OR
• Histopathologic diagnosis of diphtheria
  OR
• Epidemiological link to a laboratory-confirmed case (i.e., contact within 2 weeks prior to onset of symptoms)

3.2 Probable Case
Clinically compatible signs and symptoms in the absence of laboratory confirmation or in the absence of an epidemiological link to a laboratory-confirmed case

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
The following will constitute a confirmed case Diphtheria:
• Isolation of *C. diphtheriae* with confirmation of toxin from an appropriate clinical specimen
• Histopathologic diagnosis of diphtheria

4.2 Approved/Validated Tests
• Standard culture for *C. diphtheriae*
• Elek test for toxin detection
• Consult with laboratory prior to testing to discuss specimen collection and testing issues

4.3 Indications and Limitations
• All positive smears require follow-up testing for confirmation.
• Direct-stained smears and fluorescent antibody-stained smears may be unreliable
• Further strain characterization is indicated for epidemiological, public health and control purposes
• NAT positives for diphtheria toxin must be confirmed with the Elek test
5.0 Clinical Evidence
Clinical illness is characterized as an upper respiratory tract infection (nasopharyngitis, laryngitis, or tonsillitis) with or without an adherent nasal, tonsillar, pharyngeal and/or laryngeal membrane, plus at least one of the following:
- Gradually increasing stridor
- Cardiac (myocarditis) and/or neurologic involvement (motor and/or sensory palsies) 1 to 6 weeks after onset
- Death, with no known cause

6.0 ICD Code(s)

6.1 ICD-10 Code(s)
A36 Diphtheria

6.2 ICD-9/ICD-9CM Code(s)
032 Diphtheria

7.0 Comments
Mode of transmission is through contact with a case or carrier; more rarely, contact with articles soiled with discharges from lesions of infected people. Raw milk has served as a vehicle.

8.0 References

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Encephalitis, including: i) Primary, viral; ii) Post-infectious; iii) Vaccine-related; iv) Subacute sclerosing panencephalitis, and v) Unspecified
1.0 Provincial Reporting
Confirmed and probable cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed Case
Laboratory confirmation of infection with clinically compatible signs and symptoms of encephalitis:
• Isolation of organism from an appropriate clinical specimen (e.g., cerebrospinal fluid, stool)
  OR
• Detection of nucleic acid from appropriate clinical specimens (e.g., cerebrospinal fluid, stool)
  OR
• Detection of specific antigen
  OR
• Serologic confirmation of infection with an organism known to cause encephalitis

3.2 Probable Case
Clinically compatible signs and symptoms of encephalitis in the absence of laboratory confirmation of a causative organism

4.0 Laboratory Evidence
Given the variability of etiological organisms, consult with laboratory about appropriate specimens and testing methodologies

5.0 Clinical Evidence
Clinically compatible signs and symptoms are characterized by fever, headache, and altered mental status ranging from confusion to coma with or without additional signs of brain dysfunction (e.g., paresis or paralysis, cranial nerve palsies, sensory deficits, abnormal reflexes, generalized convulsions, and abnormal movements).

6.0 ICD Code(s)

6.1 ICD 10 Code
G05.1 Primary, viral

6.2 ICD 10 Code
G04.9 Unspecified
7.0 Comments

Exclusionary Criteria for Meeting the Case Definition

- Encephalitis due to *Haemophilus influenza b, Neisseria meningitidis, Streptococcus pneumoniae* (IPD), Tuberculosis, West Nile Virus, or *Listeria monocytogenes* should be reported under the corresponding diseases.
- Post-infectious encephalitis due to measles, rubella, mumps or varicella should be reported under the respective condition as a complication of the illness
- Post-vaccine encephalitis should be reported as an Adverse Event Following Immunization (AEFI)
- West Nile virus was reported under Encephalitis between January 2003 and July 2004. As of July 2004, West Nile virus encephalitis should be reported as West Nile virus.

8.0 References


**Date of Last Revision:** November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Food poisoning, all causes
Infectious Diseases Protocol, 2009 – Appendix B

Food poisoning, all causes

1.0 Provincial Reporting
Confirmed and probable cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed Case
Clinically compatible signs and symptoms, known to be linked to food consumption with:
• Identification of a pathogenic organism, toxin or other agent in vomitus, stool, or a suspected food item

3.2 Probable Case
Clinically compatible signs and symptoms, known to be linked to food consumption with:
• An epidemiological link* to one or more laboratory-confirmed cases of food poisoning

  * An individual who consumed the same food or food from the same source as the laboratory-confirmed case

3.2 Suspect Case
An incident in which two or more persons experience a similar illness after ingestion of a common food, and epidemiologic analysis implicates the food as the source of the illness

4.0 Laboratory Evidence
• Given the variability of etiological organisms, consult with laboratory about appropriate specimens and testing methodologies
• Refer to the MOH LTC Specimen Collection Guide http://www.health.gov.on.ca/english/providers/pub/labs/specimen.html

5.0 Clinical Evidence
Clinically compatible signs and symptoms depend upon etiologic agent and may include vomiting, abdominal pain, malaise, fever, nausea, dizziness, headache, and/or diarrhea

6.0 ICD Code (s)
ICD 10 Code A09

7.0 Comments
N/A

Exclusionary Criteria for Meeting the Case Definition for Food Poisoning
• Food poisonings under investigation that are subsequently determined to be caused by the following organisms: Clostridium botulinum, Campylobacter spp.,
Listeria monocytogenes, Salmonella spp., Shigella spp., Verotoxin-producing E. coli or Yersinia spp. should be reported under their respective diseases. All other identified pathogens should be reported as food poisoning cases.

8.0 References


Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Gastroenteritis, institutional outbreaks
Gastroenteritis, institutional outbreaks

1.0 Provincial Reporting
   Confirmed outbreaks

2.0 Type of Surveillance
   Outbreak summary data

3.0 Outbreak Classification

3.1 Confirmed Outbreak Definition (See Note in Section 7.0 for further details)
   • Three or more cases* with signs and symptoms compatible with infectious gastroenteritis in a specific unit or floor within a four-day period
     OR
   • Three or more units/floors having a case of infectious gastroenteritis within 48 hours

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
   • Confirmation of an outbreak of Gastroenteritis is not dependant on laboratory confirmation.

4.2 Approved/Validated Tests
   • Given the variability of etiological organisms, consult with laboratory about appropriate testing methodologies

4.3 Indications and Limitations
   • N/A

5.0 Clinical Evidence
   Clinically compatible signs and symptoms depend upon etiologic agent and may include nausea, vomiting, diarrhea, abdominal pain or tenderness

6.0 ICD Code(s)
   ICD 10 Code A09A

7.0 Comments

Note:
   • It is recognized that the confirmed outbreak definition (Section 3.1) may be overly sensitive. A Gastroenteritis institutional outbreak should therefore be declared by the Medical Officer of Health (MOH) or designate, or by the outbreak management team of the institution.
   • If an outbreak is declared by the MOH or designate, or the outbreak management team of the institution, then that outbreak is reportable.

* To be defined as a case within a gastroenteritis outbreak, at least one of the following must be met:
• Two or more episodes of loose/watery bowel movements (conforms to the shape of the container) within a 24-hour period, or **two or more** episodes of vomiting within a 24-hour period
  
  **OR**

• One episode of loose/watery bowel movements (conforms to the shape of the container) and one episode of vomiting within a 24-hour period
  
  **OR**

• Laboratory confirmation of a known gastrointestinal pathogen and at least one symptom compatible with gastrointestinal infection – nausea, vomiting, diarrhea, abdominal pain or tenderness.

All gastroenteritis outbreaks in institutions are reportable regardless of whether they are caused by:

- A reportable agent
- A non-reportable agent
- An unknown cause

**Note:** Once a reportable agent (e.g., *Salmonella, E. coli, CDAD*) is confirmed, cases should then be reported under its respective disease.

**8.0 References**


**Date of Last Revision:** July 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Giardiasis, except asymptomatic cases
Giardiasis, except asymptomatic cases

1.0 Provincial Reporting
   Confirmed and probable cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

3.1 Confirmed Case
   Laboratory confirmation of infection, with clinically compatible signs and symptoms, from an appropriate clinical specimen (e.g., stool, duodenal fluid, small bowel biopsy):
   • Demonstration of *Giardia lamblia* cysts or trophozoites
   OR
   • Demonstration of *G. lamblia* antigen by an approved method (e.g., enzyme immunoassay [EIA], immunochromatographic test [ICT])

3.2 Probable Case
   Clinically compatible signs and symptoms in a person with an epidemiologic link to a laboratory-confirmed case

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
   Any of the following will constitute a confirmed case of Giardiasis:
   • Positive for *G. lamblia* cysts or trophozoites
   • Positive for *G. lamblia* antigen

4.2 Approved/Validated Tests
   • Microscopy/DFA
   • *Giardia* immunoassays (EIA, ICT)

4.3 Indications and Limitations
   • N/A

5.0 Clinical Evidence
   Clinically compatible signs and symptoms are characterized by diarrhea, pale greasy stool, abdominal cramps, bloating, weight loss, fatigue or malabsorption of fats

6.0 ICD Code(s)

6.1 ICD-10 Code(s)
   A07.1 Giardiasis (lambliasis)

6.2 ICD-9/ICD-9CM Code(s)
   007.1 Giardiasis
7.0 Comments
 N/A

8.0 References


Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Gonorrhoea
Gonorrhoea

1.0 Provincial Reporting
Confirmed cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed Case
*Neisseria gonorrhoeae* detected in an appropriate clinical specimen (e.g., urogenital, rectal or throat [pharyngeal] swab)

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
Any of the following will constitute a confirmed case of Gonorrhea:
- Positive *N. gonorrhoeae* culture
- Positive for *N. gonorrhoeae* nucleic acid amplification test (NAT)
- Positive Gm negative intracellular diplococci on urethral smear (male only)

4.2 Approved/Validated Tests
- Standard culture for *N. gonorrhoeae*
- NAT for *N. gonorrhoeae*
- Gram negative diplococci on a smear of urethral discharge (male only)

4.3 Indications and Limitations
- N/A

5.0 Clinical Evidence
A clinical consultation is necessary for diagnosis

6.0 ICD Code(s)
ICD 10 Code A54

7.0 Comments
- Gonorrhoea can be manifested by urethritis, cervicitis, or salpingitis, epididymitis, proctitis.
- Conjunctivitis in infants caused by *N. gonorrhoeae* should be reported as ophthalmia neonatorum

8.0 References


**Date of Last Revision:** November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Group A Streptococcal disease, invasive
1.0 Provincial Reporting
Confirmed and probable cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed Case
- Isolation of Group A Streptococcus (Streptococcus pyogenes) from a normally sterile site (e.g., blood, cerebrospinal fluid, joint, pleural, pericardial fluid) with or without evidence of clinical severity
  OR
- Isolation of Group A Streptococcus from a non-sterile site (e.g., skin, sputum) with evidence of clinical severity

3.2 Probable Case
Clinical severity in a person with an epidemiologic link to a laboratory-confirmed case of Group A Streptococcal disease.

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
Any of the following will constitute a confirmed case of invasive Group A Streptococcal (iGAS) Disease:
- Positive Group A Streptococcus culture from a normally sterile site (e.g., blood, cerebrospinal fluid, joint, pleural, pericardial fluid)
- Positive Group A Streptococcus culture from a non-sterile site (presumptive – pending clinical severity)

4.2 Approved/Validated Tests
- Standard culture with serogrouping for Group A Streptococcus.

4.3 Indications and Limitations
- Isolates should be forwarded to the National Reference Centre for further characterization

5.0 Clinical Evidence
Clinical evidence of invasive disease may be manifested as several conditions. The following are considered evidence of clinically compatible signs and symptoms:
- Streptococcal toxic- shock syndrome (STSS) which is characterised by hypotension (systolic B.P. ≤ 90mm Hg in adults or < 5th percentile for age for children) and at least two (2) of the following signs:
  - renal impairment (creatinine > 177 μmol/L for adults);
  - coagulopathy (platelet count ≤100,000 mm³ or disseminated intravascular coagulation);
o liver function abnormality (SGOT, SGPT or total bilirubin ≥2x upper limit of normal for age);
o adult respiratory distress syndrome (ARDS);
o generalized erythematous macular rash that may desquamate

OR

• Soft-tissue necrosis, including necrotizing fasciitis or myositis or gangrene
OR
• Meningitis
OR
• A combination of any of these conditions

6.0 ICD Code(s)

6.1 ICD-10 Code(s)
A40.0 Septicaemia due to group A streptococcus
A49.1 Streptococcal infection, unspecified
B95.0 Group A Streptococcus as the cause of diseases classified elsewhere, e.g.:
  A48.3 Toxic shock syndrome
  O85 Puerperal sepsis
  M72.6 Necrotizing fasciitis
  M00 Pyogenic arthritis
  G00.2 Streptococcal meningitis

6.2 ICD-9/ICD-9CM Code(s)
038.0 Septicaemia due to group A streptococcus
041.01 Group A Streptococcal infection of unspecified site and in conditions classified elsewhere, e.g.:
  040.82 Toxic shock syndrome
  670 Major puerperal infection
  728.86 Necrotizing fasciitis
  711.0 Pyogenic arthritis
  320.2 Streptococcal meningitis

7.0 Comments
N/A

8.0 References
• Ministry of Health and Long-Term Care, Public Health Division. iPHIS manual. Toronto, ON: Queen’s Printer for Ontario; 2005.

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Group B Streptococcal disease, neonatal
1.0 Provincial Reporting
Confirmed and probable cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed Case
Laboratory detection of Group B Streptococcus (Streptococcus agalactiae) from a normally sterile site (e.g., cerebrospinal fluid [CSF]), with clinically compatible signs and symptoms of invasive disease in a newborn

3.2 Probable Case
- Clinically compatible signs and symptoms with a diagnosis of invasive Group B streptococcal disease in a newborn whose mother has laboratory confirmation of Group B streptococci from a lower vaginal or anorectal specimen

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
Any of the following will constitute a confirmed case of Group B Streptococcal Disease of the newborn:
- Positive Group B Streptococcus (Streptococcus agalactiae) culture from a normally sterile site (e.g., CSF, blood, pleural or joint fluid) in infants
- Positive nucleic acid amplification test (NAT) for Group B Streptococcus from a normally sterile site in infants

4.2 Approved/Validated Tests
- Standard culture for Group B Streptococcus with serogrouping
- NAT for group B Streptococcus
- Group B Streptococcus antigen test

4.3 Indications and Limitations
- N/A

5.0 Clinical Evidence
Clinically compatible signs and symptoms are characterized by the following:
- Early onset disease (1-7 days), characterized by sepsis, pneumonia, and less frequently meningitis, osteomyelitis or septic arthritis
  OR
- Late onset disease (7 days to 1 month), characterized by sepsis and meningitis.

6.0 ICD Code(s)
ICD 10 Code P36.0
7.0 Comments
Probable cases are included to ensure completeness of reporting in cases where an infant is treated early with antibiotics before all the appropriate specimens have been taken. It is expected that virtually all cases will be reported from hospitals.

8.0 References

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: *Haemophilus influenzae* b disease, invasive
1.0 Provincial Reporting
Confirmed and probable cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed Case
Laboratory confirmation of infection (organism detected) with clinically compatible signs and symptoms of invasive disease:

- Isolation of *H. influenzae* serotype b from a normally sterile site (e.g., cerebrospinal fluid [CSF])
  
  OR

- Isolation of *H. influenzae* serotype b from the epiglottis in a person with epiglottitis

3.2 Probable Case
Invasive disease with laboratory confirmation of infection (antigen detected):

- Demonstration of *H. influenzae* serotype b antigen in cerebrospinal fluid
  
  OR

- Detection of *H. influenzae* deoxyribonucleic acid (DNA) by nucleic acid amplification test (NAT) in a normally sterile site
  
  OR

- Buccal cellulitis or epiglottitis in a child < 5 years of age with no other causative organisms isolated

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
Any of the following will constitute a confirmed case of invasive *H. influenzae* serotype b disease:

- Positive culture *H. influenzae* serotype b from a normally sterile site, or from the epiglottis in a person with epiglottitis

4.2 Approved/Validated Tests

- Standard culture for *H. influenzae* with serotyping
- *H. influenzae* type b antigen test
- Nucleic acid amplification test (NAT) for *H. influenzae*
- Consult with laboratory about appropriate specimens for each testing methodology

4.3 Indications and Limitations

- All invasive *H. influenzae* isolates should be serotyped to differentiate Hib from the other serotypes, and to identify specific serotypes other than Hib
• Further isolate characterization is indicated for epidemiological public health and control purposes.

5.0 Clinical Evidence
Invasive disease caused by *Haemophilus influenzae* may produce any of several clinical syndromes, including meningitis, bacteremia, epiglottitis, pneumonia, pericarditis, septic arthritis, or empyema.

6.0 ICD Code(s)

6.1 ICD-10 Code(s)
A41.3 Septicaemia due to *Haemophilus*
A49.2 *H. influenzae* infection, unspecified site
B96.3 *H. influenzae* as cause of disease classified elsewhere
G00.0 Meningitis due to *Haemophilus*
J05.1 Acute epiglottitis
J14 Pneumonia due to *Haemophilus*
P23.6 Congenital pneumonia due to *Haemophilus*

6.2 ICD-9/ICD-9CM Code(s)
038.41 Septicaemia due to *Haemophilus*
041.5 *H. influenzae* infection of unspecified site and in conditions classified elsewhere
320.0 Meningitis due to *Haemophilus*
464.3 Acute epiglottitis
482.2 Pneumonia due to *Haemophilus*

7.0 Comments
N/A

8.0 References
• Ministry of Health and Long-Term Care, Public Health Division. iPHIS manual. Toronto, ON: Queen’s Printer for Ontario; 2005.

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Hantavirus pulmonary syndrome
Hantavirus pulmonary syndrome

1.0 Provincial Reporting
confirmed cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed Case
Laboratory confirmation of infection with clinically compatible signs and symptoms:
• Detection of Immunoglobulin M (IgM) antibodies or a significant (i.e., fourfold or greater) rise in hantavirus-specific Immunoglobulin G (IgG) antibody titres
  OR
• Detection of hantavirus-specific ribonucleic acid (RNA) in an appropriate clinical specimen (See Section 7.0)
  OR
• Detection of hantavirus antigen by immunohistochemistry

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
Any of the following will constitute a confirmed case of Hantavirus Pulmonary Syndrome (HPS):
• Positive for Hantavirus IgM antibodies
• Significant (i.e., fourfold or greater) rise in Hantavirus IgG antibody titres
• Positive for Hantavirus RNA
• Positive for Hantavirus antigen

4.2 Approved/Validated Tests
• Test for Sin nombre virus IgM and IgG antibodies
• Nucleic acid amplification test (NAT) for Sin nombre virus
• Test for Sin nombre virus antigen

4.3 Indications and Limitations
N/A

5.0 Clinical Evidence
• A febrile illness (Temperature > 38.3°C [101°F] oral) requiring supplemental oxygen
  AND
• Bilateral diffuse infiltrates (may resemble acute respiratory distress syndrome [ARDS])
  AND
• Develops within 72 hours of hospitalization in a previously healthy person
  OR
• Unexplained illness resulting in death plus an autopsy examination demonstrating non-cardiogenic pulmonary edema without an identifiable specific cause of death
6.0 ICD Code(s)
ICD 10 Code B33.4

7.0 Comments
Because of the difficulty in diagnosing hantavirus pulmonary syndrome (HPS), a section on appropriate specimen collection and submission is included below.

For acute cases:
- 10 ml of clotted blood for serology

If available or when required:
- Formalin fixed tissues at ambient temperature for immunohistochemistry
- Frozen tissues (lung biopsy) for polymerase chain reaction (PCR)

For autopsy specimen:
- All blood and sera samples collected
- Paraffin embedded blocks and formalin fixed tissues for immunohistochemistry
- Frozen tissues for PCR

8.0 References

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Hemorrhagic fevers, including: i) Ebola virus disease; ii) Marburg virus disease, and iii) Other viral causes
Hemorrhagic fevers, including: i) Ebola virus disease; ii) Marburg virus disease; iii) Other viral causes

1.0 Provincial Reporting

Confirmed, probable and suspect cases of disease

2.0 Type of Surveillance

Case-by-case

3.0 Case Classification

3.1 Confirmed Case

Clinically compatible signs and symptoms with:
- Detection of virus-specific nucleic acid by reverse-transcriptase polymerase chain detection (RT-PCR) from an appropriate clinical specimen (e.g., blood, urine, throat washings, tissue)

AND

Confirmation using at least one of the following:
- Demonstration of virus antigen in tissue (e.g., skin, liver, or spleen) by immunohistochemical or immunofluorescent techniques
- Demonstration of specific Immunoglobulin M (IgM) antibody by enzyme-linked immuno-sorbent assay (ELISA), enzyme immunoassay (EIA), immunofluorescent assay, or Western Blot
- Demonstration of a significant (i.e., fourfold or greater) rise in Immunoglobulin G (IgG) serum antibody by EIA, immunofluorescent assay, or Western Blot
- RT-PCR on an independent target gene and/or independent sample or confirmation through another reference laboratory

OR

- Isolation of virus from an appropriate clinical specimen (e.g., blood, tissue, urine specimens, or throat secretions)

3.2 Probable Case

A case with clinically compatible signs and symptoms and a history within the 3 weeks before onset of fever of the following:
- Travel in a specific area of a country where an outbreak of viral hemorrhagic fever (VHF) has recently occurred

OR

- An epidemiologic link with a confirmed or probable case

OR

- Direct contact with blood or other body fluids from a confirmed or probable case of VHF

OR

- Works in a laboratory that handles VHF virus specimens or in a facility that handles animals with VHF

OR

A nucleic acid amplification test (NAT) positive without laboratory confirmation by another approved or validated test (See Section 4.2)
3.3 Suspect Case
Clinically compatible signs and symptoms in the absence of an epidemiologic link to a laboratory-confirmed case or a probable case

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
Any of the following will constitute a confirmed case of Viral Hemorrhagic Fever:
- Positive viral hemorrhagic fever (VHF) culture
- Positive VHF antigen AND positive NAT for VHF
- Positive VHF antigen OR positive NAT for VHF AND positive by one confirmatory method (see below)

4.2 Approved/Validated Tests
- Culture
- NAT
- Antigen detection
- IgM and IgG serology

4.3 Indications and Limitations
- Any testing related to suspected VHF should be carried out under Level 4 containment facilities at the National Microbiology Laboratory

5.0 Clinical Evidence
Viral hemorrhagic fever includes Lassa, Junin, Machupo, Sabia, Guanarito (arenaviruses); Crimean Congo, Rift Valley fever virus (bunyaviruses); Ebola, Marburg (filoviruses), Dengue virus, Yellow fever, Omsk hemorrhagic fever, Kyasanur Forest Disease virus (flaviviruses).

Clinical manifestations are non-specific and vary by agent; patients initially exhibit a non-specific prodrome typically lasting less than 1 week. Onset can be abrupt (filovirus, flavivirus, bunyavirus) or insidious (arenavirus). Symptoms typically include high fever, headache, malaise, weakness, arthralgias, myalgias, irritability, dizziness, nausea, vomiting, abdominal pain, and nonbloody diarrhea. Signs typically include fever, hypotension, shock, relative bradycardia, tachypnea, conjunctivitis, and pharyngitis. Several Viral Hemorrhagic Fevers (VHF) are associated with cutaneous flushing or a skin rash. Later signs include progressive hemorrhagic diathesis (petechiae, mucous membrane and conjunctival hemorrhage), hematuria, hematemesis, melena, disseminated intravascular coagulation, circulatory shock, and central nervous system dysfunction (delirium, convulsions, cerebellar signs, coma). Differential diagnosis is an important consideration and should include multiple viral and bacterial diseases.

A clinical consultation is necessary for diagnosis

6.0 ICD Code(s)
- ICD 10 Code A98.4 - Ebola virus disease
- ICD 10 Code A98.3 - Marburg virus disease
- ICD 10 Code A99 - Other viral causes
7.0 Comments

- Contact the PHD of the MOHLTC immediately using the 24 hour emergency line, (416) 212-6361 or (416) 212-6362, even in the event of a suspected case.

- Travel history information is important in the analysis of the epidemiology of haemorrhagic fevers.

8.0 References


Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Hepatitis A
Hepatitis A

1.0 Provincial Reporting
Confirmed and probable cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed Case
Laboratory confirmation of infection, in the absence of recent vaccination, with
detection of Immunoglobulin M (IgM) antibody to Hepatitis A virus (anti-HAV),
AND:
• Acute illness with discrete onset of symptoms and jaundice or elevated serum
aminotransferase levels
OR
• An epidemiologic link to laboratory-confirmed case

3.2 Probable Case
Acute illness in a person with an epidemiologic link to a laboratory-confirmed case

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
The following will constitute a confirmed case of Hepatitis A:
• Positive for HAV IgM antibody

4.2 Approved/Validated Tests
• Tests for anti-HAV IgM antibody

4.3 Indications and Limitations
• Anti-HAV IgM results should be repeated in duplicate and should include testing
for anti-HAV total antibody. If the anti-HAV total is negative then the initially
reactive anti-HAV IgM result should be considered "false positive".
• IgM positive results can be a true positive but reflect a remote infection, as HAV-
IgM can remain detectable for years after an acute infection due to trailing IgM or
the non-disappearance of anti-HAV IgM after recent infection. Acute/recent
infection should be confirmed with clinical history symptoms and by repeat titre
after a week or so.

5.0 Clinical Evidence
Acute clinical illness is characterized by abrupt fever, malaise, anorexia, nausea and
abdominal pain followed by jaundice or elevated aminotransferase levels within a few
days.
6.0 ICD Code(s)

6.1 ICD-10 Code(s)
   B15.0 Hepatitis A with hepatic coma
   B15.9 Hepatitis A without hepatic coma [Hepatitis A (acute) (viral) NOS]

6.2 ICD-9/ICD-9CM Code(s)
   070.0 Viral hepatitis A with hepatic coma
   070.1 Viral hepatitis A without mention of hepatic coma

7.0 Comments
   N/A

8.0 References
   • Ministry of Health and Long-Term Care, Public Health Division. iPHIS manual. Toronto, ON: Queen’s Printer for Ontario; 2005.

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Hepatitis B
Hepatitis B

1.0 Provincial Reporting
   Confirmed acute cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

3.1 Confirmed Case (Acute Case)
   Laboratory confirmation of infection:
   - Detection of Hepatitis B surface antigen (HBsAg)-and Immunoglobulin M (IgM) antibody to Hepatitis B core antigen (anti-HBc)
     OR
   - Loss of HBsAg over 6 months in the context of a compatible clinical history or probable exposure

3.2 Probable Case (Acute Case)
   - Acute clinically compatible signs and symptoms in a person with an epidemiologic link to a laboratory-confirmed case
     OR
   - Acute clinically compatible signs and symptoms and detection of HBsAg (and anti-Hepatitis A virus [HAV] and Hepatitis C virus [HCV] negative) when the test for IgM antibody to anti-HBc is not available

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
   Any of the following will constitute a confirmed case of Hepatitis B:
   Positive for HBsAg confirmed by one or more of the following:
   - Positive anti-HBc Immunoglobulin G (IgG)/IgM
   - Neutralization of HBsAg with anti-HBs
   - Positive for Hepatitis B virus (HBV) deoxyribonucleic acid (DNA)

4.2 Approved/Validated Tests
   - HBV test for HBsAg
   - HBV test for anti-HBc IgG/IgM
   - Nucleic acid amplification test (NAT) or hybridization tests for HBV DNA

4.3 Indications and Limitations
   - N/A

5.0 Clinical Evidence
   A clinical consultation is necessary for diagnosis

6.0 ICD Code(s)
   ICD 10 Code B16
7.0 Comments
N/A

8.0 References


Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Hepatitis C
Hepatitis C

1.0 Provincial Reporting
   Confirmed cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Confirmed Case

   3.1 Confirmed Case
   Laboratory confirmation of infection with/without symptoms:
   - Detection of Hepatitis C virus (HCV) antibodies, (if > 18 months of age)
     OR
   - Detection of Hepatitis C virus ribonucleic acid (RNA)

4.0 Laboratory Evidence

   4.1 Laboratory Confirmation
   Any of the following will constitute a confirmed case of Hepatitis C:
   - Positive for anti-HCV with laboratory confirmation
   - Positive for HCV RNA

   4.2 Approved/Validated Tests
   - Anti-HCV line immunoblot assays including recombinant immunoblot assay (RIBA) and line immunoassay (LIA)

   4.3 Indications and Limitations
   - In immunocompromised cases HCV NAT is recommended, as antibodies may be negative in this population
   - HCV antibody testing should not be performed in infants < 18 months of age because of detectable levels of maternal antibody; however, if antibody testing is performed and found to be reactive at 18 months of age, HCV RNA real-time reverse transcription, polymerase chain reaction (RT-PCR) or nucleic acid amplification test (NAT) should be performed to rule out maternal antibody and to confirm viremia.
   - Cord blood should not be used because of maternal blood contamination
   - Testing for RNA earlier than 4-6 weeks of age is not recommended

5.0 Clinical Evidence
   A clinical consultation is necessary for diagnosis

6.0 ICD Code(s)
   ICD 10 Code B18.2

7.0 Comments
   N/A

Infectious Diseases Protocol, 2009 – Appendix B
8.0 References


Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Hepatitis D (Delta hepatitis)
Hepatitis D (Delta hepatitis)

1.0 Provincial Reporting
   Confirmed cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Confirmed Case

   3.1 Confirmed Case
   Clinically compatible signs and symptoms in an individual who has Hepatitis B (see case definition) and with detection of total antibody (i.e., Immunoglobulin M [IgM] and Immunoglobulin G [IgG]) to the Hepatitis D virus (anti-HDV)

4.0 Laboratory Evidence

   4.1 Laboratory Confirmation
   Any of the following will constitute a confirmed case of Hepatitis D:
   • Detection of intrahepatic HDV antigen
   • Detection of total anti-HDV antibodies by enzyme-linked immuno-sorbent assay (ELISA)
   • Co-detection of Hepatitis B surface antigen (HBsAg) or Hepatitis B core antigen (anti-HBc) IgM

   4.2 Approved/Validated Tests
   • Serologic tests for HDV IgG and IgM

   4.3 Indications and Limitations
   • Detection of antigen or ribonucleic acid (RNA) in serum is not practical as these tests have not been fully validated

5.0 Clinical Evidence
   A clinical consultation is necessary for diagnosis

6.0 ICD Code(s)
   ICD 10 Code B16.1

7.0 Comments
   N/A

8.0 References
   • Ministry of Health and Long-Term Care, Public Health Division. iPHIS manual. Toronto, ON: Queen’s Printer for Ontario; 2005.

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Herpes, neonatal
Herpes, neonatal

1.0 Provincial Reporting
   Confirmed cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

   3.1 Confirmed Case
   Clinically compatible signs and symptoms with detection of herpes simplex virus (HSV) in an infant (most commonly occurs in infants less than or equal to 28 days in age)

4.0 Laboratory Evidence

   4.1 Laboratory Confirmation
   Any of the following will constitute a confirmed case of Herpes:
   • Positive herpes simplex virus culture
   • Positive for herpes simplex virus nucleic acid

   4.2 Approved/Validated Tests
   • Standard culture for herpes simplex virus with confirmation
   • Nucleic acid amplification test (NAT) for herpes simplex virus

   4.3 Indications and Limitations
   • N/A

5.0 Clinical Evidence
   Infants exposed to HSV during birth, as documented by maternal virologic testing or presumed by observation of maternal lesions, should be followed carefully in consultation with a specialist. Clinically, neonatal infection is classified as skin-eye-mouth (SEM), central nervous system (CNS) or disseminated infection. A clinical consultation is necessary for diagnosis.

6.0 ICD Code(s)
   ICD 10 Code P35.2

7.0 Comments
   N/A

8.0 References
   • Centers for Disease Control and Prevention, Workowski KA, Berman SM. Sexually transmitted diseases treatment guidelines, 2006. MMWR Recomm Rep.


**Date of Last Revision:** November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Influenza
Influenza

1.0 Provincial Reporting
Confirmed cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed Case
Clinically compatible signs and symptoms with:
- Laboratory confirmation by detection or isolation of influenza virus from appropriate clinical specimen/s (e.g., nasopharyngeal/throat swabs)
  OR
- Demonstration of a significant (i.e., fourfold or greater) rise in complement fixation antibody titres to influenza between acute and convalescent sera
  OR
- An epidemiologic link to a laboratory-confirmed case
  OR
- Detection of influenza-specific ribonucleic acid (RNA)

3.2 Suspect Case
- Clinically compatible signs and symptoms in the absence of an epidemiologic link to a laboratory-confirmed case

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
Any of the following will constitute a confirmed case of influenza:
- Positive influenza virus culture
- Positive for influenza virus antigen
- Significant (i.e., fourfold or greater) rise in influenza Immunoglobulin G (IgG) titre between acute and convalescent sera
- Positive for influenza-specific RNA by nucleic acid amplification test (NAT)

4.2 Approved/Validated Tests
- Standard culture for influenza virus
- Influenza direct fluorescent antibody (DFA) antigen test
- Influenza IgG serology tests
- NAT for influenza virus RNA
- Rapid enzyme immunoassay (EIA) test kits

4.3 Indications and Limitations
- NAT primers and probes should be validated to detect the current strains of influenza
- A proportion of influenza isolates should be typed for strain identification, as appropriate, for epidemiological, public health and control purposes
- Antigen testing is indicated only during the influenza season due to low positive predictive value

5.0 Clinical Evidence
Clinically compatible signs and symptoms are defined as influenza-like illness (ILI) and are characterized as having a temperature $\geq$ 37.5 degrees Celsius and cough and one or more of the following: sore throat, arthralgia, myalgia or prostration. In children under 5 years of age, gastrointestinal symptoms may also be present. In patients less than 5 years or > 65 years fever may not be prominent

6.0 ICD Code(s)

6.1 ICD-10 Code(s)
J10 Influenza due to identified influenza virus
J10.0 Influenza with pneumonia, influenza virus identified
J10.1 Influenza with other respiratory manifestations, influenza virus identified
J10.8 Influenza with other manifestations, influenza virus identified

6.2 ICD-9/ICD-9CM Code(s)
487 Influenza
487.0 Influenza with pneumonia
487.1 Influenza with other respiratory manifestations
487.8 Influenza with other manifestations

7.0 Comments
N/A

8.0 References

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Lassa Fever
Lassa Fever

1.0 Provincial Reporting
Confirmed, probable and suspect cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed Case
Clinically compatible signs and symptoms with:
- Detection of virus-specific nucleic acid by reverse-transcriptase polymerase chain reaction (RT-PCR) from an appropriate clinical specimen (e.g., blood, urine, throat washings, tissue)
  AND
- Confirmation using at least one of the following:
  - Demonstration of virus antigen in tissue (e.g., skin, liver, or spleen) by immunohistochemical or immunofluorescent techniques
  - Demonstration of specific Immunoglobulin M (IgM) antibody by enzyme-linked immuno-sorbent assay (ELISA), enzyme immunoassay (EIA), immunofluorescent assay, or Western Blot
  - Demonstration of a significant (i.e., fourfold or greater) rise in Immunoglobulin G (IgG) serum antibody by EIA, immunofluorescent assay, or Western Blot
  - RT-PCR on an independent target gene and/or independent sample or confirmation through another reference laboratory
  OR
  - Isolation of virus from an appropriate clinical specimen (e.g., blood, tissue, urine specimens, throat secretions)

3.2 Probable Case
A case with clinically compatible signs and symptoms and a history within the 3 weeks before onset of fever of the following:
- Travel in a specific area of a country where an outbreak of lassa fever has recently occurred
  OR
- An epidemiologic link with a confirmed or probable case
  OR
- Direct contact with blood or other body fluids from a confirmed or probable case of lassa fever
  OR
- Works in a laboratory that handles lassa fever virus specimens or in a facility that handles animals with lassa fever
  OR
- A nucleic acid amplification test (NAT) positive without laboratory confirmation by another approved or validated test (See Section 4.2)
3.3 Suspect Case
Clinically compatible signs and symptoms in the absence of an epidemiologic link to a laboratory-confirmed case or a probable case

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
Any of the following will constitute a confirmed case of Lassa fever:
- Positive viral hemorrhagic fever (VHF) culture
- Positive VHF antigen AND positive NAT for VHF
- Positive VHF antigen OR positive NAT for VHF AND positive by one confirmatory method listed below (See Section 4.2)

4.2 Approved/Validated Tests
- Culture
- NAT
- Antigen detection
- IgM and IgG serology

4.3 Indications and Limitations
- Any testing related to suspected lassa fever should be carried out under Level 4 containment facilities at the National Microbiology Laboratory

5.0 Clinical Evidence
Clinically compatible signs and symptoms are non-specific and vary by agent; patients initially exhibit a non-specific prodrome typically lasting less than 1 week. Onset can be abrupt (filovirus, flavivirus, bunyavirus) or insidious (arenavirus). Symptoms typically include high fever, headache, malaise, weakness, arthralgias, myalgias, irritability, dizziness, nausea, vomiting, abdominal pain, and nonbloody diarrhea. Signs typically include fever, hypotension, shock, relative bradycardia, tachypnea, conjunctivitis, and pharyngitis. It is associated with cutaneous flushing or a skin rash. Later signs include progressive hemorrhagic diathesis (petechiae, mucous membrane and conjunctival hemorrhage), hematuria, hematemesis, melena, disseminated intravascular coagulation, circulatory shock, and central nervous system dysfunction (delirium, convulsions, cerebellar signs, coma). Differential diagnosis is an important consideration and should include multiple viral and bacterial diseases. A clinical consultation is necessary for diagnosis

6.0 ICD Code(s)
ICD 10 Code A96.2

7.0 Comments
- Contact the PHD of the MOHLTC immediately using the 24 hour emergency line, (416) 212-6361 or (416) 212-6362, even in the event of a suspected case.
- Travel history information is important in the analysis of the epidemiology of Lassa Fever.

8.0 References

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Legionellosis
Legionellosis

1.0 Provincial Reporting
Confirmed and probable cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed Case
Laboratory confirmation of infection with clinically compatible signs and symptoms:
- Isolation of *Legionella* spp. or detection of the antigen from appropriate clinical specimens (e.g., lung tissue, pleural fluid, sputum)
  OR
- A significant (i.e., fourfold or greater) rise in *Legionella* spp. total antibody titre between acute and convalescent sera
  OR
- Single specimen or standing total antibody titre ≥ 1:256 against *Legionella* spp.
  OR
- Demonstration of *L. pneumophila* serogroup 1 antigen in urine

3.2 Probable Case
Clinically compatible signs and symptoms with:
- Demonstration of *Legionella* spp. DNA by nucleic acid amplification test (NAT)

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
Any of the following will constitute a confirmed case of Legionellosis:
- Positive Legionella spp. culture
- A significant (i.e., fourfold or greater) rise in Legionella spp total antibody titre between acute and convalescent sera

4.2 Approved/Validated Tests
- Standard culture for *Legionella* spp. with confirmation
- *L. pneumophila* serum antibody tests
- *L. pneumophila* serogroup 1 urine antigen test
- NAT for *Legionella* spp.

4.3 Indications and Limitations
- Standard culture for *L. pneumophila*
- All *Legionella* spp. [as well as former members of the genus Legionella which taxonomically belong to other genera (*Tatlockia micdadei*, *Tatlockia maceachernii*, *Fluoribacter bozemanae*, *Fluoribacter dumoffii*, and *Fluoribacter gormanii*)], are considered to be pathogenic although they are implicated much less frequently than *L. pneumophila*. 
• Positive specimens by urine antigen tests for the detection of *Legionella pneumophila* serogroup 1 are considered presumptive and must be confirmed by culture or serology.

