

British Columbia Foodborne Illness Outbreak Response Protocol

Guide to Multi-Partner Enteric Outbreak Response in British Columbia

Acknowledgements

The British Columbia Foodborne Illness Outbreak Response Protocol (BC FIORP) was updated in 2024 and replaces previous versions. The BC FIORP is based in part on Canada’s Foodborne Illness Outbreak Response Protocol (2017), which was developed through a partnership among provincial/territorial governments, the Public Health Agency of Canada, Health Canada, and the Canadian Food Inspection Agency. The BC FIORP also incorporated parts of the Alberta Foodborne Illness and Risk Investigation Protocol (2017), Ontario’s Foodborne Illness Outbreak Response Protocol (2023), and Modalités québécoises d’intervention lors de toxi-infections d’origine alimentaire et de zoonoses (2014) to inform and guide the protocol.

Drafted by the 2024 BC FIORP Working Group

The 2024 version of the BC FIORP was drafted by the following individuals representing their respective agencies:

British Columbia Centre for Disease Control

- Environmental Health Services: Kuljeet Chattha, Lorraine McIntyre, and Esther Tong
- Public Health Laboratory: Yin Chang, Jennifer Grant, and Natalie Prystajacky
- Public Health Response: Hannah Caird, Erin Fraser, Sharon Relova, Mayank Singal, and Kristin Weatherall

British Columbia Ministry of Agriculture and Food

- Food and Safety Inspection Branch: Navneet Gill and Gavin Last

Canadian Food Inspection Agency

- BC Animal and Food Region: Hui Hang and Jennifer Lee
- BC Plant and Food Region: Matthew Miyagawa

How to cite this document

British Columbia Centre for Disease Control (2024). British Columbia Foodborne Illness Outbreak Response Protocol (BC FIORP): Guide to Multi-Partner Enteric Outbreak Response in British Columbia; July 2024.

Contact

For questions about the BC FIORP, please contact ezvbepi@bccdc.ca.

Executive Summary

The British Columbia Foodborne Illness Outbreak Response Protocol (BC FIORP) was co-developed by human and animal health partners to document their agreement and understanding of individual roles involved during a multi-jurisdictional investigation and response to foodborne illness outbreaks in British Columbia (BC). The 2024 version of the BC FIORP replaces previous versions developed in 2012 and 2009.

The BC FIORP adopts many of the principles and core concepts presented in [Canada's Foodborne Illness Outbreak Response Protocol](#) prepared by the Public Health Agency of Canada (PHAC) to the local context of BC.

A central element of the BC FIORP is the recognition that a Coordinating Committee (CC), with representation from Partners involved in a specific foodborne outbreak within BC, may be established as needed to coordinate a multi-Partner response.

Overall, the intent of the CC is to encourage collaborative information-sharing and coordinated outbreak response, without unduly restricting or constraining participating partners that span human, animal, and environmental health sectors. Points of collaboration recognized in this document include:

1. Identification of a potential illness outbreak
2. Notification among Partners and the Office of the Provincial Health Officer
3. Assessment call and activation
4. Coordinating Committee
5. Investigations
6. Integrated analysis
7. Tampering, sabotage, or terrorism
8. Health risk assessment
9. Public health actions
10. Communication
11. Deactivation and outbreak conclusion
12. Debrief

Table of Contents

Executive Summary	3
Acronyms	6
1. Definitions	7
2. Introduction	10
3. Purpose	11
4. Scope	12
5. Guiding Principles	13
5.1 Protect the health of British Columbians.....	13
5.2 Share information in a timely and appropriate manner	13
5.3 Respect public disclosure of information.....	13
5.4 Use of the Coordinating Committee as the central body for coordination and information sharing	13
5.5 Consider weight of evidence.....	13
5.6 Incorporate a One Health approach	14
5.7 Commitment to cultural safety.....	14
5.8 Provide assistance to Partners.....	14
5.9 Respect other agreements and relationships in place.....	14
5.10 Actively engage with the BC FIORP	14
5.11 Consider what is shared through presentations and publications	15
6. Roles and Responsibilities	16
7. Operating Procedures	17
7.1 Identification of a potential illness outbreak.....	18
7.2 Notification among Partners and the Office of the Provincial Health Officer	18
7.3 Assessment call and activation	19
7.4 Coordinating Committee.....	20
7.5 Investigations	23
7.6 Integrated analysis.....	24
7.7 Tampering, sabotage, or terrorism	24
7.8 Health risk assessment.....	24
7.9 Public health actions	25
7.10 Communication.....	25
7.11 Deactivation and outbreak conclusion	27

7.12 Debrief.....	27
8. Emergency Response Coordination Structures	29
9. Administrative Review	30
10. References	31
Annex A. Sharing Information	32
Annex B. Public Health and Animal Health Partners Collaborative Investigation Protocol.....	33
B.1 Purpose	33
B.2 Scope.....	33
B.3 Case identification	33
B.4 Notification between public and animal health	33
B.5 Investigation.....	34
B.6 Mitigation actions	34
B.7 Prevent future outbreaks through informing the development of programs and policies.....	35
B.8 Protocol review	35
Annex C. Roles and Responsibilities of Partners	36
C.1 Federal Partners.....	36
C.2 Provincial Partners	39
C.3 Regional Partners.....	46
Annex D. BC FIORP Contact List	48
Annex E. BC FIORP Meeting Agenda Template	49
Annex F. Suggested Questions to be Addressed During the Post-Outbreak Debrief	50

Acronyms

AF	Ministry of Agriculture and Food
BC	British Columbia
BCCDC	British Columbia Centre for Disease Control
BC FIORP	British Columbia Foodborne Illness Outbreak Response Protocol
CC	Coordinating Committee
CFIA	Canadian Food Inspection Agency
CNPHI	Canadian Network for Public Health Intelligence
CVO	Chief Veterinary Officer
CWHC	Canadian Wildlife Health Cooperative
DPIC	BC Drug and Poison Information Centre
EHS	Environmental Health Services
EOC	Emergency Operations Centre
FNHA	First Nations Health Authority
HC	Health Canada
HECSB	Healthy Environments and Consumer Safety Branch
HPFB	Health Products and Food Branch
HRA	Health Risk Assessment
MHO	Medical Health Officer
MoH	Ministry of Health
MOU	Memorandum of Understanding
NML	National Microbiology Laboratory
OPHO	Office of the Provincial Health Officer
PHAC	Public Health Agency of Canada
PHL	Public Health Laboratory
PHR	Public Health Response
PHO	Provincial Health Officer
PMRA	Pest Management Regulatory Agency
RCMP	Royal Canadian Mounted Police
RHA	Regional Health Authority(ies)
ROEMB	Regulatory, Operations and Emergency Management Branch
RRC	Regional Recall Coordinator
TPP	Travelling Public Program
WLRS	Ministry of Water, Land and Resource Stewardship

1. Definitions

The following definitions are provided to ensure a common understanding of the terms used in this document.

