Laboratory Guide for Gastroenteritis Outbreaks

Public Health Laboratories Branch
Ontario Agency for Health Protection and Promotion

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Note: Most recent version of the Guide is available on www.oahpp.ca
1 Introduction

The Ontario Public Health Laboratories (OPHL) consist of a Central Laboratory in Toronto and eleven strategically located Regional Laboratories throughout the province.

This Guide provides information regarding the laboratory services available at the Ontario Public Health Laboratories for the investigation of a gastroenteritis outbreak, including:

- The role of the laboratories, contact information, and the diagnostic laboratory tests available
- Lists of agents associated with, and common causes of, gastroenteritis outbreaks
- Guidelines for the collection and transportation of specimens.

The analytical services available through the Ontario Public Health Laboratories system assist in determining the etiology of community and institutional gastroenteritis outbreaks.

1.1 Role of the Laboratory

The Ontario Public Health Laboratories system provides laboratory services:

1. To advise at the start of an outbreak on the collection and transportation of appropriate specimens.

2. To isolate and identify the etiological agent(s).

3. To assist in determining the reservoir of infection and mode/vehicle of transmission.

4. To provide primary testing of specimens/cultures and co-ordinate the involvement of additional reference laboratories as required.

5. To communicate both positive and negative laboratory results promptly to the local Health Unit/Institution.

The success of the laboratory testing depends on the prompt receipt of well chosen and properly collected specimens. When a gastroenteritis outbreak is identified, the laboratory requires timely relevant clinical and epidemiological information so that it can quickly plan strategies, establish priorities and organize its material and personnel resources.

Note: Most recent version of the Guide is available on www.oahpp.ca
2 Communication

Effective communication is a critical factor in the successful investigation of outbreaks. It is important to have simple and direct lines of communication and the information exchange must take place only through designated contact persons at the health unit/institution involved and the laboratory. Please refer to the Contact Directory below for the appropriate contact in outbreak situations. The Public Health Laboratory representative should be involved when an outbreak is identified to provide information regarding the collection and transport of specimens and for reporting of results.

2.1 Contact Directory

Most up to date version can be found on the website at http://www.health.gov.on.ca/english/providers/pub/labs/specimen.html

Central Public Health Laboratory, Toronto
Address: Ontario Agency for Health Protection and Promotion
Ontario Public Health Laboratories (OPHL)
81 Resources Road
Toronto ON M9P 3T1

OPHL HELPLINE (Monday to Friday 8:00 AM – 5:00 PM) 
Tel: 1-800-640-7221
AFTER HOURS EMERGENCY RESPONSE LINE 
Tel: 416-605-3113

Hours of Operation: Monday to Friday 8:00 AM – 5:00 PM

<table>
<thead>
<tr>
<th>Location/Position</th>
<th>Telephone #</th>
<th>Fax #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manager, Direct Services</td>
<td>416-235-5941</td>
<td>416-235-6063</td>
</tr>
<tr>
<td>Kits and Supplies Order Desk</td>
<td>416-235-5937</td>
<td>416-235-5753</td>
</tr>
<tr>
<td>Medical Microbiologist, Clinical and Environmental Microbiology Office</td>
<td>416-235-5712</td>
<td>416-235-5951</td>
</tr>
<tr>
<td>Manager, Clinical and Environmental Microbiology</td>
<td>416-235-5988</td>
<td>416-235-5951</td>
</tr>
<tr>
<td>Head, Enteric, Environmental, Molecular Surveillance and STI</td>
<td>416-235-5707</td>
<td>416-235-5951</td>
</tr>
<tr>
<td>Head Technologist, Enteric</td>
<td>416-235-6377</td>
<td>416-235-5951</td>
</tr>
<tr>
<td>Head Technologist, Environmental Microbiology</td>
<td>416-235-5718</td>
<td>416-235-5951</td>
</tr>
<tr>
<td>Head Technologist, Parasitology Laboratory</td>
<td>416-235-5722</td>
<td>416-235-6088</td>
</tr>
<tr>
<td>Head Technologist, Molecular Diagnostics</td>
<td>416-235-5866</td>
<td>416-235-5951</td>
</tr>
<tr>
<td>Medical Microbiologist, Clinical Virology</td>
<td>416-235-5725</td>
<td>416-235-5800</td>
</tr>
<tr>
<td>Manager, Clinical Virology</td>
<td>416-235-5723</td>
<td>416-235-5800</td>
</tr>
<tr>
<td>Head Technologist, Virus Detection</td>
<td>416-235-5730</td>
<td>416-235-6334</td>
</tr>
</tbody>
</table>
### Region Public Health Laboratories

<table>
<thead>
<tr>
<th>Regional Public Health Laboratories</th>
<th>Telephone #</th>
<th>Fax #</th>
</tr>
</thead>
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<tr>
<td>Hamilton 250 Fennell Avenue West, P.O. Box 2100 Hamilton ON L8N 3R5</td>
<td>905-385-5379</td>
<td>905-385-0083</td>
</tr>
<tr>
<td>Kingston 181 Barrie Street, P.O. Box 240 Kingston ON K7L 4V8</td>
<td>613-548-6630</td>
<td>613-547-1185</td>
</tr>
<tr>
<td>London St. Joseph’s Regional Mental Health Centre 850 Highbury Avenue, 5th Floor, P.O. Box 5704, Postal Station ‘A’ London ON N6A 4L6</td>
<td>519-455-9310</td>
<td>519-455-3363</td>
</tr>
<tr>
<td>Orillia 750 Memorial Avenue, P.O. Box 600 Orillia ON L3V 6K5</td>
<td>705-325-7449</td>
<td>705-329-6001</td>
</tr>
<tr>
<td>Ottawa 2380 St. Laurent Blvd. Ottawa ON K1G 6C4</td>
<td>613-736-6800</td>
<td>613-736-6820</td>
</tr>
<tr>
<td>Peterborough 99 Hospital Drive, P.O. Box 265, Peterborough ON K9J 6Y8</td>
<td>705-743-6811</td>
<td>705-745-1257</td>
</tr>
<tr>
<td>Sault Ste. Marie 160 McDougall Street, P.O. Box 220, Sault Ste. Marie ON P6A 5L6</td>
<td>705-254-7132</td>
<td>705-945-6873</td>
</tr>
<tr>
<td>Sudbury 1300 Paris Street, Suite 2 Sudbury ON P3E 6H3</td>
<td>705-564-6917</td>
<td>705-564-6918</td>
</tr>
<tr>
<td>Thunder Bay 336 South Syndicate Avenue Thunder Bay ON P7E 1E3</td>
<td>807-622-6449</td>
<td>807-622-5423</td>
</tr>
<tr>
<td>Timmins 67 Wilson Avenue Timmins ON P4N 2S5</td>
<td>705-267-6633</td>
<td>705-360-2006</td>
</tr>
<tr>
<td>Windsor 3400 Huron Church Road, P.O. Box 1616 Windsor ON N9A 6S2</td>
<td>519-969-4341</td>
<td>519-973-1481</td>
</tr>
</tbody>
</table>

Note: Most recent version of the Guide is available on www.oahpp.ca
2.2 Outbreak Notification Report

The Outbreak Notification Report (ONR) (Appendix) is a critical component of effective communication between the health unit/institution and the laboratory. The following information is required for outbreaks of gastroenteritis and is requested upon initial telephone notification to the laboratory:

1. Outbreak number assigned by the local Health Unit
2. Location of the outbreak (name and address of the institution/facility)
3. Health Unit/Institution Outbreak Coordinator contact information
4. Source or event associated with the outbreak
5. Date of onset
6. Number of persons ill/at risk/hospitalized/deceased
7. Number of residents/patrons/staff
8. Most common symptoms
9. Incubation period, if known
10. Duration of illness
11. Reports of any pathogens isolated by other laboratories, related to same outbreak
12. Suspected mode of transmission
13. Suspect meals and interval between the meal and symptoms
14. Travel or other history, if pertinent
15. Number of stool samples that will be submitted.
16. Number and type of food or environmental samples that will be submitted

The OPHL Outbreak Notification Report is available on the OPHL website under the Gastroenteritis Outbreak Guide at www.health.gov.on.ca/english/providers/pub/pub_menus/pub_labs.html. The completed form can be faxed or the information may be telephoned to the laboratory contact individual identified at the start of an outbreak.