5.0 Clinical Evidence

Legionellosis is comprised of two distinct illnesses:

• Legionnaires’ Disease - characterized by anorexia, malaise, myalgia, headache, productive cough, temperature > 39 degrees Celsius, pneumonia, confusion, chills, nausea, diarrhea;
• Pontiac Fever – A milder form of the illness without pneumonia. It is characterized by anorexia, malaise, myalgia, headache, productive cough, temperature > 37.5 degrees Celsius

6.0 ICD Code(s)

6.1 ICD-10 Code(s)

A48.1 Legionnaire’s Disease
A48.2 Pontiac Fever

6.2 ICD-9/ICD-9CM Code(s)

482.8 Legionnaire’s Disease

7.0 Comments

N/A

8.0 References

• Ministry of Health and Long-Term Care, Public Health Division. iPHIS manual. Toronto, ON: Queen’s Printer for Ontario; 2005.

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Leprosy
Leprosy

1.0 Provincial Reporting
Confirmed and probable cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Confirmed Case

3.1 Confirmed Case
Laboratory confirmation of infection with clinically compatible signs and symptoms:
- Demonstration of characteristic acid fast bacilli in split skin smears and biopsies prepared from the ear lobe or other relevant sites (e.g., skin, tissue)
  OR
- Histopathological report from skin or nerve biopsy compatible with leprosy
  OR
- Clinically compatible signs and symptoms with detection of *Mycobacterium leprae* DNA in biopsy material

3.2 Probable Case
- Clinically compatible signs and symptoms with an epidemiologic link to an endemic region or to a laboratory-confirmed case

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
Any of the following will constitute a confirmed case of Leprosy:
- Positive Acid Fast stain with typical morphology for *M. leprae*
- Histopathological report from skin or nerve biopsy compatible with leprosy
- Nucleic acid amplification test (NAT) for *M. leprae*

4.2 Approved/Validated Tests
- NAT for *M. leprae*

4.3 Indications and Limitations
- N/A

5.0 Clinical Evidence
A clinical consultation is necessary for diagnosis

6.0 ICD Code(s)
- ICD 10 Code A30

7.0 Comments
Requests for testing of biopsy samples should be forwarded to the Public Health Laboratories of the Ontario Agency for Health Protection and Promotion.
8.0 References


Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Listeriosis
Listeriosis

1.0 Provincial Reporting
   Confirmed and probable cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

3.1 Confirmed Case
   Laboratory confirmation of infection, with clinically compatible signs and symptoms, with the isolation of *Listeria monocytogenes* from a site which is normally sterile (e.g., blood cerebrospinal fluid [CSF] or, less commonly, joint, pleural, pericardial fluid)

3.2 Probable Case
   Clinically compatible signs and symptoms in a person with an epidemiologic link to a laboratory-confirmed case or to a confirmed source (e.g., contaminated milk, soft cheeses, ready-to-eat meats)

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
   Any of the following will constitute a confirmed case of Listeriosis:
   • Isolation of *L. monocytogenes* from a normally sterile site (e.g., blood, CSF or, less commonly, joint, pleural, pericardial fluid)
   • In the setting of miscarriage or stillbirth, isolation of *L. monocytogenes* from placental or fetal tissue

4.2 Approved/Validated Tests
   • Bacteriological ID from the organism. Samples are then sent to the National Microbiology Laboratory (NML) for typing.

4.3 Indications and Limitations
   • No serology testing available through the Public Health Laboratories of the Ontario Agency for Health Protection and Promotion.

5.0 Clinical Evidence
   Clinically compatible signs and symptoms are characterized by meningitis or bacteremia; infection during pregnancy may result in fetal loss through miscarriage or stillbirth, or neonatal meningitis or bacteremia. Pregnant women may experience mild symptoms.

6.0 ICD Code(s)

6.1 ICD-10 Code(s)
   A32 Listeriosis (*includes* listerial foodborne infection; *excludes* neonatal (disseminated) listeriosis P37.2)
   A32.0 Cutaneous listeriosis
A32.1+ Listerial meningitis and meningoencephalitis (Listerial: meningitis (G01*); meningoencephalitis (G05.0*)
A32.7 Listerial septicaemia
A32.8 Other forms of listeriosis (Listerial: cerebral arteritis+ (I68.1*); endocarditis+ (I39.8*), Oculoglandular listeriosis)
A32.9 Listeriosis, unspecified

6.2 ICD-9/ICD-9CM Code(s)
027.0 Listeriosis (excluding congenital listeriosis (771.2))
  Infection by Listeria monocytogenes
  Septicemia by Listeria monocytogenes
  Use additional code to identify manifestations, as meningitis (320.7)

7.0 Comments
In an outbreak situation, report confirmed cases of the diarrheal form of Listeria monocytogenes (isolated in stool). Sporadic cases of the diarrheal form of listeriosis are not reportable

8.0 References
• Ministry of Health and Long-Term Care, Public Health Division. iPHIS manual. Toronto, ON: Queen’s Printer for Ontario; 2005.

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Lyme Disease
1.0 Provincial Reporting
Confirmed and probable cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed case
- Erythema migrans (EM)\textsuperscript{1} with laboratory confirmation by polymerase chain reaction (PCR)\textsuperscript{2} or culture\textsuperscript{3}
  OR
- EM with laboratory support by serological methods\textsuperscript{2}, and a history of residence in, or visit to, an endemic area\textsuperscript{4}
  OR
- Objective symptoms of disseminated Lyme disease\textsuperscript{5} with laboratory confirmation by PCR or culture
  OR
- Objective symptoms of disseminated Lyme disease with laboratory support by serological methods, and a history of residence in, or visit to, an endemic area

3.2 Probable case
- EM with laboratory support by serological methods but with no history of residence in, or visit to, an endemic area
  OR
- Objective symptoms of disseminated Lyme disease with laboratory support by serological methods, but with no history of residence in, or visit to an endemic area
  OR
- EM without laboratory confirmation, but with history of residence in, or visit to, an endemic area

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
Any of the following will constitute a confirmed case of Lyme disease:
- Isolation of \textit{B. burgdorferi} from an appropriate clinical specimen
- Positive nucleic acid amplification test (NAT) for \textit{B. burgdorferi}
- Serological evidence using the two-tier enzyme-linked immuno-sorbent assay (ELISA) and Western Blot criteria
  (Serological evidence alone is not confirmatory: positive predictive value is greater provided that the patient has EM or objective symptoms of disseminated Lyme disease, and has had contact with a region endemic for Lyme disease.)

4.2 Approved/Validated Tests
- Standard culture for \textit{B. burgdorferi}
• Commercial *B. burgdorferi* Immunoglobulin M (IgM) and Immunoglobulin G (IgG) tests (ELISA and Western Blot)
• NAT for *B. burgdorferi*

### 4.3 Indications and Limitations

- Only serum samples are acceptable for serology
- Initial negative serological tests in patients with skin lesions suggestive of EM should have testing repeated after four weeks
- Sera that are screened negative for antibodies using an EIA should not be subjected to Western blot testing
- EIA tests presently in use lack the specificity necessary to base a diagnosis of Lyme disease on an unconfirmed result
- The possibility of false-positive Western blot results should not be ignored
- When patients are treated very early in the course of illness, antibodies may not develop

### 5.0 Clinical Evidence

- A systemic, tick-borne disease with protean manifestations, including dermatologic, rheumatologic, neurologic, and cardiac abnormalities. The best clinical marker for the disease is erythema migrans (EM), the initial skin lesion that occurs in 60%-80% of patients. Secondary lesions may also occur.
- For most patients, the expanding EM lesion is accompanied by other acute symptoms, particularly fatigue, fever, headache, mildly stiff neck, arthralgia, or myalgia. These symptoms are typically intermittent. The diagnosis of EM must be made by a physician. Laboratory confirmation is recommended for persons with no known exposure.
- For purposes of surveillance, late manifestations include any of the following when an alternate explanation is not found:
  - Nervous system: Any of the following, alone or in combination: lymphocytic meningitis; cranial neuritis, particularly facial palsy (may be bilateral); radiculoneuropathy; or, rarely, encephalomyelitis. Headache, fatigue, paresthesia, or mildly stiff neck alone are not criteria for neurologic involvement.
  - Musculoskeletal system: Recurrent, brief attacks (weeks or months) of objective joint swelling in one or a few joints, sometimes followed by chronic arthritis in one or a few joints. Manifestations not considered as criteria for diagnosis include chronic progressive arthritis not preceded by brief attacks and chronic symmetrical polyarthritis. Additionally, arthralgia, myalgia, or fibromyalgia syndromes alone are not criteria for musculoskeletal involvement.
  - Cardiovascular system: Acute onset of high-grade (2nd-degree or 3rd-degree) atrioventricular conduction defects that resolve in days to weeks and are sometimes associated with myocarditis. Palpitations, bradycardia, bundle branch block, or myocarditis alone are not criteria for cardiovascular involvement.

### 6.0 ICD Code(s)

ICD 10 Code A69.2
7.0 Comments

Erythema migrans is a pathognomonic sign of Lyme disease. It is defined as a skin lesion that typically begins as a red macule or papule and expands over a period of days to weeks to form a round or oval expanding erythematous area. Some lesions are homogeneously erythematous, whereas others have prominent central clearing or a distinctive target-like appearance. A single primary lesion must reach ≥ 5 cm in size across its largest diameter. On the lower extremities, the lesion may be partially purpuric. EM represents a response to the bacterium as it spreads intradermally from the site of the infecting tick bite. It appears 1-2 weeks (range 3-30 days) after infection and persists for up to 8 weeks, by which time the bacterium leaves the skin and disseminates haematogenously. An erythematous skin lesion that presents while a tick vector is still attached or which has developed within 48 hours of detachment is most likely a tick bite hypersensitivity reaction (i.e., a non-infectious process), rather than erythema migrans. Tick bite hypersensitivity reactions are usually < 5 cm in largest diameter, sometimes have an urticarial appearance, and typically begin to disappear within 24–48 hours. Signs of acute or chronic inflammation are not prominent. There is usually little pain, itching, swelling, scaling, exudation or crusting, erosion or ulceration, except that some inflammation associated with the tick bite itself may be present at the very centre of the lesion.

PCR and serological methods on cerebrospinal fluid (CSF) are investigational only. The role of PCR (or more appropriately NAT) testing should be limited to CSF or tissue samples as there is limited data to support its use on blood and/or urine samples.

Culturing for *B. burgdorferi* is a low-yield procedure and is not encouraged; if performed, it should be done only on biopsies from EM lesions and synovial or spinal fluid.

An endemic area is defined here as a census subdivision in which a reproducing population of *Ixodes scapularis* or *Ixodes pacificus* tick vectors is known to occur, which has been demonstrated by molecular methods to support transmission of *B. burgdorferi* at that site.

Symptoms of disseminated Lyme disease are those objective symptoms as described in the 2006 clinical practice guidelines of the Infectious Diseases Society of America. Other symptoms that are, or have been suggested to be associated with Lyme disease (including those of so-called ‘chronic’ Lyme disease and post Lyme disease syndromes) are considered too non-specific to define cases for surveillance purposes, whether or not they may be caused by *B. burgdorferi* infection.

Because available serological screening tests have limitations to their specificity, screening of patients with non-specific subjective symptoms is strongly discouraged. Patients should be made aware that antibody testing is subject to false-positive results, and that a positive test in the absence of objective findings and credible exposure histories usually represent false-positive results.

8.0 References


Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Malaria
Malaria

1.0 Provincial Reporting
Confirmed and probable cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed Case
Laboratory confirmation of infection with or without clinically compatible signs and symptoms:
- Demonstration of *Plasmodium* sp. in a blood smear/film (thick and thin)

3.2 Probable Case
Laboratory confirmation of infection with or without clinically compatible signs and symptoms:
- Detection of *Plasmodium* sp. antigen in an appropriate clinical specimen (e.g., blood)

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
Any of the following will constitute a confirmed case of Malaria:
- Positive for *Plasmodium* sp. in blood smears

4.2 Approved/Validated Tests
- Appropriate staining methodology for *Plasmodium* in blood smears
- Tests for *Plasmodium* specific antigen
- Nucleic acid amplification test (NAT) for *Plasmodium* sp.

4.3 Indications and Limitations
- Microscopy is usually adequate but not when the parasite is scarce in early infections or after treatment

5.0 Clinical Evidence
Clinically compatible signs and symptoms are variable; however, most patients experience fever. In addition to fever, common associated symptoms include headache, back pain, chills, sweats, myalgia, nausea, vomiting, diarrhea, and cough. Untreated *Plasmodium falciparum* infection can lead to coma, renal failure, pulmonary edema, and death.

6.0 ICD Code(s)
ICD 10 Code B54
7.0 Comments

**Case Reporting**
- A case is counted if it is the individual's first attack of malaria in Canada, regardless of whether or not she/he has experienced previous attacks of malaria outside the country.
- A subsequent attack in the same person caused by a different *Plasmodium* species is counted as an additional case.
- A repeat attack by the same species is not counted as a new case unless the person has traveled to a malaria-endemic area since the previous attack.

8.0 References

**Date of Last Revision:** November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Measles
Measles

1.0 Provincial Reporting
Confirmed and probable cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed Case
Laboratory confirmation of infection with clinically compatible signs and symptoms in the absence of recent immunization with measles-containing vaccine:
- Isolation of measles virus from an appropriate clinical specimen (e.g., nasopharyngeal swab/aspirate/wash and urine)
  **OR**
- Detection of measles virus ribonucleic acid (RNA) from an appropriate clinical specimen
  **OR**
- Seroconversion or a significant (i.e., fourfold or greater) rise in measles Immunoglobulin G (IgG) titre by any standard serologic assay between acute and convalescent sera
  **OR**
- Positive serologic test for measles Immunoglobulin M (IgM) antibody using a recommended assay in a person who is either epidemiologically linked to a laboratory-confirmed case or has recently travelled to an area of known measles activity
  **OR**
- Clinically compatible signs and symptoms in a person with an epidemiologic link (i.e., close contact – See Section 7.0) to a laboratory-confirmed case

3.2 Probable Case
- Clinically compatible signs and symptoms in the absence of appropriate laboratory tests and in the absence of an epidemiologic link to a laboratory-confirmed case
  **OR**
- Clinically compatible signs and symptoms in a person with recent travel to an area of known measles activity

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
Any of the following will constitute a confirmed case of Measles:
- Positive measles virus culture
- Positive for wild measles virus RNA by direct nucleic acid amplification test (NAT)
- Positive for measles IgM antibody (with an epidemiologic link)
- Seroconversion or a significant (i.e., fourfold or greater) rise in measles IgG titre between acute and convalescent sera

Infectious Diseases Protocol, 2009 – Appendix B
• Positive for measles virus RNA by direct nucleic acid amplification test (NAT)

4.2 Approved/Validated Tests
• Commercial tests for measles IgM and IgG by enzyme immunoassay (EIA)
• NAT for measles virus RNA
• Consult with laboratory with regards to testing and appropriate specimens

4.3 Indications and Limitations
• Measles IgM and IgG serology may be negative if blood is collected very early in infection; if measles is still suspected, the test can be repeated no less than 3 days after the acute sample.
• IgM serology has the potential for false positive findings. Further confirmation (IgG serology – paired sera - or measles virus isolation or detection of measles virus RNA) is required in cases specifically where there is no established epidemiological link.
• Isolates should be obtained on all persons suspected of having measles for molecular epidemiological analysis
• Specimens for isolation or RNA detection include nasopharyngeal or throat swab collected no later than 4 days after onset of rash or urine collected within 7 days of rash onset. Consult with laboratory with regards to testing and appropriate specimens

5.0 Clinical Evidence
Clinically compatible signs and symptoms are characterized by all of the following:
• Fever ≥ 38.3 degrees Celsius (oral) and
• Cough, coryza or conjunctivitis followed by
• Generalized maculopapular rash for at least three days

6.0 ICD Code(s)

6.1 ICD-10 Code(s)
055 Measles

6.2 ICD-9/ICD-9CM Code(s)
B05 Measles

7.0 Comments
Close contacts are persons who had airborne exposure in an enclosed setting or direct exposure to the measles case during the period of communicability (e.g., household, sexual, classroom, shared workspace and social [small gatherings] contacts)

Note about testing for Subacute Sclerosing Panencephalitis (SSPE):
High titres of measles specific antibodies in sera and cerebrospinal fluid (CSF). Measles RNA can be detected in brain tissue.

8.0 References
• Ministry of Health and Long-Term Care, Public Health Division. iPHIS manual. Toronto, ON: Queen’s Printer for Ontario; 2005.

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Meningitis, acute: i) bacterial; ii) viral, and iii) other
Meningitis, acute: i) bacterial; ii) viral, and iii) other

1.0 Provincial Reporting
   Confirmed and probable cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

   3.1 Confirmed Case
   Clinically compatible signs and symptoms of meningitis with:
   - Isolation of an organism (i.e., bacterial, viral or other) from an appropriate clinical site (e.g., cerebrospinal fluid [CSF], blood)
   OR
   - Detection of antigen (i.e., bacterial, viral or other) from an appropriate clinical site (e.g., CSF, blood)
   OR
   - Detection of nucleic acid (i.e., bacterial, viral or other) from an appropriate clinical site (e.g., CSF, blood)
   OR
   - Serologic confirmation of infection with an organism known to cause meningitis

   3.2 Probable Case
   Clinically compatible signs and symptoms of meningitis in the absence of laboratory confirmation of a causative organism

4.0 Laboratory Evidence
   Given the variability of etiological organisms, consult with laboratory about appropriate specimens and testing methodologies

5.0 Clinical Evidence
   Clinically compatible signs and symptoms are characterized by fever, headache, stiff neck, and pleocytosis.

6.0 ICD Code(s)

   6.1 ICD 10 Code
   G01 Bacterial

   6.2 ICD 10 Code
   G02.0 Viral

   6.3 ICD 10 Code
   G03.9 Other causes

7.0 Comments
   Exclusionary Criteria for Meeting the Case Definition
   Meningitis due to Haemophilus influenzae type b, Neisseria meningitidis, Streptococcus
pneumoniae or Listeria monocytogenes should be reported under the corresponding diseases.

8.0 References


Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Meningococcal disease, invasive
Meningococcal disease, invasive

1.0 Provincial Reporting
   Confirmed and probable cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

   3.1 Confirmed Case
   Laboratory confirmation of infection with invasive disease (See Section 5.0):
   - Isolation of Neisseria meningitidis from a normally sterile site (e.g., blood, cerebrospinal fluid [CSF], joint, pleural or pericardial fluid)
     OR
   - Detection of N. meningitidis deoxyribonucleic acid (DNA) by a validated nucleic acid amplification test (NAT) from a normally sterile site

   3.2 Probable Case
   Invasive disease with purpura fulminans or petechiae in the absence of a positive blood culture and no apparent cause with demonstration of N. meningitidis antigen in the CSF

4.0 Laboratory Evidence

   4.1 Laboratory Confirmation
   Any of the following will constitute a confirmed case of invasive Meningococcal disease:
   - Positive culture
   - Positive NAT for N. meningitidis

   4.2 Approved/Validated Tests
   - Standard culture
   - NAT for N. meningitidis
   - Consult with laboratory about appropriate tests and specimens

   4.3 Indications and Limitations
   - Detection of N. meningitidis antigen does not allow determination of serogroup
   - Isolation from non-routine specimens (joint, pleural, or pericardial fluid) may also be performed, but the microbiologist at the Public Health Laboratories of the Ontario Agency for Health Protection and Promotion (OAHPP) should be contacted before these specimens are sent.

5.0 Clinical Evidence
   Invasive meningococcal disease usually manifests itself as meningitis and/or meningococcaemia, although other manifestations may be observed (e.g., septic arthritis pneumonia with bacteremia). Invasive disease may progress rapidly to purpura fulminans, shock and death.

Infectious Diseases Protocol, 2009 – Appendix B
6.0 ICD Code(s)
   ICD 10 Code A39

7.0 Comments
   • Isolates should be sent to the Public Health Laboratories of the OAHPP for serogroup determination and to the National Microbiology Laboratory (NML) for further characterization.
   • Determination of serogroup from a sterile site isolate and further characterization by a reference laboratory are important in monitoring changes in disease epidemiology, including the impact of vaccination programs, potential serogroup replacement, and antibiotic resistance.

8.0 References
   • Ministry of Health and Long-Term Care, Public Health Division. iPHIS manual. Toronto, ON: Queen’s Printer for Ontario; 2005.

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Mumps
Mumps

1.0 Provincial Reporting
   Confirmed and probable cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

3.1 Confirmed Case
   Laboratory confirmation of infection with clinically compatible signs and symptoms in the absence of recent immunization with mumps-containing vaccine:
   - Isolation of mumps virus from an appropriate clinical specimen (e.g., buccal swab or collection of saliva from the oral cavity and urine sample)
     OR
   - Detection of mumps virus ribonucleic acid (RNA) by a validated nucleic acid amplification test (NAT) from an appropriate clinical specimen (e.g., buccal swab and urine sample; buccal swab is preferred)
     OR
   - Demonstration of seroconversion or a significant (e.g., fourfold or greater) rise in mumps IgG antibody level between the acute and convalescent sera
     OR
   - Positive serologic test for mumps Immunoglobulin M (IgM) antibody using a recommended assay in a person who is either epidemiologically linked to a laboratory-confirmed case or has recently travelled to an area of known mumps activity
     OR
   - Clinically compatible signs and symptoms in a person with an epidemiologic link (i.e., close contact - See Section 7.0) to a laboratory-confirmed case

3.2 Probable Case
   - Clinically compatible signs and symptoms in the absence of appropriate laboratory tests and in the absence of an epidemiologic link to a laboratory-confirmed case
     OR
   - Clinically compatible signs and symptoms in a person with recent travel to an area of known mumps activity

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
   The following will constitute a confirmed case of Mumps:
   - Positive mumps virus culture
   - Positive (NAT) for mumps virus
   - Positive for mumps IgM antibody (with an epidemiologic link)
   - Seroconversion or a significant (i.e., fourfold or greater) rise in mumps Immunoglobulin G (IgG) titre
4.2 Approved/Validated Tests
- Standard culture for mumps virus
- Commercial tests for anti-mumps IgM and IgG antibodies
- NAT for mumps virus RNA

4.3 Indications and Limitations
- Reverse Transcriptase-Polymerase Chain Reaction (RT-PCR) is the new gold-standard for mumps detection
- A buccal swab is the preferred specimen
- IgM serology for mumps is most useful in cases of primary infection and may be of limited clinical use in an individual who has a history of mumps vaccination

5.0 Clinical Evidence
Clinically compatible signs and symptoms are characterized by acute onset of unilateral or bilateral tenderness and/or self-limited swelling of the parotid or other salivary gland, lasting > 2 days, and without other apparent cause.

6.0 ICD Code(s)

6.1 ICD-10 Code(s)
B26 Mumps

6.2 ICD-9/ICD-9CM Code(s)
072 Mumps

7.0 Comments
Close contacts are persons who had direct contact with the oral/nasal secretions of a mumps case within the period of communicability (e.g., household contact)

Optimal recovery of mumps virus or detection of mumps RNA is achieved if specimens are obtained three to five days or within nine (9) days of symptom onset

8.0 References

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Ophthalmia neonatorum
Ophthalmia neonatorum

1.0 Provincial Reporting
   Confirmed and probable cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

3.1 Confirmed Case
   Laboratory confirmation of *Neisseria gonorrhoeae* or *Chlamydia trachomatis* in conjunctival specimens from an infant (most commonly occurs in infants less than or equal to 28 days in age)

3.2 Probable Case
   - Laboratory confirmation of *Neisseria gonorrhoeae* or *Chlamydia trachomatis* in maternal specimen
     **AND/OR**
   - Clinically compatible signs and symptoms in an infant (most commonly occurs in infants less than or equal to 28 days in age)

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
   Any of the following will constitute a confirmed case of Ophthalmia Neonatorum:
   - Positive *N. gonorrhoeae* or *C. trachomatis* culture
   - Positive for *N. gonorrhoeae* or *C. trachomatis* nucleic acid

4.2 Approved/Validated Tests
   - Standard culture for *N. gonorrhoeae* or *C. trachomatis* by enzyme immunoassay (EIA) or direct fluorescent antibody (DFA)

4.3 Indications and Limitations
   - N/A

5.0 Clinical Evidence
   Acute redness and swelling of conjunctiva in one or both eyes, with mucropurulent or purulent discharge in which gonococci are identifiable by microscopic and culture methods. Corneal ulcer, perforation and blindness may occur if specific treatment is not given promptly.

6.0 ICD Code(s)
   ICD 10 Code A54.3

7.0 Comments
   - The most common infectious cause is *C. trachomatis*, which produces inclusion conjunctivitis that usually appears 5-14 days after birth.
In the situation where *C. trachomatis* is isolated from both the lung and the eye of a newborn, the case should be reported as chlamydia pneumonitis.

### 8.0 References


**Date of Last Revision:** November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Paratyphoid Fever
Paratyphoid Fever

1.0 Provincial Reporting
   Confirmed and probable cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

   3.1 Confirmed Case
   Laboratory confirmation of infection with or without clinically compatible signs and symptoms:
   - Isolation of *Salmonella Paratyphi* A, B, or C from an appropriate clinical specimen (e.g., sterile site, blood, stool, urine)

   3.2 Probable Case
   Clinically compatible signs and symptoms in a person with an epidemiologic link to a laboratory-confirmed case

4.0 Laboratory Evidence

   4.1 Laboratory Confirmation
   The following will constitute a confirmed case of Paratyphoid Fever:
   - Positive *S. Paratyphi* A, B, or C culture

   4.2 Approved/Validated Tests
   - Standard culture for *S. Paratyphi* A, B, or C
   - Serotyping for O, H and K antigens

   4.3 Indications and Limitations
   - Further strain characterization is indicated for public health purposes.

5.0 Clinical Evidence
   Clinically compatible signs and symptoms are characterized by insidious onset of sustained fever, headache, malaise, anorexia, relative bradycardia, constipation, or diarrhea

6.0 ICD Code(s)
   ICD 10 Code A01.4

7.0 Comments
   N/A

8.0 References

Date of Last Revision: November 2008

Infectious Diseases Protocol, 2009 – Appendix B
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Pertussis (Whooping Cough)
Pertussis (Whooping Cough)

1.0 Provincial Reporting
Confirmed and probable cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed Case
Laboratory confirmation of *Bordetella pertussis* with clinically compatible signs and symptoms:
- Isolation from an appropriate clinical specimen (e.g., nasopharyngeal swabs)
  OR
- Detection of deoxyribonucleic acid (DNA) by nucleic acid amplification test (NAT) from an appropriate clinical specimen (e.g., nasopharyngeal swabs)
  OR
- Clinically compatible signs and symptoms with an epidemiologic link (i.e., close contact) to a laboratory-confirmed case

3.2 Probable Case
Clinically compatible signs and symptoms, specifically cough lasting 2 weeks or longer, in the absence of appropriate laboratory tests and in the absence of an epidemiologic link to a laboratory-confirmed case

AND

One or both of the following symptoms, with no other known cause:
- Paroxysmal cough of any duration
- Cough with inspiratory “whoop”

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
Any of the following will constitute a confirmed case of Pertussis:
- Positive *B. pertussis* culture
- Positive nucleic acid amplification test (NAT) for *B. pertussis*

4.2 Approved/Validated Tests:
- Standard culture for *B. pertussis*
- NAT for *B. pertussis*
- *B. pertussis* antigen test

4.3 Indications and Limitations
- NAT assays for *B. pertussis* are available and are highly sensitive. These assays must be interpreted along with clinical data.
- Detection of *B. pertussis* by culture has a high specificity and a limited/low sensitivity and high specificity. This may result in under-reporting of cases.

5.0 Clinical Evidence

Infectious Diseases Protocol, 2009 – Appendix B
Clinically compatible signs and symptoms include at least one of the following:

- Paroxysmal cough of any duration
- OR
- Cough ending in vomiting, or associated with apnea
- OR
- Cough with inspiratory “whoop”

6.0 ICD Code(s)

6.1 ICD-10 Code(s)
A37 Whooping cough (pertussis)

6.2 ICD-9/ICD-9CM Code(s)
033 Whooping cough (pertussis)

7.0 Comments
Laboratory test results should be interpreted in the context of the clinical presentation of the patient.

8.0 References

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Plague
Plague

1.0 Provincial Surveillance
   Confirmed and probable cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

3.1 Confirmed Case
   Laboratory confirmation of infection with clinically compatible signs and symptoms:
   • Isolation of *Yersinia pestis* from an appropriate clinical specimen (e.g., body fluids)
     OR
   • A significant (i.e., fourfold or greater) rise in serum antibody titre to *Y. pestis* fraction 1 (F1) antigen by enzyme immunoassay (EIA) or passive haemagglutination/inhibition titre

3.2 Probable Case
   Clinically compatible signs and symptoms with one of the following laboratory results:
   • Demonstration of elevated serum antibody titre(s) to *Y. pestis* F1 antigen (without documented significant [i.e., fourfold or greater] rise) in a patient with no history of plague immunization
     OR
   • Demonstration of *Y. pestis* F1 antigen by immunofluorescence
     OR
   • Detection of *Y. pestis* nucleic acid
     OR
   • >1:10 passive haemagglutination/inhibition titre in a single serum sample in a patient with no history of vaccination or previous infection
     OR
   • Detection of *Y. pestis* antibody by EIA

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
   Any of the following will constitute a confirmed case of Plague:
   • Positive *Y. pestis* culture with confirmation (See Section 4.2)
   • A significant (i.e., fourfold or greater) rise in *Y. pestis* antibody titre

4.2 Approved/Validated Tests
   • Standard culture for *Y. pestis* with biochemical confirmation
   • *Y. pestis* serology
   • Nucleic acid amplification test (NAT) for *Y. pestis*
   • Direct fluorescent antibody (DFA) for *Y. pestis* F1 antigen
Confirmatory methods include combinations of the following methods: specific bacteriophage lysis, DFA for F1 antigen, NAT, haemagglutination/inhibition titres, EIA for *Y. pestis* antibody

4.3 Indications and Limitations

- N/A

5.0 Clinical Evidence

Clinically compatible signs and symptoms are characterized by fever, chills, headache, malaise, prostration, and leukocytosis that is manifested in one or more of the following principal clinical forms:

- Regional lymphadenitis (bubonic plague)
- Septicemia without an evident bubo (septicemic plague)
- Plague pneumonia, resulting from haematogenous spread in bubonic or septicemic cases (secondary pneumonic plague) or inhalation of infectious droplets (primary pneumonic plague)
- Pharyngitis and cervical lymphadenitis resulting from exposure to larger infectious droplets or ingestion of infected tissues (pharyngeal plague)

6.0 ICD Code(s)

- ICD 10 Code A20

7.0 Comments

- N/A

8.0 References


Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Pneumococcal disease, invasive
Pneumococcal disease, invasive

1.0 Provincial Reporting
  Confirmed cases of disease

2.0 Type of Surveillance
  Case-by-case

3.0 Case Classification

3.1 Confirmed Case
  Laboratory confirmation of infection (organism detected) with invasive disease (See Section 5.0):
  • Isolation of *Streptococcus pneumoniae* from a normally sterile site (e.g., blood, cerebrospinal fluid [CSF]), excluding the middle ear
  OR
  • Detection of *S. pneumoniae* DNA by nucleic acid amplification test (NAT) from a normally sterile site (e.g., blood, CSF), excluding the middle ear

3.2 Probable Case
  Invasive disease and no other apparent cause with laboratory confirmation of infection (antigen detected):
  • Detection of *S. pneumoniae* antigen from a normally sterile site (e.g., blood CSF), excluding the middle ear

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
  Any of the following will constitute a confirmed case of Invasive Pneumococcal disease:
  • Positive *S. pneumoniae* culture from a normally sterile site excluding middle ear
  • Positive NAT for *S. pneumoniae* from a normally sterile site excluding middle ear

4.2 Approved/Validated Tests
  • Standard culture for *S. pneumoniae*
  • NAT for *S. pneumoniae*
  • *S. pneumoniae* antigen test

4.3 Indications and Limitations
  • Detection of *S. pneumoniae* antigen does not allow determination of serotype
  • Isolation from non-routine specimens (joint, pleural, or pericardial fluid) may also be performed, but the microbiologist at the Public Health Laboratories of the Ontario Agency for Health Protection and Promotion (OAHPP) should be contacted before these specimens are sent.

5.0 Clinical Evidence
  Invasive disease manifests itself mainly as pneumonia with bacteremia, bacteremia without a known site of infection, or meningitis. Pneumonia without bacteremia is not reportable.
6.0 ICD Code(s)

6.1 ICD-10 Code(s)
A40.3 Septicaemia due to *S. pneumoniae*
B95.3 *S. pneumoniae* as the cause of diseases classified elsewhere, e.g.:
   I30.1 Infective pericarditis
   K65.0 Acute peritonitis
   M00.8 Arthritis and polyarthritis due to other specified bacterial agents
   O85 Puerperal sepsis
   P23.6 Congenital pneumonia due to other bacterial agents
G00.1 Meningitis due to *S. pneumoniae*
J13 Pneumonia due to *S. pneumoniae*
M00.1 Pneumococcal arthritis and polyarthritis

6.2 ICD-9/ICD-9CM Code(s)
038.2 Septicaemia due to *S. pneumoniae*
041.2 *S. pneumoniae* of unspecified site and as the cause of diseases classified elsewhere, e.g.:
   420.9 Infective pericarditis
   711.0 Pyogenic arthritis
567.1 Pneumococcal peritonitis
320.1 Meningitis due to *S. pneumoniae*
481 Pneumonia due to *S. pneumoniae*
711.0 Pneumococcal arthritis and polyarthritis

7.0 Comments
- Isolates should be sent to the Public Health Laboratories of the OAHPP for serotyping or further characterization
- Determination of serotype from a sterile site isolate and further characterization by a reference laboratory are important in monitoring changes in disease epidemiology, including the impact of vaccination programs, potential serotype replacement, and antibiotic resistance.

8.0 References

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Poliomyelitis, acute
1.0 Provincial Reporting
   Confirmed and probable cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

3.1 Confirmed Case
   Clinically compatible signs and symptoms of paralytic polio with no other apparent cause and with travel to a polio endemic region
   AND:
   - Isolation of vaccine or wild type poliovirus from an appropriate clinical specimen (e.g., stool, pharyngeal swab, cerebrospinal fluid [CSF])
   OR
   - Detection of polio virus ribonucleic acid (RNA) by nucleic acid amplification test (NAT)
   OR
   - Clinically compatible signs and symptoms in a person with an epidemiologic link to a laboratory-confirmed case

3.2 Probable Case
   - Clinically compatible signs and symptoms without detection of polio virus from an appropriate clinical specimen (e.g., stool, pharyngeal swabs, CSF) and without evidence of infection with other neurotropic viruses and with travel to a polio endemic region

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
   Any of the following will constitute a confirmed case of Poliomyelitis:
   - Isolation of polio virus (vaccine or wild type) from an appropriate clinical specimen
   - Positive for polio virus-specific RNA by NAT

4.2 Approved/Validated Tests
   - Standard culture for poliovirus
   - NAT for poliovirus/enterovirus RNA
   - Consult with laboratory about testing issues and appropriate specimens

4.3 Indications and Limitations
   - The commercially available NAT does not differentiate polioviruses from other enteroviruses
   - Further isolate characterization is indicated for epidemiological public health and control purposes

5.0 Clinical Evidence
Clinically compatible signs and symptoms are characterized by all of the following:

- Acute flaccid paralysis of one or more limbs
- Decreased or absent deep tendon reflexes on the affected limb(s)
- No sensory or cognitive loss,
- Neurologic deficit present 60 days after onset of initial symptoms unless patient has died

6.0 ICD Code(s)

6.1 ICD-10 Code(s)
G05.2, G04.0, T50.9, Y59.0, A80.3 Poliomyelitis

6.2 ICD-9/ICD-9CM Code(s)
323.2, 323.5, 979.5, E949.5 (polio vaccine poisoning), 045.1 (acute polio with other paralysis) Poliomyelitis

7.0 Comments

- Polio virus strain typing is done using sequencing methodologies at the National Microbiology Laboratory
- Stool specimens and pharyngeal swabs are preferred specimens. Other specimens include autopsy material and CSF
- Cultures of stool from a single specimen collected within the first 15 days after onset of symptoms represents the diagnostic test for confirming polio.

Confirmed cases of poliomyelitis can be further subdivided into the following two categories:

a) Wild virus
Labatory investigation implicates wild type virus. This group is further subdivided as follows:
- imported: travel in or residence in a polio-endemic area 30 days or less before onset of symptoms
- import-related: epidemiologic link to someone who has travelled in or resided in a polio-endemic area within 30 days of onset of symptoms
- indigenous: no travel or contact as described above

b) Vaccine-associated virus
Labatory investigation implicates vaccine-type virus. This group is further subdivided as follows:
- recipient: the illness began 7-30 days after the patient received oral polio vaccine (OPV)
- contact: the patient was shown to have been in contact with an OPV-recipient and became ill 7-60 days after the contact was vaccinated
- possible contact: the patient had no known direct contact with an OPV-recipient and no history of receiving OPV, but the paralysis occurred in an area in which a mass vaccination campaign using OPV had been in progress 7-60 days before the onset of paralysis
- no known contact: the patient had no known contact with an OPV-recipient and no history of receiving OPV, and the paralysis occurred in an area where no routine or intensive OPV vaccination had been in progress. In Canada, this would include all provinces and territories.
Disease Specific Guidelines and Procedures

i. Non-Paralytic Poliomyelitis
Non-paralytic poliomyelitis should be reported under encephalitis/meningitis (viral meningitis).

ii. Stool viral culture results
Shedding of the poliovirus in the stool may occur for several weeks after administration of oral polio vaccine.

iii. Cases of acute flaccid paralysis (AFP) not due to the polio virus should be reported to the Senior Coordinator for the Canadian Paediatric Surveillance Program at 613-526-9397 ext. 239. Cases should also be immediately reported to the PHD of the MOHLTC using the 24 hour emergency line, (416) 212-6361 or (416) 212-6362

8.0 References


Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Psittacosis/Ornithosis
Psittacosis/Ornithosis

1.0 Provincial Reporting
Confirmed and probable cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed Case
Laboratory confirmation of infection with clinically compatible signs and symptoms:
- A significant (i.e., fourfold or greater) rise in antibodies to *Chlamydophila* (formerly *Chlamydia*) *psittaci*
  OR
- Isolation of the infectious agent from a clinical specimen (e.g., blood, sputum)

3.2 Probable Case
Clinically compatible signs and symptoms in a person with:
- An epidemiologic link to a known source (i.e., human, animal or environment)
  OR
- Supportive serology (e.g., *C. psittaci* titre of \( \geq 32 \)) with one or more serum specimens obtained after onset of symptoms
  OR
- Positive for nucleic acid amplification testing (NAT) for *C. psittaci* specific targets

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
Any of the following will constitute a confirmed case of Psittacosis/Ornithosis:
- Isolation of infectious agent from clinical specimen [This should be done in a Containment level 3 facility, being a risk level 3 agent in Canada.]
- A significant (i.e., fourfold or greater) rise in antibody response towards *C. psittaci*

4.2 Approved/Validated Tests
- Microimmunofluorescence (MIF) assay for serologic response to *C. psittaci*, with positive and negative control sera used with each run and other quality indices as described by Dowell et al.
- NAT for *C. psittaci* specific targets (e.g., 16SrRNA and 23SrRNA gene targets)

4.3 Indications and Limitations
- Chronic *C. psittaci* infection has been found to be associated with ocular adnexal mucosa-associated lymphoid tissue (MALT)-type lymphoma in some instances
- The Focus Diagnostics commercial kit for MIF testing (Cypress Ca) contains antigens for *C. pneumoniae, C. psittaci* and *C. trachomatis*. The National Microbiology Laboratory (NML) uses a method as outlined by Wang. Interpretation was adapted for MIF platform as described by Dowell et al. However, cross reactivity among closely related agents using MIF test
procedures have been observed here; the sensitivity and specificity of the MIF for
diagnosis of psittacosis specifically is not well evaluated and so interpretation of
titre must be linked with symptoms and / or linkage with definitive cases (see also
recent publication by Verminnen et al.)
- In-house NAT testing should be done using standard controls

5.0 Clinical Evidence
Mild forms may be mistaken for common respiratory illnesses. The disease can have a
sudden onset with fever, chills, sweating, myalgia, loss of appetite and headaches.
Human disease can be severe, especially in untreated elderly persons.