Confidential information: Information marked as confidential by the party providing it and treated consistently in a confidential manner by that party.

Enteric illness: A disease of the gastrointestinal tract caused by an infection or intoxication resulting from the ingestion of bacteria, viruses, parasites, or toxins transmitted through food, water, animals, or person-to-person contact.

Epidemiological evidence: The demonstration of an association between a food and human illness through an increase in cases in a population, place, or timeframe with exposure to the same food product or a statistically significant association between illness and food.

Epidemiological outbreak investigation: An investigation made to determine the existence of an outbreak; to characterize it as to time, space, and personal characteristics; and to develop and test a hypothesis explaining the specific exposure that caused disease. The investigation may result in recommendations towards the implementation of appropriate prevention and mitigation measures.

Evidence: That which demonstrates or shows an association between events. Evidence of an association between a consumed food and human illness may be epidemiological and/or based on the results of food safety investigations or laboratory analysis.

Food: Any raw, cooked, or processed substance, including (but not limited to) ice, beverage, or ingredients used or intended for use, in whole or in part, for human consumption. For the purpose of the BC FIORP, it excludes non-bottled water. However, it does include food made with non-bottled water.

Foodborne hazard: A biological, chemical, or physical agent in, or condition of, food with the potential to cause an adverse health effect.

Foodborne illness: A human illness caused by a microbiological, chemical, or inert physical hazard, with evidence indicating a food was the common source of exposure to the contaminant causing the illness. Foodborne illness occurs when a person consumes food contaminated with a biological or chemical hazard.

Food safety investigation: Any inspection and related activities undertaken by regulatory officials to verify whether or not a food hazard which could cause foodborne illness exists and to determine the nature and extent of the problem. In the case of a foodborne illness outbreak, information gathered during the food safety investigation and epidemiological investigation provides the basis for risk assessment and for the development of appropriate risk management strategies to control affected food products.

Health Risk Assessment (HRA): A scientifically-based process to determine the likelihood that a specific adverse health effect will occur in an individual or a population following exposure to a hazardous agent. The following steps are used in the development of an HRA: 1) hazard identification, 2) hazard characterization, 3) exposure assessment, and 4) risk characterization.

Laboratory evidence: Evidence shown by the isolation/identification of the same pathogen, toxin, or contaminant from cases of human illness and the suspect food or its presence in the food associated with clinical illness in exposed humans.

Lead: The Partner deemed to have the primary responsibility for the investigation and response to a foodborne illness outbreak in BC based on its mandate.

Outbreak: An increase in the rate of illness above expected levels, or a group of people experiencing similar illness after a common exposure. An outbreak is identified through laboratory surveillance or an increase in illness that is unusual in terms of time and/or place. An outbreak is confirmed through laboratory and/or epidemiological evidence. This definition is limited to short and mid-term duration outbreaks and excludes those that have caused chronic disease problems over several years or decades.

Partner: Any agency with a responsibility to investigate or respond to foodborne illness outbreaks in BC, including federal/provincial/territorial health, agriculture, and agri-food partners that share food safety and public health responsibilities.

Personal information: Information about an identifiable individual that is recorded in any form including the meaning ascribed to the term in the federal *Privacy Act* and the BC *Freedom of Information and Protection of Privacy Act*.

Recall: The removal of affected product(s) from further sale or use at any point in the supply chain as a risk mitigation action.

Response: Activities related to the identification, investigation, mitigation, and containment of foodborne illness outbreaks, as well as related communication activities.

Tampering, sabotage, or terrorism: Actual or suspected deliberate contamination of food.

2. Introduction

Foodborne illness outbreaks in British Columbia (BC) may result from natural, accidental, intentional, or malicious contamination by microbiological, chemical, or physical hazards. These incidents can lead to human illness spanning multiple regional health authorities (RHAs), requiring a collaborative multi-partner response. The British Columbia Foodborne Illness Outbreak Response Protocol (BC FIORP) was developed to guide multi-partner collaboration in response to foodborne illness outbreaks in BC. The BC FIORP (2024) replaces previous versions (2012 and 2009). The BC FIORP adapts and enhances [Canada's Foodborne Illness Outbreak Response Protocol](#) developed by the Public Health Agency of Canada (PHAC), Health Canada (HC), and the Canadian Food Inspection Agency (CFIA) to a BC-specific context.

Acknowledging the interconnectedness of human, animal, and environmental health, foodborne illness outbreaks in response to a cluster of enteric disease cases may include epidemiologic, food safety, environmental, and animal investigations supported by enhanced laboratory testing. When there is evidence that a potential foodborne illness outbreak may affect cases in multiple RHAs, may be caused by a widely distributed food product, or a food regulated under the *Food and Drugs Act*, whereby the CFIA's participation is required, a multi-partner response is initiated.

Partners responsible for human health and food safety respond to these events by developing enhanced foodborne illness surveillance networks and collaborating in a multi-partner outbreak investigation and response. In situations where multiple Partners are involved, they will have complementary responsibilities and will work in collaboration to support efficient and effective investigations and responses.

3. Purpose

The BC FIORP is designed to be used for a local or provincial foodborne illness outbreak with a suspected or confirmed link to food consumed in BC when multiple Partners are involved in the investigation and response. It is used to coordinate the actions of multiple Partners in the identification and response to foodborne illness outbreaks.

Specifically, the primary objectives of the BC FIORP are to:

1. Strengthen collaboration and coordination among Partners;
2. Establish clear lines of communication; and
3. Facilitate information sharing among Partners.