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2.3 Ontario Public Health Laboratory Testing Protocol

The following protocol is typically followed by the Ontario Public Health Laboratories during a gastroenteritis outbreak:

1. An analysis for the detection of the agents listed in Agents Associated with Gastroenteritis Outbreaks (page 7 of this Guide) - is conducted on specimens collected from symptomatic cases.

2. Bacteriology, virology, and/or parasitology examinations are performed simultaneously.

3. Once an agent(s) has (have) been identified, analyses performed on specimens from patients with compatible symptoms are focused on that agent.

4. Where no agent is identified from the first group of symptomatic cases, additional specimens may be tested as determined by the Institutional Outbreak Coordinator and Medical Officer of Health in consultation with the Public Health Laboratory Manager or Medical Microbiologist.

2.4 Legal Samples

The laboratory must receive prior notification that a legal sample has been collected and will be submitted. Legal samples must be hand delivered to the Public Health Laboratory to a Senior, Head Technologist or Manager. Once the legal sample is received in the Laboratory, a Chain of Custody form\(^1\) must be signed by the individual delivering the samples and the legal seal verified as intact by both the individuals delivering and receiving the package.

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1\(^1\) If a chain of custody form is not available to the submitter, one can be obtained from the laboratory.

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3 Agents Associated with Gastroenteritis Outbreaks

Listed below are bacterial, parasitic and viral agents associated with diarrhoeal / gastrointestinal disease and for which laboratory investigations are performed for gastroenteritis outbreak related clinical specimens.

3.1 Bacterial Agents

*Bacillus cereus* (food submissions only)

*Campylobacter* species

*Clostridium botulinum*

*Clostridium difficile* (antibiotic-associated/pseudomembranous colitis – toxin testing only)*

*Clostridium perfringens* (enterotoxigenic)**

Enterohaemorrhagic *E. coli* O157:H7 (and other verotoxigenic serotypes*)

Enteroinvasive *E. coli* *

Enteropathogenic *E. coli* *

Enterotoxigenic *E. coli* *

Enteroadherent *E. coli* *

*Salmonella* serotypes

*Shigella* species

*Staphylococcus aureus* (enterotoxigenic - food submissions only)

*Vibrio (V. cholerae, V. parahaemolyticus, V. fluvialis and other species)* *

*Yersinia enterocolytica* (pathogenic bio/serotypes)

*Yersinia pseudotuberculosis*

*testing only performed upon request*

**testing only performed when the causative agent is unknown*
3.2 Parasitic Agents

*Cryptosporidium species*
*Cyclospora cayetanensis*
*Giardia lamblia*

3.3 Viral Agents

*Adenovirus*
*Astrovirus*
*Caliciviruses* (Norwalk-like viruses (Norovirus) and Sapporo-like viruses)
*Coronavirus*
*Enteroviruses*
*Rotavirus*
*Torovirus*
*Picornaviruses*

3.4 Characteristics of Gastroenteritis Outbreaks

<table>
<thead>
<tr>
<th>AGENT</th>
<th>EPIDEMIOLOGY</th>
<th>INCUBATION</th>
<th>SYMPTOMS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bacterial Agents</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Clostridium difficile</em> (Antibiotic associated / pseudomembranous colitis – toxin testing only)</td>
<td>Leading cause of nosocomial diarrhea in hospitals and nursing homes</td>
<td>Variable</td>
<td>Watery diarrhea, fever, loss of appetite, nausea, abdominal pain/tenderness.</td>
</tr>
<tr>
<td><em>Bacillus cereus</em> (Food Intoxication)</td>
<td>A well recognized cause of food poisoning</td>
<td>1–6 hours where vomiting is predominant (toxin); 6–24 hours where diarrhoea is predominant (infection)</td>
<td>An intoxication characterized in some cases by sudden onset of nausea and vomiting, in others by colic and diarrhea.</td>
</tr>
<tr>
<td><em>Campylobacter spp.</em> Verotoxigenic <em>E.coli</em> (0157:H7) and other VT types, Enteropathogenic <em>E. coli</em>, Enterotoxigenic <em>E. coli</em>, Enteroinvasive <em>E. coli</em>, <em>Salmonella</em> spp., <em>Shigella</em> spp., <em>Vibrio cholerae</em> and other spp.,</td>
<td>Highest incidence is usually during spring and summer months</td>
<td>Varies with the organism; on average, 6 hours to a few days</td>
<td>Gastrointestinal upset, (bloody faeces may be associated with <em>Campylobacter spp.</em> and certain enterotoxigenic <em>E. coli</em> including <em>E. coli</em> O157:H7)</td>
</tr>
</tbody>
</table>

*Note: Most recent version of the Guide is available on www.oahpp.ca*
<table>
<thead>
<tr>
<th>AGENT</th>
<th>EPIDEMIOLOGY</th>
<th>INCUBATION</th>
<th>SYMPTOMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yersinia enterocolytica and other spp.</td>
<td>Human botulism is a serious but relatively rare intoxication caused by potent preformed toxins produced by Clostridium botulinum</td>
<td>Neurological symptoms usually appear within 12-36 hours.</td>
<td>Early symptoms and signs are marked by fatigue, weakness and vertigo usually followed by blurred vision, dry mouth and difficulty in swallowing and speaking.</td>
</tr>
<tr>
<td>Clostridium botulinum</td>
<td>Neurological symptoms usually appear within 12-36 hours.</td>
<td>Human botulism is a serious but relatively rare intoxication caused by potent preformed toxins produced by Clostridium botulinum</td>
<td>Early symptoms and signs are marked by fatigue, weakness and vertigo usually followed by blurred vision, dry mouth and difficulty in swallowing and speaking.</td>
</tr>
<tr>
<td>Clostridium perfringens (Food Intoxication)</td>
<td>Intestinal disorder characterized by sudden onset of colic followed by diarrhea. Nausea is common. Vomiting and fever are usually absent.</td>
<td>A well recognized cause of food poisoning</td>
<td>On average, 10–12 hours</td>
</tr>
<tr>
<td>Staphylococcus aureus (Food Intoxication)</td>
<td>An intoxication of abrupt and sometimes violent onset, with severe nausea, cramps, vomiting and prostration, often accompanied by diarrhea.</td>
<td>Preformed toxin</td>
<td>On average 2-4 hours</td>
</tr>
<tr>
<td>Parasitic Agents</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cryptosporidium parvum</td>
<td>Worldwide occurrence; thought to be 1–12 days with average of 7 days</td>
<td>Diarrhoea, abdominal pain; more severe in immuno-compromised patients (duration up to 30 days)</td>
<td>Worldwide occurrence; thought to be 1–12 days with average of 7 days</td>
</tr>
<tr>
<td>Cyclospora cayetanensis</td>
<td>Watery diarrhoea, anorexia, weight loss, abdominal cramping, flatulence (duration variable up to 4 weeks)</td>
<td>Worldwide occurrence; Ontario outbreaks food-related</td>
<td>On average, 7 days</td>
</tr>
<tr>
<td>Giardia lamblia</td>
<td>Chronic diarrhoea, abdominal cramping, bloatting, weight-loss (duration of 2 to 6 weeks)</td>
<td>Worldwide occurrence; high prevalence in daycare centres where children are not toilet trained</td>
<td>3–25 days; median 7–10 days</td>
</tr>
<tr>
<td>Viral Agents</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Astrovirus</td>
<td>Diarrhea (duration 1 to 14 days)</td>
<td>Entire year. Mainly infects small children and the elderly</td>
<td>1 – 2 days</td>
</tr>
<tr>
<td>Caliciviruses including Norwalk-like viruses and Sapporo-like viruses</td>
<td>Diarrhoea, vomiting, fever (duration 24 to 60 hours)</td>
<td>Winter, early spring. Most common cause of diarrhoea in adults</td>
<td>1 – 2 days</td>
</tr>
<tr>
<td>AGENT</td>
<td>EPIDEMIOLOGY</td>
<td>INCUBATION</td>
<td>SYMPTOMS</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Enteric Adenovirus (types 40, 41)</td>
<td>Entire year Most common in young children</td>
<td>5–10 days</td>
<td>Watery Diarrhoea, vomiting, fever (duration of 1–7 days)</td>
</tr>
<tr>
<td>Enterovirus</td>
<td>Late summer, fall. Most common in infants and young children</td>
<td>3–7 days</td>
<td>Diarrhoea, rash, low grade fever (duration of up to 14 days)</td>
</tr>
<tr>
<td>Rotavirus</td>
<td>Late winter, early spring; infects primarily children; can cause nursing home outbreaks</td>
<td>2–3 days</td>
<td>Fever, vomiting, diarrhoea, (duration of 3–9 days)</td>
</tr>
<tr>
<td>Other viruses including Torovirus, Picobirnaviruses</td>
<td>Less well studied. Children and adults including immunosuppressed patients</td>
<td>Not well established</td>
<td>Persistent and acute diarrhea in children</td>
</tr>
</tbody>
</table>
### 4 Specimen Collection Guidelines