6.0 ICD Code(s)
ICD 10 Code A70

7.0 Comments
N/A

8.0 References
- Acha PN, Szyfres B. Zoonoses and communicable diseases common to man
  and animals. 3rd ed. Volume II. Chlamydioses, Rickettsioses, and Viroses.
  Standardizing Chlamydia pneumoniae assays: recommendations from the
  Centers for Disease Control and Prevention(USA) and the Laboratory Centre for
- National Notifiable Diseases Surveillance System. Case Definitions. [Internet].
  Pistaciosis; 1996. Atlanta, GA: Centers for Disease Control and Prevention
  (CDC); 2008. [cited 2009 Feb 12]. Available from
  http://www.cdc.gov/ncphi/disse/Nndss/casedef/psittacosiscurrent.htm
- Everett KD, Bush RM, Andersen AA. Emended description of the order
  Chlamydiales, proposal of Parachlamydiaceae fam. nov. and Simkaniaceae fam.
  nov., each containing one monotypic genus, revised taxonomy of the family
  Chlamydiaceae, including a new genus and five new species, and standards for
  adnexal MALT lymphoma: an intriguing model for antigen-driven
  lymphomagenesis and microbial-targeted therapy.  Ann Oncol. 2008;19(5):835-
  46.
- Ministry of Health and Long-Term Care, Public Health Division. iPHIS manual.
  Toronto, ON: Queen’s Printer for Ontario; 2005.
- Verminnen K, Duquenne B, De Keukeleire D, Duim B, Pannekoek Y,
  Braeckman L, Vanrompay D. Evaluation of a Chlamyphila psittaci infection
- Wang S. The microimmunofluorescence test for Chlamydia pneumoniae

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Q Fever
1.0 Provincial Reporting
Confirmed and probable cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed Case
Laboratory confirmation of infection with clinically compatible signs and symptoms:
- A significant (i.e., fourfold or greater) rise in specific antibodies to *Coxiella burnetii*
  OR
- Isolation of *C. burnetii* from blood

3.2 Probable Case
Clinically compatible signs and symptoms in a person with:
- An epidemiologic link to a laboratory-confirmed case
  OR
- A single complement fixation titre $\geq 1:32$
  OR
- An asymptomatic individual with positive laboratory evidence and with an epidemiologic link to a confirmed source (i.e., human, animal or environment).

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
The following will constitute a confirmed case of Q Fever:
- Reactive results $\geq 1:256$ for phase I / II Immunoglobulin G (IgG) and/or $\geq 1:16$ for phase I / II Immunoglobulin M (IgM)

4.2 Approved/Validated Tests
- Complement Fixation
- IgG and IgM immunofluorescence assay (IFA) for the detection and semi quantitation to phase I and phase II *C. burnetti* antigens and as an aid in the diagnosis of Q Fever

4.3 Indications and Limitations
- Neither phase of *C. burnetti* antigen has been found to cross-react with either rickettsia or bacteria sufficiently to produce false positive reactions
- Low levels of phase II IgG antibody ($<1:256$) may be considered non-specific
- The results obtained should be used in conjunction with the clinical information available to the physician
- Serologic responses are time dependant. Specimens obtained too early in the infection may not contain detectable antibody levels. If Q fever is suspected, obtain a second specimen 2 to 3 weeks later.
5.0 Clinical Evidence
An acute febrile rickettsial disease; onset may be sudden chills, retrobulbar headache, weakness, malaise and severe sweats.

6.0 ICD Code(s)
ICD 10 Code A78

7.0 Comments
N/A

8.0 References

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Rabies
Rabies

1.0 Provincial Reporting
Confirmed and probable cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed Case
Laboratory confirmation of infection with clinically compatible signs and symptoms:
- Detection of viral antigen in an appropriate clinical specimen, preferably the brain or the nerves surrounding hair follicles in the nape of the neck, by immunofluorescence
  OR
- Isolation of rabies virus from saliva, cerebrospinal fluid (CSF), or central nervous system tissue using cell culture or laboratory animal
  OR
- Detection of rabies virus ribonucleic acid (RNA) in an appropriate clinical specimen (e.g., saliva)

3.2 Probable Case
Clinically compatible signs and symptoms with the following laboratory results:
- Demonstration of rabies-neutralizing antibody titre ≥ five (i.e., complete neutralization) in the serum or CSF of an unvaccinated person

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
Any of the following will constitute a confirmed case of Rabies:
- Positive for rabies antigen
- Positive rabies virus culture
- Positive nucleic acid amplification test (NAT) for rabies virus

4.2 Approved/Validated Tests
- Immunofluorescence for rabies virus antigen
- Standard culture for rabies virus
- NAT for rabies virus RNA
- Neutralizing antibody titres for rabies virus

4.3 Indications and Limitations
- Negative results do not rule out rabies infection because viral material may not be detectable (e.g., early in infection). CSF frequently remains negative.
- The presence of rabies-neutralizing antibodies can indicate an exposure to rabies virus antigen or passive immunization.
- Negative serological results do not rule out a rabies infection because antibody levels may not surpass the detection threshold (0.5 IU) and seroconversion is usually very late.
• The sensitivity and specificity of serological tests vary greatly from laboratory to laboratory in spite of the application of international standards.
• Immunofluorescence on unfixed brain tissue is the only recommended test for post-mortem diagnosis.

5.0 Clinical Evidence
Clinically compatible signs and symptoms begin with a feeling of anxiety, cephalalgia, slightly elevated body temperature, malaise and indefinite sensory alterations, frequently around the site of the lesion. The excitation phase that follows is characterized by hyperesthesia, dilation of pupils and increased salivation. As the disease progresses swallowing dysfunction is seen in most patients and there may be spasms of the respiratory muscles and generalized convulsions. Rabies is an acute encephalomyelitis that almost always progresses to coma or death within 10 days after the first symptom.

6.0 ICD Code(s)
ICD 10 Code A82

7.0 Comments
N/A

8.0 References
• Ministry of Health and Long-Term Care, Public Health Division. iPHIS manual. Toronto, ON: Queen’s Printer for Ontario; 2005.

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Respiratory infection outbreaks in institutions
Respiratory infection outbreaks in institutions

1.0 Provincial Reporting
   Confirmed outbreaks

2.0 Type of Surveillance
   Outbreak summary data

3.0 Outbreak Classification

3.1 Confirmed Outbreak Definition
   Confirmed respiratory infection outbreak in a Long-Term Care Home:
   - Two cases of acute respiratory tract illness within 48 hours, at least one of which must be laboratory-confirmed
     OR
   - Three cases of acute respiratory illness (laboratory confirmation not necessary) occurring within 48 hours in a geographic area (e.g., unit, floor)
     OR
   - More than two units having a case of acute respiratory tract illness within 48 hours

   Confirmed influenza outbreak in a hospital:
   - Two or more cases of nosocomially acquired influenza-like illness occurring within 48 hours on a specific hospital unit, with at least one case laboratory-confirmed as influenza

3.2 Suspect Outbreak Definition
   Suspect respiratory infection outbreak:
   - Two cases of acute respiratory tract illness occurring within 48 hours in a geographic area (e.g., unit, floor)
     OR
   - More than one unit having a case of acute respiratory illness within 48 hours

   Suspect influenza outbreak:
   - One laboratory-confirmed case of influenza
     OR
   - Two cases of acute respiratory tract illness occurring within 48 hours in a geographic area (e.g., unit, floor)
     OR
   - More than one unit having a case of acute respiratory illness within 48 hours

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
   Laboratory confirmation is not required to be classified as a confirmed institutional respiratory infection outbreak
4.2 Approved/Validated Tests

- Standard culture for influenza virus, respiratory syncytial virus (RSV) and rhinovirus
- Influenza, RSV, parainfluenza, adenovirus direct fluorescent antibody (DFA) antigen test
- Influenza IgG serology tests
- Nucleic acid amplification test (NAT) for influenza virus, RSV, rhinovirus/enterovirus, parainfluenza virus, adenovirus, human metapneumovirus, corona virus ribonucleic acid (RNA)
- Rapid enzyme immunoassay (EIA) or immunochromatographic (ICT) test kits for influenza virus and RSV

4.3 Indications and Limitations

- NAT primers and probes should be validated to detect the current strains of influenza, RSV, rhinovirus/enterovirus, parainfluenza virus, adenovirus, human metapneumovirus and coronavirus.
- A proportion of influenza isolates should be typed for strain identification, as appropriate, for epidemiological, public health and control purposes.
- Antigen testing for influenza virus and RSV is indicated only during the influenza season due to low positive predictive value.

5.0 Clinical Evidence

Clinically compatible signs and symptoms include but are not limited to the following:

- Upper respiratory tract illness (e.g., common cold, pharyngitis)
  - Runny nose or sneezing
  - Stuffy nose (i.e., congestion)
  - Sore throat or hoarseness or difficulty swallowing
  - Dry cough
  - Swollen or tender glands in the neck (i.e., cervical lymphadenopathy)
  - Fever/abnormal temperature for the resident may be present, but is not required
  - Tiredness (i.e., malaise)
  - Muscle aches (i.e., myalgia)
  - Loss of appetite
  - Headache
  - Chills

6.0 ICD Code(s)

ICD 10 Code J22a

7.0 Comments

Different respiratory viruses often cause similar acute respiratory symptoms. The above case definitions are general; each respiratory outbreak requires its own definition. The case definition should be developed for each individual outbreak based on its characteristics, reviewed during the course of the outbreak, and modified if necessary, to ensure that the majority of cases are captured by the definition. Whenever there are two cases of acute respiratory tract illness within 48 hours on one unit, an outbreak should be suspected and tests should be done to determine the causative organism.
8.0 References


Date of Last Revision: November 2008
Appendix B:
Provincial Case Definitions for Reportable Diseases

Disease: Rubella
Rubella

1.0 Provincial Reporting
   Confirmed and probable cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

3.1 Confirmed Case
   Laboratory confirmation of infection in the absence of recent immunization with rubella-containing vaccine:
   • Isolation of rubella virus in culture from clinical samples (i.e., throat swabs, nasopharyngeal swabs/aspirates, urine)
   OR
   • Detection of rubella virus ribonucleic acid (RNA) by nucleic acid amplification test (NAT)
   OR
   • Positive serologic test for rubella Immunoglobulin M (IgM) antibody using a recommended assay in a person with an epidemiologic link to a laboratory-confirmed case or has recently travelled to an area of known rubella activity
   OR
   • A significant (i.e., fourfold or greater) rise in rubella Immunoglobulin G (IgG) antibody level or a seroconversion using a recommended IgG assay in paired acute and convalescent sera
   OR
   • Clinically compatible signs and symptoms with an epidemiologic link to a laboratory-confirmed case

3.2 Probable Case
   • Clinically compatible signs and symptoms in a person with recent travel to an area of known rubella activity

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
   Any of the following will constitute a confirmed case of Rubella:
   • Positive for rubella IgM antibody (with an epidemiologic link)
   • Seroconversion or rise in rubella IgG titre
   • Positive rubella virus culture with immunofluorescence (IF)
   • Positive for rubella virus by direct NAT

4.2 Approved/Validated Tests
   • Commercial tests for rubella IgM and IgG antibodies
   • Standard culture for rubella virus
   • NAT for rubella virus RNA
   • Consult with laboratory about appropriate specimens for each testing methodology
4.3 Indications and Limitations

- IgM serology has the potential for false positive findings. Further confirmation (IgG paired serology or rubella virus detection) is required in cases specifically where there is no established epidemiological link (e.g. recent travel/exposure history).
- Because of the implications of acute rubella infection in a pregnant woman and the potential for a false positive IgM result, avidity testing of Rubella IgG antibodies is recommended for pregnant women with a positive IGM result when there is no change in observed rubella IgG levels. Although in North America most people consider a rubella IgG level of >10 IU/ml to confer immunity against rubella infection, the actual level that correlates with protection has not been fully defined.

5.0 Clinical Evidence

Clinically compatible signs and symptoms are characterized by fever and rash, and at least one of the following:
- arthralgia/arthritis
- lymphadenopathy
- conjunctivitis

6.0 ICD Code(s)

6.1 ICD-10 Code(s)
- B06 Rubella

6.2 ICD-9/ICD-9CM Code(s)
- 056 Rubella

7.0 Comments

N/A

8.0 References


Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Rubella, congenital syndrome
Rubella, congenital syndrome

1.0 Provincial Reporting
   Confirmed cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

3.1 Confirmed Case
   **Live birth:** Two clinically compatible manifestations (any combination from Table 1, Columns A and B) with laboratory confirmation of infection and documented maternal rubella in pregnancy:
   - Isolation of rubella virus from an appropriate clinical specimen (e.g., throat swab, urine, nasopharyngeal aspirate/wash/swab)
   - Detection of rubella virus ribonucleic acid (RNA) by nucleic acid amplification test (NAT) from an appropriate clinical specimen
   - Positive serologic test for rubella Immunoglobulin M (IgM) antibody in the absence of recent immunization with rubella-containing vaccine
   - Rubella Immunoglobulin G (IgG) persisting for longer than would be expected (approximately 6 months following birth) from passive transfer of maternal antibody, or in the absence of recent immunization

   **Still birth:** Two clinically compatible manifestations with isolation and/or detection of rubella virus RNA from an appropriate clinical specimen (e.g., placenta and autopsy material) and/or documented maternal rubella infection in pregnancy

3.2 Probable Case
   In the absence of appropriate laboratory tests a case that has at least:
   - Two clinically compatible manifestations listed in Table 1, column A (See Section 5.0)
   - One manifestation listed in Table 1, column A, plus one listed in Table 1, column B (See Section 5.0)

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
   Any of the following will constitute a confirmed case of congenital Rubella infection:
   - Positive for rubella IgM in the absence of recent immunization with rubella-containing vaccine
   - Rubella IgG persisting longer than would be expected (approximately 6 months) from passive transfer of maternal antibody, or in the absence of recent immunization
   - Positive rubella virus culture
• Positive for rubella virus by direct NAT

4.2 Approved/Validated Tests
• Standard culture for rubella virus
• Commercial tests for anti-rubella IgM and IgG antibodies
• NAT for rubella virus RNA
• Consult with laboratory about appropriate specimens for each testing methodology

4.3 Indications and Limitations
• Rubella IgM may not always be detectable at birth following congenital infection. Virus isolation and/or detection of rubella RNA and monitoring of IgG response may be necessary.
• Many of the commercial kits used are not necessarily approved for testing cord blood and validation studies have not been done at the Public Health Laboratories of the Ontario Agency for Health Protection and Promotion, therefore do not use cord blood.

5.0 Clinical Evidence

Table 1. Congenital Rubella Syndrome: Clinically Compatible Manifestations

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cataracts or congenital glaucoma (either one or both count as one)</td>
<td>1. Purpura</td>
</tr>
<tr>
<td>2. Congenital heart defect</td>
<td>2. Hepatosplenomegaly</td>
</tr>
<tr>
<td></td>
<td>5. Intellectual Disability</td>
</tr>
<tr>
<td></td>
<td>6. Meningoencephalitis</td>
</tr>
<tr>
<td></td>
<td>7. Radiolucent bone disease</td>
</tr>
<tr>
<td></td>
<td>8. Developmental or late onset</td>
</tr>
<tr>
<td></td>
<td>conditions such as diabetes &amp;</td>
</tr>
<tr>
<td></td>
<td>progressive panencephalitis &amp;</td>
</tr>
<tr>
<td></td>
<td>any other conditions</td>
</tr>
<tr>
<td></td>
<td>possibly caused by rubella virus</td>
</tr>
</tbody>
</table>

6.0 ICD Code(s)

6.1 ICD-10 Code(s)
B06.0 plus G05.1, B06.9
P35.0 Congenital rubella

6.2 ICD-9/ICD-9CM Code(s)
056.01 Encephalomyelitis due to rubella
771.0 Congenital rubella

7.0 Comments
N/A

8.0 References
• Ministry of Health and Long-Term Care, Public Health Division. iPHIS manual. Toronto, ON: Queen’s Printer for Ontario; 2005.

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Salmonellosis
Salmonellosis

1.0 Provincial Reporting
Confirmed and probable cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed Case
Laboratory confirmation of infection with or without clinically compatible signs and symptoms:
- Isolation of *Salmonella* spp. (excluding *Salmonella* Typhi or Paratyphi) from an appropriate clinical specimen (e.g., sterile site, blood, stool, vomitus, urine)

3.2 Probable Case
Clinically compatible signs and symptoms in a person with an epidemiologic link to a laboratory-confirmed case

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
The following will constitute a confirmed case of Salmonellosis:
- Positive *Salmonella* spp. culture

4.2 Approved/Validated Tests
- Standard culture for *Salmonella* spp.
- Serotyping for O, H and K antigen

4.3 Indications and Limitations
- Further strain characterization is indicated for public health purposes

5.0 Clinical Evidence
Clinically compatible signs and symptoms are characterized by headache, diarrhea, abdominal pain, nausea, fever and sometimes vomiting. Asymptomatic infections may occur, and the organism may cause extra-intestinal infections.

6.0 ICD Code(s)

6.1 ICD-10 Code(s)
A02.0 Salmonella enteritis
Salmonellosis
A02.1 Salmonella septicaemia
A02.2 Localized salmonella infections
A02.8 Other specified salmonella infections
A02.9 Salmonella infection, unspecified
6.2 ICD-9/ICD-9CM Code(s)
003.0 Salmonella gastroenteritis
  Salmonellosis
003.1 Salmonella septicemia
003.2 Localized Salmonella infections
003.8 Other specified Salmonella infections
003.9 Salmonella infection, unspecified

7.0 Comments
N/A

8.0 References

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Severe Acute Respiratory Syndrome (SARS)
Severe Acute Respiratory Syndrome (SARS)

1.0 Provincial Reporting
   Confirmed and probable cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

3.1 Confirmed case
   Laboratory evidence of SARS-associated coronavirus (SARS-CoV) infection, AND:
   • Early presentation of clinically compatible signs and symptoms of SARS AND
   • Radiographic evidence consistent with SARS
   OR
   A deceased person with:
   • A history of early presentation of clinically compatible signs and symptoms of SARS (i.e., fever AND cough OR difficulty breathing resulting in death) AND
   • Autopsy findings consistent with SARS, i.e.:
     o Evidence of pneumonia or Acute Respiratory Distress Syndrome (ARDS) without an alternate identifiable cause AND
     o Laboratory evidence of SARS coronavirus infection

3.2 Probable case
   In the absence of laboratory evidence, a person with:
   • Early presentation of clinically compatible signs and symptoms of SARS AND
   • Radiographic evidence consistent with SARS AND
   • An epidemiologic link to a person or place linked to SARS, including:
     o Close contact (See Section 7.0) with a confirmed SARS case, within 10 days of onset of symptoms OR
     o Close contact with a symptomatic person who has laboratory evidence of SARS-CoV infection, within 10 days of onset of symptoms OR
     o Residence, recent travel or visit to an “Area with recent local transmission of SARS” within the 10 days prior to onset of symptoms OR
     o Laboratory exposure to SARS-CoV
OR

A deceased person with:

• A history of early presentation of clinically compatible signs and symptoms of SARS
  **AND**

• Autopsy findings consistent with SARS
  **AND**

• An epidemiologic link to a person or place linked to SARS

4.0 Laboratory Evidence

4.1 Approved/Validated Tests

• PCR positive results or seroconversion or virus isolation

4.2 Indications and Limitations

• Laboratory results must be verified by the Public Health Laboratories of the Ontario Agency for Health Protection and Promotion and/or the National Microbiology Laboratory

4.3 Indications and Limitations

• N/A

5.0 Clinical Evidence

Clinically compatible signs and symptoms are characterized by all of the following:

• Fever (> 38 degrees Celsius)

• Cough OR breathing difficulty (i.e., new or worsening cough or shortness of breath)

• Radiographic evidence of infiltrates consistent with pneumonia or respiratory distress syndrome (RDS)

6.0 ICD Code(s)

6.1 ICD-10 Code(s)

U04   Severe Acute Respiratory Syndrome (SARS)
U04.90 Suspected Severe Acute Respiratory Syndrome (SARS)
U04.91 Suspected Severe Acute Respiratory Syndrome (SARS)

7.0 Comments

Close contact means having cared for, lived with or had face-to-face (within one metre) contact with, or having had direct contact with respiratory secretions and/or body fluids of a person with SARS.

During an outbreak period, persons without x-ray changes (i.e. those who are not severely ill) may have laboratory evidence of SARS Coronavirus (SARS-CoV) infection if tested as part of an outbreak. These individuals will be considered as “confirmed SARS-CoV infection”, while not meeting the clinical criteria for confirmed cases of “Severe Acute Respiratory Syndrome (SARS)”.

8.0 References

• Ministry of Health and Long-Term Care, Public Health Division. iPHIS manual. Toronto, ON: Queen’s Printer for Ontario; 2005.

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Shigellosis
Shigellosis

1.0 Provincial Reporting
Confirmed and probable cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed Case
Laboratory confirmation of infection with or without clinically compatible signs and symptoms:
- Isolation of \textit{Shigella} spp. from an appropriate clinical specimen (e.g., stool, urine)

3.2 Probable Case
- Clinically compatible signs and symptoms in a person with an epidemiologic link to a laboratory-confirmed case

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
The following will constitute a confirmed case of Shigellosis:
- Positive \textit{Shigella} spp. culture

4.2 Approved/Validated Tests
- Standard culture for \textit{Shigella} spp.
- Serotyping of O antigen

4.3 Indications and Limitations
- Further strain characterization, including drug resistance testing, is indicated for epidemiological public health and control purposes

5.0 Clinical Evidence
Clinically compatible signs and symptoms are characterized by diarrhea, fever, nausea, vomiting, cramps, and tenesmus. Asymptomatic infections may occur.

6.0 ICD Code(s)

6.1 ICD-10 Code(s)
- A03 Shigellosis
- A03.0 Shigellosis due to \textit{Shigella dysenteriae} (Group A shigellosis)
- A03.1 Shigellosis due to \textit{Shigella flexneri} (Group B shigellosis)
- A03.2 Shigellosis due to \textit{Shigella boydii} (Group C shigellosis)
- A03.3 Shigellosis due to \textit{Shigella sonnei} (Group D shigellosis)
- A03.8 Other shigellosis
- A03.9 Shigellosis, unspecified (Bacillary dysentery NOS)
6.2 ICD-9/ICD-9CM Code(s)
004 Shigellosis (includes bacillary dysentery)
    004.0 *Shigella dysenteriae*
        Infection by group A Shigella (Schmitz) (Shiga)
    004.1 *Shigella flexneri*
        Infection by group B Shigella
    004.2 *Shigella boydii*
        Infection by group C Shigella
    004.3 *Shigella sonnei*
        Infection by group D Shigella
    004.8 Other specified shigella infections
    004.9 Shigellosis, unspecified

7.0 Comments
N/A

8.0 References

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Smallpox
Smallpox

1.0 Provincial Reporting
   Confirmed, probable and suspect cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

   3.1 Confirmed Case
   Laboratory confirmation of infection with clinically compatible signs and symptoms:
   • Detection of variola virus nucleic acid
   OR
   • Isolation of variola virus from an appropriate clinical specimen (e.g., blood, vesicular fluid, scabs) followed by confirmation through detection of variola virus nucleic acid
   OR
   • Detection of poxvirus particles in a clinical specimen by electron microscopy followed by confirmation through detection of variola virus nucleic acid

   3.2 Probable Case
   Clinically compatible signs and symptoms in a person with an epidemiologic link to a laboratory-confirmed case

   3.3 Suspect Case
   • Clinically compatible signs and symptoms in a person without an epidemiologic link
   OR
   • Atypical lesion (illness) known to be associated with the variola virus on a person with an epidemiologic link

4.0 Laboratory Evidence

   4.1 Laboratory Confirmation
   Any of the following will constitute a confirmed case of Smallpox:
   • Positive variola virus culture
   • Positive for variola virus nucleic acid

   4.2 Approved/Validated Tests
   • Standard electron microscopy with negative staining (presumptive)
   • Standard culture for variola virus
   • NAT for variola virus
   • PCR and sequence confirmation

   4.3 Indications and Limitations
   • Any testing related to suspected smallpox should be carried out under level 4 containment facilities at National Microbiology Laboratory (NML)
• NML should be contacted for advice prior to sampling and transport of clinical specimens

5.0 Clinical Evidence
• Clinically compatible signs and symptoms are characterized by acute onset of fever of > 38.3°C followed by a rash involving vesicles or firm pustules in the same stage of development without other apparent cause
• Major distinguishing features include a febrile prodrome with a temperature of > 38.9°C and systemic symptoms (prostration, severe headache, backache, abdominal pain, or vomiting) 1-4 days before rash onset; lesions are deep, firm, well-circumscribed pustules (may be confluent or umbilicated).
• Other distinguishing features include rash concentrated on face and extremities, rash in same stage of evolution on any one part of the body, first lesions on oral mucosa/palate followed by centrifugal rash on face or forearm, and lesions on palms and soles (seen in > 50% of cases); lesions may itch at scabbing stage; lesions evolve from papule to pustule in days, illness lasts 14-21 days.
• Atypical presentations of smallpox include a) hemorrhagic lesions or b) flat velvety lesions not appearing as typical vesicles or not progressing to pustules

6.0 ICD Code(s)
ICD 10 Code B03

7.0 Comments
Health units must contact the Public Health Division, MOHLTC immediately using the 24 hour emergency line (416) 212-6361 or (416) 212-6362, even in the event of a suspected case.
Clinicians are strongly recommended to contact their local medical officer of health prior to collecting specimens on any suspect case of smallpox for laboratory diagnosis.
For information on clinical signs and symptoms of smallpox please see the fact sheet for healthcare professionals in Ontario issued by the Ministry of Health and Long-Term Care in January 2003. The fact sheet can be accessed via the following link: http://www.health.gov.on.ca/english/providers/pub/disease/smallpox.html

8.0 References
• Ministry of Health and Long-Term Care, Public Health Division. iPHIS manual. Toronto, ON: Queen’s Printer for Ontario; 2005.

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Syphilis
Syphilis

1.0 Provincial Reporting
Confirmed cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed Case-Primary Syphilis
Laboratory confirmation of infection:
- Identification of *T. pallidum* by dark-field microscopy, direct fluorescent antibody microscopy, nucleic acid testing, or equivalent examination of material from a chancre or a regional lymph node
  OR
- Presence of one or more typical lesions (chancre), and reactive treponemal serology, regardless of non-treponemal test reactivity, in individuals with no previous history of syphilis
  OR
- Presence of one or more typical lesions (chancre) and a significant (i.e., fourfold or greater) rise in titre over the last known non-treponemal test in individuals with a past history of appropriate syphilis treatment

3.2 Confirmed Case-Secondary Syphilis
Laboratory confirmation of infection:
- Identification of *T. pallidum* by dark-field microscopy, direct or indirect fluorescent antibody microscopy, nucleic acid amplification test (NAT) or equivalent examination of mucocutaneous lesions, condylomata lata and reactive serology (non-treponemal and treponemal),
  OR
- Presence of typical signs or symptoms of secondary syphilis (e.g., mucocutaneous lesions, alopecia, loss of eyelashes and lateral third of eyebrows, iritis, generalized lymphadenopathy, fever, malaise or splenomegaly) and either a reactive serology (non-treponemal and treponemal) or a significant (i.e., fourfold or greater) rise in titre of a non-treponemal test

3.3 Confirmed Case-Early Latent Syphilis (<1 year after infection)
Laboratory confirmation of infection:
- An asymptomatic patient with reactive serology (treponemal and/or non-treponemal) who within the past 12 months had one of the following:
  o Non-reactive serology
  o Previous signs/symptoms suggestive of primary or secondary syphilis
  o Exposure to a sexual partner with primary, secondary or early latent syphilis

3.4 Confirmed Case-Late Latent Syphilis (>1 year after infection or of unknown duration)
Laboratory confirmation of infection:
• An asymptomatic patient with persistently reactive treponemal serology (regardless of non-treponemal serology reactivity) who does not meet the criteria for early latent disease and who has not been previously treated adequately for syphilis

3.5 Confirmed Case-Neurosyphilis

3.5.1 Infectious (<1 year after infection)
Laboratory confirmation of infection:
Fits the criteria in 3.1, 3.2 OR 3.3 above,
AND one of the following:
  o Reactive cerebrospinal fluid – venerales diseases research laboratory (CSF-VDRL) in non-bloody cerebrospinal fluid (CSF)
  o Clinical evidence of neurosyphilis and either elevated CSF leukocytes or elevated CSF protein in the absence of other known causes

3.5.2 Non-infectious (>1 year after infection)
Laboratory confirmation of infection:
• Fits the criteria in Section 3.4,
AND one of the following:
  o Reactive CSF-VDRL in non-bloody CSF
  o Clinical evidence of neurosyphilis and either elevated CSF leukocytes or elevated CSF protein in the absence of other known causes

3.6 Confirmed Case-Early Congenital Syphilis (within 2 years of birth)
Laboratory confirmation of infection:
• Identification of Treponema pallidum by dark-field microscopy, direct fluorescent antibody microscopy or equivalent examination of material from nasal discharges, skin lesions, placenta, umbilical cord or autopsy material of a newborn (up to 4 weeks of age)
OR
• Reactive serology (non-treponemal and treponemal) from venous blood (not cord blood) in an infant/child with clinical, laboratory or radiographic evidence of congenital syphilis
OR
• Detection of Treponema pallidum deoxyribonucleic acid (DNA) in an appropriate clinical specimen

3.7 Confirmed Case-Tertiary Syphilis Other than Neurosyphilis
Laboratory confirmation of infection:
• Reactive treponemal serology (regardless of non-treponemal test reactivity) together with characteristic late abnormalities of the cardiovascular system, bone, skin or other structures, in the absence of other known causes of these abnormalities. (T. pallidum is rarely seen in these lesions, although when present, is considered diagnostic.)
AND
• No clinical or laboratory evidence of neurosyphilis

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
Any of the following will constitute a confirmed case of Syphilis:
• Detection of T. pallidum or its DNA by validated methods
Reactive non-treponemal and treponemal serology
Reactive treponemal serology regardless of non-treponemal serology in persons with no previous history of syphilis
A significant (i.e., fourfold or greater) rise in non-treponemal titre

4.2 Approved/Validated Tests
- Darkfield/direct fluorescent antibody microscopy for *T. pallidum*
- Non-treponemal tests (rapid plasma reagin [RPR], veneral diseases research laboratory [VDRL], unheated syphilis reagin [USR] test, toludine red unheated serum reagin test [TRUST])
- Treponemal tests (treponema pallidum particle agglutination [TP-PA], fluorescent treponemal antibody absorbed [FTA-ABS], enzyme immunoassay [EIA], Western blot)
- NAT for *T. pallidum*

4.3 Indications and Limitations
- Diagnosis of syphilis requires combination of history including epidemiologic risk factors or exposure, physical examination and laboratory tests as there is no single optimum diagnostic criterion
- Dark-field microscopy testing for *T. pallidum* is not reliable for oral/rectal lesions, as non-pathogenic treponemes may be present. Instead, direct fluorescent antibody test for *T. pallidum* should be used on such specimens
- Reliability of serological tests depends on the type of test and stage of disease.
- Non-treponemal tests have reduced sensitivity in primary syphilis and late latent syphilis

5.0 Clinical Evidence
A clinical consultation is necessary for diagnosis

6.0 ICD Code(s)

6.1 ICD-10 Code(s)
**Primary Stage**
ICD 10 Code A51.2 Syphilis, Primary Other Sites

**Secondary Stage**
ICD 10 Code A51.4 Syphilis, Secondary, Other

**Early Latent**
ICD 10 Code A51.5 Syphilis Early Latent

**Late Latent**
ICD 10 Code A52.8 Syphilis, Late Latent

**Neurosyphilis, unspecified**
ICD 10 Code A52.3 Syphilis, Neurosyphilis, Unspecified

**Early Congenital Syphilis, Unspecified**
ICD 10 Code A50.2 Early Congenital Syphilis, Unspecified

7.0 Comments
N/A

8.0 References

**Date of Last Revision:** November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Tetanus
1.0 Provincial Reporting
   Confirmed cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

   3.1 Confirmed Case
   Clinically compatible signs and symptoms with or without evidence of injury:
   • Without laboratory evidence and without other apparent medical cause
     OR
   • With isolation of Clostridium tetani from wound site

4.0 Laboratory Evidence

   4.1 Laboratory Confirmation
   The following will constitute a confirmed case Tetanus:
   • Positive \textit{C. tetani} culture

   4.2 Approved/Validated Tests
   • Standard culture for \textit{C. tetani}
   • Consult with laboratory about appropriate specimens for each testing methodology

   4.3 Indications and Limitations
   • Detection of \textit{C. tetani} toxin should not be considered among the list of diagnostic methods for confirmation of tetanus since this is not available / in use
   • Confirmation of causative agent is infrequently made by culture

5.0 Clinical Evidence
   Clinically compatible signs and symptoms are characterized by acute onset of hypertonia and/or painful muscular contractions (usually of the muscles of the jaw and neck), and generalized muscle spasms without other apparent medical cause.

6.0 ICD Code(s)

   6.1 ICD-10 Code(s)
   \text{A35 Tetanus}

   6.2 ICD-9/ICD-9CM Code(s)
   \text{037 Tetanus}

7.0 Comments
   A negative test does not exclude a diagnosis of tetanus
8.0 References


Date of Last Revision: November 2008

Infectious Diseases Protocol, 2009 – Appendix B
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Transmissible Spongiform Encephalopathy, including:
i) Creutzfeldt-Jakob Disease, all types; ii) Gerstmann-Sträussler-Scheinker Syndrome; iii) Fatal Familial Insomnia, and iv) Kuru
Transmissible Spongiform Encephalopathy, including: i) Creutzfeldt-Jakob Disease, all types; ii) Gerstmann-Sträussler-Scheinker Syndrome; iii) Fatal Familial Insomnia, and iv) Kuru

Sporadic Creutzfeldt-Jakob Disease (sCJD)

1.0 Provincial Reporting
   Confirmed, probable and suspect cases

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

   3.1 Confirmed Case
   • Neuropathologically / immunocytochemically confirmed: confirmation of protease-resistant prion protein (immunocytochemistry or Western Blot).

   3.2 Probable Case
   • Rapidly progressive dementia
   • At least two additional neurological manifestations (See Section 5.0 – Clinical Evidence)
   • Typical electroencephalography (EEG): generalized bilateral or unilateral triphasic periodic complexes at approximately one per second, lasting continuously for at least 10 seconds.
   OR
   • Suspect sporadic CJD
   • Positive assay for 14-3-3 in cerebrospinal fluid (CSF)

   3.3 Suspect Case
   • Rapidly progressive dementia
   • At least two additional neurological manifestations (See Section 5.0 – Clinical Evidence)
   • Duration of illness less than 2 years

4.0 Laboratory Evidence

   4.1 Laboratory Confirmation
   The following will constitute a confirmed case of Sporadic Creutzfeldt-Jakob Disease
   • Neuropathological confirmation of protease-resistant prion protein (immunocytochemistry in situ or via PET blot; or Western Blot).
4.2 Approved/Validated Tests
- Immunocytochemistry (in situ or PET blot variants) demonstrating prion protein immunoreactivity (plaque and/or diffuse synaptic and/or perivacuolar): confirmatory (if positive)
- PrP Western blot: confirmatory (if positive)
- Electron microscopy for scrapie-associated fibrils (SAF): confirmatory (if positive)
- Histopathology to demonstrate spongiform encephalopathy in cerebral and/or cerebellar cortex and/or subcortical grey matter: supportive (if positive)
- PRNP gene sequencing: supportive (if negative)
- CSF 14-3-3 Western blot: supportive (if positive)

4.3 Indications and Limitations
- Histopathologic evidence of spongiform change is no longer considered sufficient in itself for diagnostic confirmation of TSE.
- Demonstration of scrapie-associated fibrils (SAF) by electron microscopy, although historically important, is rarely undertaken for human diagnostic purposes.
- Absence of a known pathogenic mutation causative for genetic TSE supports a diagnosis of sCJD.
- Because of limited diagnostic specificity, the CSF 14-3-3 assay is restricted to a supporting role in the diagnosis of probable sCJD.

5.0 Clinical Evidence
Additional neurological manifestations include:
- Myoclonus
- Visual or cerebellar disturbances such as ataxia
- Pyramidal or extrapyramidal features
- Akinetic mutism
A clinical consultation is necessary for diagnosis

6.0 ICD Code (s)
ICD 10 Code A81.0

7.0 Comments
N/A

8.0 References
Iatrogenic TSE (Accidentally transmitted TSE)

1.0 Provincial Reporting
   Confirmed and probable cases

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

3.1 Confirmed Case
   • Confirmed TSE similar to sporadic CJD, with a recognized iatrogenic factor. (See Section 7.0 - Comments for further details)

3.2 Probable Case
   • Progressive predominant cerebellar syndrome in human pituitary hormone recipients
     OR
   • Probable TSE similar to sporadic CJD, with recognized iatrogenic risk factor (See Section 7.0 - Comments for further details)

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
   The following will constitute a confirmed case of iatrogenic TSE
   • Neuropathological confirmation of protease-resistant prion protein (immunocytochemistry in situ or via PET blot; or Western Blot).

4.2 Approved/Validated Tests
   • Immunocytochemistry (in situ or PET blot variants) demonstrating prion protein immunoreactivity (plaque and/or diffuse synaptic and/or perivacuolar): confirmatory (if positive)
   • Electron microscopy for scrapie-associated fibrils (SAF): confirmatory (if positive)
   • PrP-res Western blot: confirmatory (if positive)
   • Histopathology to demonstrate spongiform encephalopathy in cerebral and/or cerebellar cortex and/or subcortical grey matter: supportive (if positive)
   • PRNP gene sequencing: supportive (if negative)
   • CSF 14-3-3 Western blot: supportive (if positive)

4.3 Indications and Limitations
   • Histopathologic evidence of spongiform change is no longer considered sufficient in itself for diagnostic confirmation of TSE.
   • Demonstration of scrapie-associated fibrils (SAF) by electron microscopy, although historically important, is rarely undertaken for human diagnostic purposes.
   • Absence of a known pathogenic mutation causative for genetic TSE supports a diagnosis of accidentally transmitted CJD.
   • Because of limited diagnostic specificity, the CSF 14-3-3 assay is restricted to a supporting role in the diagnosis of probable Sporadic CJD.

5.0 Clinical Evidence
   Neurological manifestations include:
• Rapidly progressive dementia
• Myoclonus
• Visual or cerebellar disturbances such as ataxia
• Pyramidal or extrapyramidal features
• Akinetic mutism

A clinical consultation is necessary for diagnosis

6.0 ICD Code(s)
ICD 10 Code A81.0

7.0 Comments
Relevant exposure risks for classification as accidentally transmitted CJD:
• Treatment with human pituitary growth hormone, human pituitary gonadotrophin or human dura mater graft.
• Corneal graft in which the corneal donor has been classified as definite or probable human prion disease.
• Exposure to neurosurgical instruments previously used in a case of definite or probable human prion disease.

Note:
i) The relevance of any exposure to disease causation must take into account the timing of exposure in relation to disease onset.
ii) The above list is provisional as previously unrecognized mechanisms of human prion disease may occur.