4. Scope

The BC FIORP is intended to be followed during a response to a suspected or confirmed outbreak of illnesses linked to foods consumed in BC when multiple Partners participate in the response. The scope addresses potential foodborne illness outbreaks resulting from the natural, accidental, intentional, or malicious contamination of foods by microbiological, chemical, inert physical hazards, and other similar substances when multiple Partners participate in the response.

The BC FIORP anticipates the coordination of multi-Partner response activities related to illness outbreaks in BC. Such situations may include a single RHA that has requested assistance from the BC Centre for Disease Control (BCCDC) or one or several BC agencies collaborating with the CFIA.

The BC FIORP is not intended for use in all foodborne illness outbreak investigations in BC since most are identified and managed by the affected RHA. The BC FIORP does not typically apply when all human cases and food manufacturing facilities reside within a single RHA, and the food is not produced in a provincially or federally licensed facility or exported across provincial boundaries.

The BC FIORP acknowledges that when coordination across provincial/territorial/international boundaries is required (i.e., the contaminated food originates outside BC or public health information and actions are required both within [see section [7.4.3](#)] and outside the province), actions taken should be in accordance with the national FIORP.

The BC FIORP does not address the broader risk assessment process that contributes to policy and standard setting, such as the coordination needed to reduce risks of future occurrences. However, during the post-outbreak debrief, there is the opportunity to raise the need for future policy development to manage risk.

5. Guiding Principles

5.1 Protect the health of British Columbians

The primary objective of the activities described in the BC FIORP is to mitigate or contain the effects of foodborne illness outbreaks in a timely and effective manner, thereby protecting the health of those living in BC.

5.2 Share information in a timely and appropriate manner

Subject to applicable laws governing the sharing of information (including privacy, access to information, and common law relating to confidential business information), the Partners recognize that information required to investigate, control, and resolve a foodborne illness outbreak will be exchanged in confidence and in a timely fashion between the Partners. [Annex A](#) and [Annex B](#) provide frameworks for sharing information during an outbreak.

5.3 Respect public disclosure of information

The Partners recognize that public disclosure of confidential business information may be required when a foodborne illness outbreak is identified and there is a clear public interest in sharing this information. The response to external requests for information should be coordinated between affected Coordinating Committee (CC) Partners and align with applicable access to information and privacy legislation.

5.4 Use of the Coordinating Committee as the central body for coordination and information sharing

The CC established pursuant to this BC FIORP will serve as the main forum for information sharing and interpretation, clarification of roles and responsibilities, establishment of response priorities, and the development of communications strategies related to an actual or suspected foodborne illness outbreak. While some discussions may need to occur outside of the CC, all activities, recommendations, and decisions will feed back to the CC in a transparent and timely fashion.

5.5 Consider weight of evidence

Laboratory, epidemiological, or food safety investigation evidence is accepted for establishing the association between a particular food, or foods, and human illness.

5.6 Incorporate a One Health approach

Recognizing the interconnectedness of human, animal, and ecosystem health, the BC FIORP emphasizes communication, collaboration, and coordination among professionals in human, animal, and environmental health to address complex health issues in our shared environment. The BC FIORP is in alignment with the [reportable and notifiable diseases regulation](#), the [Animal Health Act](#), and the *Information Sharing Agreement For the Sharing of Information Regarding Zoonotic Communicable Diseases Between Animal and Public Health Officials in British Columbia*. More information is provided in [Annex B](#).

5.7 Commitment to cultural safety

Acknowledging the [inherent rights](#) of Indigenous peoples, the profound connection of Indigenous peoples to the lands and water and the food they provide, and the health inequities that have resulted from current and historical colonization of this land, the BC FIORP encourages Partners to respectfully engage in the reconciliation process and in listening and learning from the resilience and strength of Indigenous peoples. Partners are encouraged to consider their obligations to Indigenous peoples, prioritize the inclusion of local community members in the decision-making process, and work towards building knowledge and skills to provide respectful and culturally appropriate services in alignment with the [Declaration on the Rights of Indigenous Peoples Act](#).

5.8 Provide assistance to Partners

Whenever possible, Partners implementing the BC FIORP will assist each other as requested or as needed during an investigation. Such assistance might be limited by legislated mandate and resource availability. [Annex C](#) identifies the roles and responsibilities of various Partners.

5.9 Respect other agreements and relationships in place

Partners will share and respect memoranda of understanding or other agreements between Partners regarding food safety, investigation, control measures, or privacy. The BC FIORP is intended to complement agreements and procedures among the Partners, and not to substitute for the ongoing relationships among the Partners necessary to discharge other responsibilities or to manage issues as they arise.

5.10 Actively engage with the BC FIORP

Partners are encouraged to raise awareness of the BC FIORP within their own jurisdiction by distributing the document to their senior management and foodborne illness outbreak response

Partners and by participating in CCs, as appropriate, and simulation exercises/training, where possible. Committee members are expected to come to each meeting prepared to address the relevant issues.

5.11 Consider what is shared through presentations and publications

Written publication and oral presentations of information related to multi-jurisdictional foodborne outbreaks investigated collaboratively through a CC will not occur without the permission of all the Partners engaged in the investigation and response whose data will be included.

6. Roles and Responsibilities

Responsibilities for responding to foodborne illness outbreaks may be shared among local, regional, provincial, and federal jurisdictions, depending on the situation. [Annex C](#) identifies the roles and responsibilities of various Partners.

7. Operating Procedures

This section outlines the general operating procedures for coordinating a multi-Partner response when a foodborne illness is confirmed in BC or when there is potential for such events in other jurisdictions to impact the province. [Figure 1](#) provides an overview of the communication pathways and activities of Partners. While steps are listed sequentially, there is a possibility of two or more steps occurring concurrently once the BC FIORP is activated (e.g., public health actions may be implemented while integrated analysis continues).

The BC FIORP is scalable in terms of structure and processes to match the size and complexity of any foodborne illness outbreak.

