Enteric Illness Protocol

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Enteric Illness Protocol

Manitoba
Public Health Branch

Table of Contents

List of Abbreviations

ADM	Assistant Deputy Minister
CD	Communicable Disease
CDC	Communicable Disease Control
CFEZID	Centre for Foodborne, Environmental and Zoonotic Infectious Diseases
CFIA	Canadian Food Inspection Agency
CFU	Colony Forming Unit
CNPHI	Canadian Network for Public Health Intelligence
Comms	Communications, MHSAL
CPL	Cadham Provincial Laboratory
CPPHO	Chief Provincial Public Health Officer
CVO	Chief Veterinary Officer
DWO	Drinking Water Officer
FBI	Foodborne Illness
FIORP	Foodborne Illness Outbreak Response Protocol
FNIHB	First Nations Inuit Health Branch
HC	Health Canada
HO	Health Officer (Manitoba Agriculture)
IP&C	Infection Prevention and Control
LAB	Laboratory
MBAg	Manitoba Agriculture
MH	Manitoba Health
MH RPAP	Manitoba Health Routine Practices and Additional Precautions
MHSAL	Manitoba Health, Seniors and Active Living
MOH	Medical Officer of Health
NML	National Microbiology Laboratory
NV	Norovirus
OB	Outbreak
ODW	Office of Drinking Water
PHAC	Public Health Agency of Canada
PHI	Public Health Inspector
PHIN	Personal Health Identification Number
PHN	Public Health Nurse
P/T	Provincial/Territorial
RHA	Regional Health Authority
RCMP	Royal Canadian Mounted Police

1. Introduction

1.1 Purpose

This document is intended to act as a resource for enteric illness outbreak investigations by:

1) **Providing outbreak related definitions.**
2) **Listing the causative agents** of enteric illness and their properties.
3) **Describing the response to an enteric illness outbreak** including reporting, risk assessment, components in the investigation, roles and responsibilities and communications.
4) **Detailing clinical and environmental specimen collection** and submission and explaining the results.
5) **Outlining the initial control measures** to contain the outbreak and prevent spread.

1.2 Goal

The goal of this document is to guide the response to enteric illness outbreaks, so that potential control measures can be implemented to prevent further cases of illness. This document is intended as a guide only, as the investigation procedures will vary according to the nature and size of the outbreak.

1.3 Scope

This document is intended to be used for provincial enteric illness outbreaks. For national enteric illness outbreaks, refer to the current Canadian Foodborne Illness Outbreak Response Protocol (FIORP): to guide a multijurisdictional response https://www.canada.ca/content/dam/phac-aspc/documents/services/publications/health-risks-safety/64-02-17-1879-FIORP-2015-EN-04.pdf . FIORP is designed to be used in illness outbreaks with a suspected or confirmed link to food consumed in Canada when more than one province/territory or another country or countries with multiple agencies are involved.

1.4 Definitions

Enteric Illness
Enteric illness, for the purposes of this protocol, is defined as a gastrointestinal infection or intoxication. Enteric illness may be of either known (laboratory confirmed) or unknown etiology.

Enteric Illness Outbreak
An outbreak of enteric illness is defined as the occurrence of case(s) in a particular area and period of time, which is in excess of the expected number of cases.

Foodborne Illness Outbreak

An incident in which two or more persons experience a similar illness, usually gastrointestinal, after ingestion of a common food **AND** epidemiological analysis implicates the food as the source of illness as demonstrated by:

- Isolation of agent from food in agreement with laboratory criteria for confirming etiologic agent (Appendix 3.1) **OR**
- Hazard analysis indicating obvious contamination and time-temperature abuse of epidemiologically-incriminated food **OR**
- Analysis of attack rate table (Appendix 3.2).

Outbreaks may be of:

- Known etiology – outbreaks in which laboratory evidence of a specific etiologic agent is obtained and criteria in Appendix 3.1 are met.
- Unknown etiology – outbreaks in which the epidemiological evidence implicates a food source, but adequate laboratory confirmation is not available.

A foodborne illness outbreak may also be indicated by a single case of rare or unusual illness such as one case of botulism.

Waterborne Illness Outbreak

An incident in which two or more persons experience a similar illness, usually gastrointestinal, after consumption of water **OR** contact with water used for recreational purposes (e.g. swimming pools, lakes, hot tubs) **AND** epidemiological evidence implicates water as the source of the illness.

Characteristics common to documented waterborne disease outbreaks include:

- Association with specific watershed events such as heavy rainfall, failures or upsets of water treatment equipment, exceeded water treatment parameters such as turbidity, and defects in the distribution system.
- Sudden and widespread occurrence of cases.
- Rapid increase in associated syndromic cases.
- Cases associated with residence in a specific water supply area with fewer cases found in an adjacent supply area.
- Close proximity to animal populations.

Non-foodborne/Non-waterborne Enteric Illness Outbreak

Two or more cases of enteric illness related by time and place in which an epidemiological investigation is conducted and the results do not implicate food or water as a source of the outbreak. This type of enteric illness outbreak is the most common and is not always categorized as the result of a formal investigation. It may be difficult to distinguish whether an enteric illness is caused by person-to-person transmission or whether it is indicative of an environmental exposure, such as food, water or other environmental source.

Foodborne or Waterborne Illness Complaint

- Complaints of illnesses by consumers associated with food establishments, specific events or other venues are referred to the agency responsible for licensing the establishment (e.g., PHI, MBAg, CFIA, DWO).
- In the absence of a common, suspicious exposure shared by two or more cases, complaints of individual illness with nonspecific symptoms (e.g., diarrhea, vomiting) are documented but may not be followed up by Public Health. The person should always be referred to their health care provider for clinical assessment.

2. Response to Enteric Illness Outbreaks

It is the responsibility of each unit identified within this document to ensure that their staff are appropriately trained in the response procedures that they are required to follow in the event of an enteric illness outbreak.

2.1 Reporting and Other Requirements

Prompt notification is essential for reportable diseases, and required under *The Public Health Act*, Reporting of Diseases and Conditions Regulation.

- **All identified disease outbreaks**, are reportable by laboratory and health professionals. To report an enteric illness outbreak, CNPHI users should login https://www.cnphi-rcrsp.ca/cnphi/index.jsp to CNPHI and enter the enteric disease outbreak summary. Non-CNPHI users should contact the local public health CNPHI writer, or if not available, download the form http://www.gov.mb.ca/health/publichealth/cdc/protocol/mhsu_6236.pdf and report directly to the Public Health Surveillance Unit outbreak@gov.mb.ca . A CNPHI alert will be issued for all approved outbreaks (i.e., outbreaks that have been reviewed for accuracy by Epidemiology and Surveillance in consultation with reporters from the region) and forwarded to all Regional Health Authorities (RHAs) and First Nations Inuit Health Branch (FNIHB). If a RHA or FNIHB becomes aware of an outbreak first, then they are to report to the Surveillance Unit, Manitoba Health, Seniors and Active Living.
- Certain enteric illnesses (refer to Appendix 3.1) are reportable to Manitoba Health, Seniors and Active Living. Protocols for specific reportable enteric diseases can be found in Manitoba Health, Seniors and Active Living's *Communicable Disease Management Protocol Manual* at http://www.gov.mb.ca/health/publichealth/cdc/protocol/index.html . These protocols should be followed for the reporting and management of single cases and outbreaks of the specific disease, once the organism is identified.

- Facility Infection Prevention and Control should be notified of enteric illness outbreaks in health care facilities*. The RHA/FNIHB should establish circumstances in health care facilities in their regions under which they are to be notified.
- The regional Public Health Inspector/ Health Officer (PHI/HO) must be notified **IMMEDIATELY** by regional Public Health or MHSAL (whoever becomes aware of it first) whenever an enteric illness outbreak that is suspected to be the result of foodborne transmission occurs in a public facility (e.g., health care facility*, assisted living facility[&], restaurant, student residence, correctional facility). The PHI/HO is to respond to the new outbreak report in a timely manner, based on urgency and circumstance, as an immediate response may be required. The MOH may seek the assistance of the PHI/HO or Public Health Nurse (PHN) in non-foodborne cases of enteric illness in a public facility.

*Includes but is not limited to acute care hospitals, emergency departments, rehabilitation hospitals, mental health hospitals and long-term care facilities.

[&]Private arrangement which combines independent living with services that can be purchased from the landlord such as meals, laundry and housekeeping. It is not a health care facility.

2.2 Legislation

- The regional Medical Officer of Health (or designate), under the authority of the Chief Provincial Public Health Officer (CPPHO)(or designate) of Manitoba has ultimate responsibility and authority over decisions made concerning the investigation of any reportable enteric illness in the province. Refer to the Reporting of Diseases and Conditions Regulation http://web2.gov.mb.ca/laws/regs/current/_pdf-regs.php?reg=37/2009 .
- Where the risks associated with an enteric illness are "serious and immediate" with respect to the affected individual(s) (cases) or to the public at large (contacts and others), the powers of *The Public Health Act* http://web2.gov.mb.ca/laws/statutes/ccsm/p210e.php supercede those of *The Personal Health Information Act* http://web2.gov.mb.ca/laws/statutes/ccsm/p033-5e.php within the context of a reportable enteric illness investigation (Part 11, Sec 103(1)(a)).
- The Information Sharing Regulation MR 30/2009 http://web2.gov.mb.ca/laws/regs/current/_pdf-regs.php?reg=30/2009 under *The Public Health Act* clearly enables MOHs and PHNs to disclose personal health information to PHIs/HOs. Information disclosed under this regulation must be limited to the minimum amount necessary to accomplish the purpose for which it is disclosed.
- *The Drinking Water Safety Act* addresses the construction, operation and monitoring of drinking water systems in Manitoba. *The Drinking Water Act* and supporting regulations are found at: http://web2.gov.mb.ca/laws/statutes/2002/c03602e.php .

2.3 Risk Assessment

Non-infectious causes of gastrointestinal symptoms such as medication reactions should be ruled out before deciding the outbreak is due to a communicable disease. If food or water is implicated (i.e. point source outbreak), a foodborne/waterborne illness investigation will be initiated.

The Regional Medical Officer of Health (MOH) will assume the lead role for assessment, management, and decision-making during an outbreak investigation. When an outbreak involves more than one region, the Chief Provincial Public Health Officer (or designate) assumes the lead role. The nature of the outbreak will define the areas of responsibility for the various disciplines involved. The investigation will require a **coordinated outbreak team** involving regional Public Health Nurses (PHNs), Public Health Inspectors (PHIs)/ Health Officers (HOs), Epidemiologists, Communicable Disease (CD) Coordinators, Drinking Water Officers (DWOs), MOHs and others (e.g., MBAg, whenever a MBAg facility* is involved). If regional resources are insufficient to manage the outbreak or the outbreak involves more than one region, the Public Health Branch will provide assistance.