8.0 References
• Ministry of Health and Long-Term Care, Public Health Division. iPHIS manual. Toronto, ON: Queen's Printer for Ontario; 2005.
Genetic TSE - includes genetic forms of CJD; Gerstmann-Sträussler-Scheinker syndrome (GSS); and Fatal Familial Insomnia (FFI)

1.0 Provincial Reporting
   Confirmed and probable cases

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

3.1 Confirmed Case
   - Confirmed TSE
     AND
   - Confirmed or probable TSE in a first-degree relative

   OR
   - Confirmed TSE
     AND
   - Pathogenic PRNP mutation (See Section 7.0 – Comments for further discussion of PRNP mutations and their associated phenotypes)

3.2 Probable Case
   - Progressive neuropsychiatric disorder
     AND
   - Confirmed or probable TSE in a first-degree relative

   OR
   - Progressive neuropsychiatric disorder
     AND
   - Pathogenic PRNP mutation (See Section 7.0 – Comments for further discussion of PRNP mutations and their associated phenotypes)

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
   The following will constitute a confirmed case of Genetic TSE:
   - Confirmation of protease-resistant prion protein (immunocytochemistry in situ or via PET blot; or Western Blot).

4.2 Approved/Validated Tests
   - Immunocytochemistry (in situ or PET blot variants): confirmatory (if positive)
   - Electron microscopy for scrapie-associated fibrils (SAF): confirmatory (if positive)
   - PrP Western blot: confirmatory (if positive)
   - Histopathology to demonstrate spongiform encephalopathy in cerebral and/or cerebellar cortex and/or subcortical grey matter: supportive (if positive)
   - PRNP gene sequencing: supportive (if positive)
   - CSF 14-3-3 Western blot: supportive (if positive)

4.3 Indications and Limitations
   - Histopathologic evidence of spongiform change is no longer considered sufficient in itself for diagnostic confirmation of TSE.
• Demonstration of scrapie-associated fibrils (SAF) by electron microscopy, although historically important, is rarely undertaken for human diagnostic purposes.
• Because of problems with diagnostic specificity, the CSF 14-3-3 assay is restricted to a supporting role in the diagnosis of probable Sporadic CJD.

5.0 Clinical Evidence

Neurological manifestations include:
• Rapidly progressive dementia
• Myoclonus
• Visual or cerebellar disturbances such as ataxia
• Pyramidal or extrapyramidal features
• Akinetic mutism
A clinical consultation is necessary for diagnosis

6.0 ICD Code(s)
ICD 10 Code A81.0

7.0 Comments

7.1 Genetic Prion Disease

a) PRNP mutations associated with a neuropathologic phenotype of Creutzfeldt-Jakob disease (CJD): R148H; D178N on 129V allele; V180I; V180I + M232R; T183A; T188A; E196K; E200K; V203I; R208H; V210I; E211Q; M232R; octapeptide repeat insertions 96 bp, 120 bp, 144 bp, 168 bp and deletion 48 bp
b) PRNP mutations associated with a neuropathologic phenotype of Gerstmann-Sträussler-Scheinker disease (GSS; see note a above): P102L; P105L; A117V; G131V; F198S; D202N; Q212P; Q217R; M232T; octapeptide repeat insertion 192 bp
c) PRNP mutations associated with a neuropathologic phenotype of Familial Fatal Insomnia (FFI): D178N on 129M allele
d) PRNP mutations associated with other neuropathologic phenotypes: I138M; G142S; Y145Stop; Q160S; H187R; T188K; M232R; octapeptide repeat insertions 24 bp, 48 bp
e) The pathology findings in genetic TSE are quite variable. However, presence of multicentric plaques by histopathology, PAS strain or prion protein immunocytochemistry in cerebral and/or cerebellar cortex, with neuron loss and spongiosis, is considered diagnostic of GSS. Other large amorphic plaques or neurofibrillary tangles immunoreactive for PrP have been described in subsets of GSS but these are associated with less-frequent PRNP mutations (A117V and F198S). Florid or Kuru plaques are not considered diagnostic for GSS.

8.0 References

• Ministry of Health and Long-Term Care, Public Health Division. iPHIS manual. Toronto, ON: Queen’s Printer for Ontario; 2005.
Variant Creutzfeldt-Jakob Disease (vCJD)

1.0 Provincial Reporting
Confirmed, probable and suspect cases

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed Case
- Progressive neuropsychiatric disorder
- AND
- Neuropathological confirmation of vCJD: spongiform change and extensive prion protein (PrP) deposition with florid plaques, throughout the cerebrum and cerebellum

3.2 Probable Case
- Progressive neuropsychiatric disorder of duration >6 months, where routine investigations do not suggest an alternative diagnosis and there is no evidence of iatrogenic exposure or a genetic form of TSE
- AND
- Four out of five from Section 5.2
- AND
- Electroencephalography (EEG) does not show typical appearance of sporadic CJD: generalized triphasic periodic complexes at approximately one per second; or no EEG performed
- AND
- MRI brain scan shows bilateral symmetrical pulvinar high signal, relative to the signal intensity of other deep gray-matter nuclei and cortical gray matter
- OR
- Progressive neuropsychiatric disorder of duration >6 months, where routine investigations do not suggest an alternative diagnosis and there is no evidence of iatrogenic exposure or evidence of a genetic form of TSE
- AND
- Positive tonsil biopsy

3.3 Suspect Case
- Progressive neuropsychiatric disorder of duration >6 months, where routine investigations do not suggest an alternative diagnosis and there is no evidence of iatrogenic exposure or evidence of a genetic form of TSE
- AND
- Four out of five from Section 5.2
- AND
Electroencephalography (EEG) does not show typical appearance of sporadic CJD: generalized triphasic periodic complexes at approximately one per second; or no EEG performed

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
The following will constitute a confirmed case of Variant Creutzfeldt-Jakob disease:
- Spongiform change and extensive prion protein (PrP) deposition with florid plaques, throughout the cerebrum and cerebellum

4.2 Approved/Validated Tests
- Immunocytochemistry (in situ or PET blot variants): confirmatory (if positive)
- Electron microscopy for scrapie-associated fibrils (SAF): confirmatory (if positive)
- PrP Western blot: confirmatory (if positive)
- Histopathology to demonstrate spongiform encephalopathy in cerebral and/or cerebellar cortex and/or subcortical grey matter: supportive (if positive)
- PRNP gene sequencing: supportive (if homozygous Met/Met at codon 129)
- CSF 14-3-3 Western blot: supportive (if positive)

4.3 Indications and Limitations
- Histopathologic evidence of spongiform change is no longer considered sufficient for diagnostic confirmation of TSE.
- All known clinical cases of vCJD have been homozygous Met/Met at codon 129 of the PRNP gene.
- Because of problems with diagnostic sensitivity, the role of CSF 14-3-3 assay in diagnosis of vCJD has not yet been formalized.
- The EEG has been described as “typical” in a small number (fewer than 1%) of vCJD cases.

5.0 Clinical Evidence

5.1
A Progressive neuropsychiatric disorder
B Duration of illness > 6 months
C Routine investigations do not suggest an alternative diagnosis
D No history of potential iatrogenic exposure
E No evidence of a familial form of TSE

5.2
A Early psychiatric symptoms (e.g., depression, anxiety, apathy, withdrawal, delusions)
B Persistent painful sensory symptoms. This includes frank pain and/or dysesthesia
C Ataxia
D Myoclonus or chorea or dystonia
E Dementia

5.3
A EEG does not show the typical appearance of sporadic CJD: generalized bilateral or unilateral triphasic periodic complexes at approximately one per second, lasting continuously for at least 10 seconds; or no EEG performed
B MRI brain scan shows bilateral symmetrical pulvinar high signal - relative to the signal intensity of other deep gray-matter nuclei and cortical gray matter

5.4
A Positive tonsil biopsy
A clinical consultation is necessary for diagnosis

6.0 ICD Code(s)
   ICD 10 Code A81.0

7.0 Comments

8.0 References
   • Ministry of Health and Long-Term Care, Public Health Division. iPHIS manual. Toronto, ON: Queen’s Printer for Ontario; 2005.

Kuru

While most neurologic features correspond to those of CJD with plaques, Kuru should be diagnosed only in members of the Fore population in Papua New Guinea.

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Trichinosis
Trichinosis

1.0 Provincial Reporting
   Confirmed and probable cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

3.1 Confirmed Case
   Laboratory confirmation of infection with clinically compatible signs and symptoms:
   • Demonstration of *Trichinella spiralis* in a muscle biopsy
   OR
   • Positive serology

3.2 Probable Case
   Clinically compatible signs and symptoms in a person with an epidemiologic link to a
   laboratory-confirmed case or to a confirmed food source (e.g., meat known to
   contain *Trichinella* larvae)

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
   Any of the following will constitute a confirmed case of Trichinosis:
   • Demonstration of *Trichinella* larvae in tissue obtained by muscle biopsy
   OR
   • Positive serologic test for *Trichinella*

4.2 Approved/Validated Tests
   • Parasitological tests (i.e., smear from infected meat).
   • Microscopic examination of muscle biopsy pressed between 2 glass plates for
     *Trichinella* larvae
   • Microscopic examination of enzyme digested biopsy material for *Trichinella*
     larvae
   • Serological tests (i.e., complement fixation [CF])

4.3 Indications and Limitations
   • Presence of larvae in biopsies indicates definitive evidence of infection but
     microscopy is time consuming, especially in a low infection, and a negative result
     is not conclusive.
   • Only serum samples are suitable for serology

5.0 Clinical Evidence
   A disease caused by ingestion of *Trichinella* larvae. The disease has variable clinical
   manifestations. Common signs and symptoms among symptomatic persons include
   eosinophilia, fever, myalgia, and periorbital edema.
6.0 ICD Code(s)
ICD 10 Code B75

7.0 Comments
N/A

8.0 References

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Tuberculosis
1.0 Provincial Reporting
   Confirmed and suspect cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

3.1 Confirmed case
   • Isolation by culture from an appropriate clinical specimen (e.g., sputum, tissue).
   OR
   • In the absence of bacteriological proof, cases clinically compatible with active tuberculosis that have:
     i. Radiological changes compatible with active tuberculosis
     AND
     ii. Histopathologic or post-mortem evidence of active tuberculosis
     OR
     iii. Response to anti-tuberculous treatment

3.2 Suspect case
   Signs and symptoms compatible with active disease
   AND
   • Radiological findings suggestive of active disease
   OR
   • Demonstration of acid-fast bacillus (AFB) in clinical specimen
   OR
   • Detection of MTB complex by nucleic acid amplification test (NAT)
   OR
   • Histopathology suggestive of MTB disease

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
   Any of the following will constitute a confirmed case of Tuberculosis:
   • Positive culture of MTB complex (M. tuberculosis, M. tuberculosis subsp. Canetti, M. africanum, M. caprae, M microti, M. pinnipedi, or M. bovis, excluding BCG strain)

4.2 Approved/Validated Tests
   • Standard culture for MTB complex
   • Biochemical tests to differentiate between M. bovis and M. bovis BCG
   • AFB smear
   • NAT for MTB complex
4.3 Indications and Limitations

- Direct NAT is used for smear positive and smear negative respiratory specimens. However, a negative NAT result does not rule out MTB complex.
- Direct NAT for MTB may be useful in extrapulmonary TB but it is not approved for this purpose.
- Direct NAT for MTB has the potential for false positive results; therefore direct NAT positive results should be confirmed by culture when possible.

5.0 Clinical Evidence

- Clinically compatible signs and symptoms of active tuberculosis include but are not limited to cough, chest pain, fevers, night sweats, and weight loss. Active extrapulmonary tuberculosis (e.g., meningeal, bone, kidney, peripheral lymph nodes) consists of signs or symptoms referable to the extrapulmonary organ involved, and histopathologic or post-mortem evidence of active tuberculosis.
- MTB complex comprises *M. tuberculosis*, including *M. tuberculosis subsp canetti*, *M. bovis* (including BCG strain, though this strain is not included in the case definition of tuberculosis), *M. africanum*, *M. caprae*, *M. microti*, and *M. pinnipedii*). New species may be added with the progress of scientific development in the field.

6.0 ICD Code(s)

**ICD-10 Code(s)**

**Respiratory tuberculosis**

i. ICD 10 Code A15.0 Tuberculosis of Lung
ii. ICD 10 Code A15.4 Tuberculosis of Intrathoracic Lymph Nodes
iii. ICD 10 Code A15.5 Tuberculosis of Larynx, Trachea and Bronchus
iv. ICD 10 Code A15.6 Tuberculous Pleurisy
v. ICD 10 Code A15.7 Primary Respiratory Tuberculosis
vi. ICD 10 Code A15.8 Other Respiratory Tuberculosis
vii. ICD 10 Code A15.9 Respiratory Tuberculosis Unspecified

**Tuberculosis of nervous system**

i. ICD 10 Code 17.0 Tuberculous Meningitis
ii. ICD 10 Code 17.1 Meningeal Tuberculoma
iii. ICD 10 Code 17.8 Other Tuberculosis of Nervous System
iv. ICD 10 Code 17.9 Tuberculosis of Nervous System, Unspecified

**Tuberculosis of other organs**

i. ICD 10 Code 18.0 Tuberculosis of Bones and Joints
ii. ICD 10 Code 18.1 Tuberculosis of Genitourinary System
iii. ICD 10 Code 18.2 Tuberculosis Peripheral Lymphadenopathy
iv. ICD 10 Code 18.3 Tuberculosis of Intestines, Peritoneum and Mesenteric Lymph Nodes
v. ICD 10 Code 18.4 Tuberculosis of Skin and Subcutaneous Tissue
vi. ICD 10 Code 18.5 Tuberculosis of Eye
vii. ICD 10 Code 18.6 Tuberculosis of Ear
viii. ICD 10 Code 18.7 Tuberculosis of Adrenal Glands
ix. ICD 10 Code 18.8 Tuberculosis of Other Specified Organs
x. ICD 10 Code 19.0 Acute Miliary Tuberculosis of a Single Specified Site

**Miliary tuberculosis**

i. ICD 10 Code 19.1 Acute Miliary Tuberculosis of Multiple Sites
ii. ICD 10 Code 19.2 Acute Miliary Tuberculosis, Unspecified
iii. ICD 10 Code 19.8 Other Miliary Tuberculosis
iv. ICD 10 Code 19.9 Miliary Tuberculosis, Unspecified

7.0 Comments
A case should not be counted twice within any consecutive 12-month period, unless a second genotype is detected.

Confirmed cases must fall into one of the following staging categories:

1) New Active Case
A confirmed case who has no documented evidence or history of previously active tuberculosis.

2) Reactivated Case
A confirmed case with documented evidence or history of previously active tuberculosis which became inactive*. If genotyping on the new strain confirms it to be different from the original strain, then this would be considered a 'new active case'.

*Inactive tuberculosis
- Two chest radiographs with stable appearance documented over an interval of 3 months and three negative sputum smears and cultures.
  OR
- In the absence of cultures, chest radiographs are stable for a minimum of six months and the individual has been asymptomatic for six months after completion of treatment;
  OR
- Cultures for MTB complex are negative at the completion of treatment and for six months thereafter.

8.0 References

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Tularemia
Tularemia

1.0 Provincial Surveillance
Confirmed and probable cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed Case
Laboratory confirmation of infection with clinically compatible signs and symptoms:
• Isolation of \(Francisella tularensis\) from an appropriate clinical specimen (e.g., blood, sputum)
  OR
• A significant (i.e., fourfold or greater) rise in serum antibody titre to \(F. tularensis\) antigen

3.2 Probable Case
Laboratory confirmation of infection with clinically compatible signs and symptoms:
• Detection of \(F. tularensis\) in a clinical specimen (e.g., lymph node aspirates, ulcer exudate) by fluorescent assay
  OR
• Detection of \(F. tularensis\) nucleic acid
  OR
• \(\geq 1:128\) microagglutination titre or \(\geq 1:160\) tube agglutination in a single serum specimen

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
Any of the following will constitute a confirmed case of Tularemia:
• A significant (i.e., fourfold or greater) rise in \(F. tularensis\) antibody titre
• Positive \(F. tularensis\) culture with confirmation (See Section 4.2)

4.2 Approved/Validated Tests
• \(F. tularensis\) serology
• Standard culture for \(F. tularensis\)
• Direct fluorescent antibody (DFA) for \(F. tularensis\) cellular antigens
• \(F. tularensis\) NAT
• Slide agglutination for \(F. tularensis\)
• Confirmatory methods include DFA, nucleic acid amplification test (NAT), and slide agglutination

4.3 Indications and Limitations
• Additional tests may include DFA and NAT for \(F. tularensis\) based on availability
5.0 Clinical Evidence

- Clinically compatible signs and symptoms are characterized by several distinct forms, including the following: ulceroglandular—cutaneous ulcer with regional lymphadenopathy; glandular—regional lymphadenopathy with no ulcer; oculoglandular—conjunctivitis with preauricular lymphadenopathy; oropharyngeal—stomatitis or pharyngitis, or tonsillitis and cervical lymphadenopathy; intestinal—intestinal pain, vomiting, and diarrhea; pneumonic—primary pleuropulmonary disease; typhoidal—febrile illness without early localizing signs and symptoms.
- Clinical diagnosis is supported by evidence or history of a tick or deerfly bite, exposure to the tissues of a mammalian host of *Francisella tularensis*, or exposure to potentially contaminated water.

6.0 ICD Code(s)

ICD 10 Code A21

7.0 Comments

N/A

8.0 References


Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Typhoid Fever
Typhoid Fever

1.0 Provincial Reporting
   Confirmed and probable cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification:

3.1 Confirmed Case
   Laboratory confirmation of infection with or without clinically compatible signs and symptoms:
   - Isolation of *Salmonella* Typhi from an appropriate clinical specimen (e.g., sterile site, deep tissue wound, stool, vomit, urine)

3.2 Probable Case
   Clinically compatible signs and symptoms in a person with an epidemiologic link to a laboratory-confirmed case

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
   The following will constitute a confirmed case of Typhoid fever:
   - Positive *S. Typhi* culture

4.2 Approved/Validated Tests
   - Standard culture for *S. Typhi*
   - Serotyping for O, H and Vi antigens

4.3 Indications and Limitations
   - Further strain characterization is indicated for public health purposes

5.0 Clinical Evidence
   Clinically compatible signs and symptoms are characterized by insidious onset of sustained fever, headache, malaise, anorexia, relative bradycardia, constipation, or diarrhea.

6.0 ICD Code(s)
   ICD 10 Code A01.0

7.0 Comments
   N/A

8.0 References

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Verotoxin-producing *E. coli* infection indicator conditions, including Haemolytic Uraemic Syndrome (HUS)
Verotoxin-producing *E. coli* infection indicator conditions, including Haemolytic Uraemic Syndrome (HUS)

1.0 Provincial Reporting
   Confirmed and probable cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

3.1 Confirmed Case
   Laboratory confirmation of infection with or without clinically compatible signs and symptoms:
   - Isolation of Verotoxin producing *Escherichia coli* (VTEC) from an appropriate clinical specimen (e.g., stool, urine, blood)
   OR
   - Detection of verotoxin antigen or nucleic acid from an appropriate clinical specimen (e.g., stool, urine, blood)

3.2 Probable Case
   - Clinically compatible signs and symptoms in a person with an epidemiologic link to a laboratory-confirmed case
   OR
   - Haemolytic uraemic syndrome (HUS) diagnosed by a physician and not caused by defects in serum complement, chemotherapy, immunosuppressants in organ transplants, pregnancy, oral contraceptives, or known infections other than *Escherichia coli* (*E. coli*)

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
   Any of the following will constitute a confirmed case of Verotoxigenic *E. coli* infection:
   - Positive VTEC culture
   - Detection of verotoxin

4.2 Approved/Validated Tests
   - Standard culture for VTEC with confirmation
   - EIA for VTEC detection
   - Serotyping of O and H antigens

4.3 Indications and Limitations
   - Sorbitol MacConkey agar is reliable for detecting most isolates of VTEC serotype O157:H7 and H- because these serovars are sorbitol-negative. It is not reliable for detecting other VTEC serotypes.
   - Serotyping is indicated to ensure identification of *E. coli* O157:H7 as well as non-O157 serotypes that are associated with serious disease especially serogroups O26, O45, O103, O111, O121, and O145.
• Further strain characterization, including phage-typing and molecular typing, is indicated for public health purposes

5.0 Clinical Evidence
Clinically compatible signs and symptoms are characterized by diarrhea (often bloody) and abdominal cramps. Fever is often absent. Illness may be complicated by Hemolytic Uremic Syndrome (HUS), thrombocytopenia purpura (TTP) or pulmonary edema. Asymptomatic infections may also occur and the organism may cause extra-intestinal infections. Clinical evidence of HUS includes: uraemia, thrombocytopenia, acute renal failure, and central nervous system signs and symptoms. A diarrheal prodrome usually occurs in 86 to 95% of patients and of those with diarrhea, 60 to 75% of the diarrhea is bloody.

6.0 ICD Code(s)

6.1 ICD-10 Code(s)
A04.3 Enterohaemorrhagic E. coli infection (includes VTEC)

6.2 ICD-9/ICD-9CM Code(s)
008.04 Enterohaemorrhagic E. coli infection (includes VTEC)

7.0 Comments
• O157 strains that do not include the H7 motility factor nonetheless meet case definition
• Non-O157 VTEC strains also meet case definition
• Although VTEC has been renamed to Shiga toxin producing E. coli, this is not reflected in Ontario’s Reportable Diseases Regulation

8.0 References
• Ministry of Health and Long-Term Care, Public Health Division. iPHIS manual. Toronto, ON: Queen’s Printer for Ontario; 2005.

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: West Nile Virus Illness
West Nile Virus Illness

1.0 Provincial Reporting
   Confirmed and probable cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

3.1 Confirmed WN virus Neurological Syndrome (WNNS) Case
   Clinical criteria AND AT LEAST ONE of the confirmed case diagnostic test criteria
   (See Section 4.1.1)

3.2 Probable WNNS Case
   Clinical criteria AND AT LEAST ONE of the probable case diagnostic test criteria
   (See Section 4.1.2)

3.3 Suspect WNNS Case
   Clinical criteria IN THE ABSENCE OF OR PENDING diagnostic test criteria (See
   Section 4.1.1) AND IN THE ABSENCE of any other obvious cause.

3.4 Confirmed WN virus Non-Neurological Syndrome (WN Non-NS) Case
   Clinical criteria AND AT LEAST ONE of the confirmed case diagnostic test criteria
   (See Section 4.1.1)

3.5 Probable WN Non-NS Case
   Clinical criteria AND AT LEAST ONE of the probable case diagnostic test criteria
   (See Section 4.1.2)

3.6 Suspect WN Non-NS Case
   Clinical criteria IN THE ABSENCE OF OR PENDING diagnostic test criteria (See
   Section 4.1.1) AND IN THE ABSENCE of any other obvious cause.

3.7 Confirmed WN virus Asymptomatic Infection (WNAI) Case
   Confirmed case diagnostic test criteria (See Section 4.1.1) IN THE ABSENCE of
   clinical criteria

3.8 Probable WNAI Case
   Probable case diagnostic test criteria (See Section 4.1.2) IN THE ABSENCE of
   clinical criteria

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
   Any of the following will constitute a confirmed case of WN virus:
   • Positive West Nile virus culture
   • Positive for West Nile virus antigen in tissue
   • Positive for West Nile virus-specific nucleic acid
• Positive for West Nile virus-specific antibody
• Diagnostic rise in West Nile virus antibody titre

4.1.1 Confirmed Case Diagnostic Test Criteria
Health units should use the Confirmed Case Diagnostic Test Criteria to confirm initial cases (locally acquired) in their area each year; for subsequent cases, health units may use the Probable Case Diagnostic Test Criteria to classify cases in their area as “confirmed”, for the purposes of health unit surveillance. Throughout the remainder of the transmission season health units may wish to document Plaque Reduction Neutralization Test (PRNT) antibody titres to West Nile virus in a proportion of cases, to be determined by that health unit, in order to rule-out the possibility of concurrent activity by other flaviviruses.

AT LEAST ONE of the following:
• A significant (i.e., fourfold or greater) rise in WN virus neutralizing antibody titres (using a PRNT or other kind of neutralization assay) in paired acute and convalescent sera, or cerebrospinal fluid (CSF)
  OR
• Isolation of WN virus from, or demonstration of WN virus antigen or WN virus-specific genomic sequences in tissue, blood, CSF or other body fluids
  OR
• Demonstration of flavivirus antibodies in a single serum or CSF sample using a WN virus Immunoglobulin M (IgM) enzyme-linked immuno-sorbent assay (ELISA)\(^2,3\), confirmed by the detection of WN virus specific antibodies using a PRNT (acute or convalescent serum sample)
  OR
• A significant (i.e., fourfold or greater) rise in flavivirus haemagglutination inhibition (HI) titres in paired acute and convalescent sera or demonstration of a seroconversion using a WN virus Immunoglobulin G (IgG) ELISA\(^2,3\) AND the detection of WN specific antibodies using a PRNT (acute or convalescent serum sample).

4.1.2 Probable Case Diagnostic Test Criteria

AT LEAST ONE of the following:
• Detection of flavivirus antibodies in a single serum or CSF sample using a WN virus IgM ELISA\(^2\) without confirmatory neutralization serology (e.g., PRNT)
  OR
• A significant (i.e., fourfold or greater) rise in flavivirus HI titres in paired acute and convalescent sera or demonstration of a seroconversion using a WN virus IgG ELISA\(^2\)
  OR
• A titre of \(\geq 1:320\) in a single WN virus HI test, or an elevated titre in a WN virus IgG ELISA, with a confirmatory PRNT result
  [Note: A confirmatory PRNT or other kind of neutralization assay is not required in a health jurisdiction/authority where cases have already been confirmed in the current year]
  OR
• Demonstration of Japanese encephalitis (JE) serocomplex-specific genomic sequences in blood by nucleic acid amplification test (NAT) screening on donor blood, by Blood Operators in Canada.

4.2 Approved/Validated Tests

• Standard culture for WN virus
• NAT for WN virus
• WN virus antigen detection in tissue
• WN virus IgM antibody detection
• WN virus HI, PRNT and/or IgG/IgM immunoassays

4.3 Indications and Limitations

• Sensitivity of NAT testing is approximately 50% when used on plasma / serum samples collected less than 8 days after symptoms are detected.
• Individuals infected with WN virus display a low level of viremia (on average several thousand genome copies) for approximately one week after symptom onset. The use of NAT testing on acute serum / plasma samples can complement IgM testing when used together to assay "early" acute specimens.

5.0 Clinical Evidence

5.1 West Nile virus Neurological Syndrome (WNNS)

Clinical Criteria:

• History of exposure in an area where WN virus (WNV) activity is occurring 4
  OR
• History of exposure to an alternative mode of transmission 5
  AND
• Fever

AND

NEW ONSET OF AT LEAST ONE of the following:

• Encephalitis (acute signs of central or peripheral neurologic dysfunction), OR
• Viral meningitis (pleocytosis and signs of infection e.g., headache, nuchal rigidity) OR
• Acute flaccid paralysis (e.g., poliomyelitis-like syndrome or Guillain-Barré-like syndrome) 6
  OR
• Movement disorders (e.g., tremor, myoclonus) OR
• Parkinsonism or Parkinsonia-like conditions (e.g., cogwheel rigidity, bradykinesia, postural instability) OR
• Other neurological syndromes 7

5.2 West Nile virus Non-Neurological Syndrome (WN Non-NS)

Clinical Criteria:

• History of exposure in an area where WN virus (WNV) activity is occurring 4
• History of exposure to an alternative mode of transmission

AND AT LEAST TWO of the following:

• fever
• myalgia
• arthralgia
• headache
• fatigue
• lymphadenopathy
• maculopapular rash

6.0 ICD Code(s)
  ICD 10 Code A923

7.0 Comments

1 This category includes asymptomatic blood donors whose blood is screened using a Nucleic Acid Amplification Test (NAT), by Blood Operators (i.e. Canadian Blood Services or Hema-Quebec) and is subsequently brought to the attention of public health officials. The NAT that is currently used by Blood Operators in Canada is designed to detect all viruses in the Japanese encephalitis (JE) serocomplex. The JE serocomplex includes WN virus and nine other viruses, although from this group only WN virus and St Louis encephalitis virus are currently endemic to parts of North America. Blood Operators in Canada perform a supplementary WN virus-specific NAT and antibody (IgM and IgG) testing following any positive donor screen test result.

2 Both CDC and commercial IgM / IgG ELISAs are now available for front line serological testing. Refer to appropriate assay procedures and kit inserts for the interpretation of test results.

3 Early in infection the immune system generates antibodies that bind relatively weakly to viral antigen (low avidity). As the infection proceeds, an increasing percentage of newly generated IgG antibody displays higher binding affinity to virus antigen and thus avidity also rises (Note: avidity is usually measured based upon the ability of IgG to dissociate from antigen preparations after incubation with a solution of urea). As long as high avidity IgG is not yet detected in the serum it can be assumed that the individual was exposed to the viral agent during a recent exposure. With respect to WNV infection it has not been precisely determined when (i.e. post-exposure) high avidity antibodies reach levels in serum that can be accurately detected by serological assays (there may be significant variation depending on the individual). However, it has been shown that > 95% of sera collected from individuals exposed to WNV 6-8 months previously will have IgG antibodies that bind strongly to viral antigen and will give high avidity scores using both indirect fluorescent antibody (IFA) and ELISA testing formats. Note: Avidity testing will not replace confirmatory neutralization testing, non-WNV flavivirus IgG antibody (e.g., dengue, St Louis encephalitis [SLE]) may bind to the antigen preparations used in avidity assays.

Note: WNV IgM antibody may persist for more than a year and the demonstration of IgM antibodies in a patient’s serum, particularly in residents of endemic areas, may not be diagnostic of an acute WN viral infection. Seroconversion (by HI, IgG ELISA or PRNT assays) demonstrates a current WNV infection. Therefore, the collection of acute and convalescent sera for serologic analysis is particularly important to rule out diagnostic
misinterpretation early in the WNV season (e.g. May, June) and to identify initial cases in a specific jurisdiction. However, it should be noted that seroconversions may not always be documented due to timing of acute sample collection (i.e. titres in acute sera may have already peaked). If static titres are observed in acute and convalescent paired sera, it is still possible the case may represent a recent infection. To help resolve this, the use of IgG avidity testing may be considered to distinguish between current and past infection. The presence of both IgM antibody and low avidity IgG in a patient’s convalescent serum sample are consistent with current cases of viral associated illness. However test results that show the presence of IgM and high avidity IgG are indicative of exposures that have occurred in the previous season. Immunocompromised individuals may not be able to mount an immune response necessary for a serological diagnosis. West Nile virus diagnostic test criteria for these individuals should be discussed with a medical microbiologist.

4 History of exposure when and where West Nile virus transmission is present, or could be present, or history of travel to an area with confirmed WNV activity in mosquitoes, birds, horses, other mammals or humans.

5 Alternative modes of transmission, identified to date, include: laboratory-acquired; in utero; receipt of blood components; organ/tissue transplant; and, possibly via breast milk.

6 A person with WNV-associated acute flaccid paralysis may present with or without fever or mental status changes. Altered mental status could range from confusion to coma with or without additional signs of brain dysfunction (e.g. paralysis, cranial nerve palsies, sensory deficits, abnormal reflexes, generalized convulsions and abnormal movements). Acute flaccid paralysis with respiratory failure is also a problem.

Note: A significant feature of West Nile virus neurological illness may be marked muscle weakness that is more frequently unilateral, but could be bilateral. WNV should be considered in the differential diagnosis of all suspected cases of acute flaccid paralysis with or without sensory deficit. WNV- associated weakness typically affects one or more limbs (sometimes affecting one limb only). Muscle weakness may be the sole presenting feature of WNV illness (in the absence of other neurologic features) or may develop in the setting of fever, altered reflexes, meningitis or encephalitis. Weakness typically develops early in the course of clinical infection. Patients should be carefully monitored for evolving weakness and in particular for acute neuromuscular respiratory failure, which is a severe manifestation associated with high morbidity and mortality. For the purpose of WNV Neurological Syndrome Classification, muscle weakness is characterized by severe (polio-like), non-transient and prolonged symptoms. Electromyography (EMG) and lumbar puncture should be performed to differentiate WNV paralysis from the acute demyelinating polyneuropathy (Guillain-Barré syndrome). Lymphocytic pleocytosis (an increase in WBC with a predominance of lymphocytes in the cerebrospinal fluid [CSF]) is commonly seen in acute flaccid paralysis due to WNV.

Other emerging clinical syndromes, identified in 2002 included, but were not limited to the following: myelopathy, rhabdomyolysis (acute destruction of skeletal muscle cells), peripheral neuropathy; polyradiculoneuropathy; optic neuritis; and acute demyelinating encephalomyelitis. Ophthalmologic conditions including chorioretinitis and vitritis were also reported. Facial weakness was also reported. Myocarditis, pancreatitis and fulminant hepatitis have not been identified in North America, but were reported in outbreaks of WNV in South Africa. “Aseptic” meningitis without encephalitis or flaccid paralysis occurring in August and September when WNV is circulating may be due to
non-polio enteroviruses circulating at the same time. This should be considered in the
differential diagnosis.

It is possible that other clinical signs and symptoms could be identified that have not
been listed and may accompany probable case or confirmed case diagnostic test
criteria. For example, gastrointestinal (GI) symptoms were seen in many WNV patients
in Canada and the USA in 2003 and 2004.

Muscle weakness may be a presenting feature of WNV illness. For the purpose of WNV
Non-Neurological Syndrome classification, muscle weakness or myalgia (muscle aches
and pains) is characterized by mild, transient, unlikely prolonged symptoms that are not
caused by motor neuropathy.

8.0 References

- Ministry of Health and Long-Term Care, Public Health Division. iPHIS manual.
  Toronto, ON: Queen’s Printer for Ontario; 2005.
- Nationally Notifiable Diseases Case Definitions with Canadian Public Health
  Laboratory Network (CPHLN) and Epidemiologic Group Draft Edits. March 2007.
  Based on case definitions as written in the: Health Canada. Case definitions for
diseases under national surveillance. Can Commun Dis Rep. 2000; 26 Suppl 3:i-
- Ministry of Health and Long-Term Care. West Nile Virus Preparedness and

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Yellow Fever
Yellow Fever

1.0 Provincial Reporting
Confirmed and probable cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed case
Laboratory confirmation of infection with clinically compatible signs and symptoms:
• Isolation of Yellow Fever virus
  OR
• Detection of Yellow Fever viral antigen or nucleic acid in body fluids or tissue
  OR
• A significant (i.e., fourfold or greater) rise in antibody titre to the yellow fever virus
  or a single elevated yellow fever IgM antibody titre in the absence of yellow fever
  vaccination within the previous 2 months and cross-reactive serological reactions
  to other flaviviruses have been excluded.

3.2 Probable case
Clinically compatible signs and symptoms with a stable elevated antibody titre\(^1\) to
Yellow Fever virus with no other known cause. Cross-reactive serologic reactions to
other flaviviruses must be excluded, and the patient must not have a history of yellow
fever vaccination.

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
Any of the following will constitute a confirmed case of Yellow Fever:
• Positive Yellow Fever virus culture
• Positive nucleic acid amplification test (NAT) for Yellow Fever
• Positive for Yellow Fever antigen
• Positive for Yellow Fever antibody in the absence of yellow fever vaccination
  within the previous 2 months

4.2 Approved/Validated Tests
• Standard culture for Yellow Fever virus
• Antibody detection using haemagglutination inhibition or enzyme immunoassay
  (EIA)
• NAT for Yellow Fever virus nucleic acid

4.3 Indications and Limitations
• N/A

5.0 Clinical Evidence
Clinically compatible signs and symptoms are characterized by acute onset and
constitutional symptoms followed by a brief remission and a recurrence of fever, hepatitis,
albuminuria, and symptoms and, in some instances, renal failure, shock, and generalized hemorrhages.

6.0 ICD Code(s)
   ICD-10 Code A95

7.0 Comments
   A stable elevated antibody titre refers to the following: ≥ 32 by complement fixation, ≥ 256 by immunofluorescence assay, ≥ 320 by haemagglutination inhibition, ≥ 160 by neutralization, or a positive serologic result by immunoglobulin M-capture enzyme immunoassay.

8.0 References

Date of Last Revision: November 2008
Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Yersiniosis
Yersiniosis

1.0 Provincial Reporting
   Confirmed and probable cases of disease

2.0 Type of Surveillance
   Case-by-case

3.0 Case Classification

3.1 Confirmed Case
   Laboratory confirmation of infection with or without clinically compatible signs and symptoms:
   - Isolation of *Yersinia* spp. (except pestis) from an appropriate clinical specimen (e.g., stool, blood, urine)
   OR
   - A positive serological test for *Yersinia* spp.

3.2 Probable Case
   Clinically compatible signs and symptoms in a person with an epidemiologic link to a laboratory-confirmed case

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
   The following will constitute a confirmed case of Yersiniosis:
   - Positive culture for *Yersinia* spp.

4.2 Approved/Validated Tests
   - Standard culture for *Yersinia* spp.
   - Biotyping and serotyping of O antigen

4.3 Indications and Limitations
   - Commercial nucleic acid amplification test (NAT) assays for *Yersinia* spp. are presently not available
   - Further strain characterization is indicated for public health purposes
   - Serology titres $\geq 1:50$ to $\leq 1:200$ may be due to non-specific cross reactions or past infection

5.0 Clinical Evidence
   Clinically compatible signs and symptoms are characterized by diarrhea, abdominal pain, malaise, fever, nausea, and/or vomiting

6.0 ICD Code(s)
   A04.6 Yersiniosis

7.0 Comments
   N/A

Infectious Diseases Protocol, 2009 – Appendix B
8.0 References


Date of Last Revision: November 2008
Preamble
The Ontario Public Health Standards (OPHS) are published by the Minister of Health and Long-Term Care under the authority of the Health Protection and Promotion Act (HPPA) to specify the mandatory health programs and services provided by boards of health. Protocols are program and topic specific documents which provide direction on how boards of health must operationalize specific requirement(s) identified within the OPHS. They are an important mechanism by which greater standardization is achieved in the province-wide implementation of public health programs.

Protocols identify the minimum expectations for public health programs and services. Boards of health have the authority to develop programs and services in excess of minimum requirements where required to address local needs. Boards of health are accountable for implementing the standards including those protocols that are incorporated into the standards.

Purpose
The purpose of this protocol is to provide direction to boards of health with respect to the prevention, detection, and management of infectious disease outbreaks of public health importance, including but not limited to respiratory and gastroenteritis outbreaks in institutional settings and facilities such as hospitals, long-term care homes, day nurseries and other institutional/facility settings.

Reference to the Standards
The table below identifies the OPHS standard and requirements to which this protocol relates:

<table>
<thead>
<tr>
<th>Standard</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infectious Diseases Prevention and Control</td>
<td>Requirement #7: The board of health shall ensure that the medical officer of health or designate is available on a 24/7 basis to receive reports of and respond to infectious diseases of public health importance in accordance with the Health Protection and Promotion Act; the Mandatory Blood Testing Act; the Exposure of Emergency Service Workers to Infectious Diseases Protocol, 2008 (or as current); the Infectious Diseases Protocol, 2008 (or as current); the Institutional/Facility Outbreak Prevention and Control Protocol, 2008 (or as current); and the Public Health Emergency Preparedness Protocol, 2008 (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #8: The board of health shall provide public health management of cases and outbreaks to minimize the public health risk in accordance with the Infectious Diseases Protocol, 2008 (or as current); the Institutional/Facility Outbreak Prevention and Control Protocol, 2008 (or as current); and provincial and national protocols on best practices.</td>
</tr>
</tbody>
</table>

Operational Roles and Responsibilities
1) General
a) The board of health shall develop and maintain written policies and procedures in preparation for responding to infectious disease outbreaks in institutional/facility settings, including but not limited to respiratory and gastroenteritis outbreaks. This shall include coordination and assistance in the management of such outbreaks in single or multiple institutions/facilities.
Institutional/Facility Outbreak Prevention and Control Protocol

b) The board of health shall assist institutions/facilities with outbreak management preparation, addressing the following components at a minimum:
   i) Establishing a surveillance mechanism for determining baseline data for infectious diseases;
   ii) Early identification of outbreaks;
   iii) Education for preventing and managing an outbreak;
   iv) Outbreak management measures;
   v) Communication within and outside institutions;
   vi) Communication with regulatory bodies and the public when appropriate;
   vii) Interagency cooperation and timely information sharing with all who need to know about the occurrence of an outbreak; and
   viii) Exclusion policy/enforcement.

c) The board of health shall apply current communicable disease policies and procedures as outlined in the *Infectious Diseases Protocol, 2008* (or as current).

d) The board of health shall assist institutions/facilities in the review and revision, as needed, of their existing infection prevention and control policies and procedures and shall provide public health recommendations for outbreak prevention and management.

e) The board of health shall assist institutions in establishing and reviewing written outbreak response plans at a minimum of every two years.