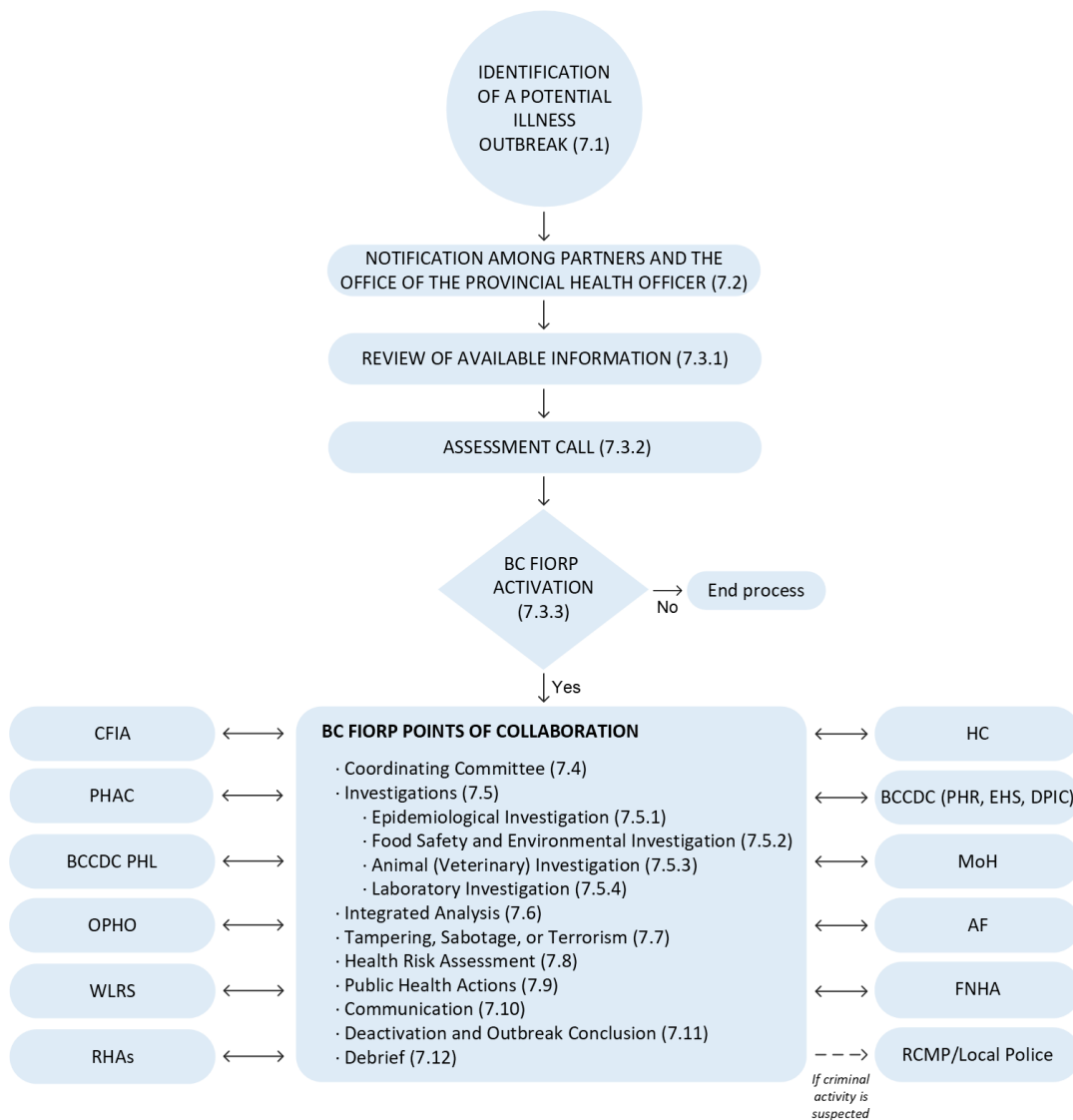


Figure 1: Communication pathways and activities of Partners when a foodborne illness outbreak is suspected or confirmed in British Columbia

7.1 Identification of a potential illness outbreak

Human illness potentially linked to food may be identified through several mechanisms. The routine surveillance of foodborne illness by RHAs in BC involves RHA follow-up of cases of reportable enteric diseases and the collection and analysis of individual-level data, as well as data related to clusters of cases of enteric illness reported by the public, physicians, laboratories, and healthcare facilities. The BCCDC conducts routine surveillance of [reportable enteric pathogens and illnesses](#) at a provincial level. Increased or unusual cases of human illness may trigger investigations to determine a common source.

7.2 Notification among Partners and the Office of the Provincial Health Officer

Notification should occur when any Partner with the mandate to investigate or respond to an outbreak of foodborne illness becomes aware of a potential outbreak. The BCCDC is responsible for notifying and updating the Office of the Provincial Health Officer (OPHO) as appropriate.

One mechanism to notify Partners in BC is the BC FIORP contact list, which lists the contact information for each Partner's primary representative ([Annex D](#)). Notifications to Partners are usually communicated through email. Each Partner is expected to manage all appropriate internal notifications.

Another mechanism of notification is the Public Health Alert function within the [Canadian Network for Public Health Intelligence](#) (CNPHI). CNPHI is one of several effective communication tools used for early notification of possible or confirmed outbreaks across Canada. However, reporting through CNPHI does not replace the use of the BC FIORP.

The [Canadian Food Safety Information Network](#), another communication tool, is a federal initiative led by the CFIA, partnered with federal, provincial, and territorial organizations involved in food safety. This partnership is designed to foster a collaborative food safety network across Canada supported by a suite of digital applications and services to help protect Canadians by improving the detection, prevention, and response to food safety incidents.

If a foodborne outbreak is determined to involve jurisdictions outside BC, PHAC will be notified, and the investigation and response will be conducted according to the national FIORP.

7.3 Assessment call and activation

7.3.1 Review of available information

The Partner who initially becomes aware of the foodborne illness assesses available information for public health implications and takes collaborative efforts to gather, summarize, and analyze relevant information among their fellow Partners as appropriate.

7.3.2 Assessment call

When appropriate, an assessment call is held to decide on activating the BC FIORP. The meeting initiator summarizes relevant information for presentation and discussion. [Annex E](#) contains a suggested meeting template for items to be discussed. The assessment meeting is often chaired by the Partner expected to lead the investigation but can be chaired by any involved Partner.