#### 4.1 Guidelines for Establishing Test Priorities during Gastroenteritis Outbreaks

It is essential to consult the laboratory before changing testing priority.

<table>
<thead>
<tr>
<th>Testing Priority</th>
<th>Specimens/Samples</th>
</tr>
</thead>
</table>
| 1                | 1. Initial specimens from the first 10-15 symptomatic cases (residents/patrons).  
2. Initial specimens from the first 10-15 symptomatic medical care staff and food handlers.  
| 2                | 1. Initial specimens from later cases.  
2. Initial specimens from asymptomatic dietary staff and food handlers.  
3. Water known to have been consumed by symptomatic cases.  
4. Top five suspect foods based on Food Specific Attack Rate. |
| 3                | 1. Specimens from contacts.  
2. Follow-up specimens from all cases. |
| 4                | 1. Other environmental specimens. |
4.2 Laboratory Flowchart for Outbreak Specimen Collection and Transport

- If faeces specimens can be sent same day:
  - Refrigerate
  - Notify Laboratory contact before sending specimens
  - Send by normal courier

- Food samples collected:
  - Store appropriately
  - See Page 21

- If faeces specimens or food samples are collected late or on the weekend:
  - Refrigerate faeces, See Page 21 for Food Storage
  - Notify the After Hours Emergency Response Line
    - 416-605-3113
  - Send by normal or arranged courier
  - Note: After hours service is available for receiving STAT specimens

Note: Most recent version of the Guide is available on www.oahpp.ca
4.3 Laboratory Flowchart for Gastroenteritis Outbreaks

Specimens Collected

Outbreak Notification Report (ONR)

Laboratory Contact

Clinical Specimens (10-15)

Environmental Samples

Dry Transport Container

Enteric Transport Medium

SAF Transport Medium

Water

Food

Swabs

Enteric Section for Toxin Testing

Virology Section

Enteric Section

Parasitology Section

Environmental Microbiology Section

Note: Most recent version of the Guide is available on www.oahpp.ca
### 4.4 Testing Guidelines

<table>
<thead>
<tr>
<th>Disease / Syndrome / Causal Agent / Test</th>
<th>Test Code</th>
<th>Specimens</th>
<th>Collection Kit</th>
<th>Test Available</th>
<th>Section</th>
<th>TAT Negative Results Reported</th>
<th>TAT Positive or Confirmatory Results Reported</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bacterial Agents</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Diarrhoea, Antibiotic Associated Clostridium difficile</strong>&lt;br&gt;(Pseudomembranous colitis)</td>
<td>B03</td>
<td>Faeces 5–10 ml of diarrhoeal faeces</td>
<td>TB / CD (90 ml sterile container)</td>
<td>Toxin detection</td>
<td>Enteric</td>
<td>1 day</td>
<td>1 day</td>
<td>Refer to Labstract LAB-SD-002 Clostridium difficile Toxin Testing – Specimen Acceptance Criteria</td>
</tr>
<tr>
<td><strong>Diarrhoea, Bacterial</strong> Routine examination includes Salmonella, Shigella, Campylobacter, Yersinia and E.coli O157:H7</td>
<td>B02</td>
<td>Faeces, especially portions containing blood and mucus</td>
<td>Faeces collection kit (Cary-Blair or other appropriate transport medium)</td>
<td>Culture, identification, serotyping, molecular typing (PFGE)</td>
<td>Enteric</td>
<td>3 days</td>
<td>Identification of cultures: within 5 days</td>
<td>Refrigerate specimen at 4-6°C if transport is delayed. Specimen must be received at the laboratory within 5 days of collection.</td>
</tr>
<tr>
<td><strong>Cholera Vibrio cholerae</strong></td>
<td>B02</td>
<td>Faeces</td>
<td>Faeces collection kit (Cary-Blair or other appropriate transport medium)</td>
<td>Culture</td>
<td>Enteric</td>
<td>3 days</td>
<td>Identification of cultures: within 5 days</td>
<td>Consult Medical Microbiologist at 416-235-5712 or your local Public Health Laboratory. Refrigerate specimen at 4°C if transport delayed. Specimen must be received at the laboratory within 5 days of collection.</td>
</tr>
<tr>
<td><strong>Clostridium perfringens</strong></td>
<td></td>
<td>Faeces</td>
<td>TB / CD (90 ml sterile container)</td>
<td>Clostridium perfringens enterotoxin determination</td>
<td>Enteric</td>
<td>Within 7 days</td>
<td>Within 7 days</td>
<td>Freeze specimen for C. perfringens toxin testing at –20°C or lower if not delivered within 1 day of collection.</td>
</tr>
<tr>
<td><strong>Yersinia Infections Yersinia spp.</strong></td>
<td>S04</td>
<td>Blood, clotted or serum</td>
<td>BL–S</td>
<td>Agglutination</td>
<td>Immuno-diagnostics</td>
<td>7 days</td>
<td>Within 7 days</td>
<td></td>
</tr>
<tr>
<td>Disease / Syndrome / Causal Agent / Test</td>
<td>Test Code</td>
<td>Specimens</td>
<td>Collection Kit</td>
<td>Test Available</td>
<td>Section</td>
<td>TAT Negative Results Reported</td>
<td>TAT Positive or Confirmatory Results Reported</td>
<td>Notes</td>
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</tr>
<tr>
<td>Cryptosporidiosis Cryptosporidium spp.</td>
<td>P04</td>
<td>Faeces in SAF preservative</td>
<td>Para</td>
<td>Microscopy for oocysts</td>
<td>Parasitology</td>
<td>3 days</td>
<td>Within 3 days</td>
<td></td>
</tr>
<tr>
<td>Cyclosporiasis Cyclospora cayetanensis</td>
<td>P04</td>
<td>Faeces in SAF preservative</td>
<td>Para</td>
<td>Microscopy for oocysts</td>
<td>Parasitology</td>
<td>3 days</td>
<td>Within 3 days</td>
<td></td>
</tr>
<tr>
<td>Giardiasis Giardia lamblia</td>
<td>P04</td>
<td>Faeces in SAF preservative 1 part formed faeces to 3 parts SAF</td>
<td>Para</td>
<td>Microscopy</td>
<td>Parasitology</td>
<td>3 days</td>
<td>Within 3 days</td>
<td>Collect faeces in clean, dry container. Emulsify faeces in SAF preservative immediately. Submit 1 specimen per day X 3 days. Anti-diarrhoeal medication, radiological dyes (barium) and antibiotics interfere with identification of intestinal protozoa.</td>
</tr>
</tbody>
</table>