2) Detection, investigation, and identification

a) The board of health shall work with institutions/facilities in developing a mutually agreed-upon early identification surveillance system that includes establishing baseline data in order to accurately assess a probable or confirmed outbreak.

b) The board of health shall assist institutions/facilities in developing an effective communication plan between the board of health and institutions/facilities to receive outbreak notification and outbreak information from institutions.

c) The board of health shall provide current epidemiological information on local reportable infectious disease occurrences to institutions/facilities, as it becomes available, to assist in the prevention, control, and management of outbreaks.

d) The board of health shall inform institutions/facilities regarding their duty to report to the medical officer of health upon forming the opinion that a respiratory or gastroenteritis outbreak exists that is a reportable disease under the HPPA.

e) The board of health shall inform institutions/facilities that they should report to the medical officer of health all infectious diseases of public health importance. Note: there is no duty to report infectious diseases unless they are reportable diseases under the HPPA.

For further information on a) to e), please refer to the most current version of *A Guide to the Control of Respiratory Infection Outbreaks in Long-Term Care Homes, 2004* and *A Guide to the Control of Enteric Disease Outbreaks in Health Care Facilities, 1993* or as current.

3) Notification: reporting source to boards of health

a) The board of health shall have an on-call system for receiving and responding to notifications of infectious disease outbreaks of public health importance, including but not limited to respiratory and/or gastroenteritis outbreaks, on a 24 hours per day, 7 days per week (24/7) basis.

b) The board of health shall provide assistance regarding infectious disease outbreak assessment within 24 hours of receiving notification of an outbreak. Refer to the *Infectious Diseases Protocol, 2008* (or as current) for additional information.
c) The board of health shall obtain the epidemiological information necessary to assess, evaluate, and control the outbreak.

d) The board of health shall arrange for obtaining any environmental, clinical or other samples as appropriate to assess, evaluate, confirm and control an outbreak.

4) Management

a) The board of health shall assist institutions/facilities in the management of infectious disease outbreaks of public health importance, including but not limited to respiratory and gastroenteritis outbreaks. However, it is ultimately the responsibility of the institution/facility to manage the outbreak.

b) The board of health shall perform the following actions when assisting in the management of outbreaks:
   i) Assess the status of the outbreak;
   ii) Review and discuss line listings provided by the institution/facility, including populations at risk and number of cases;
   iii) Review and/or establish a case definition in collaboration with the institution/facility; utilize standardized case definitions from best-practice guidelines if available;
   iv) Determine the population at risk; and
   v) Assist in active case finding through consultation.

c) The board of health shall recommend and assist with the implementation of appropriate infection prevention and control practices, with a focus on routine practices and applicable/appropriate additional precautions as required.

d) The board of health shall assist as necessary in confirming the existence of an outbreak and with declaring an outbreak. An outbreak can be declared by the institution/facility or by the medical officer of health or designate.

e) The board of health shall participate in outbreak management team meetings with appropriate representatives from the institution/facility when appropriate.

f) The board of health shall assist institutions/facilities with developing and implementing a risk communications plan to address stakeholders affected by an outbreak.

g) The board of health shall monitor outbreaks on an ongoing basis and suggest modification(s) of outbreak control measures as required, including ongoing surveillance of populations at risk. For further direction regarding the surveillance of outbreaks please refer to the *Infectious Diseases Protocol, 2008* (or as current) and the *Population Health Assessment and Surveillance Protocol, 2008* (or as current).

h) The board of health shall declare whether an outbreak is over, in consultation with the institution/facility.
   i) The board of health shall use the most current available epidemiological data and best practices/guidance documents to determine when an outbreak can be declared over; and
   ii) The medical officer of health retains the final authority to determine if an outbreak is over.

i) The board of health shall review the response to outbreaks with institutions/facilities after they have been declared over. The board of health shall evaluate the management and impact of outbreaks and assist in formulating preventive measures going forward.

j) The board of health shall inspect institutions as follows:
   i) For respiratory outbreaks, the board of health shall assess and, where epidemiological evidence supports it, inspect and evaluate infection prevention and control practices at the institution:
      • If a legionella outbreak is suspected, collect environmental samples.
ii) For gastroenteritis outbreaks, the board of health shall assess the need for an additional inspection of food preparation and handling within the institution.
   • If meals are prepared in a food premises outside of the institution, the food premises shall be inspected by the board of health;
   • If meals are prepared in a food premises located outside the health unit where the outbreak has occurred, the board of health in which the premises is located shall be contacted and shall inspect the premises and report back to the originating board of health in a timely manner; and
   • In the case of an enteric disease outbreak, if it is suspected that the spread is primarily person-to-person, inspection of food preparation premises may not be required.

iii) For outbreaks other than respiratory or gastroenteritis, the board of health shall assess the benefit of inspection based on epidemiological and surveillance data.

k) The board of health shall respond to food safety and environmental issues in outbreak settings in accordance with the requirements of the Food Safety Protocol, 2008 (or as current) and the Risk Assessment and Inspection of Facilities Protocol, 2008 (or as current).

5) Data collection, reporting, and information transfer: boards of health to Ministry of Health and Long-Term Care and other stakeholders
   a) The board of health shall report outbreak data on reportable diseases to the Ministry of Health and Long-Term Care (the “ministry”) using the integrated Public Health Information System (iPHIS) or any other method specified by the ministry within one business day of receiving notification of an outbreak or of assessing that an outbreak is occurring but has not been reported by the institution/facility.

   b) The board of health shall update the outbreak file and enter data as required using iPHIS or any other method specified by the ministry.

   c) The board of health shall communicate as soon as possible with the ministry about any occurrences involving evidence of increased virulence based on unusual clinical presentation and/or the possibility of multi-jurisdiction involvement, or suspicion of a novel or emerging infectious disease as per national and or international health alerts. Associated data shall also be entered using iPHIS or any other method specified by the ministry.

   d) The board of health shall enter final summary outbreak data using iPHIS or any other method specified by the ministry no later than 15 business days after the outbreak is declared over.

   e) The board of health shall provide a final report to the institution/facility summarizing the outbreak and highlighting areas for improved/enhanced response activities in the future.

References
Preamble

The Ontario Public Health Standards (OPHS) are published by the Minister of Health and Long-Term Care under the authority of the Health Protection and Promotion Act (HPPA)\(^1\) to specify the mandatory health programs and services provided by boards of health. Protocols are program and topic specific documents which provide direction on how boards of health must operationalize specific requirement(s) identified within the OPHS. They are an important mechanism by which greater standardization is achieved in the province-wide implementation of public health programs.

Protocols identify the minimum expectations for public health programs and services. Boards of health have the authority to develop programs and services in excess of minimum requirements where required to address local needs. Boards of health are accountable for implementing the standards including those protocols that are incorporated into the standards.

Purpose

The purpose of this protocol is to provide direction to boards of health in regard to fulfilling the requirement of monitoring food affordability. Boards of health can use the costing information for program planning; to inform policy decisions; and to support and promote access to nutritious, safe, personally acceptable foods.

This protocol replaces the *Monitoring the Cost of a Nutritious Food Basket Protocol, 1998*.

A nutritious food basket is a survey tool that is a measure of the cost of basic healthy eating that represents current nutrition recommendations and average food purchasing patterns. Food costing can be used to monitor both affordability and accessibility of foods by relating the cost of the food basket to individual and household incomes.

This protocol is intended to contribute to the maintenance and improvement of the health and well-being of the population, including the reduction of health inequities. This protocol requires boards of health to consider the determinants of health to assist in identifying priority populations and use population health data and information to focus public health action. Implicit in this protocol are the principles of Partnership and Collaboration, Need, and Impact as outlined in the Foundations of the OPHS.

For more information on the background and design of the nutritious food basket and the interpretation of the nutritious food basket data, refer to the *Nutritious Food Basket Guidance Document, 2008* (or as current).

Reference to the Standards

The table below identifies the OPHS program standard and requirement to which this protocol relates.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic Disease</td>
<td>Requirement #2: The board of health shall monitor food affordability in accordance with the <em>Nutritious Food Basket Protocol, 2008</em> (or as current) and the <em>Population Health Assessment and Surveillance Protocol, 2008</em> (or as current).</td>
</tr>
</tbody>
</table>
Operational Roles and Responsibilities

1) Personnel
The board of health shall:

a) Assign a Registered Dietitian, employed by the board of health, to be responsible for the overall coordination of food costing. Note: boards of health without a Registered Dietitian on staff must contract the services of a Registered Dietitian.

b) Conduct in-store costing through board of health staff or designates who have the food knowledge and math skills to act as surveyors.

c) Have two surveyors conduct the costing of each store independently, on separate forms, on the same day, to avoid recording errors. For more information, refer to the Nutritious Food Basket Guidance Document, 2008 (or as current).

d) Have a Registered Dietitian conduct training for food surveyors. For more information on training, refer to the Nutritious Food Basket Guidance Document, 2008 (or as current).

2) Identification of grocery stores
The board of health shall:

a) Conduct food costing in a minimum of six grocery stores within its health unit catchment area. Exception: jurisdictions that have fewer than six grocery stores shall cost all available grocery stores.

b) Review its list of selected stores on an annual basis to consider whether different stores or any new major chains/groups or independents need to be included.

c) Divide its health unit into the planning areas customarily used for service delivery or planning purposes to achieve geographic representation.

d) In health units with both urban and rural areas, determine what proportion of the population lives in urban and rural areas and use this as a guide to determine the proportion of urban or rural stores to be selected.
   i) For the urban part of the health unit, follow the procedure outlined above; and
   ii) For the rural part of the health unit, choose stores within or outside communities that draw many rural residents for grocery shopping.

e) Choose grocery stores to cost in each of the planning areas selected.

f) Refer to the Nutritious Food Basket Guidance Document, 2008 (or as current) for more information on store selection procedures.

3) Data collection, reporting and information transfer
The board of health shall:

a) Cost the food items that comprise a nutritious food basket, as deemed by the Ministry of Health Promotion, annually during the month of May, or at a frequency determined by the Ministry of Health Promotion. For the list of food items and food costing forms, refer to the Nutritious Food Basket Guidance Document, 2008 (or as current).

b) Survey selected stores within a two-week period.

c) Complete the costing in any given store in a single visit.

d) Review all food costing forms to ensure purchase units are correct and enter the information into the cost averaging spreadsheet.

e) Submit electronic results from the food basket costing to the Senior Nutritionist at the Ministry of Health Promotion by July 1 of each year.
Glossary

**Chain:** An operator of four or more retail stores; stores are also called “corporate stores.”

**Designate:** Includes students and individuals contracted by the board of health or volunteers with the board of health.

**Food affordability:** Food affordability is the economic sufficiency to procure an adequate diet that meets nutrient needs with safe, acceptable foods. Food affordability is heavily influenced by market forces, and impacts food accessibility and food security.

**Food knowledge:** Basic knowledge and experience in food selection, preparation and storage.

**Grocery store:** Any retail store selling a line of dry grocery, canned goods, or non-food items, plus some perishable items. Excludes stores that may not regularly have all the food basket items in the sizes specified (e.g., warehouse-type stores, stores that require membership, convenience stores).

**Independent:** Generally, an operator of fewer than four retail stores.

**Nutritious food basket (NFB):** A food costing tool that is a measure of the cost of healthy eating based on current nutrition recommendations; a list of foods that can be priced to estimate the average cost of feeding different age and gender groups. Food costing can be used to monitor both the affordability and accessibility of foods by relating the cost of the food basket to individual/family incomes.

**Rural:** As a general guideline, rural is the population living in towns and municipalities outside the commuting zone of larger urban centres (i.e., outside the commuting zone of urban centres with a population greater than 10,000).

**Urban:** As a general guideline, an urban area is considered a self-sufficient community of at least 10,000 residents that for the most part, do not commute out daily. For less densely populated health unit jurisdictions, this may be areas with a population of greater than 10,000; for more densely populated health unit jurisdictions, this may be areas with a population greater than 100,000.

References

Oral Health Assessment and Surveillance Protocol

Preamble

The Ontario Public Health Standards (OPHS) are published by the Minister of Health and Long-Term Care under the authority of the Health Protection and Promotion Act (HPPA) to specify the mandatory health programs and services provided by boards of health. Protocols are program and topic specific documents which provide direction on how boards of health must operationalize specific requirement(s) identified within the OPHS. They are an important mechanism by which greater standardization is achieved in the province-wide implementation of public health programs.

Protocols identify the minimum expectations for public health programs and services. Boards of health have the authority to develop programs and services in excess of minimum requirements where required to address local needs. Boards of health are accountable for implementing the standards including those protocols that are incorporated into the standards.

Purpose

This protocol has been developed to standardize oral health assessment and surveillance practices and ensure consistent use of the Ministry of Health Promotion’s Oral Health Information Support System (OHISS) or any other method specified by the Ministry of Health Promotion (the “ministry”) to collect oral health assessment and surveillance data.

This protocol, in part, replaces the Dental Indices Survey (DIS) Protocol, August 29, 1997 (updated October, 2001).

Statutory Basis

The statutory basis for this protocol is the HPPA, Section 7.


Reference to the Standards

The table below identifies the OPHS program standard and requirements to which this protocol relates.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child Health</td>
<td>Requirement #2: The board of health shall conduct surveillance of children in schools and refer individuals who may be at risk of poor oral health outcomes in accordance with the Oral Health Assessment and Surveillance Protocol, 2008 (or as current), and the Population Health Assessment and Surveillance Protocol, 2008 (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #3: The board of health shall report oral health data elements in accordance with the Oral Health Assessment and Surveillance Protocol, 2008 (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #10: The board of health shall conduct oral screening in accordance with the Oral Health Assessment and Surveillance Protocol, 2008 (or as current).</td>
</tr>
</tbody>
</table>
Operational Roles and Responsibilities

1) Notification
The board of health shall act in compliance with all applicable privacy legislation, including the Municipal Freedom of Information and Protection of Privacy Act and the Personal Health Information Protection Act, 2004.

2) Data collection
The board of health shall:

a) Use the OHISS or any other method specified by the ministry to collect oral health assessment and surveillance information.

b) Record data as screening occurs and transfer into the OHISS software or any other method specified by the ministry at the first opportunity post-screening.

c) Use the following OHISS or any other method specified by the ministry mandatory screening data fields:
   i) School;
   ii) Board School Identification Number (BSID);
   iii) School Risk Level;
   iv) Grade;
   v) Room;
   vi) Teacher;
   vii) Date of Screening;
   viii) Screener;
   ix) Gender;
   x) Date of birth;
   xi) Age;
   xii) Absent from school;
   xiii) Excluded from/refused screening;
   xiv) Clinical findings, including personal health information (free format);
   xv) Child Urgent Care, including personal health information;
   xvi) Non-urgent care required;
   xvii) $d + D \geq 2$, including personal health information;
   xviii) Fluoride Eligible, including personal health information, based on the Preventive Oral Health Services Protocol, 2008 (or as current);
   xix) Sealant Eligible, including personal health information, based on the Preventive Oral Health Services Protocol, 2008 (or as current);
   xx) Scaling Eligible, including personal health information, based on the Preventive Oral Health Services Protocol, 2008 (or as current);
   xxii) Gingivitis present, including personal health information;
   xxii) No care required, including personal health information; and
   xxiii) Date of destruction.

d) Perform an oral health screening on all Grade 2 students in every school annually. This screening shall include the noting of “$d + D$” and shall be used to determine the school's screening intensity level.

e) Apply the following definitions:
   i) High screening intensity schools as those in which a Grade 2 census screening reveals that 14 per cent, or more, of students exhibit a “$d + D$” of two or more.
   ii) Medium screening intensity schools as those in which a Grade 2 census screening reveals that $\geq 9.5$ per cent, but $<14$ per cent of students exhibit a “$d + D$” of two or more.
   iii) Low screening intensity schools as those in which a Grade 2 census screening reveals that fewer than 9.5 per cent, of students exhibit a “$d + D$” of two or more.
f) Use the OHISS or any other method specified by the ministry to calculate the screening intensity level of the school. The screening intensity level shall be calculated using Grade 2 census screening results.

g) Based on the Grade 2 census screening results:
   i) Conduct oral health screening in junior kindergarten (JK) and senior kindergarten (SK), and in Grades 4, 6, and 8, in high screening intensity schools;
   ii) Conduct oral health screening in JK, SK, and Grade 8 in schools where screening reveals that 9.5 per cent, or more, of Grade 2 students exhibit a “d + D” of two or more (medium screening intensity);
   iii) Conduct oral health screening in JK and SK in schools where screening reveals that fewer than 9.5 per cent of Grade 2 students exhibit a “d + D” of two or more (low screening intensity); and
   iv) Notify parents/guardians for children who have an urgent dental condition and/or potentially qualify for a mandatory preventive service.

h) Do the following for an alternate (non-school) entry point to public health programs and services: offer screening within five business days at an alternate facility when requested by a parent/guardian.

3) Data analysis and interpretation
   The board of health shall:
   a) Analyse the oral health surveillance data using the OHISS or any other method specified by the ministry.
   b) Interpret surveillance findings in the context of all of the dental components of the Child Health Program.

4) Reporting and Dissemination
   The board of health shall:
   a) Receive an annual report, from the medical officer of health, on oral health surveillance findings. This report shall include information on trend analysis, program planning, implementation and evaluation (as appropriate).
   b) Make surveillance data available to the general public and local health community, through multiple local media channels, including the board of health website.

5) Action/utilization/priority setting
   The board of health shall:
   a) Refer to the notification section in the Children in Need of Treatment (CINOT) Program Protocol, 2008 (or as current) for the required follow-up for children identified as age/grade eligible for the CINOT program.
   b) For children identified as age/grade and dentally eligible for Preventive Services, refer to the operational roles and responsibilities section of the Preventive Oral Health Services Protocol, 2008 (or as current) for required follow-up.
Glossary

Child Urgent Care: The child is age/grade and dentally eligible for the CINOT program (i.e., financial eligibility remains to be determined).

\( d + D \): Decayed primary teeth (d) + decayed permanent teeth (D).

References

Preamble

The Ontario Public Health Standards (OPHS) are published by the Minister of Health and Long-Term Care under the authority of the Health Protection and Promotion Act (HPPA) to specify the mandatory health programs and services provided by boards of health. Protocols are program and topic specific documents which provide direction on how boards of health must operationalize specific requirement(s) identified within the OPHS. They are an important mechanism by which greater standardization is achieved in the province-wide implementation of public health programs.

Protocols identify the minimum expectations for public health programs and services. Boards of health have the authority to develop programs and services in excess of minimum requirements where required to address local needs. Boards of health are accountable for implementing the standards including those protocols that are incorporated into the standards.

Purpose

The purpose of this protocol is to provide direction on population health assessment and surveillance activities as defined in the OPHS so that local public health practice can effectively and efficiently identify and address current and evolving health issues. This protocol is intended to contribute to the maintenance and improvement of the health and well-being of the population, including the reduction of health inequities. This protocol requires boards of health to consider the determinants of health when identifying priority populations and using population health data and information to focus public health action. Implicit in this protocol are the principles of Partnership and Collaboration, Need, and Impact as outlined in the Foundations of the OPHS.

Reference to the Standards

The table below identifies the OPHS standards and requirements to which this protocol relates.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundational</td>
<td>Requirement #1: The board of health shall assess current health status, health behaviours, preventive health practices, health care utilization relevant to public health, and demographic indicators in accordance with the <em>Population Health Assessment and Surveillance Protocol, 2008</em> (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #2: The board of health shall assess trends and changes in local population health in accordance with the <em>Population Health Assessment and Surveillance Protocol, 2008</em> (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #5: The board of health shall provide population health information including determinants of health and health inequities to the public, community partners, and health care providers, in accordance with the <em>Population Health Assessment and Surveillance Protocol, 2008</em> (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #6: The board of health shall conduct surveillance, including the ongoing collection, collation, analysis, and periodic reporting of population health indicators, as required by the Health Protection and Promotion Act and in accordance with the <em>Population Health Assessment and Surveillance Protocol, 2008</em> (or as current).</td>
</tr>
<tr>
<td>Standard</td>
<td>Requirement</td>
</tr>
<tr>
<td>-----------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td><strong>Requirement #7:</strong> The board of health shall interpret and use surveillance data to communicate information on risks to relevant audiences in accordance with the <em>Identification, Investigation and Management of Health Hazards Protocol, 2008</em> (or as current); the <em>Infectious Diseases Protocol, 2008</em> (or as current); the <em>Population Health Assessment and Surveillance Protocol, 2008</em> (or as current); the <em>Public Health Emergency Preparedness Protocol, 2008</em> (or as current); and the <em>Risk Assessment and Inspection of Facilities Protocol, 2008</em> (or as current).</td>
</tr>
</tbody>
</table>
| Chronic Disease       | **Requirement #1:** The board of health shall conduct epidemiological analysis of surveillance data, including monitoring of trends over time, emerging trends, and priority populations, in accordance with the *Population Health Assessment and Surveillance Protocol, 2008* (or as current), in the areas of:  
  - Healthy eating;  
  - Healthy weights;  
  - Comprehensive tobacco control*;  
  - Physical activity;  
  - Alcohol use; and  
  - Exposure to ultraviolet radiation.  
**Requirement #2:** The board of health shall monitor food affordability in accordance with the *Nutritious Food Basket Protocol, 2008* (or as current) and the *Population Health Assessment and Surveillance Protocol, 2008* (or as current).  
**Requirement #4:** The board of health shall use a comprehensive health promotion approach to increase the capacity of workplaces to develop and implement healthy policies and programs, and to create or enhance supportive environments to address the following topics:  
  - Healthy eating;  
  - Healthy weights;  
  - Comprehensive tobacco control;  
  - Physical activity;  
  - Alcohol use;  
  - Work stress; and  
  - Exposure to ultraviolet radiation.  
These efforts shall include:  
a. Conducting a situational assessment in accordance with the *Population Health Assessment and Surveillance Protocol, 2008* (or as current); and  
b. Reviewing, adapting, and/or providing behaviour change support resources and programs. |
| Prevention of Injury and Substance Misuse | **Requirement #1:** The board of health shall conduct epidemiological analysis of surveillance data, including monitoring trends over time, emerging trends, and priority populations, in accordance with the *Population Health Assessment and Surveillance Protocol, 2008* (or as current), in the areas of*:  
  - Alcohol and other substances;  
  - Falls across the lifespan;  
  - Road and off-road safety; and  
  - Other areas of public health importance†† for the prevention of injuries.  
* Comprehensive tobacco control includes preventing the initiation of tobacco use among young people; promoting quitting among young people and adults; eliminating non-smokers’ exposure to environmental tobacco smoke; and identifying and eliminating disparities related to tobacco use and its societal outcomes among different population groups.  
† The broad topic areas include alcohol and other substances (i.e., including alcohol misuse, drinking and driving, illicit substance use), falls across the lifespan (i.e., including falls in children, youth, adults, and older adults), and road and off-road safety (i.e., including motorized vehicles, pedestrians, cyclists, drivers, and occupants).  
†† Other areas of public health importance related to prevention of injuries and substance misuse may include violence, suicide, burns, drowning, farm injuries, poisonings, scalds, suffocation, sport and recreation, and playground safety. The assessment, planning, delivery, and management for other areas of public health importance would be based on local epidemiology and evidence of effective interventions. |
## Requirement #2: The board of health shall work with community partners, using a comprehensive health promotion approach, to influence the development and implementation of healthy policies and programs, and the creation or enhancement of safe and supportive environments that address the following:
- Alcohol and other substances;
- Falls across the lifespan;
- Road and off-road safety; and may include
- Other areas of public health importance for the prevention of injuries as identified by local surveillance in accordance with the *Population Health Assessment and Surveillance Protocol, 2008* (or as current).

## Requirement #4: The board of health shall increase public awareness of the prevention of injury and substance misuse in the following areas:
- Alcohol and other substances;
- Falls across the lifespan;
- Road and off-road safety; and may include
- Other areas of public health importance for the prevention of injuries, as identified by local surveillance in accordance with the *Population Health Assessment and Surveillance Protocol, 2008* (or as current).

These efforts shall include:
- Adapting and/or supplementing national and provincial health communications strategies; and/or
- Developing and implementing regional/local communications strategies.

## Requirement #5: The board of health shall use a comprehensive health promotion approach in collaboration with community partners, including enforcement agencies, to increase public awareness of and adoption of behaviours that are in accordance with current legislation related to the prevention of injury and substance misuse in the following areas:
- Alcohol and other substances;
- Falls across the lifespan;
- Road and off-road safety; and may include
- Other areas of public health importance for the prevention of injuries as identified by local surveillance in accordance with the *Population Health Assessment and Surveillance Protocol, 2008* (or as current).

## Reproductive Health

## Requirement #1: The board of health shall conduct epidemiological analysis of surveillance data, including monitoring of trends over time, emerging trends, and priority populations, in accordance with the *Population Health Assessment and Surveillance Protocol, 2008* (or as current) in the areas of:
- Preconception health;
- Healthy pregnancies;
- Reproductive health outcomes; and
- Preparation for parenting.

## Requirement #2: The board of health shall work with community partners, using a comprehensive health promotion approach, to influence the development and implementation of healthy policies and the creation or enhancement of supportive environments to address:
- Preconception health;
- Healthy pregnancies; and
- Preparation for parenting.

These efforts shall include:
- Conducting a situational assessment in accordance with the *Population Health Assessment and Surveillance Protocol, 2008* (or as current); and
- Reviewing, adapting, and/or providing behaviour change support resources and programs.

---

1 Legislation includes municipal by-laws (e.g., community safety zones), provincial legislation (e.g., mandatory child car seats under the Highway Traffic Act), and federal legislation (e.g., ban on baby walkers under the Hazardous Products Act) that support prevention of injury and substance misuse.

2 This could include, but is not limited to, curriculum support resources (in preschools, schools, etc.), workplace support resources, and education and skill-building opportunities, etc.
<table>
<thead>
<tr>
<th>Standard</th>
<th>Requirement</th>
</tr>
</thead>
</table>
| Child Health                      | Requirement #1: The board of health shall conduct epidemiological analysis of surveillance data, including monitoring of trends over time, emerging trends, and priority populations in accordance with the *Population Health Assessment and Surveillance Protocol, 2008* (or as current), in the areas of:  
  • Positive parenting;  
  • Breastfeeding;  
  • Healthy family dynamics;  
  • Healthy eating, healthy weights, and physical activity;  
  • Growth and development; and  
  • Oral health.  

Requirement #2: The board of health shall conduct surveillance of children in schools and refer individuals who may be at risk of poor oral health outcomes in accordance with the *Oral Health Assessment and Surveillance Protocol, 2008* (or as current), and the *Population Health Assessment and Surveillance Protocol, 2008* (or as current).  

Requirement #4: The board of health shall work with community partners, using a comprehensive health promotion approach, to influence the development and implementation of healthy policies and the creation or enhancement of supportive environments to address:  
  • Positive parenting;  
  • Breastfeeding;  
  • Healthy family dynamics;  
  • Healthy eating, healthy weights, and physical activity;  
  • Growth and development; and  
  • Oral health.  

These efforts shall include:  
  a. Conducting a situational assessment in accordance with the *Population Health Assessment and Surveillance Protocol, 2008* (or as current); and  
  b. Reviewing, adapting, and/or providing behaviour change support resources and programs.  

| Infectious Diseases Prevention and Control | Requirement #2: The board of health shall conduct surveillance of:  
  • Infectious diseases of public health importance, their associated risk factors, and emerging trends; and  
  • Infection prevention and control practices of inspected premises associated with risk of infectious diseases of public health importance in accordance with the *Infectious Diseases Protocol, 2008* (or as current) and the *Population Health Assessment and Surveillance Protocol, 2008* (or as current).  

Requirement #3: The board of health shall conduct epidemiological analysis of surveillance data, including monitoring of trends over time, emerging trends, and priority populations, in accordance with the *Population Health Assessment and Surveillance Protocol, 2008* (or as current).  

| Rabies Prevention and Control          | Requirement #3: The board of health shall conduct surveillance of rabies in accordance with the *Population Health Assessment and Surveillance Protocol, 2008* (or as current) and the *Rabies Prevention and Control Protocol, 2008* (or as current).  

Requirement #4: The board of health shall conduct epidemiological analysis of surveillance data, including monitoring of trends over time, emerging trends, and priority populations, in accordance with the *Population Health Assessment and Surveillance Protocol, 2008* (or as current).  

---

1 This could include, but is not limited to, curriculum support resources (in preschools, schools, etc.), workplace support resources, and education and skill-building opportunities, etc.
<table>
<thead>
<tr>
<th>Standard</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual Health, Sexually Transmitted Infections, and Blood-Borne Infections (including HIV)</td>
<td>Requirement #2: The board of health shall conduct surveillance of:</td>
</tr>
<tr>
<td></td>
<td>• Sexually transmitted infections;</td>
</tr>
<tr>
<td></td>
<td>• Blood-borne infections;</td>
</tr>
<tr>
<td></td>
<td>• Reproductive outcomes;</td>
</tr>
<tr>
<td></td>
<td>• Risk behaviours; and</td>
</tr>
<tr>
<td></td>
<td>• Distribution of harm reduction materials/equipment</td>
</tr>
<tr>
<td></td>
<td>in accordance with the <em>Population Health Assessment and Surveillance Protocol, 2008</em> (or as current) and the <em>Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008</em> (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #3: The board of health shall conduct epidemiological analysis of surveillance data, including monitoring of trends over time, emerging trends, and priority populations, in accordance with the <em>Population Health Assessment and Surveillance Protocol, 2008</em> (or as current).</td>
</tr>
<tr>
<td>Tuberculosis Prevention and Control</td>
<td>Requirement #2: The board of health shall conduct surveillance of active tuberculosis as well as individuals with LTBI in accordance with the <em>Population Health Assessment and Surveillance Protocol, 2008</em> (or as current) and the <em>Tuberculosis Prevention and Control Protocol, 2008</em> (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #3: The board of health shall conduct epidemiological analysis of surveillance data, including monitoring of trends over time, emerging trends, and priority populations, in accordance with the <em>Population Health Assessment and Surveillance Protocol, 2008</em> (or as current).</td>
</tr>
<tr>
<td>Vaccine-Preventable Diseases</td>
<td>Requirement #2: The board of health shall conduct epidemiological analysis of surveillance data, including monitoring of trends over time, emerging trends, and priority populations, in accordance with the <em>Infectious Diseases Protocol, 2008</em> (or as current) and the <em>Population Health Assessment and Surveillance Protocol, 2008</em> (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #3: The board of health shall conduct epidemiological analysis of surveillance data, including monitoring of trends over time, emerging trends, and priority populations, in accordance with the <em>Population Health Assessment and Surveillance Protocol, 2008</em> (or as current).</td>
</tr>
<tr>
<td>Food Safety</td>
<td>Requirement #1: The board of health shall conduct surveillance of:</td>
</tr>
<tr>
<td></td>
<td>• Suspected and confirmed food-borne illnesses; and</td>
</tr>
<tr>
<td></td>
<td>• Food premises</td>
</tr>
<tr>
<td></td>
<td>in accordance with the <em>Food Safety Protocol, 2008</em> (or as current) and the <em>Population Health Assessment and Surveillance Protocol, 2008</em> (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #2: The board of health shall conduct epidemiological analysis of surveillance data, including monitoring of trends over time, emerging trends, and priority populations, in accordance with the <em>Population Health Assessment and Surveillance Protocol, 2008</em> (or as current).</td>
</tr>
<tr>
<td>Safe Water</td>
<td>Requirement #2: The board of health shall conduct surveillance of drinking-water systems and of drinking water illnesses of public health importance, their associated risk factors, and emerging trends in accordance with the <em>Drinking Water Protocol, 2008</em> (or as current); the <em>Infectious Diseases Protocol, 2008</em> (or as current); and the <em>Population Health Assessment and Surveillance Protocol, 2008</em> (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #4: The board of health shall conduct epidemiological analysis of surveillance data, including monitoring of trends over time, emerging trends, and priority populations, in accordance with the <em>Population Health Assessment and Surveillance Protocol, 2008</em> (or as current).</td>
</tr>
<tr>
<td>Health Hazard Prevention and Management</td>
<td>Requirement #1: The board of health shall conduct surveillance of the environmental health status of the community in accordance with the <em>Identification, Investigation and Management of Health Hazards Protocol, 2008</em> (or as current); the <em>Infectious Diseases Protocol, 2008</em> (or as current); the <em>Population Health Assessment and Surveillance Protocol, 2008</em> (or as current); the <em>Public Health Emergency Preparedness Protocol, 2008</em> (or as current); and the <em>Risk Assessment and Inspection of Facilities Protocol, 2008</em> (or as current).</td>
</tr>
</tbody>
</table>

* For the purpose of this standard, priority populations may include but are not limited to those incarcerated in correctional facilities, Aboriginal peoples and First Nation communities, refugees, recent arrivals to Canada, homeless persons, and those who work closely with these groups.
### Standard  Requirement

**Requirement #2:** The board of health shall conduct epidemiological analysis of surveillance data, including monitoring of trends over time, emerging trends, and priority populations, in accordance with the *Population Health Assessment and Surveillance Protocol, 2008* (or as current).

**Public Health**  
**Requirement #1:** The board of health shall identify and assess the relevant hazards and risks to the public’s health in accordance with the *Identification, Investigation and Management of Health Hazards Protocol, 2008* (or as current); the *Population Health Assessment and Surveillance Protocol, 2008* (or as current); and the *Public Health Emergency Preparedness Protocol, 2008* (or as current).

### Operational Roles and Responsibilities

#### The population health assessment and surveillance cycle

Population health assessment and surveillance entails data access, collection, and management; data analysis and interpretation; reporting and dissemination; and action. Figure 1 illustrates the most common and continuous flow of population health assessment and surveillance information. As population health data and information are analyzed and interpreted, resulting actions may: have direct impact on the provision of public health programs and services; validate action already taken; or result in the collection of additional data to address new questions and issues. The interplay among these process components is iterative, cyclical, and dynamic.

![Population health assessment and surveillance cycle](image-url)

**Figure 1: Population health assessment and surveillance cycle**
1) Data Access, collection and management

a) The board of health shall access, collect, manage, and use data and information from multiple sources in order to undertake population health assessment and surveillance. This shall include quantitative and qualitative data and information obtained through the following sources or methods, depending on the issue:

i) Public health information systems, including but not limited to the integrated Public Health Information System (iPHIS), the Immunization Records Information System (IRIS), the Integrated Services for Children Information System (ISCIS), the Oral Health Information Support System (OHISS), and any other methods that collect health assessment and surveillance data as may be specified by the Ministry of Health and Long-Term Care, Ministry of Health Promotion or Ministry of Children and Youth Services;

ii) Administrative databases for which the primary purpose is not health assessment and surveillance;

iii) Surveys;

iv) Literature (peer-reviewed and/or other “grey” literature);

v) Policy and program documentation, including evaluation; and

vi) Other primary data collection (qualitative or quantitative), as well as data and information from other local, regional, provincial, and national sources.

b) The board of health shall collect or access the following types of population health data and information:

i) Socio-demographics including population counts by age, sex, education, employment, income, housing, language, immigration, culture, ability/disability, and cost of a nutritious food basket;

ii) Mortality, including death by cause;

iii) Morbidity, including incidence of reportable diseases, surveillance of other infectious diseases of public health importance, incidence of injury as assessed by in-patient hospitalizations and emergency department visits, and prevalence of chronic diseases;

iv) Reproductive outcomes including live births, stillbirths, pregnancy, birth weight, multiple births, gestational age, and congenital anomalies;

v) Growth and development;

vi) Risk factors including tobacco use, exposure to ultraviolet radiation, use of alcohol and other substances, work stress, food-handling practices, and infection prevention and control practices of inspected premises associated with risk of infectious diseases of public health importance;

vii) Preventive health practices including immunization, oral health, physical activity, healthy eating, healthy weights, road and off-road safety, cancer screening, sexual practices, breastfeeding, preconception health, healthy pregnancies, preparation for parenting, positive parenting, and healthy family dynamics;

viii) Physical environment factors; and

ix) Other relevant data and information regarding: attitudes, awareness, and knowledge; public health policies, programs and services; the legal and political environment; stakeholder perspectives; and program evaluation.

c) The board of health shall use standard definitions of variables and health indicators, where available and appropriate, to collect and access population health data and information. The Association of Public Health Epidemiologists in Ontario (APHEO), Statistics Canada, and the Canadian Institute for Health Information provide standard definitions for population health assessment and surveillance indicators which shall be used where available.

d) The board of health shall adopt, adapt, or develop techniques, tools, and/or systems for the collection, management, and integration of population health data and information.

e) The board of health shall employ rigorous and sound methods in accessing, collecting, and managing population health data and information. This includes using appropriate sampling and reducing potential sources of bias and error to optimize data quality.
2) Data analysis and interpretation
   a) The board of health shall undertake monitoring, analysis, and interpretation of population health data and information on a systematic and timely basis. The timing and frequency of analysis and interpretation shall be determined by the following factors: patterns of exposure or outcome occurrence (including intervals within which meaningful change is detectable), likelihood and/or possibility of change, the availability of data, the urgency of required action, and the consequences of decision-making.

   b) The board of health shall analyze population health data and interpret the information to describe the distribution of health outcomes, preventive health practices, risk factors, determinants of health, and other relevant information to assess the overall health of its population.

   c) The board of health shall make comparisons by person, place, and time and consider the relationships among these elements:
      i) **Person:** This includes analysis by socio-demographic variables and can be used to determine who is at risk;
      ii) **Place:** This includes analysis of health unit data and how data are spatially distributed. Geographic comparisons may be limited by the data available. As such, comparisons within and among other health units and the province should also be undertaken when applicable; and
      iii) **Time, including trends:** This includes analysis of population health data and information for any given point in time, as well as across time periods.

   d) The board of health shall use standard definitions of variables and health indicators, where available and appropriate, to conduct data analysis and interpretation of population health data and information. The APHEO, Statistics Canada, and the Canadian Institute for Health Information provide standard definitions for population health assessment and surveillance indicators which shall be used where available.

   e) The board of health shall, when analyzing health data and information:
      i) Use quantitative and qualitative methods of data analysis as appropriate to the issue;
      ii) Define the population of interest to determine inclusion and exclusion criteria for analysis;
      iii) Document and provide analysis details, including data sources, methods, assumptions, indicator definitions, and data limitations; and
      iv) Use the most currently available data to describe the health status of the population as appropriate.

   f) The board of health shall integrate data from multiple sources, as appropriate, and consider the relationships among the information gathered in order to make recommendations for program planning and decision-making. It shall exercise sound judgment and apply responsible decision-making processes to analyze and interpret health data and information.

   g) The board of health shall synthesize data and information into a situational assessment as required. A situational assessment includes, but is not limited to the use of the following types and sources of information:
      i) Key facts, findings, trends, and recommendations from the literature;
      ii) Data and analyses obtained from population health assessment and surveillance;
      iii) Legal and political environments;
      iv) Stakeholder perspectives; and
      v) Recommendations based on past experiences, including program evaluation information.

   h) The board of health shall identify priority populations to address the determinants of health, by considering those with health inequities including: increased burden of illness; or increased risk for adverse health outcome(s); and/or those who may experience barriers in accessing public health or other health services or who would benefit from public health action. The board of health shall use the following to identify priority populations:
      i) Socio-demographic and geographic characteristics of the health unit;
      ii) Interpretation of existing and/or acquired data and information that describe the relationship between the barriers and specific program requirements (e.g., relationship between age or education and reproductive outcomes; immigration status and tobacco use, etc.); and
      iii) Program evaluation data and information which identifies program benefits and gaps for diverse populations.
3) Reporting and dissemination

a) The board of health shall develop and maintain a locally appropriate plan for reporting and dissemination that identifies:
   i) The characteristics of the data and information;
   ii) The intended audiences;
   iii) The frequency with which reporting will take place; and
   iv) The format in which the information will be reported (e.g., internal fact sheet; health status report; etc.).

b) The board of health shall produce information products to communicate population health assessment and surveillance results. An information product can range in depth and breadth from an e-mail or a summary sheet with brief highlights to a comprehensive report. Information products shall:
   i) Be understandable and useable by the intended audience(s); and
   ii) Be timely in terms of issues, policy-making cycles, and seasonality to maximize visibility and impact.

c) The board of health shall distribute/make available population health assessment and surveillance information products as appropriate to:
   i) Public health professionals/practitioners and policy- and decision-makers:
      • Among board of health staff;
      • Between boards of health and government (local, provincial and/or federal); and
      • Across the broader health system (e.g., health care providers, hospitals, long-term care homes);
   ii) Community partners (e.g., social service agencies, education facilities, non-government agencies); and
   iii) The general public.

d) The board of health shall disseminate information products at a timing and frequency determined by the following factors: patterns of exposure or outcome occurrence (including intervals within which meaningful change is detectable), likelihood and/or possibility of change, availability of data, and the urgency of required action.