7.3.3 Activation

BC FIORP activation should be considered as early as possible and could occur before a link is established with a specific food item. Several key considerations are involved in the activation of BC FIORP:

- The outbreak is known to be, or has the potential to be, linked to a distributed food source and is not obviously linked to a common source event confined within the RHA (e.g., not obviously linked to travel, a catered event, or a single location of restaurant).
- Cases have occurred in multiple RHAs in BC.
- Cases have occurred in a single RHA and that RHA has requested assistance from the BCCDC or one or several BC agencies collaborating with the CFIA.
- The outbreak is linked, or potentially linked, to a common source.
- The severity and scope of the outbreak (e.g., larger than expected number of cases linked by laboratory evidence, severe illness or deaths, unusual pathogen, vulnerable population, or new cases continue to be identified).
- A breakdown in the hazard analysis and critical control points process for the implicated food is known to have occurred and the food is distributed in the area(s) affected by the outbreak and is known to be a potential source of the outbreak etiological agent.
- The outbreak triggers the need for improved collaboration, timely information sharing, and coordinated actions among multiple Partners.

The decision to activate the BC FIORP will ideally be reached through consensus. If agreement is not reached, the majority of Partners present will make the decision. If the BC FIORP is activated, this will

be stated in the meeting summary circulated to at least one senior member of all involved Partners by the Partner identified as the Lead (see section [7.4.3](#)) or their designate.

If Partners agree that activation of the BC FIORP is not required at that time, monitoring can continue, and an assessment call may be held if new information warranting collaborative assessment becomes available.

7.4 Coordinating Committee

Once a decision is made to activate the BC FIORP, a CC should be promptly established.

7.4.1 Purpose

The CC serves as a forum for sharing information, coordinating activities, and discussing mutual interests to expedite threat resolution and improve public health in BC. The CC acknowledges and respects the unique mandates of member organizations during outbreak investigations. Upon activation, the CC's purpose is to communicate relevant outbreak information and formulate strategies to mitigate its impact. The CC's objectives are to:

- Facilitate internal communications among participating Partners;
- Clarify roles and responsibilities for the specific incident;
- Serve as a central point for collecting, analyzing, and sharing information;
- Communicate outbreak response strategies, including follow-up actions;
- Identify and share resource needs and opportunities;
- Establish response priorities in resource-constrained situations;
- Reach consensus on emerging issues;
- Harmonize external communications for consistent messages to the public and stakeholders;
and
- Conclude the outbreak investigation and conduct debrief sessions.

7.4.2 Composition

The CC is an ad hoc group of primary Partner representatives (see section [7.4.5](#)), formed as needed based on the nature of the outbreak and response requirements; representatives may change as more information is gathered. Membership consists of representatives who can act on behalf of their respective organizations. Partners have the flexibility to decide their level of involvement and can adjust as needed.

Partners may include RHAs in BC, BCCDC, BCCDC Public Health Laboratory (PHL), First Nations Health Authority (FNHA), CFIA, Ministry of Health (MoH) and/or OPHO, Ministry of Agriculture and Food (AF), PHAC, HC, and the Royal Canadian Mounted Police (RCMP).

7.4.3 Determination of the Lead

The CC will designate the Lead, by consensus, at the time of the assessment call, provided that a decision to activate the BC FIORP has been made. The possibility of Lead transition may be discussed at the CC meeting, as appropriate. If consensus is not achieved, the CC will make a recommendation or decision based on majority present.

The Lead is the Partner with the primary responsibility for coordinating the investigation and response to a foodborne illness outbreak based on its jurisdictional mandate:

- When the outbreak affects a single RHA, that RHA is the Lead. The Medical Health Officer (MHO) or designate will initiate and coordinate a response to the outbreak.
- Should cases occur in more than one RHA, but there is evidence to suggest that the source is within one RHA or a large majority of cases are in one RHA, then the primary RHA will continue to be the Lead. This may involve the formation of an Outbreak Response Working Group.
- An MHO can request that the BCCDC assist in the investigation or take the role of the Lead if needed.
- If cases occur in more than one RHA, no single RHA has the majority of cases, and the source is unknown or apparently broadly distributed, the BCCDC will be the Lead.
- In certain circumstances, other Partners such as the CFIA may be the Lead (e.g., a contaminated food product is identified but no or few cases of illness are associated.)

7.4.4 Responsibilities of the Lead

The Lead plays a coordinating role and in no way controls or directs other Partners. The Lead is responsible for:

- Notifying BC FIORP Primary Representatives about activation or deactivation;
- Centralizing collation of data and analysis;
- Organizing and chairing meetings;
- Recording and distributing minutes that include discussion summaries and action items;
- Maintaining documentation of the response effort and timeline;
- Disseminating information in formats required for the response to progress (e.g., outbreak and/or investigations summaries, epidemiological assessments, HRAs);

- Coordinate development of consistent public messaging through the communication officer(s) of relevant Partners; and
- Managing the debrief and distributing the debrief summary.

The Lead can request assistance from other Partners to fulfill specific roles as needed.

7.4.5 Responsibilities of the Primary Representative

The Primary Representative is an individual by named position within their respective organization.

They are responsible for informing and briefing their senior officials regarding the actions taken by the CC in implementation of the BC FIORP and for ensuring adequate representation on the CC.

7.4.6 Information sharing between Coordinating Committee Partners

Most multi-Partner coordination during an outbreak will occur by videoconference and email.

Organizations with primary responsibility for the various investigations (epidemiological, food safety, environmental, animal, and laboratory) are responsible for sharing written investigation summaries and updates with the CC, through the CC Lead, in a timely manner either in advance of the call or as soon as possible after the call.

Timely information exchange is crucial for public safety during foodborne illness outbreaks. Partners agree that exchanging information for the purposes of controlling foodborne illness risks during an outbreak is an acceptable practice and have set out the parameters for information sharing in [Annex A](#) and [Annex B](#).

7.4.7 Decision-making and resolving differences in opinion

The CC will attempt to resolve all differences of opinion during an outbreak, respecting the legal responsibilities and mandates of each Partner. However, when consensus cannot be reached, members of the CC may seek assistance from senior officials in their respective Partners' agencies through their Primary Representative. Any decision made by senior officials in resolving the issue will be communicated to all CC members.