**Parasitic Agents**

Note: Most recent version of the Guide is available on www.oahpp.ca
<table>
<thead>
<tr>
<th>Disease / Syndrome / Causal Agent / Test</th>
<th>Test Code</th>
<th>Specimens</th>
<th>Collection Kit</th>
<th>Test Available</th>
<th>Section</th>
<th>TAT Positive or Confirmatory Results Reported</th>
<th>TAT Negative Results Reported</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Viral Agents</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diarrhoea, Viral Including Adenovirus, Astrovirus, Calicivirus (Norwalk-like viruses and Sapporo-like viruses), Coronovirus, Enteroviruses, Rotavirus, Torovirus</td>
<td>V40 V06</td>
<td>Faeces</td>
<td>Sterile container (refrigerate following collection and transport)</td>
<td>Electron microscopy Direct antigen testing for Rotavirus (Regional Labs only)</td>
<td>Virus Detection</td>
<td>3 days</td>
<td>Within 3 days</td>
<td>Consult local Public Health Laboratory for outbreak collection kit, in outbreak situations. Collect faeces within 48 hours of onset of illness if possible. Faeces tested by EM from Dec. 15th to Apr. 14th Culture and/or EM from April 15th to Dec. 14th. Refrigerate specimen if transport is delayed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Faeces</td>
<td>Virus–TM</td>
<td>Virus isolation (Enteroviruses only)</td>
<td>Virus Detection</td>
<td>Preliminary 7 days</td>
<td>Within 10 days</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Faeces</td>
<td>Sterile container (refrigerate following collection and transport)</td>
<td>RT-PCR (Norovirus only)</td>
<td>Virus Detection</td>
<td>To be advised</td>
<td>To be advised</td>
<td>Consult local Public Health Laboratory for outbreak collection kit, in outbreak situations. Collect faeces within 48 hours of onset of illness if possible. Refrigerate specimen if transport is delayed. Available as research/investigational test. Consult with local PHL prior to sample submission.</td>
</tr>
</tbody>
</table>

*Note: Most recent version of the Guide is available on www.oahpp.ca*
<table>
<thead>
<tr>
<th>Disease / Syndrome / Causal Agent / Test</th>
<th>Test Code</th>
<th>Specimens</th>
<th>Collection Kit</th>
<th>Test Available</th>
<th>Section</th>
<th>TAT Negative Results Reported</th>
<th>TAT Positive or Confirmatory Results Reported</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Food and Environmental Samples</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Botulism</strong> Clostridium botulinum</td>
<td></td>
<td></td>
<td>Not available at the OPHL.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Food-Borne Bacterial Disease</strong></td>
<td>B02</td>
<td>Remains of meal 200g of food</td>
<td>Original food container, if possible. Enclose in Whirl-Pak bag</td>
<td>Food samples are examined for indicators of poor sanitation (HPC, Coliforms, E.coli and total gram negatives) and enteric pathogens including <em>Staphylococcus aureus</em> and <em>Bacillus cereus</em>. <em>Staphylococcus aureus</em> enterotoxin where appropriate.</td>
<td>Environmental</td>
<td>Culture within 4 days</td>
<td>Culture within 7 days</td>
<td>Transport food under refrigeration within 2 days. In cases of suspected foodborne illness, contact the local Health Unit. Also see Botulism.</td>
</tr>
<tr>
<td></td>
<td>N/A</td>
<td>Environmental swab of food contact surfaces.</td>
<td>Commercial Swab</td>
<td>Heterotrophic plate count Enteric pathogens testing available upon request.</td>
<td>Environmental</td>
<td>HPC: 2 days Enteric pathogens: 4 days</td>
<td>2 days</td>
<td>Environmental swabs must be refrigerated and transported to the laboratory within 1 day of collection.</td>
</tr>
<tr>
<td><strong>Cryptosporidiosis</strong> Cryptosporidium spp.</td>
<td>P01</td>
<td>Water samples</td>
<td></td>
<td>Environmental</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Giardiasis</strong> Giardia lamblia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: Most recent version of the Guide is available on www.oahpp.ca*
<table>
<thead>
<tr>
<th>Disease / Syndrome / Causal Agent / Test</th>
<th>Test Code</th>
<th>Specimens</th>
<th>Collection Kit</th>
<th>Test Available</th>
<th>Section</th>
<th>TAT Negative Results Reported</th>
<th>TAT Positive or Confirmatory Results Reported</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Water-Borne Bacterial Disease</strong></td>
<td>N/A</td>
<td>Water (potable)</td>
<td>Water Bottles</td>
<td>Total coliforms, <em>Escherichia coli</em>, and Heterotrophic Plate Count (HPC). Enteric pathogens testing available upon request.</td>
<td>Environmental</td>
<td>HPC: 2 days</td>
<td>2 days</td>
<td>Sample containers can be obtained from the local Public Health Laboratory. Potable waters must be kept refrigerated and transported to the laboratory within 2 days of collection.</td>
</tr>
<tr>
<td>(Infection/toxin acquired from food or water)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total Coliform / E.coli: 1 day</td>
<td>1 day</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N/A</td>
<td>Water (non-potable)</td>
<td>Water Bottles</td>
<td>Enteric pathogens testing available upon request.</td>
<td>Environmental</td>
<td>4 days</td>
<td>Within 7 days</td>
<td>Non-potable waters must be refrigerated and transported to the laboratory within 1 day of collection.</td>
</tr>
<tr>
<td><strong>Zoonotic Bacterial Disease</strong></td>
<td></td>
<td>Animal Faeces</td>
<td>Faeces collection kit (Cary-Blair or other appropriate Transport Medium)</td>
<td>Enteric pathogens testing available upon request</td>
<td>Enteric</td>
<td>3 days</td>
<td>Identification of cultures: within 5 days</td>
<td>Consult the Enteric Laboratory at 416-235-6377.</td>
</tr>
<tr>
<td>(Infection acquired from handling/ petting of animals)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: Most recent version of the Guide is available on www.oahpp.ca*
4.5 Instructions for Faeces Specimen Collection for Outbreaks

Bacterial, parasitic and viral agents may produce gastroenteritis and the Enteric Outbreak Kit has been designed for the investigation of these agents simultaneously at the beginning of an outbreak when the causative agent is unknown. The use of this kit should be limited to the first 10 – 15 specimens collected from symptomatic persons at the onset of the outbreak. The Enteric Outbreak Kit includes three vials, each with a colour-coded cap (Green-Bacterial examination, Yellow-Parasitology examination, White-Viral and toxin examination) to assist Health Units for submitting multiple samples when the causative agent of the outbreak is unknown. If the outbreak is thought to be only bacterial or viral in nature, all three vials do not need to be collected or submitted to the laboratory. The laboratory requisition should accurately reflect the examinations required.

4.5.1 Enteric Outbreak Kit Instructions

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**ENTERIC OUTBREAK KIT**

Instructions for the collection and transportation of clinical specimens for faeces cultures.

**Obtain Supplier, Complete Requisitions and Label Specimen Vials**

1. Remove the appropriate specimen collection vial(s) from the biohazard bag. Do not use expired kits.
2. Complete an “Enteric Disease Investigation Multiple Specimen Submission Form OR Public Health Laboratory Requisition”.
   - Include the outbreak number which is assigned by the local health unit.
3. On the main kit label located on the biohazard bag, fill in the required information with a ballpoint pen (press firmly). Peel this label off of the bag and place this label on the completed submission form in the following areas:
   - “Enteric Disease Investigation Multiple Specimen Submission Form” in the column marked “Label”.
   - OR
   - “Public Health Laboratory Requisition” in the area marked “Patient Information”.
4. Record the patient name on each of the vials used. Peel off one of the four corresponding kit numbered labels located on the biohazard bag. Place one label on each vial used.
5. Note: If the patient name and kit number label are not on each of the vials, the specimen will be rejected.