4) Action

a) The board of health shall use population health assessment and surveillance data and information to:
   i) Identify options for action, including but not limited to:
      • Continuation of existing policies, programs, or interventions;
      • Modification of existing policies, programs, or interventions;
      • Creation of new policies, programs, or interventions;
      • Launch of timely investigations and responses to exposures, potential or confirmed communicable disease outbreaks, non-communicable disease clusters, and emerging public health issues; and
      • Further investigations using evaluation and/or research methods as identified in the Foundational Standard;
   ii) Make decisions and set priorities; and
   iii) Implement and act on decisions.

b) The board of health shall continually incorporate new data and information generated from this decision-making process into the population health assessment and surveillance cycle.
Glossary

Ability/Disability: Disability and Ability are not absolute terms and fall along a continuum. According to the Ontarians with Disability Act, disability means:

a) any degree of physical disability, infirmity, malformation or disfigurement that is caused by bodily injury, birth defect or illness and, without limiting the generality of the foregoing, includes diabetes mellitus, epilepsy, a brain injury, any degree of paralysis, amputation, lack of physical co-ordination, blindness or visual impediment, deafness or hearing impediment, muteness or speech impediment, or physical reliance on a guide dog or other animal or on a wheelchair or other remedial appliance or device;
b) a condition of mental impairment or a developmental disability;
c) a learning disability, or a dysfunction in one or more of the processes involved in understanding or using symbols or spoken language;
d) a mental disorder; or
e) an injury or disability for which benefits were claimed or received under the insurance plan established under the Workplace Safety and Insurance Act, 1997; (“handicap”).

Assessment: As one of the core functions of public health, assessment involves the systematic collection and analysis of data in order to provide a basis for decision-making. This may include collecting statistics on local health status, health needs, and/or other public health issues.

Data: A set of facts or items of information, usually quantitative.

Environment: The setting and conditions in which events occur. The total of all influences on life and health apart from genes, comprising the physical world and the economic, social, behavioural, cultural as well as physical conditions and factors that are determinants of health and well-being.

Physical environment: The physical, chemical, and biological factors within the home, the neighbourhood, and/or the workplace, which are beyond the immediate control of the individual that affect health. Among the most important factors will be air and water quality, waste management (domestic, industrial, hazardous, toxic), other sources of harmful substances (such as heavy metals and persistent chemicals), radiation, housing and other buildings, open spaces, natural or wild areas, global structures, and natural phenomena (such as ozone layer and carbon cycle).

The built environment is an important aspect of the physical environment and is comprised of urban and building design, land use, the transportation system and the infrastructure that support them. Several important built environment elements relate to walking rates. These elements include proximity to employment, retail, services, and recreation facilities along with other factors such as perceptions of safety, sense of community connectedness and neighborhood aesthetics.

Supportive environments: In a health context the term supportive environments refers to both the physical and the social aspects of our surroundings. It encompasses where people live, their local community, their homes, where they work and play. It also embraces the framework which determines access to resources for living, and opportunities for empowerment. Thus action to create supportive environments has many dimensions: physical, social, spiritual, economic and political. Each of these dimensions is inextricably linked to the others in a dynamic interaction.

Health inequalities and inequities: Health inequalities can be defined as differences in health status or in the distribution of health determinants between different population groups. For example, differences in mobility between elderly people and younger populations or differences in mortality rates between people from different social classes. It is important to distinguish between inequality in health and inequity. Some health inequalities are attributable to biological variations or free choice, and others are attributable to the external environment and conditions mainly outside the control of the individuals concerned. In the first case it may be impossible or ethically or ideologically unacceptable to change the health determinants, and so the health inequalities are unavoidable. In the second, the uneven distribution may be unnecessary and avoidable as well as unjust and unfair, so that the resulting health inequalities also lead to inequity in health.
Incidence: In epidemiology, the occurrence of new events or cases. This is expressed as an absolute number, or as a rate when the population at risk is known or can be reliably estimated and related to a specified period of time, so incidence rate is the number of new cases in a specified period/person-time at risk in this period. More loosely, as in many vital statistical measures, the average or mean population at risk during the period is commonly used as the denominator. A multiplier, $10^n$, is used to produce a rate that is a whole number rather than a decimal fraction.\(^5\)

Information: Facts (data) that have been arranged and/or transformed in order to provide the basis for analysis and interpretation and (ideally) transformation into knowledge. Information on public health is summarized in many ways for transmission to and use by public health officials to ensure that policies, programs and day-to-day decisions are rationally based.\(^5\)

Monitoring: The intermittent performance and analysis of routine measurements, aimed at detecting changes in the environment or health status of populations.\(^5\)

Morbidity: Sickness; the state or condition of being unwell.\(^5\)

Population health: Population health is the health of the population, measured by health status indicators. Population health is influenced by physical, biological, behavioural, social, cultural, economic, and other factors. The term is also used to refer to the prevailing health level of the population, or a specified subset of the population, or the level to which the population aspires. Population health describes the state of health, and public health is the range of practices, procedures, methods, institutions, and disciplines required to achieve it. The term also is used to describe the academic disciplines involved in studies of determinants and dynamics of health status of the population.\(^5\)

Risk factor: A term first used in the 1950s in reports of results from the Framingham Study of heart disease, meaning an aspect of behaviour or way of living, such as habitual patterns of diet, exercise, use of cigarettes and alcohol, etc., or a biological characteristic, genetic trait, or a health-related condition or environmental exposure with predictable effects on the risk of disease due to a specific cause, including in particular increased likelihood of an unfavourable outcome. Other meanings have been given to this term, such as determinants of diseases that can be modified by specific actions, behaviours, or treatment regimens. Risk factors may be divided into those directly related to disease outcomes (proximal risk factors), such as non-use of seat belts and risk of injury in automobile crashes, and those with indirect effect on outcomes (distal risk factors). An example of the latter is the influence of ozone-destroying substances, such as CFCs, on the risk of malignant melanoma, mediated by increased exposure to solar ultraviolet radiation because of depletion of protective stratospheric ozone.\(^5\)

Situational assessment: A situational assessment influences planning in significant ways by examining the legal and political environment, stakeholders, the health needs of the population, the literature and previous evaluations, as well as the overall vision for the project. The phrase “situational assessment” is now used rather than the previous term “needs assessment.” This is intentional. The new terminology is used as a way to avoid the common pitfall of only looking at problems and difficulties. Instead it encourages considering the strengths of and opportunities for individuals and communities. In a health promotion context, this also means looking at socio-environmental conditions and broader determinants of health.\(^11\)

Socio-demographic status: A descriptive term for the position of persons in society based on a combination of economic and demographic characteristics based on age, sex, race, occupational, economic, and educational criteria, usually expressed in ordered categories, that is, on an ordinal scale. Many classification systems have been proposed from a simple division according to occupation, which usually relates closely to income and educational level, to more complex systems based on specific details of educational level, income, occupation, and sometimes other criteria, such as whether the usual place of dwelling is owned or rented and the rateable value of the dwelling. Other factors, including ethnicity, literacy and cultural characteristics, influence socio-economic status, which is an important determinant of health.\(^5,12\)

Surveillance: The ongoing systematic collection, analysis, and interpretation of health data, essential to the planning, implementation, and evaluation of public health practice, closely integrated with the timely dissemination of these data to those who need to know. The final link in the surveillance chain is the application of these data to prevention and control. A surveillance system includes a functional capacity for data collection, analysis, and dissemination linked to public health programs.\(^13\)
References


Preventive Oral Health Services Protocol

Preamble
The Ontario Public Health Standards (OPHS) are published by the Minister of Health and Long-Term Care under the authority of the Health Protection and Promotion Act (HPPA)\(^1\) to specify the mandatory health programs and services provided by boards of health. Protocols are program and topic specific documents which provide direction on how boards of health must operationalize specific requirement(s) identified within the OPHS. They are an important mechanism by which greater standardization is achieved in the province-wide implementation of public health programs.

Protocols identify the minimum expectations for public health programs and services. Boards of health have the authority to develop programs and services in excess of minimum requirements where required to address local needs. Boards of health are accountable for implementing the standards including those protocols that are incorporated into the standards.

Purpose
This protocol has been developed to provide direction to boards of health on services to be offered to children identified through oral health assessment and surveillance.

This protocol replaces the *Determining Eligibility for Preventive Oral Health Services Provided Through Ontario's Boards of Health Protocol (August 29, 1997)* (updated January 28, 2002).

Statutory Basis
The statutory basis for this protocol is the HPPA, Section 7.\(^1\) Other relevant legislation includes the Personal Health Information Protection Act\(^2\); the Dental Hygiene Act, 1991, S.O. 1991\(^3\); and the Dentistry Act, 1991, S.O. 1991\(^4\).

Reference to the Standards
The table below identifies the OPHS standard and requirement to which this protocol relates.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child Health</td>
<td>Requirement #13: The board of health shall provide or ensure the provision of the essential clinical preventive oral health services at least annually in accordance with the <em>Preventive Oral Health Services Protocol, 2008</em> (or as current).</td>
</tr>
</tbody>
</table>

Operational Roles and Responsibilities

1) Detection/investigation/identification
   The board of health shall:
   a) Identify children who are in need of preventive oral health services through the implementation of the *Oral Health Assessment and Surveillance Protocol, 2008* (or as current).
   b) Use the Ministry of Health Promotion's (the “ministry”) Oral Health Information Support System (OHISS) or any other method specified by the ministry to track children identified as eligible for preventive oral health services, those offered services through a board of health clinic, those who consent to services, those who receive services through a board of health clinic, and those for whom the board of health pays to receive services in a private office.
c) Provide or refer to a local oral health provider and pay for the provision of eligible services for children who meet the dental and financial eligibility criteria.

d) Ensure that appropriate consents are in place for the collection, use, and disclosure of personal information, including personal health information.

2) Professionally applied topical fluoride (PATF)
The board of health shall:

a) Offer PATF to children where two or more of the following criteria apply:
   i) Water fluoride concentration is less than 0.3 ppm
   ii) Past history of smooth surface decay
   iii) Presence of smooth surface decay

3) Pit and Fissure Sealants (PFS)
The board of health shall:

a) Offer PFS to children based on an individual caries risk assessment.

b) Offer sealants for first and second permanent molars.

4) Scaling
The board of health shall:

a) Offer scaling to children based on a periodontal assessment of the following:
   i) Presence of calculus; and
   ii) Evidence of gingival inflammation.

5) Financial Eligibility for PATF, PFS and Scaling
The board of health shall:

a) Assess the family for financial eligibility based on evidence provided by the parent/guardian of one of the following:
   i) The child is a dependent of a recipient of the Ontario Child Benefit;
   ii) The family’s income is below the financial eligibility cut-off (the cut-off is set at 20 per cent above Statistics Canada’s Low Income Cut Offs [LICOs]); or
   iii) The child is currently on the Children in Need of Treatment (CINOT) Program.

6) Notification
The board of health shall:

a) Notify in writing the parent/guardian of children who are screened and identified as meeting the dental eligibility criteria for one or more of the mandated clinical preventive services; advise the parents/guardians of the service(s) for which the child is potentially eligible and how to apply for the service(s).

b) Notify parent/guardian of the financial eligibility criteria, and that proof of financial eligibility is required for service provision. Notification shall be undertaken in a manner that will permit families to determine whether they qualify financially for preventive services.

c) Where the board of health provides the service(s) directly, send parent/guardian consent and health history forms to complete and sign prior to service provision. This notification shall occur within five business days of the date of screening.

d) Where the board of health is referring the child to a private office for the provision of service(s), provide the parent/guardian with notification of the service(s) that will be covered, the reimbursement rate for the service(s), and confirmation that the family can attend a practitioner of their choice.
7) Data collection, reporting, and information transfer

The board of health shall:

a) Input into the OHISS or any other method specified by the ministry the following information for all children identified as eligible for one, or more, clinical preventive services, concurrent with the activities being provided:

   i) Date of screening;
   ii) Child's demographic information;
   iii) Parent/guardian contact information;
   iv) Screening findings, including personal health information;
   v) Treatment information, including personal health information;
   vi) Provider information;
   vii) Payment information (if applicable); and
   viii) All interactions with the family and/or dental office (if applicable).

References


Preamble

The Ontario Public Health Standards (OPHS) are published by the Minister of Health and Long-Term Care under the authority of the Health Protection and Promotion Act (HPPA)\(^1\) to specify the mandatory health programs and services provided by boards of health. Protocols are program and topic specific documents which provide direction on how boards of health must operationalize specific requirement(s) identified within the OPHS. They are an important mechanism by which greater standardization is achieved in the province-wide implementation of public health programs.

Protocols identify the minimum expectations for public health programs and services. Boards of health have the authority to develop programs and services in excess of minimum requirements where required to address local needs. Boards of health are accountable for implementing the standards including those protocols that are incorporated into the standards.

Purpose

This protocol applies to boards of health whose jurisdiction includes community water systems to which fluoride is added. It has been developed to provide direction to boards of health in monitoring community water fluoride levels and taking specific action in accordance with the level of fluoride in the water. It outlines the action(s) required when fluoride levels are below the therapeutic range (TR) of 0.5 to 0.8 ppm or above the Maximum Acceptable Concentration (MAC) of 1.5 ppm (mg/L).

This protocol replaces the *Monitoring the Fluoridation of Local Municipal or Regional Water Supply Protocol, August 29, 1997* (updated August, 2000).

Statutory Basis

The statutory basis for this protocol is the HPPA\(^1\) Section 7. Other relevant legislation includes the Safe Drinking Water Act (SDWA)\(^2\) and O. Reg. 170\(^3\) under the SDWA.

Reference to the Standards

The table below identifies the OPHS standard and requirement to which this protocol relates.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Requirement</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Child Health</td>
<td>Requirement #14: The board of health shall review drinking water quality reports for its municipal drinking water supply(ies) where fluoride is added. These reports shall be reviewed at least monthly and, where necessary, action shall be taken in accordance with the <em>Protocol for the Monitoring of Community Water Fluoride Levels, 2008</em> (or as current).</td>
<td></td>
</tr>
</tbody>
</table>
Operational Roles and Responsibilities

1) Detection/investigation/identification

The board of health shall:

a) Contact all operators of public drinking-water systems, advise them of the protocol, and request that fluoride concentration data be sent to the board of health on a monthly basis for all water supply systems that are to be monitored for fluoride.

b) Have a procedure in place for receiving and reviewing all reports on fluoride concentrations in local drinking water.

c) Review recorded fluoride levels upon receipt.

d) Contact the operator of the water system for an explanation and institute a contingency water monitoring plan if the reported monthly average fluoride levels are below the TR or above the MAC.

2) Notification/management

The board of health shall:

a) Implement the following if the fluoride concentration is below 0.5 ppm for more than 90 days:

i) Ensure that the medical officer of health submits a report to the board of health;

ii) Notify all dentists, physicians, and pharmacists to inform them of the low fluoride concentration, and inform the public through the media;

iii) Using current scientific evidence and local surveillance data, determine whether segments of the community at high risk for dental decay require fluoride alternatives, and provide or ensure the provision of such alternatives; and

iv) Request notification from the operator of the water system when the fluoride concentration is returned to 0.5 to 0.8 ppm, and notify health practitioners and the public.

b) Implement the following upon notification of water fluoride levels exceeding the MAC:

i) Determine the need to notify dentists, physicians, pharmacists, and the public; and

ii) Request notification from the operator of the water system when the fluoride concentration is returned to 0.5 to 0.8 ppm, and determine the need for notification of health practitioners and the public based on action(s) taken in 2b) i).

References


Preamble

The Ontario Public Health Standards (OPHS) are published by the Minister of Health and Long-Term Care under the authority of the Health Protection and Promotion Act (HPPA) to specify the mandatory health programs and services provided by boards of health. Protocols are program and topic specific documents which provide direction on how boards of health must operationalize specific requirement(s) identified within the OPHS. They are an important mechanism by which greater standardization is achieved in the province-wide implementation of public health programs.

Protocols identify the minimum expectations for public health programs and services. Boards of health have the authority to develop programs and services in excess of minimum requirements where required to address local needs. Boards of health are accountable for implementing the standards including those protocols that are incorporated into the standards.

Purpose

The purpose of this protocol is to provide direction regarding the implementation of measures that will prepare the board of health to respond to emergencies, defined as “a situation or an impending situation that constitutes a danger of major proportions that could result in serious harm to persons or substantial damage to property and that is caused by the forces of nature, a disease or other health risk, an accident or an act whether intentional or otherwise.”

Statutory Basis

Emergency Management and Civil Protection Act (EMCPA)

The legal basis for emergency management in the province of Ontario is in part provided for in the Emergency Management and Civil Protection Act (EMCPA). The EMCPA requires ministries and municipalities to develop and implement an emergency management program consisting of emergency plans, training programs and exercises, and public education, as well as infrastructure to support emergency response. The EMCPA identifies through Order-in-Council (OIC) the specific emergency management responsibilities for the ministries of the Crown. The Ministry of Health and Long-Term Care, for example, has the OIC responsibility for taking a lead role in emergencies relating to human health, disease and epidemics and health services during an emergency. To achieve provincial- and local-level readiness, boards of health must develop their own public health emergency preparedness program to provide response capabilities in an emergency which complements the municipal and provincial emergency preparedness programs.

Health Protection and Promotion Act (HPPA)

The HPPA identifies the powers and responsibilities of boards of health, medical officers of health and the Chief Medical Officer of Health. Its purpose is to “provide for the organization and delivery of public health programs and services, the prevention of the spread of disease and the promotion and protection of the health of the people of Ontario.”

Health protection is a cornerstone of the HPPA and of public health activities in the province of Ontario. Boards of health have responsibility for identifying and preventing, reducing, or eliminating health hazards and addressing communicable diseases. The HPPA provides legal authority for the boards of health to respond to a public health emergency that has been determined to be a health hazard or as the result of a communicable disease.
**Reference to the Standards**

The table below identifies the OPHS standards and requirements to which this protocol relates.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Requirement</th>
</tr>
</thead>
</table>
| Public Health Emergency Preparedness         | Requirement #1: The board of health shall identify and assess the relevant hazards and risks to the public’s health in accordance with the *Identification, Investigation and Management of Health Hazards Protocol, 2008* (or as current); the *Population Health Assessment and Surveillance Protocol, 2008* (or as current); and the *Public Health Emergency Preparedness Protocol, 2008* (or as current).

Requirement #2: The board of health shall develop a continuity of operations plan to sustain the ongoing functioning of time-critical board of health services during business disruptions in accordance with the *Public Health Emergency Preparedness Protocol, 2008* (or as current).

Requirement #3: The board of health shall develop its emergency response plan, in consultation with community partners and governmental bodies, to address the identified hazards for which the board of health and medical officer of health will have a lead role in responding to, consistent with an Incident Management System and in accordance with the *Public Health Emergency Preparedness Protocol, 2008* (or as current).

Requirement #4: The board of health shall develop, implement, and document 24/7 notification protocols for communications with board of health staff, community partners, and governmental bodies to facilitate the sharing of information in accordance with the *Public Health Emergency Preparedness Protocol, 2008* (or as current).

Requirement #6: The board of health shall ensure the provision of emergency preparedness and response education and training for board of health staff in accordance with the *Public Health Emergency Preparedness Protocol, 2008* (or as current).

Requirement #7: The board of health shall ensure that its officials are oriented on the board of health’s emergency response plan in accordance with the *Public Health Emergency Preparedness Protocol, 2008* (or as current).

Requirement #8: The board of health shall exercise, in whole or in part, the continuity of operations plan, emergency response plan, and 24/7 notification procedures in accordance with the *Public Health Emergency Preparedness Protocol, 2008* (or as current).

| Foundational                                 | Requirement #7: The board of health shall interpret and use surveillance data to communicate information on risks to relevant audiences in accordance with the *Identification, Investigation and Management of Health Hazards Protocol, 2008* (or as current); the *Infectious Diseases Protocol, 2008* (or as current); the *Population Health Assessment and Surveillance Protocol, 2008* (or as current); the *Public Health Emergency Preparedness Protocol, 2008* (or as current); and the *Risk Assessment and Inspection of Facilities Protocol, 2008* (or as current). |

| Infectious Diseases Prevention and Control   | Requirement #7: The board of health shall ensure that the medical officer of health or designate is available on a 24/7 basis to receive reports of and respond to infectious diseases of public health importance in accordance with the *Health Protection and Promotion Act; the Mandatory Blood Testing Act; the Exposure of Emergency Service Workers to Infectious Diseases Protocol, 2008* (or as current); the *Infectious Diseases Protocol, 2008* (or as current); the *Institutional/Facility Outbreak Prevention and Control Protocol, 2008* (or as current); and the *Public Health Emergency Preparedness Protocol, 2008* (or as current). |

<p>| Rabies Prevention and Control                | Requirement #7: The board of health shall ensure that the medical officer of health or designate is available on a 24/7 basis to receive reports of and respond to suspected rabies exposures in accordance with the <em>Health Protection and Promotion Act; the Public Health Emergency Preparedness Protocol, 2008</em> (or as current); and the <em>Rabies Prevention and Control Protocol, 2008</em> (or as current). |</p>
<table>
<thead>
<tr>
<th>Standard</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Safety</td>
<td>Requirement #6: The board of health shall ensure that the medical officer of health or designate is available on a 24/7 basis to receive reports of and respond to:</td>
</tr>
<tr>
<td></td>
<td>• Suspected and confirmed food-borne illnesses or outbreaks;</td>
</tr>
<tr>
<td></td>
<td>• Unsafe food-handling practices, food recalls, adulteration, and consumer complaints; and</td>
</tr>
<tr>
<td></td>
<td>• Food-related issues arising from floods, fires, power outages, or other situations that may affect food safety in accordance with the Health Protection and Promotion Act; the <em>Food Safety Protocol, 2008</em> (or as current); the <em>Infectious Diseases Protocol, 2008</em> (or as current); and the <em>Public Health Emergency Preparedness Protocol, 2008</em> (or as current).</td>
</tr>
<tr>
<td>Safe Water</td>
<td>Requirement #10: The board of health shall ensure that the medical officer of health or designate is available on a 24/7 basis to receive reports of and respond to:</td>
</tr>
<tr>
<td></td>
<td>• Adverse events related to safe water, such as reports of adverse drinking water on drinking-water systems governed under the Health Protection and Promotion Act or the Safe Drinking Water Act;</td>
</tr>
<tr>
<td></td>
<td>• Reports of water-borne illnesses or outbreaks;</td>
</tr>
<tr>
<td></td>
<td>• Safe water issues arising from floods, fires, power outages, or other situations that may affect water safety; and</td>
</tr>
<tr>
<td></td>
<td>• Safe water issues relating to recreational water use including public beaches in accordance with the Health Protection and Promotion Act; the <em>Beach Management Protocol, 2008</em> (or as current); the <em>Drinking Water Protocol, 2008</em> (or as current); the <em>Infectious Diseases Protocol, 2008</em> (or as current); the <em>Public Health Emergency Preparedness Protocol, 2008</em> (or as current); and the <em>Recreational Water Protocol, 2008</em> (or as current).</td>
</tr>
<tr>
<td>Health Hazard</td>
<td>Requirement #1: The board of health shall conduct surveillance of the environmental health status of the community in accordance with the <em>Identification, Investigation and Management of Health Hazards Protocol, 2008</em> (or as current); the <em>Infectious Diseases Protocol, 2008</em> (or as current); the <em>Population Health Assessment and Surveillance Protocol, 2008</em> (or as current); the <em>Public Health Emergency Preparedness Protocol, 2008</em> (or as current); and the <em>Risk Assessment and Inspection of Facilities Protocol, 2008</em> (or as current).</td>
</tr>
<tr>
<td>Prevention and</td>
<td>Requirement #5: The board of health shall ensure that the medical officer of health or designate is available on a 24/7 basis to respond to and manage health hazards in accordance with the Health Protection and Promotion Act; the <em>Identification, Investigation and Management of Health Hazards Protocol, 2008</em> (or as current); the <em>Public Health Emergency Preparedness Protocol, 2008</em> (or as current); and the <em>Risk Assessment and Inspection of Facilities Protocol, 2008</em> (or as current).</td>
</tr>
<tr>
<td>Management</td>
<td></td>
</tr>
</tbody>
</table>

**Operational Roles and Responsibilities**

**Assessment and Surveillance**

1) **Identify and assess the relevant hazards and risks to public health**

   a) The board of health shall identify and assess relevant hazards and risks to public health by:

      i) Identifying the hazards relevant to public health within the health unit that may give rise to a public health emergency and/or emergency with public health impacts.

      ii) Assessing the risk of the identified hazards using qualitative and/or quantitative measures of probability and consequence which, at a minimum, capture information through a risk-assessment methodology.

      iii) Ranking and recording the assessed risks to public health based on qualitative and/or quantitative measures of probability and consequence. Risks shall be prioritized from high to low based on the ranking of probability and consequence.
iv) Including hazard-identification and risk-assessment materials in a confidential appendix to the board of health emergency response plan. At a minimum the following shall be included:
   • Process for hazard identification;
   • Methodology for risk assessment; and
   • Results of hazard identification and risk assessment.

b) The board of health shall include as a high priority risk any hazard of provincial significance that is identified by the Chief Medical Officer of Health.

**Emergency Planning**

2) Develop a continuity of operations plan
   a) The board of health shall develop and maintain an up-to-date board of health continuity of operations plan. The plan shall:
      i) Identify time-critical public health services that must continue to be delivered regardless of circumstance;
      ii) Assign resources to maintain time-critical public health services;
      iii) Outline the process for recovering time-critical public health services should they be disrupted;
      iv) Be reviewed and updated on an annual basis at a minimum; and
      v) Be approved by the medical officer of health.

b) At a minimum, the process for developing and maintaining the board of health continuity of operations plan shall include:
   • Engaging the board of health senior management team;
   • Identifying time-critical public health services through a business impact analysis;
   • Identifying the dependencies upon which time-critical public health services rely;
   • Identifying vulnerabilities to the continued delivery of time-critical public health services; and
   • Developing recovery procedures to guide the restoration/continuation of time-critical public health services.

3) Develop an emergency response plan
   a) The board of health shall develop and maintain an emergency response plan. The emergency response plan shall:
      • Include roles and responsibilities for boards of health and medical officers of health that are, at a minimum, consistent with roles and responsibilities established in the HPPA;
      • Consist of a general plan that outlines the arrangements and procedures used to respond to a variety of different emergencies (all-hazards) and supporting plans that guide the response to specific threats identified as high-risk through the hazard-identification and risk-assessment process and identified in other standards and protocols;
      • Align with the corresponding response plans of other government bodies, including but not limited to relevant municipal response plans and provincial and federal government response plans;
      • Describe key roles and responsibilities and align them with the components of the Incident Management System (IMS): Command (which includes Safety, Liaison and Communications/Information), Operations, Logistics, Planning and Finance/Administration;
      • Be reviewed and updated annually, at a minimum; and
      • Be approved by the medical officer of health.

b) The board of health shall communicate the emergency response plan to community partners who have roles and responsibilities prescribed within the plan, including but not limited to hospitals, community care access centres, long-term care homes, emergency medical services, etc.

*Note: The hazard identification and risk assessment may contain sensitive information that requires more strict controls than other elements of an emergency response plan. Consult with board of health legal counsel if uncertain of controls required to maintain confidentiality of all or parts of the hazard identification and risk assessment.*
c) The board of health general emergency response plan shall, at a minimum, include the following components:

- Aim;
- Authority;
- Relationship to other plans;
- Plan activation;
- Notification procedures;
- Roles and responsibilities (aligned with the IMS);
- Public health emergency control group;
- Emergency operations centre;
- Crisis communication;
- Occupational health and safety;
- Arrangements for psychosocial supports for board of health staff;
- Coordination with other agencies; and
- Tools, structures, and processes to be utilized in emergency response.

Annexes or appendices shall accompany the plan. These shall include:

- Response plans for identified hazards;
- Response plans required under other protocols and standards;
- Notification procedures and contact lists;
- Resource list(s); and
- Mutual aid/assistance agreements.

Risk Communications and Public Awareness

4) Develop, implement and document 24/7 notification protocols
   a) The board of health shall have a 24 hours per day, 7 days per week (24/7) notification protocol. At a minimum, the notification protocol shall include a telephone capability for:
      i) Two-way communication with board of health staff;
      ii) Two-way communication with key community partners;
      iii) Two-way communication with government bodies;
      iv) Access to the medical officer of health or designate during and after business hours; and
      v) Receiving, notifying, and responding to reports of:
         - An incident or emergency
         - A potential health hazard
         - A reportable disease including institutional outbreaks
   b) To support the development and maintenance of the notification protocol, the board of health shall:
      - Assign a senior management representative who is accountable for the notification protocol;
      - Have an up-to-date on-call schedule or rota for performing on-call duties;
      - Retain contact lists for board of health staff, which shall be updated quarterly;
      - Retain contact lists for community partners and government bodies, which shall be updated quarterly;
      - Have a fan-out mechanism in place for mass notification of staff, community partners, and government bodies (e.g., a call tree); and
      - Have a back-up communications capability for mass notification of staff, community partners, and government bodies.

5) Increase awareness regarding emergency preparedness activities

Public awareness is a mechanism to engage the public in public health preparedness activities. Awareness can assist in ensuring individuals and families are more prepared and better equipped to deal with emergencies as they arise. Boards of health may choose to raise awareness regarding emergency preparedness activities on their own or in conjunction with other governmental and/or community partners.
Education, Training and Exercises

6) Deliver emergency preparedness and response education and training for board of health staff
   a) The board of health shall provide at least one education session annually on components of the public health emergency preparedness standard which includes all board of health staff, and which at a minimum:
      • Identifies the risks to public health in the public health unit as identified through the hazard identification and risk-assessment process;
      • Describes key elements of the board of health continuity of operations plan;
      • Describes key elements of the board of health emergency response plan; and
      • Describes the roles of key officials and staff in the aforementioned plans, as aligned with the IMS.
   b) The board of health shall maintain a record of board of health staff who have attended education sessions.

7) Ensure that officials are oriented on the board of health’s emergency response plan
   a) The board of health shall provide orientation to board of health members and board of health staff on the emergency response plan. Orientation shall:
      • Be delivered by the medical officer of health or designate;
      • Include, at a minimum, the public health emergency control group or other equivalent decision-making roles as aligned with the IMS;
      • Be completed at least once annually for existing board of health members;
      • Be included in the workplace orientation for new board of health members and board of health staff; and
      • Be documented in an appendix to the plan once the orientation is completed. The documented information shall include the name of the individual oriented, the date the orientation was completed, and the components of the plan the individual received orientation on.

8) Exercise the continuity of operations plan, emergency response plan and 24/7 notification protocol
   a) The board of health shall conduct an exercise or exercises at least once annually that tests all or some components of the:
      i) Board of health continuity of operations plan;
      ii) Board of health emergency response plan; and
      iii) 24/7 notification protocols.
   b) In the planning and delivery of an exercise or exercises, the board of health shall ensure there are:
      i) Exercise objectives that are linked to the plan and protocols being tested;
      ii) Scenario(s) that include a high-risk hazard that the board of health has identified through the hazard identification and risk-assessment process;
      iii) Post-exercise debrief(s) with exercise participants; and
      iv) Lessons-learned document(s) that outline key learnings from the exercise or exercises and inform amendments to the plan and future requirements for training.
   c) The board of health shall collaborate with community partners and/or governmental bodies who have prescribed roles in the plan during the planning and implementation of the exercises.

References

Preamble
The Ontario Public Health Standards (OPHS) are published by the Minister of Health and Long-Term Care under the authority of the Health Protection and Promotion Act (HPPA) to specify the mandatory health programs and services provided by boards of health. Protocols are program and topic specific documents which provide direction on how boards of health must operationalize specific requirement(s) identified within the OPHS. They are an important mechanism by which greater standardization is achieved in the province-wide implementation of public health programs.

Protocols identify the minimum expectations for public health programs and services. Boards of health have the authority to develop programs and services in excess of minimum requirements where required to address local needs. Boards of health are accountable for implementing the standards including those protocols that are incorporated into the standards.

Purpose
This protocol has been developed to provide direction to boards of health in the implementation of specific requirements of the Rabies Prevention and Control Standard. The purpose of this protocol is to prevent a human case of rabies by standardizing animal rabies surveillance and the management of human rabies exposures.

Reference to the Standards
The table below identifies the OPHS standard and requirements to which this protocol relates.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rabies Prevention and Control</td>
<td>Requirement #2: The board of health shall report rabies data elements in accordance with the Health Protection and Promotion Act and the Rabies Prevention and Control Protocol, 2008 (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #3: The board of health shall conduct surveillance of rabies in accordance with the Population Health Assessment and Surveillance Protocol, 2008 (or as current) and the Rabies Prevention and Control Protocol, 2008 (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #7: The board of health shall ensure that the medical officer of health or designate is available on a 24/7 basis to receive reports of and respond to suspected rabies exposures in accordance with the Health Protection and Promotion Act; the Public Health Emergency Preparedness Protocol, 2008 (or as current); and the Rabies Prevention and Control Protocol, 2008 (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #8: The board of health shall address the prevention and control of rabies threats as per a local Rabies Contingency Plan, as outlined in the Rabies Prevention and Control Protocol, 2008 (or as current).</td>
</tr>
</tbody>
</table>

Operational Roles and Responsibilities
This protocol shall be followed in accordance with the Rabies Vaccine chapter of the Canadian Immunization Guide or National Advisory Committee on Immunization (NACI) statements published after the most recent immunization guide. Consult the Canadian Immunization Guide for information on vaccine schedule, dose, route of administration, and products licensed for rabies post-exposure prophylaxis use in Canada.
1) Animal surveillance and contingency planning

a) The board of health shall monitor rabies positive animals in its health unit. This information shall be collected from animal test reports from the Canadian Food Inspection Agency (CFIA). The board of health shall monitor rabies positive animals in bordering health units to keep informed about potential rabies threats. This information shall be collected from the Ministry of Natural Resources’ quarterly publication, the Rabies Reporter. With respect to rabies positive animals, the board of health shall obtain information on:
   i) The number of rabies positive animals;
   ii) The type of animal; and
   iii) The location of the animal, by county or district.
   The information shall be monitored over time.

b) On the request of the Ministry of Health and Long-Term Care (the “ministry”), the board of health shall develop and maintain a Rabies Contingency Plan within the timeline prescribed by the ministry. The ministry will provide a situation-specific template to the board of health at the time of the request.

2) Management of suspected rabies exposures

Notification

a) O. Reg. 557, Section 2(1) under the HPPA states that “A physician, registered nurse in the extended class, veterinarian, police officer, or any other person who has information concerning any animal bite or other animal contact that may result in rabies in persons shall as soon as possible notify the medical officer of health and provide the medical officer of health with the information.”

The board of health shall communicate the reporting/notification process outlined in O. Reg. 557, Section 2(1) under the HPPA in writing annually to physicians, veterinarians, police officers, and nurses in the extended class (i.e., nurse practitioners). The reporting/notification process must allow for and provide an on-call system for receiving and responding on a 24 hours per day, 7 days a week (24/7) basis to any suspected rabies exposures.

Investigation

b) The board of health shall have a written procedure for the investigation of human exposures to animals suspected of having rabies, as follows:
   i) The board of health shall, upon receiving notification of suspected rabies exposure, initiate investigation of the incident within 24 hours of the notification.
   ii) The board of health shall collect data from the investigation of an individual exposed to an animal suspected of having rabies. The data shall include information pertaining to:
       • Person exposed:
         – Name, sex, date of birth, age, weight;
         – Address and telephone number;
         – Has the person been examined by a physician;
         – Name of physician;
         – Rabies immunization status, date of last immunization, type of vaccine used (human diploid vaccine, purified chick embryo cell vaccine, or other); and
         – Is the person immunocompromised.
       • Exposure incident:
         – Date of exposure to the suspect rabid animal;
         – Animal species involved in the exposure;
         – Geographical location of the exposure incident;
         – Type of exposure (i.e., bite, non-bite, bat);
         – The anatomical location of the exposure;
         – Exposure circumstances (i.e., was the exposure provoked or unprovoked); and
         – Animal behaviour (i.e., was behaviour normal or abnormal).
       • Animal owner (if owned):
         – Name, sex, date of birth; and
         – Address and telephone number.
**Rabies Prevention and Control Protocol**

- **Animal:**
  - Species and description;
  - Name of animal (if animal has a name);
  - Age of animal;
  - Previous contact with wild animals;
  - Rabies immunization status of the animal; and
  - Rabies immunization status of other animals residing with the suspected rabid animal.

**Risk assessment**

c) The board of health shall conduct a risk assessment that shall be completed on all individuals with suspected rabies exposures to determine the required actions. The conclusion of the risk assessment shall be provided to the attending physician. The attending physician ultimately makes the decision to provide post-exposure prophylaxis.

The risk assessment shall include:
- i) Type of exposure (i.e., bite, non-bite, bat);
- ii) The anatomical location of the exposure;
- iii) The risk of rabies in the animal species involved;
- iv) The presence of rabies in the area where the incident occurred;
- v) The behaviour and health status of the implicated animal;
- vi) Exposure circumstances (i.e., provoked or unprovoked exposure);
- vii) Rabies immunization status of the animal; and

**Animal management**

d) The board of health shall ensure that when a dog, cat, or ferret requires a 10-day observation period, the animal is confined and isolated from all animals and persons (except the person caring for the dog, cat, or ferret) for at least 10 days from the date of exposure in accordance with O. Reg 557, Section 3(2) under the HPPA.

e) The board of health shall check the vaccine status of any animal involved in a human exposure incident. The boards of health that are listed in O. Reg 567, Rabies Immunization under the HPPA shall ensure that animals identified as not being up to date on their rabies vaccination status are vaccinated for rabies after the 10-day observation period is completed.

f) The board of health shall notify and furnish particulars to the nearest district veterinarian of the CFIA as soon as possible, where the board of health has reason to believe that an animal is rabid or has been in contact with another animal known or suspected of having rabies.