7.5 Investigations

7.5.1 Epidemiological investigation

Collaboration during epidemiological investigations requires the CC to determine what information will be required, to identify the Partner best able to gather that information, and to collectively note and address any information gaps.

RHAs carry out human case investigations. Within an outbreak event, every effort should be made by all Partners to co-create, tailor, and standardize the information being collected (e.g., questionnaires and line listings). RHAs may need to re-interview individuals to clarify and obtain additional information. Data analysis should occur within each Partner's organization. When multiple Partners are involved, the Lead is responsible for overall collation and analysis to draw conclusions based on all data available.

7.5.2 Food safety and environmental investigations

When a food is suspected as the source of an outbreak, a food safety investigation will be conducted to identify the food(s) that may be responsible.

When a food product is produced under BC authority, the RHA with jurisdiction will generally conduct the food safety investigation, with assistance from other Partners as appropriate. If a food product is imported into Canada, shipped inter-provincially, or manufactured in an establishment registered or licensed by the CFIA, the CFIA will conduct or coordinate the investigation.

The CFIA is responsible for the enforcement of the *Food and Drugs Act*, as it relates to trace-back of implicated product. The CC members will ensure that all pertinent information regarding an implicated product is forwarded to the appropriate Partners.

Where trace-back or trace-forward involves other provinces or countries, discussions should refer to recall protocols in existing food recall agreements. Effectiveness checks of recalled products are the responsibility of the CFIA, which may request assistance from the affected RHA and/or provincial Partners, when required. The request may be managed through the CC.

7.5.3 Animal (veterinary) investigation

When an enteric pathogen of animal origin is the suspected source of an outbreak, a veterinary investigation should be conducted. The investigation makes it possible to characterize the threat to health and to transmit recommendations to better prevent and control the risk. [Annex B](#) contains more information.

7.5.4 Laboratory investigation

Epidemiological, food safety, animal, and environmental investigations usually involve laboratory testing. The differentiation and characterization (traditional and/or molecular typing) of isolates or strains and the comparison of their profiles confirm epidemiological links.

Each Partner is responsible for conducting appropriate laboratory analyses as part of their investigation and mandate. If the investigating Partner does not have the capacity or expertise to test for the suspect agent, it can ask the CC to identify support laboratories with the required expertise and appropriate equipment.

Laboratories available to support outbreak investigations in BC include the PHL, CFIA Laboratory, AF Food Plant and Animal Health Centre, HC Laboratories, National Microbiology Laboratory (NML), and private and hospital laboratories.

7.6 Integrated analysis

Findings from the epidemiological, food, animal, environmental, and lab investigations are shared with the CC. The Partners and/or the Lead integrate the findings to identify and prioritise gaps, identify further actions, and generate unifying hypotheses as to the cause and source of the outbreak.

7.7 Tampering, sabotage, or terrorism

In the event of suspected intentional or malicious contamination (tampering, sabotage, or terrorism), law enforcement partners in the affected region will be notified and involved in the investigation. The investigation, carried out collaboratively with appropriate law enforcement agencies, will follow provincial and national emergency response protocols. Law enforcement authorities will lead the forensic investigation, with the CC sharing information through the appropriate provincial emergency response structure. Regardless of police jurisdiction, the RCMP's Integrated National Security Enforcement Team must also be contacted at 778-290-4195 during business hours or the Operational Communication Center in E-Division Headquarters at 778-290-6000 after hours.

7.8 Health risk assessment

It is within the mandate of HC to conduct food-related Health Risk Assessments (HRA). HRAs may be requested by the CFIA or any other provincial Partner during a coordinated outbreak investigation to inform risk mitigation activities.

HC provides HRA results to the CFIA upon request. All CC Partners are informed through regular communications about HRA initiation and results. Based on the HRA results, the CFIA decides on the initiation of a food recall.

7.9 Public health actions

The CC coordinates information sharing related to mitigation actions, as needed, including the timing of actions by multiple stakeholders. For example, responsibility for recall activities of a food may be shared among RHAs, the BCCDC, and CFIA officials, or may be independently carried out according to established protocols.

For public health actions involving Indigenous communities, it is recommended that First Nations Leadership, elders, friendship centres and Indigenous community members, as appropriate, be involved to ensure incorporation of culturally appropriate approaches.

7.9.1 Food recalls

The CFIA is responsible for the enforcement of the *Safe Food for Canadians Act* and the *Food and Drugs Act* as it relates to food. When a health risk has been established by HC through an HRA, the CFIA determines the most appropriate risk mitigation action, including whether to request a recall of a product.

Within BC, the Minister of Health is empowered under the *Food Safety Act* to initiate a food recall independent of the federal agency. The Minister has delegated this authority to the Provincial Health Officer (PHO), the Chief MHOs, and the Directors of Health Protection in each RHA. Circumstances in which a local Health Official might initiate a recall include a locally produced high risk food with limited distribution, or alternatively a significant hazard is identified and uncontrolled in a food for which a timely response is indicated and where a delay might entail unacceptable and preventable risk. BCCDC Environmental Health Services' (EHS) Food Safety & Environmental Health Specialists, delegated as inspectors under the *BC Milk Industry Act* by the Minister of Agriculture, can order recalls of products made by provincially licensed dairy plants.

7.10 Communication

7.10.1 General

Each Partner and level of government has a responsibility for public communication activities within its jurisdiction. CC members may prepare and release summary information to the news media and participating Partners. Each organization involved in the CC will identify a designated spokesperson and may communicate with the general public within their respective jurisdictions.

Due to the dynamic nature of outbreaks, it is essential that members of the CC have the opportunity to ensure messages are as consistent as possible. Any media releases by Partners should be shared in advance with CC members, when feasible, to harmonize public messaging.

The CC may:

- Discuss summary information that should be released concurrently through member Partners, with the news media, and by way of other governmental entities.
- Provide clarification for Partner spokespersons to ensure all statements to the public are accurate and integrated.
- Assist in scheduling media conferences and briefings, and assist in preparing targeted public messages.
- Suggest that communication personnel and information officers among the member Partners jointly develop and exchange public information messages and delivery mechanisms.