* To determine if a facility is the responsibility of MBAg, the facility can be searched in the Hedgehog (Nexus) Inspection Database or the Manager of Meat Inspection and Food Processing Inspection can be contacted (204-945-7677). If a site visit is conducted during an outbreak at a facility under the jurisdiction of MBAg, a PHI will usually accompany the MBAg HO to assist with the inspection.

An outbreak team is assembled based on preliminary information gathered. Refer to sections 2.8 and 2.9. A risk characterization is made based on all information presented by the team. This may change as new or additional information is presented. The MOH will use factors, such as age distribution of the affected population, potential source of infection, potential infectious agent and symptomology to help determine risk.

2.4 Initial Control Measures

Initial control measures will vary based on the specific situation. Measures to be considered include removal of a suspected food source from circulation, communication to and education to consumers regarding suspect food/water, and exclusion in higher risk settings.

Facility infection prevention and control protocols should be followed when enteric illness outbreaks occur in health care facilities. The facility Infection Prevention and Control staff would manage the outbreak and bring in Public Health (e.g., PHN, PHI, CD Coordinator) if necessary. Routine Practices and Additional Precautions should be followed according to *Routine Practices and Additional Precautions: Preventing the Transmission of Infection in Health Care* available at: http://www.gov.mb.ca/health/publichealth/cdc/docs/ipc/rpap.pdf .

In other facilities where facility specific management protocols are not available, or in the home, the initial control measures in Appendix 3.5 should be referenced. Initial control measures should be reviewed and assessed to determine whether they are effective, and modified if necessary. For outbreaks in which a specific organism is known or suspected, refer to the Manitoba Health, Seniors and Active Living *Communicable Disease Management Protocol Manual* available at: http://www.gov.mb.ca/health/publichealth/cdc/protocol/index.html .

2.5 Investigation

Table 1 below details the components of outbreak investigation and control. The sequence of tasks and agency roles and responsibilities will vary with the nature of the outbreak and some tasks will occur simultaneously. Where intentional contamination of food or water is suspected, a discussion with law enforcement officials who have jurisdiction and additional training on collecting samples as evidence may be required.

Interviews with cases and food handlers should be conducted as soon as possible.

- Efforts should be made to interview all individuals who were exposed, whether ill or not, for symptoms and history of food and water consumption (Attack Rate Table - Appendix 3.2 should be filled out by PHN or PHI/HO).
- If it is not possible to interview all participants (i.e., overall attack rate is low and the exposed population is large), a case control study design should be used. An adequate random sample of equal numbers of ill and well individuals should be selected and interviewed for symptoms and history of exposures. Note: additional well individuals may be included as available.
- Once an outbreak code is established (refer to Appendix 3.8), stool specimens from up to ten individuals should be tested.
- The association of illness with implicated food or water is rarely perfect for a number of reasons, but making efforts to interview as described above can increase the chances of a successful investigation.

Table 1: Outbreak Investigation and Control

Investigation Component	Tasks (Roles)	Person(s) for Consideration of Responsibility	Resources
Determine Outbreak Exists	Routine review of Manitoba Health (MH) surveillance data	Epidemiologist (Epi)	• MH surveillance data • MH disease protocols
	Detect unusual increases or clusters	Epi/MOH/PHI/HO/ Laboratory (LAB)/CD Coordinator	• Phone reports from public • Phone reports from public health nurse/physician • Information from family and emergency physicians • MH surveillance data • Notification from a manufacturer/processor/importer • Information from another agency (e.g., CFIA, CNPHI)
	Validate/verify whether an outbreak has occurred	Epi/PHI/HO/MOH/ LAB	• MH disease protocols
Confirm Diagnosis	Assess and interpret the clinical information available	MOH, PHN/PHI/HO	• Phone reports from client • Clinical report forms
	Assess and interpret the laboratory results	Epi/PHN/PHI/HO/ LAB	• Lab reports
Assemble Team	Assemble and ensure readiness of the outbreak team	MOH, Epi/PHIs /LAB/CD coordinator/ specialist/ PHN/HO/ surveillance clerk	• Sections 2.8 and 2.9 including Table 2 defines the outbreak (OB) team
Control Measures	Implement appropriate immediate notification and public health control and prevention measures	MOH, PHI/HO/IP&C/PHN and/or facility/ organizational staff	• Section 2.1, Appendix 3.5 Initial Control Measures • MH RPAP • Other facility/organization specific protocols
Case Finding	Establish OB case definition and ensure process is in place for consistent application of case definition	Epi, MOH	• MH disease specific protocols • Health care providers who have seen cases • CPL staff • Appendices 3.1 and 3.2
	Develop questionnaire	Epi	• Case reports/interviews
	Identify and/or implement appropriate case finding strategy	PHN/PHI/HO or as assigned by OB team	• Case reports/interviews
	Conduct case interviews/contact tracing	PHNs	• OB specific questionnaire
	Collect/transport appropriate laboratory specimens	PHIs/Health Care Providers	• Appendices 3.6, 3.7, 3.8
Orient Data	Identify appropriate data management tool	Epi	

	Develop or adapt database	Epi/LAB	
	Collate, enter and clean data	Epi	• Appendix 3.4
	Conduct descriptive (person/place/time) analysis, create an epidemiological curve	Epi	
Generate Hypothesis	Generate hypothesis based on existing information	OB Team	• Clinical/food histories and lab reports
	Develop/revise hypothesis generating questionnaire and implement	OB Team	
	Collect samples for lab testing (food, water and/or environmental)	PHIs/HO	• Appendices 3.9, 3.10, 3.11
	Obtain required information for use in traceback investigations	PHIs/HO, Epi	• Purchasing/supplier records • Relevant staff manuals, if available
	Conduct environmental health assessments (conduct site investigation)	PHIs/HO	• Relevant staff manuals • Site specific records
Test Hypothesis	Assess whether an analytic study is warranted; if so, identify appropriate study parameters	OB Team	
	Coordinate analytic study	OB Team	
	Analyze and interpret results of the study	Epi, OB Team	• Software programs such as STATA, SAS
Prevention and Control Measures	Coordinate with all stakeholders including regulatory partners	As assigned by OB Team	• Disease protocols • Relevant public health legislation and other regulations
	Develop strategies to prevent further and future illness	OB Team	• Disease protocols, MH RPAP
Disseminate Findings	Develop communication/education messages to relevant audiences	MOH, PHN manager/HO/PHI, EPI, Comms	• Existing fact sheet, letter and media templates
	Establish appropriate timing and process for developing communications	MOH, Comms	• Past experience/protocols
	Communicate investigation findings and update management as relevant in your organization	MOH, PH manager/PHI supervisor/HO manager/ Comms/PHAC	• Illness Enteric Outbreak Summary Report template
	Disseminate OB investigation report (internal or external)	MOH/MH ADM/ CPPHO/ HO/PHI	• Email • Fax
	Educate community and others as indicated	OB Team/Comms/Media	• Existing fact sheet, letter and media templates
	Identify recommendations and lessons learned	OB Team/Comms/Media/MH ADM/ CPPHO/PHI/ HO/MBAg ADM	• Debrief session

2.6 Communication

2.6.1 Internal

- Develop and maintain regular lines of communication between key investigation team members including the MOH, CDC unit, PHI supervisor/HO manager, PHN and PHI/HO, MB Ag and CVO.
- Organize daily or occasional teleconferences (coordinated by the MOH or designate) as needed.

2.6.2 External

- Develop and maintain regular lines of communication with the water system manager or the establishment that is the presumed source of the outbreak, as well as with the affected clients. These external lines of communication are best established by the "field" workers (PHNs and PHIs/HOs and DWOs) in collaboration with the MOH, CDC unit and PHI supervisor/HO manager. The involvement of the MOH, CDC unit and PHI supervisor/HO manager in external communications is especially important in more serious and complex outbreaks.
- Maintain objective communication with external partners as meticulous microbiologic sampling and carefully collected epidemiologic data will usually lead to an analysis with clear results. The goal of external communications should be to rectify the source of the problem as soon as possible, ensure that steps are taken to prevent a future recurrence, and reassure the affected clients that the problem has been resolved.

2.6.3 Media

Coordinate media messages with other stakeholders such as the CFIA prior to initiating a media intervention. Refer to Canada's FIORP https://www.canada.ca/content/dam/phac-aspc/documents/services/publications/health-risks-safety/64-02-17-1879-FIORP-2015-EN-04.pdf which guides the coordination of the federal partners, PHAC, HC and the CFIA in the identification and response to multi-jurisdictional outbreaks, notification of partners, communication, and information sharing. Media intervention is rarely indicated in a foodborne illness outbreak. However, in a more serious or complex outbreak, it may be appropriate to involve the media. Some basic principles that should be followed when communicating to the public through the media include:

1. Assign one media spokesperson (usually the MOH).
2. Be proactive rather than reactive (as much as possible, anticipate what the public/media need/want to know and prepare appropriate messages in advance including a Q & A sheet).
3. Prepare daily media bulletins in collaboration with Manitoba Health media communication services (also include MBAg communications when a MBAg facility is involved) (may be posted on Manitoba Health website).
4. Be accessible and approachable to the media and respect their deadlines.
5. Be honest (especially with bad news; "take the high road" rather than trying to cover up).

6. Be knowledgeable, but not afraid to say, "I don't know" when that is the appropriate answer.
7. Be calming (especially in the midst of potential hysteria over a foodborne illness outbreak), but do not dismiss the potential severity of the situation.

2.7 Enteric Illness Outbreak Summary Report

The report provides a framework for documenting the complete investigation. Once completed, the report will be filed in a central outbreak file. It will also be circulated within the department and to external agencies as appropriate. Refer to the WRHA VTEC Outbreak report (http://www.wrha.mb.ca/community/publichealth/cdc/files/VTECOutbreak_100928.pdf) for an example of a report.

2.8 Outbreak Response Team Roles and Responsibilities

Table 2 (adapted from the Winnipeg Regional Health Authority Enteric Illness Operational Guidelines) lists the core outbreak response team members who participate in the problem solving, management and control of the outbreak and defines their specific roles and responsibilities. The outbreak response team includes a public health nurse, public health inspector/health officer, communicable disease coordinator/specialist, PHI supervisor/HO manager, epidemiologist or delegate, medical officer of health and surveillance clerk.