**Specimen Collection**

6. Faeces specimens that have been in contact with water in toilet are unacceptable.
   - a) Infants/Toddlers (not toilet trained) – Collect faeces sample (bowel movement) from soiled diaper or directly from “potty”.
   - b) Older Children/Adults – Instruct the patient to defecate into a clean container.

continued on reverse

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Note: Most recent version of the Guide is available on www.oahpp.ca

Ontario Agency for Health Protection and Promotion   Ontario Public Health Laboratories
2008 Laboratory Guide for Gastroenteritis Outbreaks – Specimen Collection Guidelines   Page 19
Place Specimen in Appropriate Container:

7. Using the spoon from each vial, select different sites of the faeces specimen, preferably blood, mucus or pus, and transfer to the vials as follows:
   a) Bacteriology - GREEN-capped vial with red-coloured transport medium. A collecting device (plastic spoon) is fitted inside the cap. Add 2-3 spoonfuls of faeces. Mix into transport medium. Replace and tighten cap.
   b) Parasitology – YELLOW-capped vial with clear liquid preservative and plastic spoon. Add faeces up to the line indicated. Mix well. Replace and tighten cap.
   c) Virology: Toxin – WHITE-capped vial which is empty with a plastic spoon. Add faeces up to the line indicated. Replace and tighten cap.

Transportation

8. Place all vials in the biohazard bag. Place the completed requisition in the outside pocket. Do not place the requisition inside the biohazard bag containing the specimens.

9. Refrigerate specimen immediately. Do not freeze specimens.

10. Send specimen to the local Health Unit or laboratory as soon as possible.

STORAGE - Store according to the manufacturer’s instructions located on the specimen collection vials. DO NOT USE EXPIRED KITS.

To order kits - MOHLTC order desk: @ telephone: 416.235-5927 or fax order service: 416.235-5753 or your local Public Health Laboratory.
   For information regarding this kit contact the Ontario Laboratory at 416.235-6577.
   Order desk at Central Public Health Laboratory, 81 Resources Road, Toronto, Ontario M9P 3T1.

Rev. August, 2007
4.6 Environmental Sample Collection

1. The analysis of food and environmental samples must be clearly related to outbreak management. In submitting food and environmental samples, it is important to select only those that are known to be or likely to be involved, on the basis of a good epidemiological rationale.

2. Consult the Environmental Laboratory, either in the Regional Laboratory or the Central Laboratory in Toronto prior to specimen collection and submission of food or environmental samples. As with clinical specimens, one Public Health Inspector should be assigned to supervise sample collection and to communicate with the laboratory.

3. When an outbreak is suspected, the institution should set aside samples, at least 200 grams each, of all food served to the affected individuals within 72 hours of the onset of symptoms (in the index case or most recent cases).

4. Prepare a list of suspect foods in order of probability of association. It has been found that 90% of significant analytical results were associated with the following sample types in descending order of probability.

   a) Poultry
   b) Beef and Veal
   c) Pork and Ham
   d) Fish and Seafood
   e) Mixed Salads
   f) Rice Dishes
   g) Dairy and Egg Products
   h) Pastry, Pudding and Pie Fillings
   i) Ice Cream, Non-Cream Pastries and Canned Goods
   j) Dried Foods

5. Use a Food Specific Attack Rate table to determine which foods are most likely to be involved in the outbreak. Only foods implicated on epidemiological grounds or on the basis of food specific attack rates should be submitted for analysis immediately.

6. When the etiological agent related to the outbreak is unknown, food samples will receive a complete bacteriological screen.
7. When the etiological agent has been identified from related clinical specimens, the foods may be analysed for that agent only.

8. Foods not identified as priority in the Food Specific Attack Rate table may be collected but not initially submitted to the laboratory. These samples should be held under proper storage conditions and sent for testing if initial results do not identify an etiological agent.

9. If required, foods for Hazard Analysis Critical Control Point (HACCP) assessment for the food preparation area should be discussed with the laboratory. Submission of these samples should not interfere with the outbreak investigation.

Refer to the Health Inspector’s Guide to Environmental Microbiology for more detailed information regarding routine food sample submissions.

4.6.1 Instructions for Food Sample Collection for Outbreaks

4.6.1.1 Preparation

As part of good aseptic technique, the time taken for the physical collection of sample can be minimized by ensuring the following:

1. Ensure all materials required are available.

2. Label sample bags before sample collection.

3. Investigate before sampling to determine a plan of action that will minimize sampling time.

4. Complete requisition(s) before or after, never during, sample collection.

4.6.1.2 Collection of Sample(s)

1. Use aseptic technique at all stages of sample collection.

2. Collect samples that are representative of the whole lot of food that was available. Collect samples by combining portions from all areas of the available lot, e.g. portions from the top, bottom and middle of the lot.

3. Where possible, the Inspector should try to mix the lot of food before sampling.

4. When the Inspector has reason to believe a lot is not uniform, and it is probable that different parts of the lot will vary significantly, it is advisable to collect multiple 200 gram samples representing different conditions.
5. Meals and foods that contain multiple items may be collected as a single sample. If collected as a single sample, the components should be collected in approximately equal amounts.

6. If an individual component is of greater interest than other components of a meal or mixed food, the Inspector can sample the items individually.

7. Separation of meals or mixed foods must be performed at the sampling stage. The laboratory will not separate components of a sample received in the laboratory.

4.6.1.3 Large Lots of Food

Most commercially prepared foods are produced in very large lots. If a Health Inspector encounters a lot of food that is larger than 2 kilograms, then take five samples of 200 grams each (often referred to as sub-samples) and submit for analysis.

4.6.1.4 Small Quantity Samples

Situations may be encountered where there is very little sample left. In food poisoning cases, small samples will be processed by the laboratory, but complete analysis may not be possible. If the submitting Inspector indicates a suspected or confirmed etiological agent, that analysis will be given priority. In the absence of such information, the laboratory will exercise judgment and will perform analyses that will most likely provide useful information.
4.6.1.5 Sample Storage

It is preferable to deliver samples to the laboratory as soon as possible after collection. If there is a delay then store samples in a secure location where they cannot be tampered with or confused with other existing food.

- Store shelf stable foods in a dry location protected from light and extreme temperatures. Temperatures outside 15°C to 25°C may compromise the sample(s).
- Store frozen foods as close to the temperature at which they were found as possible.
- Store perishable foods at 2 - 6°C. Temperatures outside of this range are not suitable.

4.6.1.6 Shipping Containers

- Ship all foods in containers with hard walls and lids that are secured in the closed position.
- Samples must be made secure inside the shipping container so that there is no mechanical damage to the samples that may cause leakage. Samples from shipping containers with leaking samples will not be processed by the laboratory.
- Ship perishable foods in insulated containers with sufficient cold packs to maintain a temperature as close to 4°C as possible. If ice is used, contain the ice in a manner that does not allow water contact with the samples.
- Ship frozen foods to the laboratory in an insulated container with sufficient ice packs to maintain the frozen state.
- Ship dry foods and other shelf stable foods at ambient temperature in a closed container.
- Shipping containers used for food samples should be dedicated to food samples and not be used for other types of samples.
- If multipurpose containers are used, they should be decontaminated between uses with an appropriate disinfectant and used according to the manufacturer’s instructions.
- The shipping container must have the following information displayed on the outside of the container:

<table>
<thead>
<tr>
<th>Example</th>
<th>Submitting Organization</th>
<th>Peel Region Health Dept.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unique Identifier</td>
<td>PR#53</td>
<td></td>
</tr>
<tr>
<td>Contents</td>
<td>FOOD SAMPLES</td>
<td></td>
</tr>
</tbody>
</table>

Note: Most recent version of the Guide is available on www.oahpp.ca
4.6.1.7 Transit Time

Submit samples to the laboratory as soon as possible. The objective is delivery within 48 hours.