**Vaccine management**

g) The board of health shall follow vaccination handling guidelines as outlined in the *Vaccine Storage and Handling Protocol, 2008* (or as current).

h) If a board of health provides rabies vaccine and rabies immune globulin (RabIg) on a contingency basis to institutions, then the board of health shall arrange annually with those institutions to notify the board of health within one business day of beginning a course of rabies post-exposure prophylaxis with vaccine and RabIg in order for the board of health to report to the ministry.

† Note: These veterinarians are familiar with the regulations concerning rabies and, if necessary, will collect and ship appropriate specimens to a federal laboratory for diagnosis. Further information and advice is obtainable from the CFIA regional offices or local district office on the CFIA website (http://www.inspection.gc.ca/english/anima/heasan/offbure.shtml) or by consulting the blue pages of the local telephone directory.
Rabies prophylaxis administration

i) The board of health shall ensure individuals requiring treatment have access to rabies post-exposure prophylaxis within 24 hours after the decision is made that post-exposure prophylaxis is required.

   i) Post-exposure prophylaxis should be started as soon as possible after exposure and should be offered to exposed individuals regardless of the elapsed interval.

   ii) Based on a risk assessment, and where the specimen is received at the lab within 48 hours of exposure, treatment may be withheld until the Fluorescent Antibody Test (FAT) result is available. The FAT report can be obtained within six to 24 hours of receipt of an animal specimen at the laboratory.

   iii) If the suspect animal is a cat, dog, or ferret and is available for observation, then immunization of the human may be withheld pending the animal’s status during the 10-day observation period. If the animal shows signs of rabies during the observation period, post-exposure prophylaxis should be initiated. If the animal rabies test results are negative, then post-exposure prophylaxis can be discontinued.

   iv) Incubation periods of less than one week have been reported after severe bites on the face, head, and neck. For bite wounds to the head and neck region, prophylaxis should generally begin immediately and not be delayed for laboratory testing or the observation period (for this situation, the board of health shall deliver the post-exposure treatment to the health care facility immediately. That is, sooner than the 24 hour period identified in 2 b)i)). Considerations that may support delaying initiation of prophylaxis and instead observing the animal for a 10-day period include:

   • If the animal is a domestic pet;
   • If the animal is fully vaccinated;
   • If the bite was provoked; and
   • If there is very low prevalence of rabies in the area.

   v) If a rabies exposure is considered likely, such as exposure to a dog in a country with endemic canine rabies, then post-exposure prophylaxis should never be delayed.

   vi) The vaccine series may be discontinued after consultation with public health/infectious disease experts if the FAT of the brain of an animal killed at the time of attack is negative.

   vii) Serological testing:

   • Healthy people immunized with an appropriate post-exposure regimen do not require routine post-immunization antibody determinations.

   • Serological testing may be advisable in the following situations:
     – For those whose immune response may be reduced by illness, medication, or advanced age;
     – After vaccine schedule deviations; or
     – For testing status of immune protection from pre-exposure immunization upon being exposed to a suspect rabid animal.

   • When assessing the immune protection provided by a course of vaccinations, serological tests should be conducted two weeks after the final dose was given.

   • Where antibody levels are required, a sample of 5 ccs whole clotted blood or serum should be submitted to the nearest regional public health laboratory or directly to:

     Central Public Health Laboratory
     81 Resources Road
     Toronto, Ontario M9P 3T1
     Telephone: (416) 235-5725 during work hours
               (416) 605-3113 after work hours

     There is no charge for this test. The purpose of the sample shall be indicated to establish laboratory priority. An acceptable antibody response is a titre of >0.5 IU/mL by the rapid fluorescent-focus inhibition test.

Reporting

j) The board of health shall report data for individuals receiving post-exposure prophylaxis as specified in the integrated Public Health Information System (iPHIS) or any other method specified by the ministry. The data shall be entered into iPHIS or any other method specified by the ministry by five business days after the initiation of the post-exposure treatment.
3) Human case management
   a) The board of health, upon receiving a report of a suspect or confirmed human case of rabies, shall immediately report to the ministry. The notification shall be made verbally. In addition, data pertaining to the case shall be reported in iPHIS or any other method specified by the ministry within 24 hours of notification.

References

5. Canadian Food Inspection Agency. Countries recognized as rabies free for domestic dogs and cats.
Recreational Water Protocol

Preamble

The Ontario Public Health Standards (OPHS) are published by the Minister of Health and Long-Term Care under the authority of the Health Protection and Promotion Act (HPPA)\(^1\) to specify the mandatory health programs and services provided by boards of health. Protocols are program and topic specific documents which provide direction on how boards of health must operationalize specific requirement(s) identified within the OPHS. They are an important mechanism by which greater standardization is achieved in the province-wide implementation of public health programs.

Protocols identify the minimum expectations for public health programs and services. Boards of health have the authority to develop programs and services in excess of minimum requirements where required to address local needs. Boards of health are accountable for implementing the standards including those protocols that are incorporated into the standards.

Purpose

The purpose of this protocol is to assist in the prevention and reduction of water-borne illness and injury related to recreational water use by providing direction to boards of health on the components of the Safe Water Program related to public recreational water facilities, which include but are not limited to:

- Surveillance and inspection of recreational water facilities;
- Management of and response to water-borne illness and injury related to recreational water use at recreational water facilities;
- Education and training of owner/operators of recreational water facilities; and
- Reporting of Safe Water Program data elements to the Ministry of Health and Long-Term Care (the “ministry”) related to recreational water facilities.

Legislation and regulations that are relevant to this protocol include:

- O. Reg. 565\(^2\) (Public Pools) under the HPPA\(^1\);
- O. Reg. 428/05\(^3\) (Public Spas) under the HPPA\(^1\); and
- Ontario Building Code\(^4\).

This protocol replaces the following protocols:


Reference to the Standards

The table below identifies the OPHS standard and requirements to which this protocol relates.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safe Water</td>
<td>Requirement #1: The board of health shall report Safe Water Program data elements in accordance with the Beach Management Protocol, 2008 (or as current); the Drinking Water Protocol, 2008 (or as current); and the Recreational Water Protocol, 2008 (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #5: The board of health shall conduct surveillance of recreational water facilities in accordance with the Recreational Water Protocol, 2008 (or as current).</td>
</tr>
</tbody>
</table>
Recreational Water Protocol

Standard  Requirement

Requirement #9: The board of health shall provide education and training for owner/operators of recreational water facilities in accordance with the *Recreational Water Protocol, 2008* (or as current).

Requirement #10: The board of health shall ensure that the medical officer of health or designate is available on a 24/7 basis to receive reports of and respond to:

- Adverse events related to safe water, such as reports of adverse drinking water on drinking-water systems governed under the Health Protection and Promotion Act or the Safe Drinking Water Act;
- Reports of water-borne illnesses or outbreaks;
- Safe water issues arising from floods, fires, power outages, or other situations that may affect water safety; and
- Safe water issues relating to recreational water use including public beaches in accordance with the Health Protection and Promotion Act; the *Beach Management Protocol, 2008* (or as current); the *Drinking Water Protocol, 2008* (or as current); the *Infectious Diseases Protocol, 2008* (or as current); the *Public Health Emergency Preparedness Protocol, 2008* (or as current); and the *Recreational Water Protocol, 2008* (or as current).

Requirement #14: The board of health shall reduce the risks of recreational water facility use by implementing a management program in accordance with the *Recreational Water Protocol, 2008* (or as current).

**Operational Roles and Responsibilities**

1) **Surveillance and inspection**

   **Inventory of recreational water facilities**
   a) The board of health shall maintain an inventory or inventories of all regulated and non-regulated recreational water facilities as defined in this protocol.

   **Assessment and inspection of recreational water facilities**

   **Regulated public pools and public spas**
   b) The board of health shall:
   
   i) Inspect regulated public pools and public spas prior to opening or reopening after construction, alteration, or closure of more than four weeks' duration to determine compliance with O. Reg. 565\(^2\) and O. Reg. 428/05\(^3\), respectively;
   
   ii) Inspect regulated public pools and public spas at least two times per year and no less than once every three months while operating to determine compliance with O. Reg. 565\(^2\) and O. Reg. 428/05\(^3\), respectively; and
   
   iii) Conduct additional inspections of regulated public pools and public spas as necessary to address non-compliance with O. Reg. 565\(^2\) and O. Reg. 428/05\(^3\), respectively, observed during previous inspection(s); to investigate complaints and/or reports of illness or injury; and/or to monitor the safety of the facilities.

   Inspections of regulated public pools and public spas carried out by boards of health shall include but are not limited to:
   - Observations to determine compliance with regulation;
   - Testing water quality parameters and collection of water samples, as deemed necessary;
   - Communication of results to the owner or operator of the regulated public pool or public spa; and
   - Communication of requirements, if applicable, to the owner or operator of each regulated public pool or public spa.

   **Non-regulated recreational water facilities**
   c) The board of health shall:
   
   i) Inspect public wading pools and splash pads/spray pads at least two times per year and no less than once every three months while operating. In conducting these inspections, the board of health shall refer to the most current version of the *Operating Procedures for Non-Regulated Recreational Water Facilities Guidance Document*, for information;
   
   ii) Inspect other non-regulated recreational water facilities (e.g., water slide receiving basins) at least two times per year and no less than once every three months while operating to monitor the safety of these facilities; and
iii) Conduct additional inspections of non-regulated recreational water facilities as necessary to follow up on observations from previous inspection(s); to investigate complaints and/or reports of illness or injury; and/or to monitor the safety of the facilities.

2) Management and response

24/7 on-call and response policy

a) The board of health shall have an on-call system for receiving and responding to reports of water-related emergencies, outbreaks and incidents in the health unit on a 24 hours per day, 7 days per week (24/7) basis related to recreational water use at recreational water facilities.

b) The board of health shall act on complaints and reports related to recreational water use at recreational water facilities within 24 hours of notification of the complaint or report to determine the appropriate response required.

c) Where the board of health suspects that a microbiological, chemical, physical or radiological agent has been transmitted through water intended for recreational water use, the board of health shall:
   i) Respond appropriately within 24 hours of receiving report of the water-related incident, illness, injury or outbreak;
   ii) Conduct outbreak investigations for microbiological agents in accordance with the *Infectious Diseases Protocol, 2008* (or as current); and
   iii) Conduct investigations for chemical, physical or radiological agents in accordance with the *Risk Assessment and Inspection of Facilities Protocol, 2008* (or as current).

Enforcement actions and procedures

d) The board of health shall address non-compliance with the HPPA1 and related regulations and take action with respect to recreational water facilities where recreational water use may not be safe.

Liaison with community agencies

e) The board of health shall liaise with owners, operators or their agents to assist them in becoming compliant with regulations upon being notified or becoming aware of newly constructed regulated recreational water facilities.

3) Education and training

Recreational water education

a) The board of health shall ensure the availability of information and/or educational material to:
   i) Private citizens regarding the safe use of recreational water facilities; and
   ii) Owners and operators of recreational water facilities, through the inspection process and at other available opportunities, regarding applicable regulations and operational procedures relevant to recreational water facilities.

Training of owners and operators of regulated recreational water facilities

b) The board of health shall ensure the availability of a recreational water training program to owners and operators of regulated recreational water facilities with the following minimum training requirements:
   i) Public health legislation and regulations, as applicable;
   ii) Pool operation and maintenance;
   iii) Prevention of illness, accident or injury;
   iv) Pool water chemistry;
   v) Sanitary operation of other amenities in the facility;
   vi) Provision of safety equipment;
   vii) Emergency procedures; and
   viii) Safety supervision.

4) Reporting

a) The board of health shall record inspection data pertaining to recreational water facilities under its jurisdiction and provide information as required by the ministry.
Glossary

Public wading pool: A wading pool other than a private residential wading pool or a wading pool for display or promotional purposes only.

Recreational water facilities: These include, for the purposes of this protocol, those facilities that are regulated under the HPPA¹ (i.e., public pools and public spas), as well as non-regulated facilities that provide public access to water for recreational use, including public wading pools, splash pads/spray pads, and water slide receiving basins.

Wading pool: Any structure, basin, chamber, or tank containing or intended to contain an artificial body of water having a depth of water equal to 75 centimetres (30 inches) or less at any point that is provided for the recreational or instructive use of young children⁵

References

Preamble

The Ontario Public Health Standards (OPHS) are published by the Minister of Health and Long-Term Care under the authority of the Health Protection and Promotion Act (HPPA)\(^1\) to specify the mandatory health programs and services provided by boards of health. Protocols are program and topic specific documents which provide direction on how boards of health must operationalize specific requirement(s) identified within the OPHS. They are an important mechanism by which greater standardization is achieved in the province-wide implementation of public health programs.

Protocols identify the minimum expectations for public health programs and services. Boards of health have the authority to develop programs and services in excess of minimum requirements where required to address local needs. Boards of health are accountable for implementing the standards including those protocols that are incorporated into the standards.

Purpose

The purpose of this protocol is to provide direction in the prevention and reduction of adverse health outcomes arising from health hazards in the environment associated with facilities by providing direction to boards of health including the surveillance, assessment, inspection and management of such hazards.

It should be noted that where a health hazard in the environment does not pertain to a facility, but rather to a potential health hazard in the community, the board of health shall refer to the Identification, Investigation and Management of Health Hazards Protocol, 2008 (or as current). Where the investigation pertains to an infectious disease or infection control issue, the board of health shall refer to the Infectious Diseases Protocol, 2008 (or as current), the Institutional/Facility Outbreak Prevention and Control Protocol, 2008 (or as current), and/or the Infection Prevention and Control in Licensed Day Nurseries Protocol, 2008 (or as current).

Health hazards may exist or occur in a variety of facilities. This protocol describes these facilities in the following two categories:

- Facilities that are under the authority of the HPPA\(^1\) and/or its regulations, including:
  - O. Reg. 568/90 (Recreational Camps);\(^2\)
  - O. Reg. 554/90 (Camps in Unorganized Territories);\(^3\) and
  - HPPA, Section 10.(2) (Premises used or intended for use as a boarding house or lodging house)!\(^1\)

- Other facilities that are not regulated under the HPPA\(^1\) as follows:
  - Ice arenas;
  - Seasonal farm workers’ housing;
  - Schools;
  - Day nurseries and other childcare facilities;
  - Long-term care homes;
  - Group homes; and
  - Other facilities as instructed by the Ministry of Health and Long-Term Care (the “ministry”).

- Legislation and regulations that are relevant to this protocol include:
  - O. Reg. 568/90 (Recreational Camps)\(^2\) under the HPPA\(^1\); and
  - O. Reg. 554/90 (Camps in Unorganized Territories)\(^3\) under the HPPA\(^1\)!\(^1\)
Reference to the Standards

The table below identifies the OPHS standards and requirements to which this protocol relates.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundational</td>
<td>Requirement #7: The board of health shall interpret and use surveillance data to communicate information on risks to relevant audiences in accordance with the Identification, Investigation and Management of Health Hazards Protocol, 2008 (or as current); the Infectious Diseases Protocol, 2008 (or as current); the Population Health Assessment and Surveillance Protocol, 2008 (or as current); the Public Health Emergency Preparedness Protocol, 2008 (or as current); and the Risk Assessment and Inspection of Facilities Protocol, 2008 (or as current).</td>
</tr>
<tr>
<td>Infectious Diseases Prevention and Control</td>
<td>Requirement #14: The board of health shall inspect settings associated with risk of infectious diseases of public health importance in accordance with the Infection Prevention and Control in Licensed Day Nurseries Protocol, 2008 (or as current); the Infection Prevention and Control in Personal Services Settings Protocol, 2008 (or as current); and the Risk Assessment and Inspection of Facilities Protocol, 2008 (or as current).</td>
</tr>
<tr>
<td>Health Hazard Prevention and Management</td>
<td>Requirement #1: The board of health shall conduct surveillance of the environmental health status of the community in accordance with the Identification, Investigation and Management of Health Hazards Protocol, 2008 (or as current); the Infectious Diseases Protocol, 2008 (or as current); the Population Health Assessment and Surveillance Protocol, 2008 (or as current); the Public Health Emergency Preparedness Protocol 2008 (or as current); and the Risk Assessment and Inspection of Facilities Protocol, 2008 (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #5: The board of health shall ensure that the medical officer of health or designate is available on a 24/7 basis to respond to and manage health hazards in accordance with the Health Protection and Promotion Act; the Identification, Investigation and Management of Health Hazards Protocol, 2008 (or as current); the Public Health Emergency Preparedness Protocol, 2008 (or as current); and the Risk Assessment and Inspection of Facilities Protocol, 2008 (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #6: The board of health shall inspect and assess facilities where there is an elevated risk of illness associated with exposures that are known or suspected to be associated with health hazards in accordance with the Risk Assessment and Inspection of Facilities Protocol, 2008 (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #7: The board of health shall implement control measures to prevent or reduce exposure to health hazards in accordance with the Identification, Investigation and Management of Health Hazards Protocol, 2008 (or as current) and the Risk Assessment and Inspection of Facilities Protocol, 2008 (or as current).</td>
</tr>
</tbody>
</table>

Operational Roles and Responsibilities

1) Surveillance and inspection

Inventory of facilities

a) The board of health shall maintain an inventory or inventories of all facilities in the health unit under the authority of the HPPA and/or its regulations, as well as other facilities not regulated under the HPPA but where an investigation has occurred to assess potential health hazards.

Assessment and inspection of facilities

Facilities under the HPPA

b) For facilities that are under the authority of the HPPA and/or its regulations, including recreational camps that fall under the requirements of O. Reg. 568/90 (Recreational Camps),2 camps in unorganized territory that fall under the requirements of O. Reg. 554/90 (Camps in Unorganized Territories),3 and premises used or intended for use as a boarding house or lodging house to which paragraph 10.(2) (2) of the HPPA applies, the board of health shall:
i) Conduct a minimum of one inspection per year to determine compliance with the regulation, where applicable. Refer to the most current version of the Operational Standards for Risk Assessment and Inspection of Facilities for information; and

ii) Conduct additional inspections as necessary to address non-compliance with the HPPA and related regulations observed during previous inspection(s), to investigate complaints and/or reports of health hazards.

Other facilities (not regulated under the HPPA)

- c) For licensed day nurseries, the board of health shall conduct a minimum of one inspection per year. Refer to the most current version of the Operational Standards for Risk Assessment and Inspection of Facilities for information.

- d) For seasonal farm workers’ housing, the board of health shall conduct a minimum of one inspection per year upon request. Refer to the most current version of the Operational Standards for Risk Assessment and Inspection of Facilities document for information.

- e) For other facilities not regulated under the HPPA, the board of health shall conduct risk assessments and/or inspections upon notification that a health hazard may exist in the facility. Refer to the most current version of the Operational Standards for Risk Assessment and Inspection of Facilities document for information.

- f) The board of health shall conduct additional inspections of facilities not regulated under the HPPA as necessary to follow up on observations from previous inspection(s), investigate complaints and/or reports of health hazards.

2) Management and response

24/7 on-call and response policy

- a) The board of health shall have an on-call system for receiving and responding to reports of potential health hazards in the environment associated with facilities in the health unit on a 24 hours per day, 7 days per week (24/7) basis and provide an initial response within 24 hours.

- b) Where a report of a health hazard in the environment (see above) is received and another Government of Ontario ministry has primary responsibility in the matter, the board of health shall refer to Section 11 of the HPPA.

- c) For all complaints and reports received by the board of health related to potential health hazards in the environment associated with facilities, the board of health shall undertake a preliminary assessment to determine the level of potential impact. Refer to the most current version of the Operational Standards for Risk Assessment and Inspection of Facilities document for information.

- d) Where a report of a health hazard in the environment is received that is not associated with a facility but pertains to a community exposure, the board of health shall address the request in accordance with the Identification, Investigation, and Management of Health Hazards Protocol, 2008 (or as current).

Enforcement actions and procedures

- e) The board of health shall address non-compliance with the HPPA and related regulations and take action where a health hazard is identified and may pose a risk to human health.

- f) Where a facility is governed by relevant legislation in addition to the HPPA, the board of health shall make every effort to investigate the potential health hazard in collaboration with the applicable agencies responsible for oversight of those other pieces of legislation.

- g) For situations that may pose a risk to human health, the board of health shall work with community partners such as media and local community agencies to communicate and provide information to the appropriate audiences.

3) Reporting

- a) The board of health shall record inspection data pertaining to facilities under its jurisdiction and provide information as required by the ministry.
Glossary

**Environment**: The physical environment, which includes the natural and built environment.

**Health hazard**: (a) A condition of a premises, (b) a substance, thing, plant or animal other than man, or (c) a solid, liquid, gas or combination of any of them, that is likely to have an adverse effect on the health of any person.

**Health hazards in the environment**: Health hazards in the physical environment that are not addressed in other programs under the Ontario Public Health Standards.

**Risk**: The probability of an adverse health outcome resulting from exposure to a hazard.

**Risk assessment**: The scientific process that characterizes the potential risk of hazards to human health, consisting of four main steps: hazard identification, dose-response assessment, exposure assessment, and risk characterization.

References

Preamble

The Ontario Public Health Standards (OPHS) are published by the Minister of Health and Long-Term Care under the authority of the Health Protection and Promotion Act (HPPA)\(^1\) to specify the mandatory health programs and services provided by boards of health. Protocols are program and topic specific documents which provide direction on how boards of health must operationalize specific requirement(s) identified within the OPHS. They are an important mechanism by which greater standardization is achieved in the province-wide implementation of public health programs.

Protocols identify the minimum expectations for public health programs and services. Boards of health have the authority to develop programs and services in excess of minimum requirements where required to address local needs. Boards of health are accountable for implementing the standards including those protocols that are incorporated into the standards.

Purpose

This protocol provides direction to boards of health on the implementation of the program to prevent and control sexually transmitted infections (STIs) including blood-borne infections (BBIs) and to promote healthy sexuality for priority populations, cases and contacts.

It also provides direction to boards of health regarding:

- Screening, diagnosis, treatment, and counselling of cases and contacts;
- Screening, diagnosis, treatment, and counselling for individuals sharing drug-using equipment; and
- Providing means of reducing the risk of transmission.

HIV, hepatitis B and hepatitis C are implied throughout this protocol in all sections referring to STIs/BBIs.

This protocol replaces the *Sexually Transmitted Diseases (STDs) – STD Control Protocol, December 1997* including the version updated March 2005.

Reference to the Standards

The table below identifies the OPHS standard and requirements to which this protocol relates.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual Health, Sexually Transmitted Infections, and Blood-borne Infections (including HIV)</td>
<td>Requirement #1: The board of health shall report data elements on sexually transmitted infections and blood-borne infections in accordance with the Health Protection and Promotion Act and the <em>Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008</em> (or as current).</td>
</tr>
</tbody>
</table>
| | Requirement #2: The board of health shall conduct surveillance of:  
  - Sexually transmitted infections;  
  - Blood-borne infections;  
  - Reproductive outcomes;  
  - Risk behaviours; and  
  - Distribution of harm reduction materials/equipment  
in accordance with the *Population Health Assessment and Surveillance Protocol, 2008* (or as current) and the *Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008* (or as current). |
Standard  Requirement

Requirement #8: The board of health shall ensure that the medical officer of health or designate receives reports of sexually transmitted infections and blood-borne infections and responds in accordance with the Health Protection and Promotion Act and the Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008 (or as current).

Requirement #9: The board of health shall provide or ensure access to provincially funded drugs for the treatment of sexually transmitted infections, at no cost to clients, in accordance with the Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2008 (or as current).

Operational Roles and Responsibilities

1) Data collection, reporting and information transfer

The board of health shall:

a) Use the integrated Public Health Information System (iPHIS) or any other method specified by the Ministry of Health and Long-Term Care (the “ministry”) to notify the ministry of cases and contacts of reportable STIs including BBIs. It is required to include all disease-specific information specified in O. Reg. 569 under the HPPA.

Lab Confirmed Case:

b) Include as much relevant information as possible to facilitate location, counselling, and treatment of cases of reportable STIs/BBIs. A laboratory report alone is insufficient. Case information shall include as much of the following, as described in disease-specific iPHIS user guides or any other documentation or any other method specified by the ministry:

   i) Infection/diagnosis;
   ii) First name, last name (with the exception of anonymous HIV testing);
   iii) Birth date or birth year if date of birth not available; and
   iv) Gender.

Other data elements to be collected and reported for cases of reportable STIs/BBIs could include:

   v) Address/telecommunications;
   vi) Case/encounter date (e.g., onset date, reported date, etc.);
   vii) Treatment; and
   viii) Risk factors (e.g., exposure setting, medical risk factors, and behavioural/social factors).

Contact:

c) Include as much relevant information as possible to facilitate the location, counselling and treatment of contacts. Information shall include as much of the following information as possible as described in disease-specific iPHIS user guides or any other documentation or any other method specified by the ministry:

   i) Infection/diagnosis;
   ii) First name, last name;
   iii) Birth date or birth year if date of birth not available; and
   iv) Gender.

Other data elements to be collected and reported on contacts could also include:

   v) Address/telecommunications;
   vi) Contact (e.g., sexual, maternal, household, etc.);
   vii) Case/encounter date (e.g., onset date, reported date, etc.);
   viii) Treatment; and
   ix) Risk factors (e.g., exposure setting, medical risk factors, behavioural/social factors).

d) Refer information on cases and contacts that are outside the health unit directly to the appropriate board of health within Ontario, using iPHIS or any other method specified by the ministry.

e) Refer information on cases/contacts outside of Ontario or Canada to the Public Health Division, of the ministry.
2) Detection and identification
The board of health shall:

a) Offer screening of STIs including BBIs to individuals who have one or more of the following risk factors:
   i) Having sexual contact with person(s) with a known STI;
   ii) Being sexually active and under 25 years;
   iii) Having a new partner or having had multiple partners in the past year;
   iv) Being street involved and/or homeless;
   v) Being a sex worker;
   vi) Having anonymous sexual partners;
   vii) Being a victim of sexual assault/abuse;
   viii) Injection drug use;
   ix) Using other substances such as alcohol or chemicals (e.g., cocaine, ecstasy);
   x) Having a previous STI; and
  xi) Not using contraception or sole use of non-barrier contraception.

b) Comply with the Child and Family Services Act R.S.O. 1990, c.C.11\(^4\) regarding the reporting of suspected cases of sexual abuse or exploitation.

c) Refer to the *Canadian Guidelines on Sexually Transmitted Infections, 2006 Edition*\(^5\) (or as current) for further information on screening related to specific priority populations.

3) Sexual health clinical services, STIs, and blood-borne infections preventive services
The board of health shall:

a) Deliver the following clinical services for priority populations:
   i) Client’s health assessment/risk review;
   ii) STI/BBI education and counselling;
   iii) Contraception counselling;
   iv) A mechanism to provide contraceptives at cost and/or free for clients in financial need;
   v) Pregnancy tests and comprehensive pregnancy counselling;
   vi) Post-abortion counselling and referral;
   vii) Provision of counselling, diagnosis, treatment, and management of STIs, including cervical cytology (Pap test);
   viii) Counselling, testing, and referrals for blood-borne infections;
   ix) Provision of vaccines at no cost according to provincial eligibility criteria; and
   x) Provision of condoms at no cost.

b) Offer free condoms to priority populations at, but not limited to, sexual health/STI clinical services and harm reduction programs.

c) Provide access to harm reduction supplies through needle and syringe exchange programs which may include other evidence-informed harm reduction strategies in response to local surveillance. Harm reduction strategies include but are not limited to provision of clean and sterile drug-using equipment, condoms, client-centred counselling, skill-building and education, and referral to addictions treatment, health, and other social services.

d) Refer to the *Sexual Health Clinical Services Manual, January 2002*\(^6\) (or as current) for more information.

4) Notification
a) The board of health shall receive notifications of reportable STIs/BBIs as identified in the HPPA, sections 25 to 29.\(^1\)

5) Management
The board of health shall:

a) Consult with health care providers to ensure that cases of STIs receive appropriate treatment and counselling as recommended by the *Canadian Guidelines on Sexually Transmitted Infections, 2006 Edition*\(^5\) (or as current). This consultation can include collaboration with health care providers regarding partner notification strategies, as well as follow-up counselling for all STI cases reported.
b) Consider recommending that a clinical evaluation be done by a paediatrician or experienced physician when referring a suspected case of child and adolescent sexual abuse to child protection services. For further information on screening, refer to the *Canadian Guidelines on Sexually Transmitted Infections, 2006 Edition* (or as current).

**Interviewing the case**

c) Arrange an interview with the case as soon as possible after confirming the diagnosis and treatment with the health care provider.

d) Discuss with the case all risk factors relevant to the infection and route of transmission during the period of infectivity. The discussion shall also include client-centred education regarding STIs/BBIs and risk reduction counselling.

e) Discuss with the case the importance of notifying sexual partners and partners who share drug-using equipment and confirm who will assume responsibility for contact notification (case, board of health, health care provider). The board of health shall also include collection of as much of the following information as described in disease-specific iPHIS user guides or any other documentation or any other method specified by the ministry:

- First name, last name of contact(s);
- Birth date or birth year;
- Gender;
- Address/telecommunication;
- Contact (e.g., sexual, casual, etc.);
- Relevant case/encounter date; and
- Risk factors.

Ensure that contact tracing is completed when partner notification is done by the health care provider or the case.

**Contact tracing:**

f) Begin contact tracing and contact notification as soon as possible after the index case is interviewed.

g) Follow the time frames for the identification of contacts appropriate to the specific infection:

<table>
<thead>
<tr>
<th>Disease</th>
<th>Time Frame for Identification of Contacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) Gonorrhea</td>
<td>All partners who have had sexual contact with the case within at least 60 days prior to the onset of symptoms, and parents of infected neonates.</td>
</tr>
<tr>
<td>ii) Chlamydia</td>
<td>All partners who have had sexual contact with the case within at least 60 days prior to diagnosis, and parents of infected neonates.</td>
</tr>
<tr>
<td>iii) Syphilis</td>
<td>Identify all sex partners and contacts as follows:</td>
</tr>
<tr>
<td></td>
<td>Primary syphilis case</td>
</tr>
<tr>
<td></td>
<td>Secondary syphilis case</td>
</tr>
<tr>
<td></td>
<td>Early latent case</td>
</tr>
<tr>
<td></td>
<td>Early congenital syphilis case</td>
</tr>
<tr>
<td></td>
<td>Late Latent Case</td>
</tr>
<tr>
<td>iv) Chancroid</td>
<td>Identify sex partners in contact with the confirmed case within the 14 days prior to onset of symptoms and up to the time of diagnosis.</td>
</tr>
<tr>
<td>v) Human Immunodeficiency Virus (HIV)/Acquired Immunodeficiency Syndrome (AIDS)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Start with the most recent contacts.</td>
</tr>
<tr>
<td></td>
<td>• Consider the outer time limit as the start of risk behaviour or to last known negative test.</td>
</tr>
<tr>
<td>vi) Hepatitis B</td>
<td>Variable</td>
</tr>
<tr>
<td>vii) Hepatitis C</td>
<td>Variable</td>
</tr>
</tbody>
</table>

Refer to the *Canadian Guidelines on Sexually Transmitted Infections, 2006 Edition* (or as current) for further information on time frames for identification of contacts.
Interviewing the contact

h) For contact tracing completed by the board of health clinical services or a health care provider, ensure that the board of health staff and/or health care provider assumes responsibility for confidentially notifying contacts of potential exposure to an STI. The board of health staff will initiate partner notification promptly and utilize the following principles:
   i) Confirm identity of the contact;
   ii) Ensure confidentiality regarding source of information;
   iii) Obtain history of any symptoms;
   iv) Provide disease-specific education;
   v) Provide general preventive STI counselling; and
   vi) Explain testing and treatment options and, if necessary, assist with referral to a board of health clinic or to a health care provider.

For further information on contact tracing, please refer to the *Sexually Transmitted Infections Case Management and Contact Tracing Best Practice Recommendations, 2008* (or as current).

Drug and vaccine supply distribution

i) Have available at no cost through the Public Health Division of the ministry, and provide at no cost to clients, the following recommended drugs and/or vaccines for the treatment of STIs:
   i) Amoxicillin 500 mg capsules;
   ii) Azithromycin 250 mg capsules;
   iii) Benzathine penicillin G IM injection;
   iv) Sterile water for injection (diluent for benzathine penicillin G);
   v) Cefixime 400 mg tablets;
   vi) Ceftriaxone 250 mg IM injection;
   vii) Lidocaine 1% solution;
   viii) Doxycycline hyclate 100 mg capsules;
   ix) Erythromycin base 250 mg tablets; and
   x) Spectinomycin (available on a case-by-case basis through the Public Health Division).

j) Have available, at no cost, hepatitis A and hepatitis B vaccines for individuals eligible under the ministry’s publicly funded program.
   i) Individuals eligible for hepatitis A vaccine at no cost include:
      • Persons with chronic liver disease (including hepatitis C);
      • Injection drug users; and
      • Men who have sex with men.

   ii) Individuals eligible for hepatitis B vaccine at no cost include:
      • Infants born to carrier mothers;
      • Household and sexual contacts of chronic carriers and acute cases;
      • Persons on renal dialysis and those with diseases requiring frequent receipt of blood products*;
      • Individuals awaiting liver transplants*;
      • Injection drug users;
      • Men who have sex with men and individuals with multiple sex partners, STI history;
      • Those having needle-stick injuries in a non–health care setting;
      • Grade 7 students who are part of Hepatitis B School Immunization Program;
      • Children <7 years old whose families have immigrated from countries of high prevalence for hepatitis B, and who may be exposed to hepatitis B carriers through their extended families; and
      • Persons with chronic liver disease (including hepatitis C).

---

* The ministry may restrict distribution and/or redistribute drugs and vaccines to boards of health in the event that product shortages and/or supply issues arise.

* Only the second and third doses will be provided at no cost by the ministry.
k) Invoice the Public Health Division of the ministry, if the board of health is reimbursing a client for STI drugs (i.e., the purchase of aqueous procaine penicillin G). Invoices should be forwarded to the Public Health Division of the ministry.

l) At its discretion, redistribute publicly funded drugs provided by the Public Health Division of the ministry for the treatment of STIs to health care providers who manage patients with STIs.

m) Monitor drugs/vaccines distributed to health care providers or clinics via the board of health to ensure they are being used appropriately. Positive laboratory reports may serve as a monitoring tool for appropriateness of drug usage. The distribution system of free STI drugs and hepatitis B vaccine to health care providers may be audited periodically by the Public Health Division of the ministry.

**Glossary**

**Blood-Borne Infections (BBIs):** Include hepatitis B, human immunodeficiency virus (HIV), and hepatitis C. BBIs are transmitted to the blood through sexual activities/intercourse and by the sharing of injection equipment and other drug-related activities.

**Contact:** A person who has had sex with or reused or shared injecting equipment with or has had some other relevant exposure to an infected individual. The exposure may be a high-risk exposure in which no precautions were taken, and therefore the contact would be at significant risk of any infection found in the infected individual. The exposure may be a low-risk exposure, where varying degrees of precaution were taken, and therefore the contact would have a smaller degree of risk for infection.

**Contact tracing:** The process of identifying relevant contacts of a person with an infectious disease and ensuring that they are aware of their exposure. For STIs, contacts include individuals with whom the case has had sexual intercourse during the infectious period. Contacts can also include babies of infected mothers. The particular sexual practices of importance vary for different STIs in terms of how they can be transmitted. For blood-borne infections (HIV, hepatitis B, and hepatitis C), needle-sharing contacts and transfusion recipients, as well as those who may have been accidentally exposed to blood by other means, are also relevant.

**Partner notification:** This term is sometimes used synonymously with contact tracing in the context of HIV. It is also important to consider contacts for which the term “partner” may be inappropriate, such as needle-sharing contacts, transfusion recipients, and children born to infected women.

**Priority populations:** Are identified by surveillance, epidemiological or other research studies. They are those populations that are at risk and for which public health interventions may be reasonably considered to have a substantial impact at the population level.

**Sexually transmitted infections (STIs):** Sexually transmitted infections focused on in this document are those that are reportable diseases in Ontario and are often managed by public health. These STIs include chlamydia, gonorrhea, syphilis and blood-borne infections including, hepatitis B, hepatitis C and HIV/AIDS.
References

Public Health Units shall support the implementation and enforcement of the Smoke-Free Ontario Act including all the requirements with respect to controls related to smoking tobacco, the sale or provision of tobacco, the display/storage, handling, and the promotion and distribution of tobacco products.

All premises that are required to be smoke-free under the Smoke-Free Ontario Act may be subject to an inspection. Enforcement schedules should be pro-active where resources allow, include risk-based modeling for setting priority among visits, and at minimum should respond to all complaints. Enforcement should be conducted during operating hours, Monday to Saturday, with some Sunday enforcement.

An effective compliance strategy employs a balance of inspection, education and progressive enforcement. Progressive enforcement means the use of more stringent charging options to reflect the frequency and severity of the level of non-compliance.

Enforcement activities include inspections and re-inspections, education visits, and inquiries into complaints. Determination of compliance will be made subject to these types of enforcement activities. For the purpose of uniformity, a response to a complaint and an education visit will be handled in the same manner as an inspection.

The enforcement agency will ensure that all tobacco enforcement officers are trained appropriately with Ministry of Health Promotion sanctioned training courses as soon as practically possible.

Public Health Units are responsible for enforcement of the Smoke-Free Ontario Act at a number of locations including: tobacco vendors, enclosed workplaces, enclosed public places, schools, home daycares, hotels, motels, residential care facilities, hospitals, tobacco wholesalers, tobacco manufacturers, bars and restaurants, condominiums, apartments, college and university residences, patios and shelters, places of entertainment, tobacconists, duty-free shops and/or similar facilities.

Definitions

a) **Progressive Enforcement**: means the use of more stringent charging options to reflect the frequency and severity of the level of non-compliance.

*Enforcement Agency*: means a Public Health Unit, Regional Health Department, or other agency/organization mandated with enforcement of the Act.

*Enforcement Officer*: means a person appointed as an inspector pursuant to Section 14 of the Act, and also appointed as a Provincial Offences Officer pursuant to the Ontario Provincial Offences Act.

b) **Ministry**: means the Ministry of Health Promotion.

c) **Inspection**: means an examination or assessment conducted by a person appointed as an inspector pursuant to Section 14 of the Act, and also appointed as a Provincial Offences Officer.

d) **Re-inspection**: means a re-examination or re-assessment conducted by a person appointed as an inspector pursuant to Section 14 of the Act, and also appointed as a Provincial Offences Officer pursuant to the Ontario Provincial Offences Act.

e) **Employer**: includes an owner, operator, proprietor, manager, superintendent, overseer, receiver or trustee of an activity, business, work, trade, occupation, profession, project or undertaking who has control or direction of, or is directly or indirectly responsible for the employment of a person in it.

f) **Person in Charge**: means someone that exercises control over the activities that take place in and around the school including but not limited to a principal, vice-principal, or other administrative head of the school.
Administration of Automatic Prohibitions

Public Health Units should inform the Minister of Health Promotion that an automatic prohibition order is required where two or more tobacco sales convictions are registered against any person, owner, partnership or corporation at the same premises address and the circumstances deem this action to be appropriate. A tobacco sales offence involves the following subsections of the Smoke-Free Ontario Act: (Note: registered convictions for sales to minor's offences under the Tobacco Control Act may be valid.)

- Section 3(1) or (2)
- Section 5
- Section 6
- Section 7
- Section 16(4)
- Section 8 or 29 of the Tobacco Tax Act

The Tobacco Tax Act is not administered by the Ministry of Health Promotion, and therefore requires information to be compiled from other sources in order to track convictions, in order to determine whether an automatic prohibition applies.