TABLE 2. SUSPECTED/CONFIRMED ENTERIC ILLNESS OUTBREAK				
Role	**Responsibilities**		**Notification and Documentation**	
Public Health Nurse (PHN)	Enteric IllnessTelephone Complaint: 1. Complete a health history (Appendix 3.3). 2. Orient case histories according to person, place and time. 3. Refer symptomatic individuals to health care provider. 4. Obtain name of event organizer or guest/staff list if relevant. 5. Ensure that clinical specimens are obtained to verify diagnosis.	Confirmed Enteric Illness Investigation: 1. Inform health care provider of positive lab results if they did not initiate testing. 2. Interview client and provide education. 3. Obtain case history of current illness. 4. Discuss etiology (cause) and epidemiology of pathogen (source, transmission, incubation period and period of communicability), and treatment with outbreak team – as required (Appendix 3.1). 5. Discuss preventive measures, including safe food handling and hygiene practices. Clients may be referred to the Canadian Partnership for Consumer Food Safety Education web site at http://www.canfightbac.org/en/ . 6. Determine list of contacts and obtain stool specimens (Appendices 3.6, 3.7) – as required. 7. Determine occupation and assess risk factors for transmission. 8. Obtain follow-up stool specimens – as required 9. Refer client/contacts to health care provider – as required. 10. Complete follow-up teaching, referral for counseling – as required. 11. Participate in additional epidemiological investigation (e.g., case control study).	Enteric IllnessTelephone Complaint: 1. Complete summary of case histories/ epi table (Appendix 3.4). 2. Notify CD Coordinator/Specialist and PHI supervisor/HO manager (if permitted premise or private function is involved). 3. Document according to currently accepted process.	Confirmed Reportable Communicable Disease Investigation: 1. Consult with CD Coordinator/Specialist or MOH to determine if high-risk categories require exclusion (refer to Appendix 3.5). 2. Notify PHI/HO if public premise is involved such as home daycare, licensed daycare, restaurant*, food processor. 3. Complete all documentation as appropriate and refer completed investigation to CD Coordinator/Specialist and MOH as appropriate. *Food service establishments include restaurants; deli or food counters in grocery stores, mobile food trucks or carts etc.

SUSPECTED/CONFIRMED ENTERIC ILLNESS OUTBREAK		
Role	**Responsibilities**	**Notification and Documentation**
Public Health Inspector (PHI)/ Health Officer (HO) (See also PHI Supervisor/HO Manager)	Enteric Illness Complaint or Referral: 1. Receive complaints involving food services or food processing establishments or recreational water facilities. 2. Obtain information regarding: • Location of event/place • Event organizer • Guest list/staff list • Menu (including beverages) • Food sources/suppliers, other suspect items 3. Refer to reference material for possible causative agent(s) including Appendix 3.1. 4. Obtain collection of and transport of clinical* and original food/water/environmental specimens to appropriate laboratories as quickly as possible (Appendices 3.6 - 3.11) (if not collecting stool specimens, may refer to health care provider for specimen submission as indicated in Appendix 3.6). 5. Conduct site inspection of implicated food handling establishment, known food suppliers and/or recreational water facility. 6. Institute immediate prevention and control actions to prevent further illness 7. Advise complainant and food handling operator of food testing results. 8. Provide enforcement of Public Health legislation. 9. Provide follow-up investigation and, if necessary education of food handlers/pool operators. *HOs do not collect clinical samples.	1. Complete foodborne illness complaint form. 2. Consult with PHI supervisor/HO manager and MOH/CD Coordinator/Specialist. 3. Notify CD Coordinator/Specialist if stool specimens were requested and sent to CPL*. 4. If relevant, notify and consult with Office of Drinking Water/DWO, MBAg, CFIA. 5. Notify CPL and ALS regarding submission of clinical and environmental specimens; complete corresponding requisitions; (refer to Appendices 3.7, 3.10). *This is not done by HOs, only PHIs.
Communicable Disease (CD)* Coordinator/Specialist	1. Coordinate public health nursing aspects of outbreak response, including assignment of PHN case managers; act as resource for PHN regarding case management. 2. Carry out epidemiologic investigation. 3. Liaise with outbreak response team and other stakeholders. 4. Obtain outbreak code from CPL in consultation with MOH. 5. Identify and arrange for additional staff and material resources (as required). 6. Participate in the development and implementation of preventive measures. 7. Assist in outbreak debriefing, staff development and training. 8. Participate in outbreak report writing. *In the absence of this position, the MOH should either assign or handle these duties.	1. Notify MOH, Team Managers and HO Manager/PHI Supervisor and consult with Outbreak Response Team. 2. Login to CNPHI https://www.cnphi-rcrsp.ca/cnphi/index.jsp and enter the enteric disease outbreak summary. Non-CNPHI users should contact the local public health CNPHI writer or download the Enteric Outbreak Summary Report http://www.gov.mb.ca/health/publichealth/cdc/protocol/mhsu_6236.pdf and report directly to the Public Health Surveillance Unit. 3. Ensure that all aspects of case/contact management are documented appropriately. 4. Maintain updated line-list. 5. Contribute to outbreak investigation summary report (public health nurse management and response).

SUSPECTED/CONFIRMED ENTERIC ILLNESS OUTBREAK		
Role	**Responsibilities**	**Notification and Documentation**
PHI Supervisor or HO Manager **NOTE:** If the region does not have a PHI Supervisor or HO Manager, these responsibilities may be assumed by the PHI/HO	1. Coordinate environmental investigations/inspections associated with outbreak response. 2. Liaise with outbreak response team and other stakeholders. 3. Identify and allocate additional staff and material resources (as required). 4. Participate in the development and implementation of preventive measures. 5. Participate in outbreak debriefing, staff development and training. 6. Participate in outbreak report writing.	1. Notify MOH/CD Coordinator/Specialist and consult with Outbreak Response Team. 2. Notify and consult with Manitoba Health (Food Protection) and/or CFIA. 3. Consult, notify PHI/HO of updates. 4. Contribute to outbreak investigation summary report (environmental investigation/inspection, results and response).
Epidemiologist or Delegate	1. Receive outbreak notification and outbreak code from CPL. 2. Provide epidemiologic support and leadership to the managing region which may include: • Provision of provincial stats • Development of investigation forms • Development of outbreak database and management of database entry • Analysis of data and preparation of summaries • Alerting and sharing information with PHAC if national implications for outbreak. 3. Manage alerting system – creates CNPHI alert if outbreak has potential to spread outside a given region or the province. 4. Act as PulseNet contact (when similar strains or patterns are detected in other geographical regions).	1. Notify and consult with Outbreak Response Team. 2. Notify other regions and provinces through CNPHI. 3. Notify and consult with PHAC.
Medical Officer of Health (MOH)	1. Lead outbreak response team (decision-making authority): confirm existence of an outbreak, establish case definition, carry out surveillance, develop or coordinate Outbreak Specific Instruction Sheet for interviewing potential cases, epidemiologic and environmental investigations, risk assessments; implement response, management and control actions, communicate internally and externally and formulate policy recommendations. 2. Enforce regulations under *The Public Health Act, The Drinking Water Safety Act, Environment Act,* as required. 3. Submit report and conduct debriefing. 4. Oversee implementation of policy recommendations.	1. Notify and consult with Outbreak Response Team. 2. Notify and consult with Manitoba Health Senior Management and Director, Media Relations. 3. Notify and consult with regional health authorities and Public Health Agency of Canada (as required). 4. Notify and consult with other agencies as required: Office of Drinking Water (Manitoba Water Stewardship), First Nations Inuit Health Branch (FNIHB), Sustainable Development, CFIA, Manitoba Agriculture. 5. Coordinate completion of outbreak summary report.
Surveillance Clerk	1. Receive and refer positive lab results and clinical case reports to regional health authority of case residence. 2. Receive and disseminate outbreak documentation to team members 3. Assist with data entry (as required).	1. Notify CD Coordinator/Specialist/PHN of positive lab results or clinical case reports. 2. Maintain central documentation file.

2.9 Additional Outbreak Response Team Members

Depending upon the location, nature and size of the outbreak, the following organizations in addition to Manitoba Health, Seniors and Active Living, Cadham Provincial Laboratory and the Regional Health Authority may participate in the outbreak investigation. The Manitoba Office of Disaster Management may also be brought in to assist (e.g., outbreaks associated with large scale contamination due to flooding).

- **First Nations Inuit Health Branch (FNIHB) -** In split jurisdiction communities, regional health authority staff may be required to work closely with FNIHB staff. FNIHB may have their own protocols in place and there should be one lead person directing the investigation.
- **Manitoba Agriculture (MBAg):** The Food Safety and Inspection Branch of MBAg responds to chemical, physical and biological public health issues related to food processed under the jurisdiction of MBAg. The Branch monitors and participates in a coordinated response to food safety issues. MBAg needs to be involved in outbreak investigations that are potentially linked to a facility under their regulatory jurisdiction.
- **Sustainable Development:**
  Water Stewardship Division – Manitoba Water Stewardship is responsible for the long-term maintenance of healthy watersheds in Manitoba.
    - **Water Science and Management Branch** – Has water quality specialists and is responsible for groundwater, surface water and recreational beach monitoring (Manitoba Clean Beaches Program).
      http://www.gov.mb.ca/sd/waterstewardship/water_quality/water_science.html
    - **Office of Drinking Water** – The Office of Drinking Water (ODW) will have a technical/support role to the health authority in a waterborne disease outbreak. The MOH or CD Coordinator/Specialist must assign a Drinking Water Officer (DWO) to evaluate the public, semi-public or private water supply system in question and report findings to the health authority.
- **Canadian Food Inspection Agency (CFIA) -** The CFIA delivers all federal inspection and enforcement services related to food and enforces the *Food and Drugs Act*. This includes assistance with risk assessment associated with a potential food safety risk, foodborne illness investigations that involve federal facilities, and also inspects the seed, livestock feed, fertilizers, plants and animals on which a safe food supply depends.
- **Public Health Agency of Canada (PHAC) -** The Centre for Foodborne, Environmental and Zoonotic Infectious Diseases (CFEZID) is the usual first point of contact for notification by partners of issues related to actual or potential multi-jurisdictional foodborne illness outbreaks. CFEZID should be engaged when enteric disease outbreaks span more than one province or territory or involve another country.