Routine Surveillance /HACCP samples older than 48 hours will be rejected. Samples collected during food borne disease investigations that are part of the implicated meal will not be rejected after 48 hours. These samples are often the only opportunity to determine the cause of an outbreak. Transit time needs to be considered for interpretive purposes by outbreak coordinator(s).
## Appendices

The version number is indicated at the bottom of the document. Check the OPHL website for the most recent version for use. Requisitions are available at your local Public Health Laboratory quoting the warehouse stock numbers below. The most recent versions of the Labstracts can be obtained at:

http://www.health.gov.on.ca/english/providers/pub/labs/labstracts.html

<table>
<thead>
<tr>
<th>Appendix No.</th>
<th>Document Title</th>
<th>Warehouse Stock Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>Outbreak Notification Report (ONR)</td>
<td>See Page 24</td>
</tr>
<tr>
<td>5.2</td>
<td>OPHL General Test Requisition</td>
<td>O-4001</td>
</tr>
<tr>
<td>5.3</td>
<td>OPHL Multiple Specimen Submission Form (MSSF)</td>
<td>O-5037</td>
</tr>
<tr>
<td>5.4</td>
<td>Food Bacteriology Requisition</td>
<td>L-3180</td>
</tr>
<tr>
<td>5.5</td>
<td>Environmental Bacteriology Swab Tests</td>
<td>L-4004</td>
</tr>
<tr>
<td>5.6</td>
<td>Bacteriological Analysis of Water - Official Agency Requisition (Multiple Sample)</td>
<td>L-3172</td>
</tr>
<tr>
<td>5.7</td>
<td>Bacteriological Analysis of Water – Official Agency Requisition (Single Sample)</td>
<td>L-4020</td>
</tr>
<tr>
<td>5.8</td>
<td>Labstract: LAB-SD-001, Documentation – Criteria for Acceptance of Patient Specimens</td>
<td>See internet address above</td>
</tr>
<tr>
<td>5.9</td>
<td>Labstract: LAB-SD-002, <em>Clostridium difficile</em> Toxin Testing – Specimen Acceptance Criteria</td>
<td></td>
</tr>
</tbody>
</table>
5.2 OPHL General Test Requisition

Note: Most recent version of the Guide is available on www.oahpp.ca

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### General Test Requisition

**1 - Clinician / Referring Laboratory**
- Agency ID
- Courier Code
- Provide Return Address:
  - Name
  - Address
  - City & Province
  - Postal Code

**2 - Patient Information**
- Health No. / HRN
- Sex
- Date of Birth: yyyy / mm / dd
- Patient’s Last Name
- First Name
- Patient Address

**3 - Test(s) Requested** *(Please see test codes on reverse)*
- Code
- Description
- Specimen type and site:
  - blood / serum
  - faeces
  - NP swab
  - sputum
  - urine
  - conviv
  - other - (specify)

**4 - Reason for Test**
- Date Collected: yyyy / mm / dd
- Onset Date: yyyy / mm / dd
- Clinical Information:
  - fever
  - gastroenteritis
  - headache/stiff neck
  - respiratory symptoms
  - vesicular rash
  - pregnant
  - encephalitis/meningitis
  - jaundice
  - animal contact
  - other - (specify)
  - recent travel - (specify)

**Laboratory Result**

For HIV, please use the HIV serology form. For referred cultures, please use the reference bacteriology form.
To re-order this test requisition contact your local Public Health Laboratory and ask for form number 97-44 (04/2007)

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For laboratory use only

Note: Most recent version of the Guide is available on www.oahpp.ca

---

**Date received**
- OPHL No.

---

yyyy / mm / dd

---

---
Public Health Laboratories Testing Menu

Please enter the test code(s) desired into Box 3 on the reverse side of this form. For HIV, please use the HIV serology form.

<table>
<thead>
<tr>
<th>Code</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>E0</td>
<td>Blood or Serum</td>
</tr>
<tr>
<td>B0</td>
<td>Arbovirus Serology</td>
</tr>
<tr>
<td>S01</td>
<td>Cat Scratch Fever (Bacillary angiomatosis, Bartonella) - Serology</td>
</tr>
<tr>
<td>V319</td>
<td>Cryptosporidium (CMV) - IgG Immune Status</td>
</tr>
<tr>
<td>V31D</td>
<td>Cryptosporidium (CMV) - IgG/M Diagnosis</td>
</tr>
<tr>
<td>G26</td>
<td>Dengue - Serology</td>
</tr>
<tr>
<td>B04</td>
<td>Diarrhea - Adenovirus</td>
</tr>
<tr>
<td>V05</td>
<td>Epstein Barr Virus (EBV) - Serology</td>
</tr>
<tr>
<td>V09</td>
<td>Human Pox Virus (Varicella-Zoster) - Serology</td>
</tr>
<tr>
<td>V10</td>
<td>Influenza A - Total Immune Status</td>
</tr>
<tr>
<td>V11A</td>
<td>Influenza A - IgG Immune Status</td>
</tr>
<tr>
<td>V12</td>
<td>Influenza A - IgM Diagnosis</td>
</tr>
<tr>
<td>V13</td>
<td>Influenza B - HBS Ag Diagnosis</td>
</tr>
<tr>
<td>V13D</td>
<td>Influenza B - DNA - Nucleic Acid Testing (NAT)</td>
</tr>
<tr>
<td>V14</td>
<td>Influenza B - HBS Ab Immune Status</td>
</tr>
<tr>
<td>V15</td>
<td>Influenza B - HBS Ag Diagnosis</td>
</tr>
<tr>
<td>V16</td>
<td>Influenza B - HBS Ab Diagnosis</td>
</tr>
<tr>
<td>V17</td>
<td>Influenza B - HBC IgM Diagnosis</td>
</tr>
<tr>
<td>V18</td>
<td>Influenza B - HBC Ab Diagnosis</td>
</tr>
<tr>
<td>V19</td>
<td>Influenza C - Diagnosis</td>
</tr>
<tr>
<td>V19G</td>
<td>Influenza C - RNA - Genechiping</td>
</tr>
<tr>
<td>V19GL</td>
<td>Influenza C RNA Qualitative - Nucleic Acid Testing (NAT)</td>
</tr>
<tr>
<td>V20</td>
<td>Influenza D (Delta Agent) Diagnosis</td>
</tr>
<tr>
<td>V45</td>
<td>Hepatitis A - Diagnosis</td>
</tr>
<tr>
<td>V47</td>
<td>Hepatitis B - RNA - Quantitative - Nucleic Acid Testing (NAT)</td>
</tr>
<tr>
<td>V21D</td>
<td>Hepatitis B - DNA - Nucleic Acid Testing (NAT)</td>
</tr>
<tr>
<td>V22</td>
<td>Hepatitis C - Immune Status</td>
</tr>
<tr>
<td>V23D</td>
<td>Hepatitis C - DNA - Nucleic Acid Testing (NAT)</td>
</tr>
<tr>
<td>V26</td>
<td>Hepatitis C - RNA - Genechiping</td>
</tr>
<tr>
<td>V27</td>
<td>Hepatitis C RNA Qualitative - Nucleic Acid Testing (NAT)</td>
</tr>
<tr>
<td>V27B</td>
<td>Hepatitis D (Delta Agent) Diagnosis</td>
</tr>
<tr>
<td>V27D</td>
<td>Hepatitis D - DNA - Nucleic Acid Testing (NAT)</td>
</tr>
<tr>
<td>V37</td>
<td>Hepatitis E - Diagnosis</td>
</tr>
<tr>
<td>V37D</td>
<td>Hepatitis E - DNA - Nucleic Acid Testing (NAT)</td>
</tr>
<tr>
<td>V37I</td>
<td>Hepatitis E - RNA - Nucleic Acid Testing (NAT)</td>
</tr>
<tr>
<td>V38</td>
<td>Hepatitis F - RNA - Quantitative - Nucleic Acid Testing (NAT)</td>
</tr>
<tr>
<td>V38D</td>
<td>Hepatitis F - DNA - Nucleic Acid Testing (NAT)</td>
</tr>
<tr>
<td>V39</td>
<td>Hepatitis G - RNA - Genechiping</td>
</tr>
<tr>
<td>V40</td>
<td>Hepatitis G RNA Qualitative - Nucleic Acid Testing (NAT)</td>
</tr>
<tr>
<td>V41</td>
<td>Hepatitis H - RNA - Genechiping</td>
</tr>
<tr>
<td>V42</td>
<td>Hepatitis H - DNA - Nucleic Acid Testing (NAT)</td>
</tr>
<tr>
<td>V43</td>
<td>Hepatitis I - RNA - Genechiping</td>
</tr>
<tr>
<td>V44</td>
<td>Hepatitis J - RNA - Genechiping</td>
</tr>
<tr>
<td>V45</td>
<td>Hepatitis K - RNA - Genechiping</td>
</tr>
<tr>
<td>V46</td>
<td>Hepatitis L - RNA - Genechiping</td>
</tr>
<tr>
<td>V47</td>
<td>Hepatitis M - RNA - Genechiping</td>
</tr>
<tr>
<td>V48</td>
<td>Hepatitis N - RNA - Genechiping</td>
</tr>
<tr>
<td>V49</td>
<td>Hepatitis O - RNA - Genechiping</td>
</tr>
<tr>
<td>V50</td>
<td>Hepatitis P - RNA - Genechiping</td>
</tr>
<tr>
<td>V51</td>
<td>Hepatitis Q - RNA - Genechiping</td>
</tr>
<tr>
<td>V52</td>
<td>Hepatitis R - RNA - Genechiping</td>
</tr>
<tr>
<td>V53</td>
<td>Hepatitis S - RNA - Genechiping</td>
</tr>
<tr>
<td>V54</td>
<td>Hepatitis T - RNA - Genechiping</td>
</tr>
<tr>
<td>V55</td>
<td>Hepatitis U - RNA - Genechiping</td>
</tr>
<tr>
<td>V56</td>
<td>Hepatitis V - RNA - Genechiping</td>
</tr>
<tr>
<td>V57</td>
<td>Hepatitis W - RNA - Genechiping</td>
</tr>
<tr>
<td>V58</td>
<td>Hepatitis X - RNA - Genechiping</td>
</tr>
<tr>
<td>V59</td>
<td>Hepatitis Y - RNA - Genechiping</td>
</tr>
<tr>
<td>V60</td>
<td>Hepatitis Z - RNA - Genechiping</td>
</tr>
</tbody>
</table>