Communications should be targeted to populations identified at risk. Where appropriate, tailored communication strategies to maximize reach and compliance should be considered for all equity-deserving groups, such as the underhoused population, rural and remote communities, racial and ethnic minorities, and young children.

7.10.2 Information exchange with Indigenous communities

Collaborating with community leaders and elders in the development of messaging for Indigenous communities, considering a distinctions-based lens, is strongly encouraged to ensure alignment with cultural norms and building trust with Indigenous communities as outlined in the guiding principle on cultural safety (see section [5.7](#)). Diversifying communication channels tailored to community preferences, such as community events and radio broadcasts, may expand the reach of health messages. Leveraging traditional storytelling methods and incorporating local languages may also increase the likelihood of engagement and accessibility.

7.10.3 Information exchange with Industry

During an investigation, all implicated companies should be kept informed to the extent possible of any developments. Some outbreaks may require communication with industry representatives beyond the implicated facility. The CC should identify those who require communication as well as the key contact in each instance, according to the member agencies' mandate and jurisdiction.

For producers and processors operating under BC jurisdiction, the RHA with jurisdiction would be the primary industry contact, with the BCCDC taking the lead with the dairy and seafood industries.

Assistance can be provided by the CFIA. The CFIA is the primary contact with processors and importers operating under federal jurisdiction.

The responsible inspection authority should share product information received from industry with other Partners through the CC, as appropriate. The exchange of information among government partners will be done according to applicable provincial and/or federal legislation pertaining to access to information and privacy, and within the bounds of existing information-sharing agreements ([Annex A](#) and [Annex B](#)).

7.11 Deactivation and outbreak conclusion

When the time is right, the Lead, in consultation with the CC, will declare the end of the enteric illness outbreak. This decision will be guided by three criteria:

- The number of outbreak cases being reported has returned to baseline levels;
- The last time that individuals may have been exposed to the implicated source has been identified or estimated; and
- Sufficient time has lapsed for potentially exposed individuals to become ill and be reported to investigating public health authorities.

Moreover, the following considerations are made when deciding whether the BC FIORP can be deactivated:

- There is a consensus among the CC that all avenues of investigation have been completed; and
- The epidemiological, food safety, environmental, animal, and laboratory investigations for all cases are completed and there is no additional information expected.

Participating Partners may then demobilize resources and inform stakeholders of the conclusion of the outbreak. The Lead, in consultation with the CC, may prepare and circulate an “Outbreak Summary” that chronicles key events and findings from the outbreak investigation. Ongoing cases may need to be investigated for a period of time to determine if they can be attributed to a particular source in order to enable appropriate mitigation actions.

7.12 Debrief

The CC will conduct a debrief session to discuss successes and challenges, as well as how BC FIORP processes and procedures can be potentially improved. Ideally, the debrief should occur as soon as possible once an outbreak is declared over.

The objectives of the debrief should include:

- Evaluating the effectiveness of outbreak control measures and any encountered challenges in their implementation;
- Identifying short- and long-term measures to prevent a recurrence (i.e., new or revised policies or standards);
- Assessing the collaborative response efforts, including notification, communication and coordination between Partners;
- Clarifying resource needs, structural adjustments, or training requirements to enhance future responses;
- Recognizing necessary improvements or adaptations to the BC FIORP;
- Discussing any legal issues that may have emerged;
- Assessing the need for further scientific studies; and
- Discussing potential knowledge dissemination activities.

[Annex F](#) provides a list of issues and questions that may be addressed during the post-outbreak debrief.

The scope of a debrief should be proportional to the intensity and complexity of the response itself. For non-major events, a debrief summary that summarizes lessons learned and possible improvements to the process may be prepared and circulated to Partners.

Based on the nature of the outbreak and feedback collected during the debrief, partners may prepare an “After Action Report” for major events. This in-depth report documents lessons learned and actions required to improve preparedness and future response coordination.

8. Emergency Response Coordination Structures

Partners may consider the activation of an Emergency Operations Centre (EOC) to help coordinate their internal resources and specific response responsibilities. Partners are responsible for notifying other CC Partners of their intent to activate an EOC. Information from the CC can be shared with related EOCs to support overall response efforts.

The CC can recommend the activation of a provincial EOC if there is a need for overarching operational response support (e.g., resource coordination). Should a provincial EOC be activated, it does not negate the need for the BC FIORP CC. CCs and EOCs are complementary coordination mechanisms with distinct functions: CCs pertain to the epidemiological inquiry and public health response while EOCs pertain to the management of logistical and operational components.

9. Administrative Review

The BCCDC leads and coordinates updated versions of the BC FIORP. Reviews are conducted as needed to ensure its continued relevance, effectiveness, and alignment with current best practices.

10. References

Alberta Agriculture and Forestry. 2017. Alberta Foodborne Illness and Risk Investigation Protocol (FIRIP). Accessed at: <https://open.alberta.ca/dataset/111dfd18-6de9-49df-9fc0-05ae7c6f8401/resource/0594a4a3-594d-434b-bc9c-14ef80487d73/download/af-alberta-foodborne-illness-and-risk-investigation-protocol-firip-2017.pdf>

Minister of Health. 2011. Weight of evidence: factors to consider for appropriate and timely action in a foodborne illness outbreak investigation. Accessed at: <https://www.canada.ca/en/health-canada/services/food-nutrition/reports-publications/food-safety/weight-evidence-factors-consider-appropriate-timely-action-foodborne-illness-outbreak-investigation-2011.html>

Ministère de la Santé et des Services Sociaux. 2014. Modalités québécoises d'intervention lors de toxi-infections d'origine alimentaire et de zoonoses. Accessed at: <https://publications.msss.gouv.qc.ca/msss/fichiers/2014/14-268-08W.pdf>

Ontario Ministry of Health. 2023. Ontario's Foodborne Illness Outbreak Response Protocol (ON-FIORP). Accessed at: <https://www.ontario.ca/files/2023-12/moh-ohs-ref-foodborne-illness-outbreak-response-protocol-en-2023-12-15.pdf>

Public Health Agency of Canada. 2017. Canada's Foodborne Illness Outbreak Response Protocol (FIORP): A Guide to Multi-Jurisdictional Enteric Outbreak Response. Accessed at: <https://www.canada.ca/en/public-health/services/publications/health-risks-safety/canadas-foodborne-illness-outbreak-response-protocol-fiorp-guide-multi-jurisdictional-enteric-outbreak-response.html>

Annex A. Sharing Information

All data are shared under the “*Memorandum of Understanding to Facilitate the Sharing of Information for the Purpose of Investigating and Controlling a Confirmed or Suspected Foodborne Illness Outbreak in British Columbia*”¹ or any successive Agreements among the Partners.