Appendix 3.1

List of Enteric Organisms Which may be Transmitted by Food and/or Water

ALL outbreaks are reportable by laboratory and health professionals, regardless of causative agent. Where available, please link to the disease specific protocol below in the **Manitoba Health *Communicable Disease Management Protocol Manual*** for reporting instructions and management**. Bracketed text indicates the name that the organism is listed under in the manual.**

Aeromonas hydrophila sobria
Bacillus cereus
Campylobacter jejuni, Campylobacteriosis, (*Campylobacter* Infection)
http://www.gov.mb.ca/health/publichealth/cdc/protocol/campylobacter.pdf
Clostridium botulinum (Botulism) http://www.gov.mb.ca/health/publichealth/cdc/protocol/botulism.pdf
Clostridium difficile (*Clostridium difficile*-Associated Diseases {CDAD})
http://www.gov.mb.ca/health/publichealth/cdc/protocol/cdifficile.pdf
Clostridium perfringens
Cryptosporidium parvum (Cryptosporidiosis) http://www.gov.mb.ca/health/publichealth/cdc/protocol/crypto1.pdf
Cyclospora cayetanensis (Cyclosporiasis)
http://www.gov.mb.ca/health/publichealth/cdc/protocol/cyclosporiasis.pdf
Entamoeba histolytica, Amebic Dysentery, (Amebiasis)
http://www.gov.mb.ca/health/publichealth/cdc/protocol/amebiasis.pdf
Escherichia coli – verotoxin-producing (VTEC), (Verotoxigenic *E. coli* {VTEC} Infection)
http://www.gov.mb.ca/health/publichealth/cdc/protocol/vtec.pdf
Escherichia coli – other than VTEC
Giardia lamblia (Giardiasis) http://www.gov.mb.ca/health/publichealth/cdc/protocol/giardiasis.pdf
Hepatitis A virus (Hepatitis A) http://www.gov.mb.ca/health/publichealth/cdc/protocol/hepa.pdf
Listeria monocytogenes (Listeriosis) http://www.gov.mb.ca/health/publichealth/cdc/protocol/listeriosis.pdf
Microsporidium spp.
Rotavirus
Salmonella species (Salmonellosis, non-Typhoid)
http://www.gov.mb.ca/health/publichealth/cdc/protocol/salmonellosis.pdf
Salmonella typhi/paratyphi (Typhoid and Paratyphoid Fever)
http://www.gov.mb.ca/health/publichealth/cdc/protocol/typhoid.pdf
Shigella species (Shigellosis) http://www.gov.mb.ca/health/publichealth/cdc/protocol/shigellosis.pdf
Small round structured viruses, also called small round enteric viruses, norovirus, Norwalk and Norwalk-like
http://www.gov.mb.ca/health/publichealth/factsheets/norovirus.pdf
Staphylococcus aureus
Streptococcus pyogenes

Vibrio cholerae (Cholera) http://www.gov.mb.ca/health/publichealth/cdc/protocol/cholera.pdf
Yersinia pseudotuberculosis/enterocolitica (Yersiniosis)
http://www.gov.mb.ca/health/publichealth/cdc/protocol/yersiniosis.pdf
Toxoplasmosis
Verotoxigenic *Escherichia coli* (VTEC) Infection
http://www.gov.mb.ca/health/publichealth/cdc/protocol/vtec.pdf
The following tables have been taken and adapted from the Rhode Island Department of Health Guidelines for Investigating Foodborne Illness Outbreaks
http://health.ri.gov/publications/guidelines/InvestigatingFoodborneIllnessOutbreaks.pdf .

Common Foodborne Diseases Caused by Bacteria

DISEASE *Causative agent*	LATENCY/INCUBATION PERIOD (Illness Duration)	PRINCIPAL SYMPTOMS	TYPICAL FOODS	MODE OF CONTAMINATION	PREVENTION OF DISEASE
Bacillus cereus food poisoning diarrheal	8 - 16 hours (12 - 24 hours)	Diarrhea, cramps, occasional vomiting	Meat products, soups, sauces, vegetables	From soil or dust	Thorough heating & rapid cooling of foods
Bacillus cereus food poisoning, emetic	1 - 5 hours (6 - 24 hours)	Nausea, vomiting, sometimes diarrhea & cramps	Cooked rice & pasta	From soil or dust	Thorough heating & rapid cooling of foods
Clostridium botulinum **Botulism** food poisoning (heat-labile toxin)	12 – 36 hours (months)	Fatigue, weakness, double vision, slurred speech, respiratory failure, sometimes death	Types A & B: vegetables, fruits, meat, fish & poultry products, condiments Type E: fish & fish products	Types A & B: from soil or dust Type E: water & sediments	Thorough heating & rapid cooling of foods
Clostridium botulinum **Botulism** food poisoning, infant infection	Unknown	Constipation, weakness, respiratory failure, sometimes death	Honey, soil	Ingested spores from soil or dust or honey colonize intestine	Do not feed honey to infants-will not prevent all
Campylobacter jejuni **Campylobacteriosis**	3 - 5 days (2 - 10 days)	Diarrhea, abdominal pain, fever, nausea, vomiting	Infected food-source animals	Chicken, raw milk	Cook chicken thoroughly, avoid cross-contamination, pasteurize milk

Vibrio cholerae **Cholera**	2 – 3 days (hours to days)	Profuse, watery stools, sometimes vomiting, dehydration, often fatal if untreated	Raw or undercooked seafood	Human feces in marine environment	Cook seafood thoroughly; general sanitation
Clostridium perfringens food poisoning	8 –22 hours (12 – 24 hour)	Diarrhea, cramps, rarely nausea & vomiting	Cooked meat & poultry	Soil, raw foods	Thorough heating & rapid cooling of foods
Escherichia coli foodborne infections enterohemorrhagic	12 – 60 hours (2 – 9 days)	Watery, bloody diarrhea	Raw or undercooked beef, raw milk	Infected cattle	Cook beef thoroughly; pasteurize milk
Escherichia coli Foodborne infections enteroinvasive	At least 18 hr (uncertain)	Cramps, diarrhea, fever, dysentery	Raw foods	Human fecal contamination, direct, or via water	Cook foods thoroughly, general sanitation
Escherichia coli Foodborne infection: enterotoxigenic	10 – 72 hour (3 – 5 days)	Profuse watery diarrhea, sometimes cramps, vomiting	Raw foods	human fecal contamination, direct or via water	Cook foods thoroughly, general sanitation
Listeria monocytogenes **Listeriosis**	3 – 70 days	Meningoencephalitis: stillbirths, septicemia meningitis in newborns	Raw milk, cheese and vegetables	Soil or infected animals, directly of via manure	Pasteurization of milk; cooking
Salmonella species **Salmonellosis**	5 – 72 hours (1 – 4 days)	Diarrhea, abdominal pain, chills, fever, vomiting, dehydration	Raw & undercooked eggs, raw milk, meat & poultry	Infected food source animals, human feces	Cook eggs, meat & poultry thoroughly; pasteurize milk
Shigella species **Shigellosis**	12 – 96 hours (4 – 7 days)	Diarrhea, fever, nausea, sometimes vomiting, cramps	Raw foods	Human fecal contamination, direct or via water	General sanitation; cook foods thoroughly
Staphylococcus aureus Staphylococcal food poisoning (heat stable enterotoxin)	1 – 6 hours (6 – 24 hours)	Nausea, vomiting, diarrhea, cramps	Ham, meat & poultry products, cream-filled pastries, whipped butter, cheese, raw milk	Handlers with colds, sore throats or infected cuts may practice improper food hygiene	Thorough heating & rapid cooling of foods

Streptococcus pyogenes Streptococcal foodborne infection	1 – 3 days (varies)	Various, including sore throat, erysipelas, scarlet fever	Raw milk, deviled eggs	Handlers with sore throats, other "strep infections"	General sanitation, pasteurize milk
Vibrio parahaemolyticus foodborne infection	12 – 24 hour (4 – 7 days)	Diarrhea, cramps, sometimes nausea, vomiting, fever, headache	Fish and seafood	Marine coastal environment	Cook fish and seafood thoroughly
Vibrio vulnificus foodborne infection	In persons with high serum iron: 1 day	chills, fever, prostration, often death	Raw oysters & clams	Marine coastal environment	Cook shellfish thoroughly
Yersinia enterocolitica Yersiniosis	3 – 7 days (2 – 3 weeks)	Diarrhea, pains, mimicking appendicitis, fever, vomiting, etc.	Raw or undercooked pork & beef, tofu packed in spring water	Infected animals especially swine, contaminated water	Cook meats thoroughly, chlorinate water

Common Foodborne Diseases Caused by Viruses

DISEASE (Causative agent)	INCUBATION (Illness Duration)	PRINCIPAL SYMPTOMS	TYPICAL FOODS	MODE OF CONTAMINATION	PREVENTION OF DISEASE
Hepatitis A virus Hepatitis A	15 – 50 days (weeks to months)	Fever, weakness, nausea, discomfort; often jaundice	Raw or undercooked shellfish; sandwiches, salads, etc.	Human fecal contamination, via water or direct contact	Cook shellfish thoroughly: general sanitation
Noroviruses Viral gastroenteritis	1 – 2 days (1 – 2 days)	Nausea, vomiting, diarrhea, pains, headache, mild fever	Raw or undercooked shellfish; sandwiches, salads, etc.	Human fecal contamination, via water or direct contact	Cook shellfish thoroughly; general sanitation
Rotaviruses Viral gastroenteritis	1 – 3 days (4 – 6 days)	Diarrhea, especially in infants and young children	Raw or mishandled foods	Probably human fecal contamination	General sanitation

Common Foodborne Illnesses Caused by Fungi Other than Mushrooms

DISEASE (Causative agent)	INCUBATION (Illness Duration)	PRINCIPAL SYMPTOMS	TYPICAL FOODS	MODE OF CONTAMINATION	PREVENTION OF DISEASE
Aspergillus flavus and related molds) Aflatoxicosis	Varies with dose	Vomiting, abdominal pain, liver damage; liver cancer (mostly Africa and Asia)	Grains, peanuts, milk	Molds grow on grain and peanuts in fields & storage: cows fed moldy grain	Prevent mold growth; do not eat or feed moldy grain or peanuts; treat grain to destroy toxins
Alimentary toxic aleukia (trichothecene toxin of fusarium molds)	1 – 3 days (weeks to months)	Diarrhea, nausea, vomiting; destruction of bone marrow; sometimes death	Grains	Mold grows on grain especially if left in the fields through winter	Harvest grain in the fall; do not use moldy grain
Ergotism (toxins of *Claviceps purpurea*)	Varies with dose	Gangrene (limbs die and drop off); or convulsions & dementia; abortion (now not seen in the US)	Rye or wheat, barley and oats	Fungus grows on grain in the fields; grain kernel is replaced by sclerotium	Remove sclerotia from harvested grain

Common Foodborne Diseases Caused by Protozoa and Parasites

DISEASE (Causative agent)	INCUBATION (Illness Duration)	PRINCIPAL SYMPTOMS	TYPICAL FOODS	MODE OF CONTAMINATION	PREVENTION OF DISEASE
PROTOZOA					
Amebic dysentery (*Entamoeba histolytica*)	2 – 4 weeks (varies)	Dysentery, fever, chills; sometimes liver abscess	Raw or mishandled foods	Cysts in human feces	General sanitation; thorough cooking
Crytosporidiosis (*Cryptosporidium parvum*)	1 – 12 days (1 – 30 days)	Diarrhea; sometimes fever, nausea and vomiting	Mishandled foods	Oocysts in human feces	General sanitation; thorough cooking
Giardiasis (*Giardia lamblia*)	5 – 25 days (varies)	Diarrhea with greasy stools, cramps, bloat	Mishandled foods	Cysts in human and animal feces, directly or via water	General sanitation; thorough cooking
Cyclosporiasis (*Cyclospora cayetanensis*)	1 - 7 days (5 – 40 days)	Diarrhea; sometimes fever, nausea and vomiting	Mishandled foods	Oocysts in human feces	General sanitation; thorough cooking