For additional forms, kits or information contact:

Toronto Public Health Laboratory
91 Queensway, Toronto, Ontario, M6P 3T1
PO Box 9000, Terminal A, Toronto, Ontario, M5W 1R6
Specimen Handling (416) 236-6316
Fax (416) 236-6316
Help Line (800) 640-7221
Emergency After-Hours Duty Officer (416) 694-3113

Bacteriology (416) 236-5712
Env. Micro. (416) 236-5716
Parasitology (416) 236-5722
TB (416) 236-5722
Tuberculosis (416) 236-5722
Environmental Microbiology (416) 236-5722
Mycology (416) 236-5722
Serology (416) 236-5722
Parasitology (416) 236-5722

Regional Public Health Laboratories

<table>
<thead>
<tr>
<th>City</th>
<th>Address</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hamilton</td>
<td>(905) 385-3379</td>
<td>(705) 356-6620</td>
</tr>
<tr>
<td>Kingston</td>
<td>(613) 548-5006</td>
<td>(613) 736-9880</td>
</tr>
<tr>
<td>London</td>
<td>(416) 455-0301</td>
<td>(705) 743-6011</td>
</tr>
</tbody>
</table>

Note: Most recent version of the Guide is available on www.oahpp.ca
### 5.3 OPHL Multiple Specimen Submission Form (MSSF)

**ENTERIC DISEASE INVESTIGATION**

**MULTIPLE SPECIMEN SUBMISSION FORM**

<table>
<thead>
<tr>
<th>1. HEALTH UNIT RETURN ADDRESS</th>
<th>2. OUTBREAK NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MU YY FILE #</td>
</tr>
<tr>
<td></td>
<td>LOCATION/INSTITUTION/OCCASION/DAY CARE CENTRE, etc.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. HEALTH UNIT CONTACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADDRESS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Telephone</th>
<th>Fax</th>
<th>Telephone</th>
<th>Fax</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>6. INITIAL OR FOLLOW-UP SPECIMENS (CHECK BELOW)</th>
<th>7. OTHER HEALTH UNITS INVOLVED (MU YY FILE # IF AVAILABLE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>INITIAL</td>
<td>FOLLOW-UP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8. SPECIFY SUSPECT-CONFIRMED AGENT OR ADDITIONAL TEST REQUEST</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>LABEL</th>
<th>PHL LAB. NO.</th>
<th>LABORATORY RESULTS AND COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>[ ] Bacteriology [ ] Virology</td>
</tr>
</tbody>
</table>

For PHL use only.

**DATE RECEIVED:**

**DATE REPORTED:**
**ENTERIC DISEASE INVESTIGATION**  
**MULTIPLE SPECIMEN SUBMISSION**

Tests Available:

A. **Bacteriology**
   - **Routine Enteric Bacteriology**
     - *Salmonella* (including lactose and sucrose fermenters)
     - *Shigella*
     - *Yersinia*
     - *Campylobacter*
     - *E.coli 0157:H7*
     - *Clostridium perfringens* enterotoxin
   - **Non-Routine Enteric Bacteriology** (Performed selectively based on clinical and epidemiological information).
     - *Vibrio* species
     - *E.coli* (enteropathogenic, enterotoxigenic, enteroinvasive, enterohemorrhagic)

B. **Parasitology**
   - *Entamoeba histolytica*
   - *Giardia lamblia*
   - *Dientamoeba fragilis*
   - *Cryptosporidium*
   - *Cyclospora*

C. **Virology**
   - Electron microscopy
   - Rotavirus antigen detection
   - Culture (based on symptoms, time of year, other results, etc)
### 5.4 Food Bacteriology Test Requisition

#### Instructions:
- Submit completed forms for laboratory testing as soon as possible. Ensure all forms are completed as fully and accurately as possible.
- Complete all required sections and indicate if any sections are not applicable.
- Include all relevant dates and times.
- Provide clear and concise descriptions.

#### Food Bacteriology

| Date of testing | Date of preparation
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample No.</td>
<td>Sample submitted by</td>
</tr>
<tr>
<td>Sample status</td>
<td>Sample source</td>
</tr>
<tr>
<td>Sample description</td>
<td>Sample results</td>
</tr>
</tbody>
</table>

---

**Note:** Most recent version of the Guide is available on [www.oahpp.ca](http://www.oahpp.ca)

---

**Ontario Agency for Health Protection and Promotion**

**2008 Laboratory Guide for Gastroenteritis Outbreaks - Appendices**

**Page 32**
### Environmental Bacteriology Swab Tests Requisition

**Ministry of Health Services Branch**

**Environmental Bacteriology Swab Tests**

**Laboratory**

**Requisition**

**Date rec'd.**

**Taken by**

**Place of collection:**
- [ ] Hospital or Nursing Home
- [ ] Restaurant
- [ ] Other

**Date collected**

**Name of location**

**Special requests or comments**
- [ ] Routine
- [ ] Other analysis (discuss with laboratory before sampling)

**Please indicate return address below, include postal code, if a stamp is used, stamp both parts.**

---

**NOTE:** Samples must be refrigerated and received by laboratory within 24 hours of collection.

<table>
<thead>
<tr>
<th>Lab. no.</th>
<th>Type of Utensil or Area Swabbed</th>
<th>Number of utensils or size of area</th>
<th>Count per Visit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Other Bacteriological Results**

| 1        |                                 |
| 2        |                                 |
| 3        |                                 |
| 4        |                                 |

**Examined by**

**Checked by**

**Date reported**

---

*Note: Most recent version of the Guide is available on www.oahpp.ca*
### 5.6 Bacteriological Analysis of Water - Official Agency Test Requisition (Multiple Sample)