The prohibition period is determined and based on the number of convictions received in a five-year period. For example:

- Two convictions within five years at the same location is a six-month prohibition,
- Three convictions within five years at the same location is a nine-month prohibition,
- Four or more convictions in five years at the same location is a twelve-month prohibition.

Once the tobacco sales and storage order is signed by the Minister of Health Promotion, it is the responsibility of the Public Health Unit to serve and enforce the prohibition order.

Data Collection and Handling

The Public Health Unit enforcement division/staff will collect data and maintain (in hard copy and/or electronic format) a record of every inspection and re-inspection conducted, in addition to the enforcement officer's notes.

The Tobacco Vendor inspection form established by the Ministry of Health Promotion is to be completed by the tobacco enforcement officer for every inspection and re-inspection conducted, either electronically or in hard copy.

The data collected pursuant to the Smoke-Free Ontario Act shall be provided to the Ministry of Health Promotion according to the established schedule.

Signs

Public Health Units are required to inspect for compliance with the signage provisions applicable under the Smoke-Free Ontario Act.

Section 6

Age Restriction and Health Warning Sign/Government I.D. Sign

A person who sells tobacco at retail shall post signs at any location where tobacco is sold or offered for sale or supply. The sign must be clearly visible to the person who sells or supplies the tobacco and to the person to whom the tobacco is sold or supplied.

Section 10

As referenced in ss. 9(3), 10 of the Act and prescribed in s. 15 of the Regulation, signage shall be posted throughout the enclosed workplace, at all entrances and exits, washrooms and other appropriate locations in sufficient numbers to ensure that everyone is aware that smoking is prohibited in the building, and where there is a requirement for a smoke-free perimeter or grounds – in the surrounding area.
Authority of an Appointed Inspector

The Ministry of Health Promotion administers the appointment of inspectors at the request of Public Health Units. These requests must be made along with supporting documentation as to the person's qualifications, training or planned training, and involvement with the enforcement of the Act.

An enforcement officer may, at any reasonable time, enter any enclosed public place or enclosed workplace in which smoking is prohibited to determine whether the Smoke-Free Ontario Act is being complied with, and for this purpose, may make such examinations and inquiries as are necessary.

Any person who contravenes any provision of the Smoke-Free Ontario Act or who hinders, obstructs or otherwise interferes with an enforcement officer in the conduct of his/her duties is guilty of an offence and, upon conviction is subject to a fine as provided in the Provincial Offences Act or the Smoke-Free Ontario Act. (ss.14 (6))

However, no enforcement officer may enter a workplace that is also a private dwelling without the consent of the occupant, or without obtaining a warrant.
Preamble

The Ontario Public Health Standards (OPHS) are published by the Minister of Health and Long-Term Care under the authority of the Health Protection and Promotion Act (HPPA)\(^1\) to specify the mandatory health programs and services provided by boards of health. Protocols are program and topic specific documents which provide direction on how boards of health must operationalize specific requirement(s) identified within the OPHS. They are an important mechanism by which greater standardization is achieved in the province-wide implementation of public health programs.

Protocols identify the minimum expectations for public health programs and services. Boards of health have the authority to develop programs and services in excess of minimum requirements where required to address local needs. Boards of health are accountable for implementing the standards including those protocols that are incorporated into the standards.

Purpose

The purpose of this protocol is to provide direction to boards of health to reduce the burden of tuberculosis (TB) through prevention and control.

More detailed information on implementation can be obtained in the most current version of the *Tuberculosis Prevention and Control Best Practices* document (currently called *TB Protocol, 2006*).\(^2\)

Reference to the Standards

The table below identifies the OPHS standard and requirements to which this protocol relates.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuberculosis Prevention and Control</td>
<td>Requirement #1: The board of health shall report TB data elements in accordance with the Health Protection and Promotion Act and the <em>Tuberculosis Prevention and Control Protocol, 2008</em> (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #2: The board of health shall conduct surveillance of active tuberculosis as well as individuals with LTBI in accordance with the <em>Population Health Assessment and Surveillance Protocol, 2008</em> (or as current) and the <em>Tuberculosis Prevention and Control Protocol, 2008</em> (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #5: The board of health shall facilitate timely identification of active cases of TB and referrals of persons with inactive TB through immigration medical surveillance* in accordance with the <em>Tuberculosis Prevention and Control Protocol, 2008</em> (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #6: The board of health shall provide management of cases to minimize the public health risk in accordance with the <em>Tuberculosis Prevention and Control Protocol, 2008</em> (or as current).</td>
</tr>
</tbody>
</table>

* Referrals through Citizenship and Immigration Canada include individuals referred to boards of health, post-landing, for medical follow-up to rule out active TB and to determine the need for treatment of LTBI.
### Standard  Requirement

| Requirement #8: The board of health shall provide or ensure the provision of the identification, assessment, and public health management of contacts of active cases in accordance with the *Tuberculosis Prevention and Control Protocol, 2008* (or as current). |
| Requirement #9: The board of health shall provide or ensure the provision of the identification and effective public health management of individuals with LTBI in accordance with the *Tuberculosis Prevention and Control Protocol, 2008* (or as current), with a particular focus on people at highest risk of progression to active TB! |

### Operational Roles and Responsibilities

**1) Data collection and reporting of data elements**

The board of health shall:

**General**

a) On an annual basis, advise physicians and health care providers, hospital administrators and superintendents of institutions, school principals, pharmacists and operators of a laboratory about the requirement to report active and latent cases of tuberculosis (TB) according to the HPPA!

b) Ensure that the information entered into the integrated Public Health Information System (iPHIS) or any other method specified by the Ministry of Health and Long-Term Care (the "ministry") is complete and accurate and includes the final case disposition (see current iPHIS Guide or any other guide specified by the ministry).

**Confirmed and suspect cases**

c) Create the person as a suspect or confirmed case in iPHIS or any other method specified by the ministry within 24 hours of receiving the initial report.

**Additional information on cases**

d) Enter into iPHIS or any other method specified by the ministry all initial laboratory, sensitivity, and radiological reports within 24 hours of receipt.

e) Enter into iPHIS or any other method specified by the ministry any additional data elements as specified in O. Reg. 569 (Reports) as soon as possible, but in any event not later than 30 calendar days of receipt.

**Information for TB contacts**

f) Enter into iPHIS or any other method specified by the ministry demographics, episode status, and the link to the source case within 30 calendar days of identification of the contact.

g) Enter into iPHIS or any other method specified by the ministry any additional data elements as soon as possible, but in any event not later than 30 calendar days of receipt.

**Immigration medical surveillance**

h) Enter into iPHIS or any other method specified by the ministry demographics and episode status of persons self-reporting for immigration medical surveillance within 30 calendar days of the person reporting.

i) Enter into iPHIS or any other method specified by the ministry additional data elements for persons on medical surveillance as soon as possible, but in any event not later than 30 calendar days of receipt.

**Latent TB infection (LTBI)**

j) Enter all required data elements in accordance with the current *iPHIS Tuberculosis (TB) User Guide* into iPHIS or any other method specified by the ministry as soon as possible, but in any event not later than 30 calendar days.

† People at highest risk of progression to active TB may include recent contacts, the immunocompromised, and recent arrivals to Canada.
2) Surveillance

The board of health shall on an annual basis:

a) Conduct epidemiological analysis of TB data on the following:
   i) For cases:
      • Age
      • Gender
      • Risk factors
      • Risk settings
      • Disease characteristics
      • Drug resistance
      • Country of origin
      • Date of treatment completion
      • Mortality
   ii) For LTBI:
      • Age
      • Gender
      • Risk factors
      • Risk settings
      • Country of origin
      • Date of treatment initiation
      • Date of treatment completion

b) Disseminate this information to relevant health care and community stakeholders.

c) Utilize this information for program planning.

3) Early identification of TB cases, including referrals of persons with inactive TB through immigration medical surveillance

The board of health shall:

Early identification of TB cases

a) Implement strategies to promote the early identification and treatment of persons with TB.

b) Provide annual education to health care providers and/or community stakeholders about the following:
   i) Considering TB in persons with compatible symptoms;
   ii) Reporting suspect and confirmed cases of TB according to the HPPA1; and
   iii) Screening of high-risk groups.

Referrals for medical surveillance

a) Have a mechanism in place for urgent referrals for immigration medical surveillance notification (see glossary) to:
   i) Locate these persons; and
   ii) Refer and facilitate the process for medical assessment of these persons within seven calendar days of receipt of the urgent notification or immediately if they have signs or symptoms of active TB.
   iii) Once active TB is ruled out continue to follow these persons as per Regular Immigration Medical Surveillance (see d) iii and d) iv).

b) Have a mechanism in place for regular referrals for immigration medical surveillance notification to:
   i) Locate these persons within 30 calendar days;
   ii) Conduct preliminary assessment for symptoms of active TB;
iii) Provide TB education at first contact with these persons, which would include:
   - Symptom recognition and the need to notify the board of health should symptoms occur;
   - Availability of TB for Uninsured Persons Program (TBUP) as required;
   - Requirements of medical surveillance; and
   - Instructions for obtaining Ontario Health Insurance Program (OHIP) coverage.
iv) Facilitate medical assessment for active TB disease and/or LTBI, including sputum collection if the individual
    has signs or symptoms of active TB, tuberculin skin testing (TST) as appropriate and chest X-ray. This should be
    completed within three months of the person obtaining OHIP coverage, or earlier if required; and
v) Utilize strategies to facilitate the early identification of active TB in individuals referred for medical surveillance
    (e.g., follow for two years those persons with LTBI who do not complete prophylaxis and/or educate them about
    the signs and symptoms of TB disease, and the need to seek medical attention should these develop).

4) Management of TB cases
The board of health shall:

a) Initiate contact with persons who have suspect/confirmed respiratory TB and their health care providers, within
   24 hours of receipt of the notification.

b) Direct the person to be in respiratory isolation if respiratory TB is suspected/confirmed.

c) Conduct public health investigation of all suspect/confirmed cases by obtaining details including:
   i) Demographics;
   ii) Symptoms;
   iii) Date of onset of symptoms;
   iv) Level of infectiousness;
   v) Radiological and laboratory results;
   vi) Assessment of risk factors for acquisition and transmission; and
   vii) Identification of contacts.

d) Ensure prescribed treatment regimen is in accordance with the current Canadian Tuberculosis Standards.

e) Recommend that a TB specialist provides treatment for or is consulted on all cases resistant to two or more drugs,
   as well as all cases determined to be treatment failures.

f) Have a mechanism in place to provide directly observed therapy (DOT) for:
   i) All respiratory TB cases for a minimum of eight weeks or while the person is infectious, whichever is longer;
   ii) All cases (respiratory or nonrespiratory TB) resistant to two or more first line drugs for the duration of treatment;
   iii) All cases (respiratory or nonrespiratory TB) with treatment failure or reactivated TB for the duration of
       treatment; and
   iv) All cases (respiratory or nonrespiratory TB) while they are being treated on an intermittent therapy regimen.

g) Utilize a DOT assessment tool and clinical judgment to identify TB cases that are likely to be non-compliant and may
   require DOT for the duration of therapy.

h) Contact persons with respiratory TB, who are no longer on DOT, at a minimum of once every month to monitor the
   treatment response, compliance and drug toxicity until the completion of therapy. The frequency of monitoring all
   nonrespiratory cases shall be based on clinical judgment.

i) Ensure that respiratory isolation is discontinued only when a case is considered to be no longer infectious.

j) Have a mechanism in place to ensure the provision of publicly funded TB medications at no cost to the person with
   TB or the provider.

†† DOT means that the person is observed taking their TB medication by a trained observer on all business days that treatment is required.
k) Review drug regimens and sensitivity results to ensure appropriateness and adequacy of therapy.

l) Monitor patient compliance with prescribed drug regimens, including completion and outcome of therapy.

m) Monitor sputum culture conversion for pulmonary TB (or chest X-ray improvement if there is no sputum to culture).

n) Report to the ministry all cases who:
   i) Leave the province of Ontario; and/or
   ii) Are being considered for a Section 35 order from the Ontario Court of Justice under the HPPA.

o) Issue orders to persons with suspect/confirmed TB according to criteria specified in Section 22 of the HPPA.

5) Identification, assessment, and management of contacts of respiratory TB
The board of health shall:

a) Identify high priority contacts (as defined in the glossary) within 48 hours of notification of the source case or as soon as possible thereafter.

b) Recommend and facilitate assessment of high priority contacts to rule out active TB as soon as possible.

c) Recommend and facilitate prophylaxis for the following high priority contacts who do not have active TB disease even if they are assessed as being tuberculin skin test (TST) negative:
   i) children under age 5 years – prophylaxis should be continued for at least eight weeks from break in contact and reassessment should be carried out before prophylaxis is discontinued; and
   ii) contacts with HIV infection or other severe immunodeficiency should receive a full course treatment of LTBI regardless of the TST results.

d) Direct close contacts who are not high priority to complete contact follow-up evaluation within four months from break in contact or one month of identification, whichever is later.

e) Identify any additional contacts (beyond those considered to be close contacts) within one month of notification of the source case. Direct the additional contacts for whom follow-up is considered appropriate, to complete follow-up within four months from break in contact or one month of identification, whichever is later.

f) Facilitate follow-up of all contacts who are symptomatic for TB disease or (TST) positive to rule out active disease and for consideration of prophylaxis.

6) Identification and management of individuals with LTBI
The board of health shall:

a) Implement strategies to promote the identification and treatment of persons with LTBI. This shall include annual education of health care providers and/or community stakeholders about:
   i) Considering LTBI in those with risk factors;
   ii) Reporting persons with LTBI according to the HPPA;
   iii) Screening of high-risk groups; and
   iv) The need to offer treatment for those with LTBI as appropriate and ensure treatment completion.

b) Have a mechanism in place to ensure the provision of publicly funded TB medications for persons on LTBI therapy at no cost to the person with LTBI or the provider.
Glossary

**Contact:** a person identified as having come in contact with a case of infectious active TB disease. Contacts may be classified as high priority, close household, close non-household or casual or community contacts.

**Close household contacts:** those individuals who live in the same household as the infectious case of TB. Household contacts are considered by definition to share breathing space on a daily basis with the source case. Under certain circumstances, those who share prison cells, shelters, university dormitories and army barracks may also be considered close household contacts.

**Close non-household contacts:** those individuals who have regular, prolonged contact with the index case and share breathing space daily, but do not live in the same household. These include sexual partners, those with frequent/regular direct face-to-face exposure at work, and regular social contacts.

**Casual contacts:** those who spend time less frequently with the infectious case or have had less direct exposure. These individuals may include classmates, colleagues at work, or members of a club or team.

**Community contacts:** those living in the same community or attending the same school or workplace.

**High priority contacts:** include close household contacts, children under age five years, those with risk factors for progression of LTBI to TB disease, and contacts exposed during bronchoscopy, sputum induction, autopsy and other high-risk medical procedures.

**Urgent Immigration Medical Surveillance Notification Referrals:** An applicant requiring medical surveillance for TB (such as pulmonary tuberculosis infection (PTI) based on Medical Services Branch (MSB) standard criteria or other non-infectious TB) and presenting one of the following:

a) A medical condition placing the applicant at high risk for progression from latent TB infection to active disease with a chest X-ray graded 4.1 to 4.7. These conditions are:
   i) HIV/AIDS
   ii) Transplantation with immunosuppressive therapy
   iii) End-stage renal disease (chronic renal failure/ hemodialysis)

b) Any case of extra-pulmonary tuberculosis under treatment.

c) Any other significant factors that can make the management of the contacts in Canada more difficult if latent TB infection progresses to active disease (such as suspected multi-drug resistant TB (MDR-TB) because of previous contact with MDR-TB or extremely resistant TB (XDR-TB) cases).

d) A chest X-ray graded as follows:
   i) Non-calcified pleural fibrosis and/or effusion likely related to TB
   ii) Parenchymal lung disease likely related to TB
   iii) Acute pulmonary disease likely related to TB

e) A chest X-ray graded 4.7 (any cavitating lesion or “fluffy” or “soft” lesions likely related to TB) or with extensive, significant anomalies that render the determination of radiological stability difficult and/or doubtful.

f) A known case of treated MDR-TB or XDR-TB.

g) Any individual who is understood to have received treatment for two or more independent episodes of TB in the past (respiratory or nonrespiratory).

h) Any individual with a past history of TB that received particularly unusual/unconventional treatment, as determined by a CIC Medical Officer after consultation with a Canadian TB specialist.
References


   Toronto, ON: Queen’s Printer for Ontario; 2006.
   Available from https://www.publichealthontario.ca/imageserver/content/publichealth/TBPConsolidated_Sept06.pdf.


Vaccine Storage and Handling Protocol

Preamble

The Ontario Public Health Standards (OPHS) are published by the Minister of Health and Long-Term Care under the authority of the Health Protection and Promotion Act (HPPA) to specify the mandatory health programs and services provided by boards of health. Protocols are program and topic specific documents which provide direction on how boards of health must operationalize specific requirement(s) identified within the OPHS. They are an important mechanism by which greater standardization is achieved in the province-wide implementation of public health programs.

Protocols identify the minimum expectations for public health programs and services. Boards of health have the authority to develop programs and services in excess of minimum requirements where required to address local needs. Boards of health are accountable for implementing the standards including those protocols that are incorporated into the standards.

Purpose

Vaccine wastage due to spoilage or expiry is a concern for all immunization programs. This protocol has been developed to achieve greater standardization in the management of provincial vaccine inventories to ensure the proper storage and handling of vaccines, strengthen quality assurance activities, and provide education strategies in an effort to minimize and reduce provincially funded vaccine wastage and promote vaccine safety and efficacy.

This protocol replaces the Vaccine Preventable Diseases (VPD) – Vaccine Distribution, Storage and Handling Protocol, January 1998.

Reference to the Standards

The table below identifies the OPHS program standard and requirements to which this protocol relates.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaccine Preventable</td>
<td>Requirement #5: The board of health shall provide a comprehensive information and education strategy to promote optimal vaccine management, including storage and handling practices, among health care providers in accordance with the Vaccine Storage and Handling Protocol, 2008 (or as current). This shall include:</td>
</tr>
<tr>
<td>Diseases</td>
<td>• One-on-one training at the time of cold chain inspection;</td>
</tr>
<tr>
<td></td>
<td>• Distributing information to new health care providers who handle vaccines; and</td>
</tr>
<tr>
<td></td>
<td>• Providing ongoing support to existing health care providers who handle vaccines.</td>
</tr>
<tr>
<td></td>
<td>Requirement #10: The board of health shall ensure the storage and distribution of provincially funded vaccines including to health care providers practicing within the health unit in accordance with the Vaccine Storage and Handling Protocol, 2008 (or as current).</td>
</tr>
<tr>
<td></td>
<td>Requirement #11: The board of health shall promote vaccine inventory management in all premises where provincially funded vaccines are stored in accordance with the Vaccine Storage and Handling Protocol, 2008 (or as current).</td>
</tr>
</tbody>
</table>
Operational Roles and Responsibilities

1) Inventory management

The board of health shall:

a) Record the following vaccine inventory information using the Bioinventory System (BIOS) or any other method specified by the Ministry of Health and Long-Term Care (the “ministry”) on an ongoing basis:
   i) Catalogue number;
   ii) Code name;
   iii) Lot number(s);
   iv) Expiry date(s);
   v) Quantity ordered;
   vi) Quantity received;
   vii) Quantity distributed;
   viii) Inventory on hand;
   ix) Returned product; and
   x) Reason for return (e.g., cold chain incident, expiry).

b) Count vaccine inventory and check for expired vaccines before placing a vaccine order.

c) Compare vaccine inventory against totals listed in BIOS or any other method specified by the ministry.

d) Remove any expired vaccine immediately and place in a clearly marked box for expired vaccines.

e) Record expired vaccine as “expired” in BIOS or any other method specified by the ministry and return expired vaccine to the Ontario Government Pharmaceutical and Medical Supply Service (OGPMSS) using the current vaccine return form or any other method specified by the ministry.

f) Maintain no more than a two-month vaccine supply at the board of health, depending on the product. The board of health may maintain a larger supply of vaccine during health emergencies, a declared outbreak, immunization clinics or an adverse condition that may cause delays in the delivery of vaccine by any mode of transportation.

g) Rotate inventory to ensure that vaccines with longer expiry dates are stored behind vaccines with shorter expiry dates.

h) Distribute products with the shortest expiry dates first to ensure that short-dated stock is used first.

2) Vaccine order process

The board of health shall:

a) Engage in planning and forecasting to maintain an adequate inventory of vaccine to meet the routine needs of health care providers administering publicly funded vaccines and immunization clinics administered by the board of health by:
   i) Calculating the approximate quantity of each vaccine that should be distributed in the current year by reviewing the total quantities of each vaccine distributed in the previous year. Include in the analysis population demographics, epidemiological analysis (e.g., outbreaks), and estimated vaccine coverage rates to project the number of vaccine doses required;
   ii) Evaluating vaccine wastage amounts and trends. Spoiled, expired or damaged vaccines are considered “wasted” product. Wastage rates should not exceed 5 per cent for any one product. If wastage exceeds this level, inventory control measures should be taken to reduce it. Wastage levels for each product should be reported to the Public Health Division (PHD) of the ministry once a year at a time specified by the ministry; and
   iii) Placing vaccine orders with the OGPMSS according to the scheduled OGPMSS delivery dates. The boards of health may order outside of the scheduled OGPMSS delivery dates during health emergencies, a declared outbreak, or an adverse condition that may cause delays in the delivery of vaccine by any mode of transportation.

b) Place vaccine orders with the OGPMSS by completing the current vaccine order form or through any other method specified by the ministry.
c) Maintain a record of all vaccine orders placed with the OGPMSS using BIOS or any other method specified by the ministry.

d) Verify that the vaccine received from the OGPMSS corresponds with the packing slip received, and with the amounts that were ordered. If there is a discrepancy, OGPMSS customer service should be contacted to rectify the situation as soon as possible, but no later than 72 hours after taking receipt of the vaccine order.

e) For health care providers who order vaccines directly from the board of health, review quantities and adjust orders as required to ensure that no more than a one-month supply of vaccine is stored in premises to which the board of health distributes publicly funded vaccines.

f) For health care providers who order vaccines directly from the OGPMSS:
   i) Instruct health care providers to order vaccines directly from the OGPMSS using the current vaccine order form provided by the ministry; and
   ii) Instruct health care providers that no more than a one-month supply of vaccine should be stored in their premises.

3) Vaccine return process

The board of health shall:

a) Return vaccines that cannot be used to the OGPMSS in a timely fashion, unless otherwise indicated on the current vaccine return form or any other method specified by the ministry. If vaccines should not be returned to the OGPMSS as indicated on the current vaccine return form or any other method specified by the ministry, they should be disposed in approved biomedical waste containers according to local and/or provincial regulations.

b) Return vaccines that cannot be used by the board of health or health care providers for the following reasons:
   i) Expiry (if the month and year are only specified, the vaccine expires at the end of the month, e.g., expiry Jan/08 means expiry January 31, 2008. If the day, month and year are specified, the vaccine expires on the specified date);
   ii) Damaged product;
   iii) Spoiled product (vaccine that cannot be used due to exposure(s) to temperatures below +2°C or above +8°C for a specific period of time. This will depend on the specific vaccine.); and
   iv) For the redistribution of product with four months of shelf life or more by the OGPMSS: only product that has been maintained at the board of health (i.e., never distributed to a health care provider's premises) in the required storage conditions as indicated on the vaccine product monograph.

c) Obtain a Return Authorization Number (RAN) from the OGPMSS prior to returns of all vaccine inventory to the OGPMSS.

d) List all returned vaccines on the current vaccine return form or any other method specified by the ministry.

e) Package reusable vaccines and non-reusable vaccines separately. Only reusable vaccines must be stored and transported under the required cold chain temperature conditions. The packages must be clearly identified by attaching the appropriate approved vaccine return label to the outside of the package. Place the corresponding current vaccine return form(s) (reusable or non-reusable) inside the package.

f) Instruct health care providers who order vaccines directly from their local board of health to return all expired, damaged, and spoiled vaccines to the board of health.

g) Instruct health care providers who order vaccines directly from the OGPMSS to return all expired, damaged, and spoiled vaccines directly to the OGPMSS unless otherwise indicated on the current vaccine return form or any other method specified by the ministry; complete the current vaccine return form or any other method specified by the ministry, attach the form with the returned vaccines, and contact the OGPMSS for a RAN.
4) Vaccine handling and use

Storage by the board of health

The board of health shall:

a) Ensure that vaccines remain in the refrigerator, except for removing dose(s) for
   i) Shipping to health care providers;
   ii) Transporting to immunization clinics; or
   iii) Transferring vaccines to an alternative refrigerator, insulated container, or facility due to power outages,
       refrigerator failure, or maintenance.

b) Ensure that space is left between the vaccine and the refrigerator wall, and that there is space between each box
   or tray of vaccine in the refrigerator to allow for adequate air circulation around the vaccine.

c) Group vaccines by product type in the refrigerator.

d) Refer to the vaccine product monograph to determine the required storage conditions for the vaccine diluent
   (e.g., refrigeration or room temperature).

5) Vaccine storage and handling equipment

Physical requirements at the board of health

The board of health shall:

a) Ensure purpose-built refrigerators (also referred to as pharmacy, laboratory, or industrial-quality refrigerators)
   are used for storing inventory of vaccines. The purpose-built refrigerator shall meet the following requirements:
   i) A feedback system ensures narrow tolerances with internal temperatures, thus providing appropriate
      temperature regulation;
   ii) Ongoing air circulation ensures that the temperature distribution is even;
   iii) A set-point temperature within a +2°C to +8°C range is maintained;
   iv) An evaporator operates at +2°C, preventing the vaccine from freezing;
   v) Air circulation is fan-forced;
   vi) The temperature recovery system is appropriate; and
   vii) The refrigerator is built to handle ambient temperature changes.

b) Not use domestic refrigerators (also referred to as kitchen-style refrigerators) or bar refrigerator units (also referred
   to as bar-style refrigerators) to store vaccines. These refrigerators are ineffective at maintaining the required storage
   temperatures.

c) Replace domestic refrigerators or bar refrigerator units with purpose-built vaccine refrigerators as soon as possible,
   but no later than January 1, 2011.

d) Ensure that all vaccine refrigerators are equipped with an alarmed temperature monitoring system. The alarm must
   be either a voice or electronic message that will be telephoned or e-mailed to on-call staff or security service or a
   recognizable audio tone that is monitored during office hours by staff and after office hours by a security service.
   Security service or on-call staff must be trained in appropriate procedures for responding to an alarm. The alarmed
   temperature monitoring system should have a battery back-up system in case of an electricity disruption.

e) Ensure that all vaccine refrigerators are equipped with a lockable door and are kept locked, especially after office
   hours. A latch or padlock must be installed on refrigerators without built-in locks.
Routine maintenance at the board of health
The board of health shall:

f) Ensure that vaccine refrigerator maintenance agreements are in place. Maintenance agreements should include:
   i) Regular maintenance of vaccine refrigerators is completed at least once annually;
   ii) Testing of vaccine refrigerator alarm system;
   iii) Calibration of vaccine refrigerator temperature monitoring and recording device(s) once annually; and
   iv) Results of maintenance activities, records, and tests are recorded and acted on accordingly.

g) Maintain vaccine refrigerator maintenance records and create a summary of maintenance information that includes
   the following:
   i) Name and contact information for refrigerator service provider;
   ii) Itemized list of vaccine refrigerators within the board of health, including location, age, size, and serial numbers;
   and
   iii) Maintenance status and history of the vaccine refrigerators.

h) Ensure that vaccine refrigerator alarm system batteries are replaced at least every six months, or as required.

Temperature control at the board of health
The board of health shall:

i) Ensure that all vaccine refrigerators have a continuous temperature monitoring and recording device.

j) Ensure that temperature monitoring and recording devices are calibrated once annually and batteries are changed
twice annually, or as required.

k) Ensure that maximum-minimum thermometers and temperature monitoring and recording devices are accurate
within ±1°C.

l) Check the temperature monitoring and recording devices twice daily, when the board of health opens and before the
board of health closes, to ensure that vaccine refrigerator temperatures remain between +2°C and +8°C.

m) Record the current, minimum and maximum temperatures in the current temperature log book or any other method
specified by the ministry twice daily during business days, following thermometer inspection.

n) Review the print-outs from the temperature monitoring and recording device when the vaccine refrigerator
temperatures are below +2°C or above +8°C.

o) Not open vaccine refrigerator doors more often than is necessary to stock, count, or remove vaccines.

p) Ensure that nothing other than vaccine is stored in vaccine refrigerators at the board of health.

q) Ensure that all vaccine-handling staff are knowledgeable about all temperature control devices, including maximum-
minimum thermometers and temperature monitoring and recording devices.

6) Vaccine transport

General
The board of health shall:

a) Transport all vaccines in insulated containers supplied by the OGPMSS with the appropriate packing configuration
(i.e., summer or winter).

b) At its discretion, use alternative insulated containers for vaccine transport and storage, provided the following
requirements are met:
   i) Internally validate and document insulated containers to ensure that they are capable of maintaining the vaccine
      at the required temperatures for the required duration for transportation and/or storage;
ii) Produce documentation that is either consistent with the manufacturer’s recommendations based on testing, or the board of health’s test results; and

iii) Submit documented evidence to the PHD of the ministry prior to use of the insulated container.

c) Ensure that all insulated containers storing vaccines have a maximum-minimum thermometer or a temperature monitoring and recording device.

d) Clearly mark all insulated containers storing vaccines with the following label: “VACCINES – REFRIGERATE IMMEDIATELY.” Before placing vaccines into the refrigerator, they must be removed from the insulated container(s).

e) Not transport vaccines in insulated containers in the trunk of a car due to the risk of exposure to temperature extremes.

Immunization clinics
The board of health shall:

f) Use insulated containers with packing material and a maximum-minimum thermometer to store vaccine if a refrigerator is not available during immunization clinics.

g) Minimize the number of times that the insulated container is opened during the immunization clinic.

h) Visually inspect the thermometer each time the insulated container is opened.

i) Monitor and record temperature readings in the insulated container:
   i) Before leaving the board of health with the insulated container;
   ii) Upon arrival at the clinic location, but prior to the immunization clinic;
   iii) Every three hours during the immunization clinic;
   iv) Upon completion of the clinic but before transport back to the board of health; and
   v) After return to the board of health but before the vaccines are placed back into the refrigerator.

Health care providers
The board of health shall:

j) Ensure that health care providers use insulated containers that are able to maintain the +2°C to +8°C temperature range for the maximum length of time required for transport when transporting vaccine from the board of health to the health care provider’s premises. The insulated container also should contain packing material (i.e., ice pack) and a maximum-minimum thermometer.

Air and courier
The board of health shall:

k) Advise air/courier transport services contracted to transport vaccine that vaccines are perishable, must be refrigerated immediately upon receipt, and must be transported under required cold chain conditions.

l) Inquire about estimated travel times and choose insulated containers accordingly.

7) Information and education strategies
The board of health shall:

a) Ensure that settings to which it distributes publicly funded vaccines meet the following requirements:
   i) Maximum-minimum thermometers or temperature monitoring and recording device are in place on all refrigerators used to store publicly funded vaccines;
   ii) Maximum-minimum thermometers or temperature monitoring and recording device are checked twice daily and documented, upon arrival and before office closing to ensure refrigerator temperatures remain between +2°C and +8°C;
iii) Vaccine Storage and Handling Guidelines, 2006² (or as current) and materials are available at the health care provider's premises and are easily accessible (these materials are available from the OGPMSS and can be distributed to health care providers by the board of health).

b) Conduct an on-site inspection for newly enrolled immunization service providers prior to distributing publicly funded vaccine to them.

c) Provide an orientation for all health care providers who have been newly enrolled to receive publicly funded vaccines from the board of health.

d) Educate health care providers that vaccines are perishable, must be refrigerated immediately upon receipt, must be transported under required cold chain conditions, and must be transported in properly labelled insulated containers.

e) Inform health care providers that vaccine that has been exposed to a cold chain incident must be reported immediately to the board of health.

f) Provide ongoing education with respect to appropriate vaccine ordering, storage, and cold chain management throughout the year for all health care providers who distribute publicly funded vaccines.

8) Cold chain inspections

The board of health shall:

a) Conduct cold chain incident inspections if required and routine inspections on vaccine storage and handling practices in health care provider premises that store publicly funded vaccine.

Cold chain incident inspection

The board of health shall:

b) Conduct cold chain inspections following a cold chain incident. The purposes of these inspections are to determine whether vaccine can be used by the health care provider or returned to the board of health, to investigate the cause of the cold chain incident, provide follow-up education in order to prevent the occurrence of future incidents, and ensure that adequate cold chain conditions can be maintained prior to continuing the vaccine supply to the health care provider.

c) Investigate all reports of cold chain incidents in health care settings to which it has distributed publicly funded vaccines within 24 hours (or next business day) of receiving a report of such an incident.

d) Determine whether an on-site cold chain incident inspection is required at the premises or whether the investigation can adequately be handled over the telephone. (Note: it is recommended that on-site inspections be conducted following cold chain incidents that are related to non-compliance with vaccine storage and handling requirements.)

e) Provide consultation and technical assistance to health care providers who have experienced cold chain incidents.

f) Ensure that the steps as outlined in Section 9, part b, of this protocol are followed.

g) Communicate in writing the board of health's assessment of the cold chain incident, and/or issues related to non-compliance, the value of the vaccine loss, and the required remediation strategy(ies) to health care providers who are non-compliant with the minimum vaccine storage and handling requirements or have experienced a cold chain incident. A specified remediation time frame shall be established with the health care providers.

h) Ensure that compliance with the required remediation strategy(ies) has occurred.

i) Withhold vaccines until compliance issues have been resolved or until completion of other follow-up deemed necessary to ensure appropriate vaccine storage and handling when minimum cold chain requirements are not met by a health care provider. For health care providers who order vaccines directly from the OGPMSS, the board of health shall instruct the OGPMSS to discontinue further vaccine deliveries to the health care provider premises until the requirements have been met.
j) Consider issuing an advisory from the medical officer of health (or designate) to the health care provider's premises advising that access to publicly funded vaccines has been suspended due to non-compliance with the required remediation strategy(ies) or repeated cold chain incidences have occurred. Once remediation activities have been undertaken as recommended by the board of health, vaccine supply can be restored. For health care providers who order vaccines directly from the OGPMSS, the board of health shall instruct the OGPMSS to resume filling orders for health care providers.

Routine inspections
The board of health shall:

k) Conduct routine inspections on an annual basis, regardless of whether or not a cold chain incident inspection has been conducted. The purpose of these inspections is to assess the health care providers' level of compliance with vaccine storage and handling requirements, including cold chain requirements, and to provide an opportunity for board of health staff to provide information and resources regarding the proper storage and handling of vaccines and the proper temperature monitoring systems that should be in place to optimize vaccine potency.

l) Provide one-on-one consultation to health care providers with respect to vaccine storage, handling, and cold chain management at the time of routine inspection.

m) Review and inspect the following practices:
   i) Vaccine storage;
   ii) Vaccine storage and handling equipment (i.e., maximum-minimum thermometer, refrigerator);
   iii) Vaccine refrigerator temperatures;
   iv) Vaccine temperature log book;
   v) Vaccine handling;
   vi) Vaccine inventory; and
   vii) Availability of vaccine storage and handling resource material.

n) Complete the current Vaccine Cold Chain Maintenance Inspection Report form or any other method specified by the ministry during the inspection and indicate the premises' compliance with each of the vaccine storage and handling requirements and recommendations. A copy of the report shall be provided to the health care provider.

o) Report on the results of these inspections to the PHD of the ministry once annually.

9) Cold chain incidents

Within the board of health
a) The board of health shall contact the PHD of the ministry following a cold chain incident during vaccine delivery from the OGPMSS. The PHD of the ministry is responsible for assessing conditions and making recommendations.

Within the board of health or at a health care provider's premises
b) The board of health shall ensure that the following steps are taken following a cold chain incident within the board of health or at a health care provider's premises:
   i) Store exposed vaccines in a separate container marked “DO NOT USE” in a refrigerator or insulated container with the appropriate packing material and with a maximum-minimum thermometer until the board of health determines which products are usable and which products must be replaced.
   ii) Calculate the maximum length of time the temperature was outside +2°C to +8°C. If specific time/temperature details are not available, assume the refrigerator malfunctioned immediately after the last thermometer check.
   iii) Assess products involved in the cold chain incident and provide advice for use/return based on the recommendations on the current Vaccine Stability Chart. If cold chain incident conditions are not provided in the current Vaccine Stability Chart, or if the products have been exposed in a previous incident, board of health staff shall contact the PHD of the ministry.
   iv) Mark vaccines involved in a cold chain incident that have been determined to be usable in order to identify them in case of a second exposure. These products must be distributed and/or administered before unexposed products, regardless of expiry date.
v) Return vaccines involved in a cold chain incident that have been determined to be unusable to the OGPMSS using the current vaccine return form or any other method specified by the ministry. These vaccines do not require refrigeration.

vi) After any cold chain incident that has occurred either at the board of health or at a health care provider’s premises, the board of health shall complete the current cold chain incident exposure/wastage report form or any other method specified by the ministry.

vii) Exposure/wastage information must be submitted to the PHD of the ministry after the investigation of each incident.

viii) A record of cold chain incident(s) should be maintained by the board of health.

10) Contingency planning within the board of health

The board of health shall:

a) Establish urgent vaccine storage and handling practices in the event of a vaccine refrigerator malfunction, power failure, natural disaster, or other emergency that may compromise vaccine storage conditions. The urgent vaccine storage and handling practices shall cover the following:

i) Maintaining the vaccines within the board of health if the vaccine refrigerator is connected to a generator;

ii) Establishing in advance at least one alternative storage facility where vaccine can be appropriately stored and monitored if the board of health does not have a generator. The facility should also have adequate vaccine storage capacity. In situations where an alternative vaccine storage facility cannot be identified within a reasonable distance, maintain the appropriate packing materials to temporarily and safely store vaccine at the board of health; and

iii) Ensuring that appropriate board of health staff have training so that they understand the urgent vaccine storage and handling practices and their responsibilities for maintaining the cold chain.

b) Post the urgent vaccine storage and handling practices on or near all board of health vaccine refrigerators.

Glossary

**Cold chain**: Includes all of the materials, equipment, and procedures used to maintain vaccines in the required temperature range of +2°C to +8°C from the time of manufacture until the vaccines are administered to individuals. In addition, protection from light is a necessary condition for some vaccines.

**Cold chain incident**: Occurs when vaccine is exposed to a temperature outside the required temperature range of +2°C to +8°C for any period of time and the potency of the vaccine is potentially compromised. The vaccine temperature excursion tolerance and permissible time excursion is determined by each product manufacturer.

**Damaged product**: Vaccine vials/ampoules that have been broken or are defective (e.g., missing a label, missing a vial cap).

**Diluent**: Liquid substances used to reconstitute vaccines prior to administration.

**Exposed vaccine**: Vaccine that is stored or handled at temperatures below +2°C or above +8°C for any period of time, or that is not stored according to the manufacturer's recommendations.

**Insulated container**: An insulated container that has been tested and internally qualified to meet the requirements of storing and transporting vaccines at the required temperatures for the necessary duration of time.

**Potency**: The ability of a vaccine to produce a predictable and expected level of immune response in the vaccine recipient.

**Spoiled product/vaccine**: Vaccine that cannot be used due to exposure(s) to temperatures below +2°C or above +8°C for a specific period of time. This will depend on the specific vaccine.

**Temperature monitoring and recording device**: An electronic device that measures temperatures and keeps a record of the results. This can include devices such as a data logger and a chart recorder.
**Temperature recovery system:** A mechanism that allows the refrigerator to return to its set temperature after being exposed to out of range temperatures (e.g., after opening the door to remove vaccine).

**Wasted vaccine:** Any vaccine that cannot be used is considered to be “wasted.” This includes vaccines that are exposed and those that have expired.

### References