Toxoplasmosis (*Toxoplasma gondii*)	10 – 23 days (varies)	Resembles mononucleosis; fetal abnormality or death	Raw or undercooked meats; raw milk; mishandled foods	Cysts in port or mutton, rarely beef; oocysts in cat feces	Cook meat thoroughly; pasteurize milk; general sanitation
ROUNDWORMS (NEMATODES)					
Anisakiasis (*Anisakis simplex*, *Pseudoterranova decipiens*)	Hours to weeks (varies)	Abdominal cramps, nausea, vomiting	Raw or undercooked marine fish, squid or octopus	Larvae occur naturally in edible parts of seafood	Cook fish thoroughly or freeze at minus 4 degrees F. for 30 days
Ascariasis (*Ascaris lumbricoides*)	10 days – 8 weeks (1 – 2 years)	Sometimes pneumonitis, bowel obstructions	Raw fruits or vegetables that grow in or near soil	Eggs in soil, from human feces	Sanitary disposal of feces, cooking food
Trichinosis (*Trichinella spiralis*)	8 – 15 days (weeks, months)	Muscle pain, swollen eyelids, fever; sometimes death	Raw or undercooked pork or meat of carnivorous animals (e.g. bears)	Larvae encysted in animals muscles	Thorough cooking of meat; freezing pork less than 6 inches thick at 5 degrees F (-15 degrees C) for 30 days (freezing is not effective for wild meat); irradiation
TAPEWORMS (CESTODES)					
Beef tapeworm (*Taenia saginata*)	10 – 14 weeks (20 – 30 years)	Worm segments in stool; sometimes digestive disturbances	Raw or undercooked beef	Cysticerci in beef muscle	Cook beef thoroughly; freeze below 23 degrees F
Fish tapeworm (*Diphyllobothrium latum*)	3 – 6 weeks (years)	Limited; sometimes vitamin B-12 Deficiency	Raw or undercooked fresh water fish	Pleroceroids in fish muscle	Heat fish 5 minutes at 133 degrees F or freeze 24 hours at 0 degrees F.
Pork tapeworm (*Taenia solium*)	8 weeks – 10 years (20 – 30 years)	Worm segments in stool; sometimes cysticercosis of muscles, organs, heart or brain	Raw or undercooked pork; any food mishandled by a *T. solium* carrier	Cysticerci in pork muscle; any food-human feces with *T. solium* eggs	Cook pork thoroughly or freeze below 23 degrees F.; general sanitation

Foodborne Diseases Caused by Chemicals and Metals

DISEASE (Causative agent)	LATENCY PERIOD (Illness Duration)	PRINCIPAL SYMPTOMS	TYPICAL FOODS	MODE OF CONTAMINATION	PREVENTION OF DISEASE
(TOXINS IN FIN FISH) Ciguatera poisoning (ciguatoxin, etc)	3-4 hrs (rapid onset) 12-18 hrs (days-months)	Diarrhea, nausea, vomiting, abdominal pain Numbness and tingling of face; taste and vision aberrations, sometimes convulsions, respiratory arrest and death (1-24 hrs)	"Reef and island" fish: grouper, surgeon fish, barracuda, pompano, snapper, etc.	(Sporadic); food chain, from algae	Eat only small fish
Fugu or pufferfish poisoning (tetrodotoxin, etc.)	10-45 min to ≥ 3 hrs	Nausea,vomiting, tingling lips and tongue, ataxia, dizziness, respiratory distress/arrest and sometimes death	Pufferfish, "fugu" (many species)	Toxin collects in gonads, viscera	Avoid pufferfish or their gonads
Scombroid or histamine poisoning (histamine, etc)	Minutes to few hours (few hours)	Nausea,vomiting, diarrhea, cramps, flushing, headache, burning in mouth, allergy-like reaction (i.e. due to histamine)	"Scombroid" fish (tuna, mackerel etc): mahi-mahi, others	Bacterial action	Refrigerate fish immediately when caught; Histamine is not deactivated by cooking
(TOXINS IN SHELLFISH) Amnesic shellfish poisoning (domoic acid)		Vomiting, abdominal cramps, diarrhea, disorientation, memory loss; sometimes death	Mussels, clams	From algae	Heed surveillance warnings
Paralytic shellfish poisoning (saxitoxin, etc)	< 1 hr (< 24 hrs)	Vomiting, diarrhea, paresthesias of face, sensory and motor disorders; respiratory paralysis, death	Mussels, clams, scallops, oysters	From "red tide" algae	Heed surveillance warnings

(MUSHROOM TOXINS) Mushroom poisoning (varies greatly among species)	< 2 hrs to ≥ 3 days	Nausea, vomiting, diarrhea, profuse sweating, intense thirst, hallucinations, coma, death	Poisonous mushrooms	Intrinsic	Don't eat wild mushrooms; if going to eat wild mushrooms, ensure proper identification of species and record pictures for identification of specific species in the event of poisoning
(PLANT TOXINS) Cyanide poisoning (cyanogenetic glycosides from plants)	(Large doses) 1 -15 minutes	Unconsciousness, convulsions, death	Bitter almonds, cassava, some lima bean varieties, apricot kernels	Intrinsic, natural	Proper processing; avoid some so-called foods
(METALS) Cadmium	Depends on dose	Nausea, vomiting, diarrhea, headache, muscular aches, salivation, abdominal pain, shock, liver damage, renal failure	Acid foods, food grilled on shelves from refrigerator	Acid or heat mobilizes cadmium plating	Select food contact surfaces carefully
Copper poisoning	Depends on dose (24 - 48 hrs)	Nausea, vomiting, diarrhea	Acid foods, foods contacting copper, soda fountains, beverages	Acid mobilizes copper	Select food contact surfaces carefully
Lead poisoning	Depends on dose	Metallic taste, abdominal pain, vomiting, diarrhea, black stools, oliguria, collapse coma (also chronic effects)	Glazes, glasses, illicit whiskey	Lead dissolves in beverages and foods	Test glazes and glasses; avoid illicit whiskey
Mercury poisoning	Depends on dose	Metallic taste, thirst, abdominal pain,vomiting, bloody diarrhea, kidney failure	Treated seeds (fungicide); fish, shellfish	International; food chain	Eat only seeds intended for food; Pregnant, nursing women and young children should avoid consumption of high-risk fish (e.g. swordfish, King Mackerel, etc) and restrict inteake of other fish (e.g. salmon) as per recommendations.
Zinc poisoning	Depends on dose (24 – 48 hrs)	Nausea, vomiting, diarrhea	Acid foods in galvanized containers	Acid mobilizes zinc plating	Select food contact surfaces carefully

Appendix 3.2

Attack Rate Table

Place of Outbreak	*Complaint Number*

Food	Number of Persons Linked to Vector				Number of Persons Not Linked to Vector				Difference In Percent (Attributable Risk)	Significance
	ill	Well	Total	Percent ill (Attack Rate)	ill	Well	Total	Percent ill (Attack Rate)		

Remarks and Interpretation	Suspect Vector

APPENDIX 3.3 FOODBORNE ILLNESS COMPLAINT FORM

DEMOGRAPHIC INFORMATION					
Name:					
DOB:		Sex:	Female ◯ Male ◯		
PHIN # (9 Digit Manitoba Health #):					
Address:			Email:		
Phone #:	(home)	(work)	(cell)		
Occupation					
Place/type of work:					

ILLNESS INFORMATION					
Illness Onset:	(d/m/yr)			Time:	
Illness Recovery	(d/m/yr)			# of stools in 24hr Period	
Diarrhea:	YES ◯	NO ◯	Don't Know ◯		
Vomiting:	YES ◯	NO ◯	Don't Know ◯		
Nausea:	YES ◯	NO ◯	Don't Know ◯		
Cramps:	YES ◯	NO ◯	Don't Know ◯		
Fever:	YES ◯	NO ◯	Don't Know ◯	Temperature	
Bloody Stool:	YES ◯	NO ◯	Don't Know ◯		
Other Symptoms:					
Medical Attention	YES ◯	NO ◯	Don't Know ◯	Date:	(d/m/yr)
Where?:					
Name of Physician:					
Stool Specimens	YES ◯	NO ◯	Don't Know ◯	Date:	(d/m/yr)
Medical diagnosis reported?:					

RECENT EXPOSURE INFORMATION				
Water source:				
Recent Travel:	YES ◯	NO ◯	Don't Know ◯	
Details:				
Animal Contact:	YES ◯	NO ◯	Don't Know ◯	
Details: (e.g., was animal ill, had it been fed raw meat?)				
Common Event/Gathering:	YES ◯	NO ◯	Don't Know ◯	
Details:				

FOOD HISTORY			
(Typically food history information is gathered for the 3 days prior to the day of symptom onset. This is an arbitrary starting point for investigations please keep in mind there may be other exposures that are significant outside of these 3 days).			
1 Day prior to Illness Onset:	(d/m/yr)		
Meal	**Time**	**Food and Drinks Consumed**	**Location**
Breakfast:			
Lunch:			
Supper:			
Other:			

2 Days prior to Illness Onset:	(d/m/yr)		
Meal	**Time**	**Food and Drinks Consumed**	**Location**
Breakfast:			
Lunch:			
Supper:			
Other:			

3 days prior to Illness Onset:	(d/m/yr)		
Meal	**Time**	**Food and Drinks Consumed**	**Location**
Breakfast:			
Lunch:			
Supper:			
Other:			

History of other ill companions?:	YES ◯ NO ◯
If **yes** to above question describe the setting:	
(Use additional Foodborne Illness Complaint Forms for interviewing other identified ill cases.)	
Completed By:	
Date:	(d/m/yr)

HISTORY OF FOOD SERVICE ESTABLISHMENT(The next sections are for Public Health Inspectors)			
Previous Foodborne Illness reported/Date(s):			
Comments:			
Types of Food Samples Obtained:			
Food samples submitted:		Pick up Temp:	
		Pick up Temp:	

SUSPECT SOURCE INFORMATION			
Suspect food(s) consumed:			
Establishment where food(s) were prepared or purchased:			
Name:			
Address:		City/Town:	
Phone #			
Product Name:			
Code/Lot #:		Expiration Date:	(d/m/yr)
Package			
Manufacturers			
Address:		Phone #:	

PHI:	
Date:	(d/m/yr)

Forward completed form to PHI regional supervisor, regional CD coordinator and regional MOH. Scan and attach form to Hedgehog (Nexus) entry.

Appendix 3.4: Summary of Case Histories/ Epidemiological Table (Adapted from Winnipeg Regional Health Authority)

Part 1 of 2

Place of Outbreak	Dates of Outbreak	Complaint Number

ID No	Name of Ill Person or Well Person (list all exposed persons whether or not ill)	Address	Phone	SEX	AGE	ILL	Time of Eating		Time of Initial Symptom		Incubation Period (Difference Between Eating And Onset)	Signs & Symptoms					Severity			
							Day	Hour	Day	Hour		Nausea	Vomiting	Abdominal	Diarrhea	Fever	Duration	Physician Seen	Hospitalized	Death

Investigator	Title	Median	Suspected Etiology

Appendix 3.4: Summary of Case Histories / Epidemiological Tables
Part 2 of 2

Note: Line up with appropriate identification number of Part 1

Foods Eaten												**Laboratory Tests**				**Specific comments or additional information about any ill/not ill persons. (Record all information where space does not permit in other sections, such as additional symptoms, physician and hospital names)**	**ID No.**
												Specimen	**Date**	**Organism**	**Staff (S) Or Resident (R)**		
Suspect Food												**Confirmed Etiology**				**Remarks**	

Appendix 3.5: Initial Control Measures

Exclusion

At times it is necessary to exclude the foodhandler/caregiver from employment to prevent potential transmission of the disease-causing organism from the employee to other individuals. Food and Food Handling Establishments Regulations provide authority to exclude foodhandlers and may be referred to for more details. It may also be necessary to exclude a child from a child care facility or school. Refer to Manitoba Health's *Communicable Disease Management Protocol Manual* http://www.gov.mb.ca/health/publichealth/cdc/protocol/index.html for disease or organism specific exclusion requirements. When the organism causing the illness is not yet known, a precautionary approach should be taken initially, with referral to the pathogen-specific protocol once the organism is known.