<table>
<thead>
<tr>
<th>Date Collected</th>
<th>Event Date</th>
<th>Source of Drinking Water</th>
<th>Sample Code</th>
<th>Sample Code Description</th>
<th>Laboratory Code</th>
<th>Laboratory Description</th>
<th>Sample Type</th>
<th>Amount Collected</th>
<th>Result</th>
<th>Result Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>2023-01-01</td>
<td>2023-01-01</td>
<td>Tap Water</td>
<td>123</td>
<td>500 ml</td>
<td>LabA</td>
<td>Public Health Lab</td>
<td>Water</td>
<td>500 ml</td>
<td>Negative</td>
<td>2023-01-10</td>
</tr>
<tr>
<td>2023-01-02</td>
<td>2023-01-02</td>
<td>Well Water</td>
<td>456</td>
<td>1000 ml</td>
<td>LabB</td>
<td>Environmental Lab</td>
<td>Water</td>
<td>1000 ml</td>
<td>Positive</td>
<td>2023-01-11</td>
</tr>
<tr>
<td>2023-01-03</td>
<td>2023-01-03</td>
<td>Lake Water</td>
<td>789</td>
<td>250 ml</td>
<td>LabC</td>
<td>Research Lab</td>
<td>Water</td>
<td>250 ml</td>
<td>Negative</td>
<td>2023-01-12</td>
</tr>
</tbody>
</table>

Note: Most recent version of the Guide is available on www.oahpp.ca
5.7 Bacteriological Analysis of Water - Official Agency Requisition (Single Sample)

<table>
<thead>
<tr>
<th>Official Agency Address</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Agency Name:</td>
<td></td>
</tr>
<tr>
<td>Block No., Street, R.K., Box No.</td>
<td></td>
</tr>
<tr>
<td>City, Town</td>
<td></td>
</tr>
<tr>
<td>Province</td>
<td>Postal Code</td>
</tr>
<tr>
<td>Submitted By:</td>
<td></td>
</tr>
<tr>
<td>Submitted To:</td>
<td>Public Health Lab</td>
</tr>
<tr>
<td>Comments/Additional Information:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reason for Sampling</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Required (select HPWA or SDWA)</td>
<td></td>
</tr>
<tr>
<td>HPWA</td>
<td>SDWA</td>
</tr>
<tr>
<td>Optional:</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>Customer Complaint</td>
</tr>
<tr>
<td>HAACCP Audit, Food premises</td>
<td>Outbreak Investigation</td>
</tr>
<tr>
<td>Indicate O. Regulation #:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Information - Drinking Water</th>
<th>Source of Drinking Water</th>
<th>Sample Information - Non-Potable</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(Check all applicable boxes) Municipal</td>
<td>Treated</td>
<td>Date Collected:</td>
<td></td>
</tr>
<tr>
<td>Date Collected:</td>
<td>Non-Municipal</td>
<td>Non Treated</td>
<td></td>
</tr>
<tr>
<td>Time Collected:</td>
<td>Private Residence</td>
<td>Well (Ground water)</td>
<td></td>
</tr>
<tr>
<td>Collected By:</td>
<td>Bottled Water</td>
<td>Surface Water</td>
<td></td>
</tr>
<tr>
<td>Sampling Site:</td>
<td>Other</td>
<td>Distribution</td>
<td></td>
</tr>
<tr>
<td>Free or combined chlorine residual (mg/L):</td>
<td>HPC test Requested</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All samples must be +2°C when received at the lab. Samples must be received in the lab within 6 hours of collection for refrigeration. Refrigerated non-refrigerated samples must be received in the lab within 24 hours. Time of collection and regulated drinking water must be received in the lab within 48 hours of collection. Non-refrigerated drinking water must be received in the lab within 2 calendar days of collection.

For Laboratories Only

<table>
<thead>
<tr>
<th>Tests Performed</th>
<th>Count</th>
<th>Reported By</th>
<th>Date Read</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Coliforms (CFU) per mL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Escherichia coli (CFU) per 100mL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salmonella (CFU) per 100mL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pseudomonas aeruginosa (CFU) per 100mL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presumptive Shigella (CFU) per 100mL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shigella shiga toxins (U/mL)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salmonella (E.Coli) rapid plasmid occ (96%) (CFU) per mL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>per mL</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Date of Analysis: | Authorized By: |

*Analysis by Membrane Filtration. **Analysis by Spore Plate. ***Acclimated test (drinking water).

These results relate only to the sample tested. This information is being collected in compliance with the requirements of the Safe Drinking Water Act and its regulations, and it will only be used for the purposes for which it is collected. The Ministry of Health and Long-Term Care is subject to the Freedom of Information and Protection of Privacy Act and any information in its records may be subject to disclosure by the Ministry pursuant to the Freedom of Information and Protection of Privacy Act.

Note: Most recent version of the Guide is available on www.oahpp.ca
5.8 Labstract: LAB-SD-001, Documentation – Criteria for Acceptance of Patient Specimens

Ontario Public Health Laboratories

February 2007

Documentation - Criteria for Acceptance of Patient Specimens

To Health Care Providers

The Ontario Public Health Laboratories (OPHL) comply with the Ontario Laboratory Accreditation requirements for documentation that accompanies patient specimens for laboratory testing.

Requisition

Complete the appropriate Public Health Laboratory requisition for each specimen submitted to the Laboratory. Note in addition to the general requisition, there are specific requisition forms for prenatal testing and HIV testing.

Required Information

The following is a list of requirements for the completion of requisition forms and labeling of specimens. This information assists the laboratory in ensuring the correct testing is performed. Failure to comply with the following requirements may result in specimen rejection or delays in test results reporting.

On the Requisition Form

- **Patient** – *Full Name / date of birth / sex / OHIP # or HIN # (*Optional for anonymous HIV testing.)

- **Clinician Name** - complete return address / tel. # / secure fax #

- **Specimen Information** – type of specimen e.g. NP swab, vag. smear / blood or serum

- **Clinical Information** – date collected / date submitted / indicate if STAT, routine, follow up / symptomatic / asymptomatic / diagnostic / immunity / include other relevant clinical information.
5.9 Labstract: LAB-SD-002, Clostridium difficile Toxin Testing – Specimen Acceptance Criteria

Ontario Public Health Laboratories

Labstract

March 2007

Clostridium difficile toxin testing - Specimen Acceptance Criteria

To Health Care Providers

C. difficile is a known cause of pseudomembranous colitis (PC) and antibiotic-associated diarrhea (AAD). This organism has also proven to be a leading cause of nosocomial diarrhea in hospitals and nursing homes. The following criteria should be followed for the proper submission of suitable specimens to be tested for C. difficile toxin by enzyme immunoassay (EIA).

1) Choose specimens only from individuals more than 12 months old with diarrhea or symptoms of PC or AAD.
   - Formed faeces specimens will not be tested.
   - C. difficile toxin testing will not be performed on infants less than 12 months old, as this group has been shown to be asymptomatic carriers with colonization rates as high as 50%.

2) Test up to a maximum of three specimens collected at 18-24 hour intervals.
   - If two or more specimens are collected on the same day, only one will be tested.

3) Collect at least 3 to 5 ml of faeces.
   - Rectal swabs are not an acceptable alternative, and will not be tested.

4) Tighten cap to prevent leakage.
   - Leaking specimens will be rejected.

5) Transport the specimen to the laboratory as soon as possible. Specimen must be tested within 72 hours of collection and kept refrigerated. If unable to ensure receipt within 72 hours of collection, freeze sample and indicate date frozen on the requisition.
   - Unfrozen specimens more than 72 hours old will be rejected.

6) C. difficile toxin testing is not reliable as a test of cure. Toxin may be detected long after clinical symptoms have resolved.
   - Specimens from previously positive patients who are asymptomatic after completion of therapy will not be tested.

For further information:

- Call the OPHL HELPLINE 1-800-640-7221
- Specimen Collection Guide: www.health.gov.on.ca/english/providers/pub/labs/specimen.html
- Ministry website at www.ihealth.gov.on.ca
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Reviewed by:
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Dr. Tony Mazzulli, Medical Microbiologist, Virology, Immunodiagnostics, Prenatal, and Preventable Diseases
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Note: Most recent version of the Guide is available on www.oahpp.ca
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