Control Measures for Health Care Facilities

Internal infection prevention and control policies and procedures should be reviewed within their regions on a regular basis, prior to outbreak situations and should be referred to during facility outbreaks.

Definition of Health Care Facility: Includes but is not limited to acute care hospitals, emergency departments, rehabilitation hospitals, mental health hospitals, and long-term care facilities.

Communications

- Notify Infection Prevention and Control (IP&C) (if applicable) when there are cases of unexplained vomiting or diarrhea among patients or staff on a ward.
- IP&C will work with facility staff/administration to alert other departments and wards so that surveillance is increased.
- An outbreak management team should be struck which will issue guidelines and outbreak summaries with regular updates to all staff.
- Collaborate with facility IP&C on an ongoing basis during the outbreak.
- The facility should notify the regional PHI when a suspected or confirmed FBI outbreak is occurring within the facility. As the facilities are issued health permits from the PHI, the PHI should be informed and/or consulted in these outbreaks.

Patient/Resident Control Measures

- Implement additional precautions according to the suspected/confirmed pathogen outlined in the facility IP&C manual/protocol.
- Restrict communal gatherings of patients as much as possible.
- If possible, avoid transferring patients or admitting new patients to affected ward.
- If possible, avoid transferring patients who have been exposed to an ill patient to another room or area of the facility.
- Educate the patient/resident regarding the outbreak and outbreak measures.

Staff Control Measures

- Collaborate with facility Occupational Health or designate.
- Exclude affected staff until symptom-free and for the period of communicability of the specific organism.
- Remind staff of the often abrupt onset of vomiting and the need to leave an affected area rapidly if nausea arises while at work.
- Minimize or eliminate movements of staff between affected and unaffected wards. When this is not possible, affected wards should be visited after unaffected wards.
- Exclude non-essential staff/volunteers from affected clinical areas.
- Educate staff regarding the outbreak and outbreak measures which includes the importance of hand hygiene according to facility procedures/protocols.

Visitors

- Post signs regarding the outbreak and visitor infection prevention and control procedures.
- Educate visitors regarding the outbreak and outbreak measures which includes the importance of performing hand hygiene according to facility procedures/protocols.

Facility Cleaning and Disinfection

- Routine Practices should be followed at all times.
- Clean and disinfect surfaces that are likely to be touched and/or used on a more frequent schedule compared to other surfaces. This includes surfaces that are in close proximity to the patient (e.g., bedrails, over bed tables, call bells) and frequently touched surfaces in the patient's bathroom and shared common areas for dining, bathing, toileting.
- If vomit or feces need to be cleaned up, follow facility's blood and body fluid spill policies/procedures. If vomiting occurs in a food preparation area, discard any exposed food, food that may have been contaminated and food that has been handled by an infected person.

Typical Control Measures for Child Care Centres and Schools

Facility specific protocols may be available for staff to follow.
http://www.gov.mb.ca/fs/childcare/resources/pubs/infection_control.pdf

Children

- Children who become ill with nausea, vomiting or diarrhea should be removed from the classroom immediately and sent home as soon as arrangements can be made.
- Affected children should not return to school until resolution of symptoms.
- Children should be instructed to wash their hands or have a staff member wash their hands on arrival, after going to the toilet or after a diaper change, and before all snacks and meals. Children should have access to liquid soap, running water and single use towels. Staff should monitor young children to ensure proper hand washing.

- Children should not prepare food or serve food and should be discouraged from sharing food.

Staff/Caregivers

- The facility should notify the regional PHI and/or PHN when an enteric illness outbreak is occurring within the facility. As some of these facilities are issued health permits from the PHIs, the PHI should be included or consulted for assistance to help rule out possible foodborne illness.
- Daily attendance records and reasons for absences should be maintained.
- Inform all parents of exposed children about the illness, and ask parents to watch their children for signs and symptoms of the disease.
- Staff should wash their hands on arrival, after diaper changes, after assisting children at the toilet and before preparing, serving or eating food.
- Staff that prepare or serve food should not change diapers or assist children in using the toilet if possible.

Cleaning and Disinfection

- Immediately wash and sanitize any object or surface that has been soiled with discharge (i.e. feces).
- Diaper tables, commodes and toilets should be cleaned and disinfected with a dilute bleach solution prepared daily or with other disinfectant used according to product label after each diaper change or use. If the diapering surface cannot be easily cleaned, use a disposable material such as wax paper.
- Plastic toys should be disinfected each day. Cloth toys that cannot be disinfected should be removed.
- Other frequently touched surfaces and equipment should be disinfected with bleach according to product label.

Control Measures in the Home

- Everyone in the family should wash hands well with soap and water.
- Discourage visitors while individuals in the home are ill.
- Prompt clean-up and disinfection with bleach (follow manufacturer's instructions for dilution, application and contact time) after episodes of vomiting or diarrhea.
- Do not share towels or personal items. Quickly remove and machine wash towels, linens etc. used by sick household members.
- Clean contaminated carpets with detergent and hot water and then steam clean if possible.
- If conditions permit, place contaminated cloth covered furnishings (that cannot tolerate bleach) outdoors in the sun for a few hours.
- If possible, use dishwasher with "hot cycle" for all dishes, glasses, utensils etc.
- Symptomatic individuals should not prepare food for others.
- Any food that has been handled by someone who is sick with vomiting and/or diarrhea should be thrown out.
- Food that was uncovered when someone vomited nearby in the room should be disposed of.
- Thorough cleaning and disinfection of floors, counters, bathrooms and furniture when sickness is over.

Appendix 3.6: Instructions for Stool Sample Collection

NOTE: Clinical specimens should be collected ASAP. There may be a form to fill out.

1. Things you will need to collect the stool sample:

- A clean plastic container (e.g. an ice-cream pail or margarine container) **or** saran wrap **or** a new (unused) plastic bag.
- A plastic scoop to scoop the stool.
- A sample bottle to put the sample in.
- A sample bag to put the sample bottle in.

2. Collect the stool (poop) sample:

If using a plastic container:

- Sit on the toilet and hold the container under you, or sit right on the container.

If using a plastic bag or saran wrap:

- Lift the toilet lid and seat.
- Place the plastic bag or saran wrap over half of the toilet bowl and put the seat back down.
- Sit on the toilet over the bag or saran wrap.

THEN:

➢ "Go" (poop) into the clean plastic container or into the bag or saran wrap over the toilet. Do not get any urine (pee) in it. Wipe without putting the toilet paper into the stool (poop).

(NEVER take a sample of stool right from the toilet water!!!)

3. Scoop the stool sample into the sample bottle

Use the scoop attached to the sample bottle lid to fill the bottle **one-third (1/3)** full. (Don't overfill - it might spill!) Put the lid on tightly. Put the sample bottle into the sample bag provided.

4. Clean up

Flush the rest of the stool down the toilet. Carefully throw the plastic bag or plastic container in the garbage. (Don't throw away the sample).

5. Wash your hands

Use soap and warm water to wash your hands well (for at least 30 seconds).

6. Get the sample ready

The stool sample should always be placed into a plastic resealable sample bag with the requisition on the outside, then placed into a paper bag. Keep the sample in the fridge. DO NOT LET THE SAMPLE FREEZE. Follow the instructions given for pick up or drop off of the sample. **Make sure the patient information data is completed on the requisition form**.

Clearance Stool Samples

If clearance stool specimens are required and the client is taking antibiotics, the sample should be collected at least 48 hours after treatment has been completed. If more than one clearance specimen is required, specimens must be at least 24 hours apart.

Stool Submissions:

- **To Health Care Provider:** Take the stool specimen with you to your appointment. Your health care provider will need to complete a lab requisition and should indicate "Suspect Foodborne Illness" on the requisition.
- **To Public Health Inspector:** On occasion, it may be advantageous for a PHI to facilitate the submission of a stool specimen directly to CPL as part of a foodborne illness (FBI) investigation. PHIs only submit stool samples in outbreaks, not for single cases. Single cases are encouraged to see their health care provider. The PHI will review the Stool Submission Checklist below prior to collecting stool specimens from the client.

Stool Submission Checklist

Eligibility Criteria	• Clients at least 16 years of age with clinical symptoms of a gastrointestinal illness consistent with a FBI. • Clients under 16 years of age ***must*** have parental/legal guardian documented consent.
Mental Status	• The individual is able to understand the information, benefits and risks that are relevant to making a decision to be tested. **If any doubts about the individual's capacity to consent, testing should NOT be done and the client should be referred to a health care provider.**
Informed Consent	The individual must be provided with: • Explanation of the testing procedure. • Implications of negative and positive results. A plan for follow-up and sharing of results.
Specimen Collection	The specimen submission slip (i.e., lab requisition) should contain: • Specimen submitter's full name and phone number • Indication that this is a "suspect FBI", • Request for C&S (culture and sensitivity), viral cultures, and Electron Microscopy, • Appropriate facility number **and** CD Coordinator/MOH phone number

Documentation	On the appropriate Client Record/Case History Form (PHIs use Hedgehog {Nexus}), the specimen submitter will document: ➢ Client has provided verbal informed consent; ➢ Date of specimen collection; ➢ Follow-up plan for sharing of results (i.e., identification of who will be sharing results with the client); • Risk reduction education and resources offered.
Notification	• Notify the regional CD Coordinator/Specialist (by fax or phone).

NOTE: CPL will notify the physician, PHN or PHI whose name and contact information appears on the requisition.

Instructions for Vomit Sample Collection

If you have been asked to collect a vomit (throw up) sample:

- vomit (throw up) directly into the plastic bag provided **or**
- vomit (throw up) into a clean plastic container and then put it into the bag provided

Then: seal the bag tightly.

For more information call:_____

Appendix 3.7: The Cadham Provincial Laboratory Requisition Form

1. Each clinical specimen must be submitted with its own CPL Requisition form http://www.gov.mb.ca/health/publichealth/cpl/docs/mg696.pdf . If the CPL Requisition is missing or incomplete, testing may be delayed or cancelled.
2. If a foodborne outbreak is suspected, check the "Food Borne Illness" box, and include the Outbreak Code.
3. The following Patient information is mandatory: Name (first and last), Date of Birth, Gender, Address (street, town and postal code), and Personal Health Identification Number (PHIN). If no PHIN, use MB Health Registry Number or unique Alternate ID (e.g., organizational identifier, out-of-province health number).
4. Include all available Medical and Clinical information: e.g., patient travel and treatment history, risk factors, signs and symptoms of illness, illness onset date.
5. Information on the person submitting the clinical specimen (e.g., physician, PHI) is also mandatory and should be provided in the "Return Report to" section: Name (first and last); Reporting Address (street, town and postal code), Phone Number, and Secure Fax Number. If an Outbreak Number is not supplied, contact information for the Outbreak Coordinator can be provided in the "Copy Report to" section.
6. Identify the Specimen Source (e.g. stool, rectal swab), the Date/Time Collected, and the Facility where the specimen was collected.
7. Identify the types of testing required (e.g., Bacteriology Culture & Sensitivity [C&S], Viral Studies)
8. Once the specimen is obtained and CPL Requisition completed, arrange for appropriate delivery to CPL.

Appendix 3.8: Cadham Provincial Laboratory Enteric Illness Outbreak Testing

Cadham Provincial Laboratory (CPL) is Manitoba's public health microbiology reference laboratory. CPL supports routine communicable disease surveillance activities, tests clinical specimens, and is the principal laboratory participant in outbreak investigations.

For detailed descriptions of CPL testing and public health activities, see the "CPL Guide to Services", available at: www.gov.mb.ca/health/publichealth/cpl/documents.html

Stool Specimen Collection

Requisition: Specimens for CPL testing must be accompanied by a completed CPL Requisition form. If a Food Borne Illness is suspected, check the "Food Borne Illness" box on the Requisition and/or write "FBI".

If a large number of individuals are ill and an outbreak is suspected, contact the CPL Outbreak Co-ordinator (204-945-7473) to obtain an event-specific Outbreak Code. Include the Outbreak Code on every Requisition and specimen submitted for testing. Usually, specimens from six to 10 individuals will be tested per outbreak.

Collection of Specimens: Stool samples and rectal swabs are the preferred specimens for enteric illness investigations. Stool should be sent in a screw-capped container containing NO preservatives or transport media (i.e. dry). Formed stool will be rejected. A single specimen can be tested for bacterial and viral pathogens, but the specific tests required for each agent must be indicated on the requisition (e.g. "C&S" for bacteria, "Viral Studies" for viruses).

Storage of Specimens: Take or send specimens as soon as possible to Cadham Lab. Where possible, keep refrigerated until sent to lab. Extreme heat or cold (freezing) can destroy some organisms and give false negatives. Specimens should not be left out of the fridge for longer than 4 hours. In general, when stool specimens are left out and not refrigerated, other microorganisms can overgrow those organisms being sought. Specimens can be refrigerated for up to 48 hours, however, it is best to send in as soon as possible for testing.

Bacteriology Testing

Routine C&S (culture and sensitivity) testing targets *Salmonella*, *Shigella*, *Aeromonas*, *Yersinia*, and *Campylobacter*. In contrast, specimens labeled "FBI" are examined for a longer list of pathogens, including *Salmonella*, *Shigella*, *Campylobacter*, *Aeromonas*, *Yersinia*, *Listeria monocytogenes*, *Staphylococcus aureus*, and *Bacillus cereus*. If >1.5 grams of stool are available, specimens are also examined for *Clostridium perfringens*. Testing for *Vibrio spp.* is only included if patient history or symptoms are consistent with such infections. All stools are assayed for Verocytotoxin activity. Testing for *S. aureus* Toxin will be added if *S. aureus* is isolated from more than two epidemiologically linked individuals, or if the chief investigator feels it is warranted.

Test results are reported as they become available. Therefore, multiple reports for a single specimen may be received over a period of 2 to 7 days. Typically, culture results for rapidly-growing organisms (e.g. *Salmonella*) will be available within 2 to 3 days, whereas toxin testing will require additional time to complete.

Specific organisms are reported as "organism isolated" if they are present in sufficient numbers to be recovered and identified. The standard negative result is: "No *Staphylococcus*, *Salmonella*, *Shigella*, *Campylobacter*, *Aeromonas*, *Yersinia*, *Bacillus cereus*, or *Clostridium perfringens* isolated". Negative *L. monocytogenes* results

are reported on a separate line as "*Listeria monocytogenes* not isolated". Verotoxin results are reported as 1) Verotoxin positive or negative or 2) Verotoxigenic organisms detected or not detected.

Individuals receiving results should be aware that *S. aureus* and *C. perfringens* can be normal flora in some individuals. *C. perfringens* is only reported as "positive" if $>10^6$ organisms per gram of stool are isolated. The significance of such organisms to an outbreak must be determined in conjunction with other factors (e.g. clinical symptoms, isolation from several linked cases, isolation from food samples).

Increasingly, molecular genotyping (aka DNA Fingerprinting) techniques are being used to investigate outbreaks and determine if the same strain of a given bacterial species has infected several individuals. Genotyping is available for *Salmonella*, *Escherichia coli*, *Shigella*, and *Listeria monocytogenes*. It may be initiated by CPL staff or, if warranted, performed upon request.

Virology Testing

Virology testing for Food Borne Illness investigations is available Monday through Friday and includes Electron Microscopy (EM), Viral Culture, and Nucleic Acid Amplification Testing (NAAT). Each method detects a different range of pathogens. EM can detect Rotavirus, Adenovirus, Enterovirus and Small Round Enteric Virus (SREV). NAAT detects Rotavirus, Adenovirus, and Norovirus (genogroups GI and GII). EM and NAAT are typically reported within 48 hours. Viral Culture detects Adenovirus and Enterovirus (which includes Coxsackievirus and Echovirus). Results are reported when positive or, if the specimen remains negative, after 14 days.

For Hepatitis A virus (HAV) investigations, the diagnosis of acute HAV is based on the detection of IgM against HAV in serum. Anti-HAV IgM positive sera are forwarded to the reference lab for HAV RT-PCR (reverse transcriptase polymerase chain reaction) for not only confirmation purposes but for genotyping and RNA fingerprinting. This is useful for public health investigation. Depending on the time elapsed from the onset, RNA may or may not be positive; therefore, a negative RNA result does not negate recent HAV infection. False positive IgMs do occur, so a careful assessment of the results in the lab with a proper comment is made. Clinical and epidemiological correlation is the key. Given that HAV detection requires a serum specimen, this test is not a routine part of an FBI investigation. For further information on this test type please refer to the Cadham Provincial Laboratory Guide to Services http://www.gov.mb.ca/health/publichealth/cpl/docs/guide.pdf or consult with the serology section of CPL.

Parasitology Testing

Parasitology testing is not a routine part of Food Borne Illness investigations, but may be requested if the Chief Investigator feels it is warranted. A separate specimen is required for Parasitology testing: stool in Sodium Acetate-Acetic Acid-Formalin Fixative (SAF) solution. The accompanying CPL Requisition must specify Ova and Parasite (O & P) testing. Note: SAF is considered a hazardous material and must be prepared and decanted under a fume hood. Collection kits containing three containers with added SAF are available from CPL. They are provided in plastic resealable bags, with hazardous designation labels and a Material Data Safety Sheet.

Appendix 3.9: Environmental (i.e. Food, Water) Specimen Testing

Guide to ALS Usage

- **Location:** Unit 12, 1329 Niakwa Road East, Winnipeg, Manitoba, R2J 3T4
- **Phone Numbers: General Inquiry: 204-255-9720, Toll-Free Number: 1-800-607-7555, Biology Dept. Manager: 204-255-9735, cell 204-781-3010, Shipping: 204-255-9764, Client Services: 204-255-9749, 255-9747, 255-9755, 255-9739**
- **Services Available:** Bacteriological analysis of food, drinking water and recreational water samples for the purposes of investigating a waterborne or foodborne illness. These samples must be submitted through a PHI/HO, DWO or PHN. Routine bacteriological analysis is also performed on water samples from public, semi-public and private water sources.
- **Hours of Operation:** Regular hours of service are 0800 to 1630 hrs, Monday to Friday. Partial staffing on weekends ensures that all samples are processed within 24 hours. (Note: Samples received at the lab after 2:00 pm may not be processed until the following day.)
- **Sample Delivery:** When food/water samples are being submitted, please call ahead to advise ALS that samples are forthcoming (Account Manager or Biology Manager). During regular business hours, samples can be taken to the sample receiving counter, accessible through the front entrance. After hours: evenings, weekends or holidays call Emergency number 204-784-6677 or Biology Manager 204-781-3010. The call will be returned within one hour and will allow access to the lab for receipt and storage of specimens. After hours analysis for rush-priority service or legal specimens may be arranged for a surcharge.
- **Reporting Results:** Results are usually emailed to the submitter named on the requisition form. If notification of results is urgent, please clearly mark the appropriate box(s) on the requisition form with specifics of the callout request. Refer to Appendix 3.11 for interpretation.
- **Supplies:** The ALS Laboratory provides various supplies for the collection and transportation of specimens. Each office can order supplies including requisition forms by calling the shipping department at 204-255-9764 or by submitting a written request.

Specimen Collection

In any suspected foodborne/waterborne illness investigation, and especially if it appears to be an outbreak, obtaining samples quickly is very important. The most valuable sample is one that is left over from the meal that is suspected to have caused the illness.

- All samples should be collected by a PHI/HO, DWO or PHN using standard aseptic processes. Samples submitted by the patient/client may not provide accurate results. Sterile "Whirlpak" bags should be used for solid foods and liquids, and sterile water collection bottles (treated with a dechlorinating agent) should be used for sampling chlorinated water/ice. Where possible, submit sample in its original container (i.e. do not need to transfer bottled water to another sample bottle).
- Food wraps such as foil, plastic, or "baggies" are not an acceptable alternative to the sterile Whirlpak bags. However, if the patient has a small amount of the suspect meal left over in a plastic, foil, or foam container, submit the entire container and its contents to the lab.
- Samples should be submitted to the lab immediately after collection. Where this is not possible, arrangements must be made to keep the sample under refrigeration temperatures (5°C). If a food or water

sample is accidentally frozen, consult with supervisor at ALS for instructions. Transport the sample in a cooler with frozen icepack. Frozen food products should be kept frozen until submission to the lab; avoid freezing other products.

- **Solid Food & Ice Samples:** Use sterile (or appropriately sanitized) utensils to obtain a minimum 250-gram sample. Sample collection supplies may be ordered by calling the shipping department at 204-255-9764. Record temperature of food using an infrared temperature probe or sterilized thermometer. Note temperature of sample, hot or cold, (i.e. storage conditions, whether sample was left out or refrigerated immediately). Do not compromise the sample by opening container. Ensure the sample is transported to the lab, in a cooler with ice, within 24 hours of sampling. Upon receipt at the lab, the temperature of the food sample is taken using an infrared temperature probe.
- **Liquid/Semi-liquid Foods:** To subsample large volumes: Thoroughly mix or stir the product (with sterile utensil) prior to sampling to ensure a homogeneous mixture. Use sterile (or appropriately sanitized) equipment to obtain a 250-mL sample. Record temperature of food using an infrared temperature probe or sterilized thermometer. Note temperature of sample, hot or cold, (i. e. storage conditions, whether sample was left out or refrigerated immediately). Do not compromise the sample by opening container. Ensure the sample is transported to the lab, in a cooler with ice, within 24 hours of sampling. Upon receipt at the lab, the temperature of the food is taken using an infrared temperature probe.
- **Water Samples:** The Water and Waste Department routinely carries out sampling and analysis of City of Winnipeg water. Public drinking water purveyors and swimming pool operators are required to routinely submit water for microbiological analysis. If samples from a faucet in a home or place of business are required, call the water quality complaints line at 311. A laboratory technician will respond as necessary. If the PHI/HO, DWO or PHN must obtain water samples, remove the aerator screen from the tap, then wash the tap with a strong disinfectant solution. Flush for 3-5 minutes with fast-running cold water prior to collecting the sample. For well water samples, bypass the water softener. Multiple samples may be necessary depending on the tests required; consult with ALS prior to collection to determine the volume needed.
- **Submission/Requisitions:** Chain of Custody submission forms/requisitions must be filled out completely. Ensure that samples are numbered and labeled clearly, and that they are consistent with the information on the requisition. Include batch numbers, lot numbers, bar codes, or expiry dates whenever possible. Where applicable, include specimen ID numbers or food outbreak code for specimens submitted to the laboratory.
- "Suspect Foodborne Illness" should be clearly marked on the requisition form below.
- Legal samples must be indicated as such on the Chain of Custody submission form. There is extra documentation required and a surcharge for legal samples. A sample may be rejected as a legal sample upon receipt if there are deficiencies with the sampling procedures.

Specimen Analysis

- ALS is able to analyze food and water samples for the organisms listed on the attached requisition form. The analysis (organism) is determined at the lab based on the following information: symptoms/onset of symptoms (time), type of food product, type of processing and the indicator organisms (Total coliform),

Staphylococcus and heterotrophic plate count (HPC) to assess cross-contamination. The PHI/HO, DWO or PHN may indicate organisms on the submission form.

- Viral testing of food and water samples is not performed but specimens may be split with one part being sent to the National Microbiology Laboratory if a viral agent is suspected. The sample should be split in the lab using aseptic technique. Note: It is important to obtain a uniform sample from solid food.
- Specimens may be analyzed for parasites such as *Cryptosporidium parvum* if requested (i. e. outbreak associated with a swimming pool). A 10L sample of water is required for *Cryptosporidium/Giardia* analysis (preservative not required). A collapsible jug is available from the lab.

Appendix 3.10

ALS Environmental

Ship to: Unit 12, 1329 Niakwa Rd East, Winnipeg, Manitoba, R2J 3T4
Telephone: (204) 255-9720(info) Micro Food (204)255-9753, Micro Water(204)255-9724
Fax: (204) 255-9721, Toll Free: 1-800-607-7555

SUSPECTED FOOD BOURNE ILLNESS ANALYTICAL REQUEST FORM

Manitoba Health, Seniors and Active Living

Service Requested: Regular ____ Priority ____ Emergency

Submitted by: _____

Customer #: W100

Food Venue Name & Location: _____

Lot # or date made: _____ **(Actual or Like sample)**

Fresh food or reheated (circle one)

Indicate Legal sample or regular (circle one)

Sample ID	Sampled By	Date/ Time Sampled	Sample Type (solid/liquid)	Temp	
					Total Coliform
					Fecal Coliform
					E. Coli
					HPC
					Staph. aureus
					Salmonella
					Bacillus cereus
					Campylobacter jejeuni
					Listeria moncytogenes
					Yeast & Moulds
					Foreign Matter I.D.
					Other

Symptom(s): stomach cramps nausea vomitting diarrhea bloody stool headache fever

Time of consumption: _____ Incubation time: _____

CLIENT INFORMATION:
REPORT TO: Manitoba Health, Seniors and Active Living

Address:

_____

_____

Phone: (204) _____

Fax: (204) _____

ATTENTION: _____

Copies To: Peter Parys peter.parys@gov.mb.ca
MB Health Fax# 204-948-2040

RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:
	TIME:		TIME:

FOR LABORATORY USE ONLY

SAMPLE CONDITION UPON RECEIPT: FROZEN ____ COLD ____ AMBIENT

OTHER (BREAKAGE, LEAKAGE, ETC.):

Appendix 3.11: Microbial Guidelines for Food

Test	Satisfactory	Marginal	Unsatisfactory	Potentially Hazardous
Standard Plate Count				
Category 1 **Category 2** **Category 3**	$<10^4$ $<10^6$ N/A	$<10^5$ $<10^7$ N/A	$\geq 10^5$ $\geq 10^7$ N/A	
Indicator Organisms				
Enterobacteriaceae[(a)] **Escherichia coli**	<100 <10	$<10^4$ <100	$\geq 10^4$ ≥100	 See VTEC
Pathogens				
Salmonella spp.	Not Isolated			Isolated
Campylobacter spp.	Not Isolated			Isolated
***E. coli* O157:H7 & VTEC**	Not Isolated			Isolated
L. monocytogenes	Not Isolated	Isolated but <100[(c)]		≥100[(d)]
***V. parahaemolyticus*[(b)]**	Not Isolated	Isolated but <100	<1000	≥1000
Clostridium perfringens	<5 CFU/g or mL	$<10^3$	$<10^4$	$\geq 10^4$
Coagulase positive Staphylococci	<5 CFU/g or 1CFU/mL	$<10^3$	$<10^4$	$\geq 10^4$
***B. cereus* and other pathogenic *Bacillus* spp.**	<5 CFU/g or mL	$<10^3$	$<10^4$	$\geq 10^4$

N/A – not applicable because the food, or a component of it, naturally contains high numbers of bacteria (i.e. raw fruits or vegetables, fermented or cultured foods, etc.).

a. Not applicable for fresh fruit, raw vegetables or foods containing these products.

b. Should not be present in seafood that has been cooked. Products intended for consumption in their raw form should contain less than 100 CFU/gram. Potentially hazardous levels *of Vibrio parahaemolyticus* relates to Kanagawa-positive strains.

c. Foods intended to have a prolonged shelf-life should contain no *L. monocytogenes* (i.e. cheese, processed deli meats, etc.).

d. Detection of *L. monocytogenes* is also considered to be potentially hazardous if the food is to be served to "high risk" populations, such as the young, the elderly, or the immuno-compromised (i.e. baby food, hospital food, and food served at seniors centers).

Foods shall not contain:

- any other pathogenic bacteria, viruses, or microorganisms which include, but are not limited to, *V. cholerae, Shigella spp, Aeromonas*, Rotavirus, Norovirus, *Yersinia*, *Cryptosporidium spp*, and *Giardia spp.*;
- contaminants, mycotoxins, harmful preservatives, antibiotics, or any other toxic substance; or
- evidence of rodent or insect contamination, visible mould, or foreign material of any kind.

Food Classification Reference Guide

The following list is intended to provide examples of various foods and their respective classification in terms of the "Microbiological Guide for Ready-To-Eat Foods". Public Health Inspectors are required to assess each food on the basis of how it was prepared, what components it is comprised of and what (if any) handling and/or processing occurred after cooking and prior to distribution to the consumer.

Category 1 Foods

These foods are ready-to-eat and are comprised entirely of components that have been cooked without subsequent handling or processing.

- Soups
- Gravy
- Boiled potatoes and other cooked vegetables
- Bread, buns
- Cooked meat, poultry, seafood (served hot)
- Spaghetti and meat sauce
- BBQ pork buns and other Chinese-style bakery products unless portioned after cooking
- Sausage rolls, meat pies, quiche

Category 2 Foods

These foods contain some components that have been cooked but may have been subjected to further handling prior to or during preparation of the final product.

- Sandwiches containing no Category 3 products such as peanut butter and jam
- Ready-to-eat hot dogs
- Burgers containing no Category 3 products

Category 3 Foods

These foods are expected to contain high standard plate counts due to the normal microflora associated with these products.

- Fresh fruit
- Raw vegetables
- Salad rolls (rice paper stuffed with noodles, meat or seafood, raw carrot and beat sprouts)
- Pitas
- Burgers with lettuce, tomato, raw onions, etc.
- Deli meats
- Cheese, yogurt
- Potato salad, pasta salad, coleslaw

ALS- Reference Method, Minimum sample size, and detection limits.

Parameter	Reference Method(s)	Minimum Sample Size	Detection Limit
Standard Plate Count	MFHPB-18	100 g or mL	5 CFU/g or 1 CFU/mL
Enterobacteriaceae *	MFLP-43	100 g or mL	5 CFU/g or mL
***Escherichia coli*, fecal and total coliforms**	MFHPB-19 (MPN)	≥ 200g for raw and processed shelfish 100 g or mL for all other food types	2 MPN/g or mL
Escherichia coli	MFHPB-31 (Pour Plate) NO LONGER OFFERED (NEW METHOD COMING)	100 g or mL	5 CFU/g or 1 CFU/mL
Salmonella spp. screening	MFLP-70 (Immunodiffusion Assay) NO LONGER OFFERED; MFHPB-20 or PCR method available	100 g or mL	Presumptive Positive/Not Isolated
Salmonella spp. confirmatory	MFHPB-20 (Spread Plate); ribotyping	100 g or mL	Isolated/Not Isolated
Campylobacter spp. *	MFLP-46	100 g or mL	Isolated/Not Isolated
E. coli O157:H7 **	-	-	-
***Listeria* screening**	MFLP-34 (Visual Immunoprecipitate Assay)	100 g or mL	Presumptive Positive/Not Isolated
***L. monocytogenes* confirmatory**	MFHPB-30 (Spread Plate)	100 g or mL	Isolated/Not Isolated
***L. monocytogenes* * enumeration (if requested)**	MFLP-74 (Spread Plate)	100 g or mL	5 CFU/g or mL
***V.parahaemolyticus* ***	MFLP-37	100 g or mL	< 2 MPN/g or mL
***Clostridium perfringens* ***	MFHPB-23	100 g or mL	5 CFU/g or mL
Coagulase pos. Staphylococci	MFHPB-21	100 g or mL	5 CFU/g or 1 CFU/mL
***B. cereus* ***	MFLP-42	100 g or mL	5 CFU/g or mL

** Not a routine analysis, but may be performed on a case by case basis or subcontracted if head notice is provided.*
*** Testing not performed at ALS, but may be subcontracted if head notice is provided.*

Note: Samples of 100g or mL help ensure representative sub-sampling of the food product. In the event of limited sample size, 25 g or mL would suffice per pathogen.

Below is the link to the online version of the Compendium of Analytical Methods
http://www.hc-sc.gc.ca/fn-an/res-rech/analy-meth/microbio/index-eng.php

Acknowledgement to Alberta Health Services.

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