During a response to a foodborne illness outbreak, health agencies with core responsibilities expect to collaborate in a wide range of activities that require information. Whether tracing the source of an outbreak, undertaking investigations, or coordinating mitigation actions, the agencies recognize that effectiveness may be enhanced at times by exchanging information in the possession of each Partner.

The information sought for exchange may differ from one event to another, but may include proprietary business information, such as export certificates, and personal patient information that identifies an individual. Such information has a high expectation of privacy and is, therefore, subject to protections offered under both federal and provincial legislation.

Protection of information at the federal level is offered through Canada’s *Privacy Act* (R.S., 1985, c. P-21). This Act does, however, allow for disclosure of personal information in restricted circumstances. Section 8(2)(f) of the Act provides that Personal Information may be disclosed under an arrangement between the Government of Canada and provincial governments, or any institution thereof, for the purpose of administering or enforcing any law or carrying out a lawful investigation.

BC provincial legislation additionally protects the rights of individuals to private personal information, but also allows for disclosure in restricted circumstances. Section 33(2)(d) of the *Freedom of Information and Protection of Privacy Act* (R.S.B.C. 1996, c. 165) authorizes public bodies to disclose personal information for the purpose for which it was obtained, compiled, or for a use consistent with that purpose.

During foodborne illness outbreaks, the health agencies consider the exchange of information to be essential in protecting the public from additional exposure to illness-related hazards, including food. With this overriding public objective of health and safety in mind, the agencies agree that exchanging information for the purposes of controlling foodborne illness risks during an outbreak is an acceptable practice and have set out the parameters for information sharing in the *Memorandum of Understanding*.

¹ Email ezvbepi@bccdc.ca for a copy of the document.

Annex B. Public Health and Animal Health Partners Collaborative Investigation Protocol

All data are shared under the “Information Sharing Agreement for the Sharing of Information Regarding Zoonotic Communicable Diseases Between Animal and Public Health Officials in British Columbia.”²

B.1 Purpose

The purpose of this protocol is to support collaboration between animal and human health partners³ by clarifying responsibilities, roles, data sharing, and communication in the event of human enteric illness caused by a pathogen of animal origin.

Every effort should be made to collaborate and reciprocate information by all Partners in all phases of the investigation, including case identification, notification, investigation, and mitigation actions.

B.2 Scope

Enteric diseases in humans attributed to human consumption of products and/or food and water contaminated with an enteric pathogen of animal origin.

B.3 Case identification

Cases can be identified:

- In the course of a public health investigation of human enteric illness/cluster that may be associated with a pathogen of animal origin.
- In relation to follow-up of a zoonotic disease in animals reported to the Chief Veterinary Officer (CVO).

B.4 Notification between public and animal health

- Notifications and data sharing will occur between public and animal health partners as per the *“Information Sharing Agreement for the Sharing of Information Regarding Zoonotic Communicable Diseases Between Animal and Public Health Officials in British Columbia.”*
- Specifically, there will be immediate and reciprocal notification and data sharing among animal and human health partners in the event of an outbreak of foodborne illness related to a pathogen of animal origin.
- Should that pathogen be suspected to originate in wildlife, the Provincial Wildlife Veterinarian (for pathogens of wildlife origin) will also be involved in the notification and data sharing process.

² Email ezvbepi@bccdc.ca for a copy of the document.

³ Public health agencies are those whose primary mandate is to promote and protect human health; BCCDC and regional health authorities are public health agencies; Animal health agencies have a mandate to diagnose, monitor, and assist in controlling and preventing animal diseases; BC Ministry of Agriculture and Food is an animal health agency.

- Cases may fall under the category of “new or unusual animal diseases or disease cluster with potential public health significance”. This category includes other zoonotic or potentially zoonotic diseases in animals that:
 - Have never or rarely been observed in BC (new or emerging); or
 - Appear in a new species or show evidence of higher pathogenicity than expected (unusual); or
 - Appear in a higher than expected number of animals clustered in time or space (cluster).

B.5 Investigation

- Integrated analysis refers to combining and analysing data from different partners or sectors. In this context, it would involve analysing animal and human health data together to identify the source of illness and take control measures. As per the BC FIORP, the Partners and/or the Lead conducts integrated data analysis. Interpretation of the analysis is conducted jointly among Partners, in particular Partners who contributed the data.
- Integrated analysis may require data from different sources to be linked by a common identifier and merged. Data to be shared are agreed upon as necessary to enable each Partner to identify the source(s), find cases, and take action to control the outbreak.

B.6 Mitigation actions

B.6.1 General considerations

Mitigation actions undertaken during an outbreak of enteric illness of animal origin may include a wide range of activities by one or more response partners. Examples include quarantine, movement restrictions, implementing recalls, vaccination, and raising awareness through public education. In some situations, doing nothing may be the most appropriate option.

Each partner conducts the necessary mitigation actions under its mandate. Partners will keep each other informed of mitigation activities planned and performed, and coordinate actions when appropriate. If the mandate is overlapping between animal health and public health (e.g., if a petting zoo is involved), then activities will be coordinated with public health leading activities to protect human health, and animal health leading for animal health concerns.

B.6.2 Public and stakeholder communication

Public and stakeholder communication may be vital to the interests of public health and animal health. The communication must occur in a timely manner as is necessary to warn the public and stakeholders of a potential risk. Each partner and level of government has responsibility for public communication activities within its mandate. An effort will be made to decide jointly on what communication is appropriate, if any. Depending on the level of risk, communication may be directed at:

- Animal owners or product recipients only;
- Key stakeholders; and

- The general public

The level of risk will be determined through consideration of several factors including:

- Severity of human enteric illness
- Incidence of disease
- How transmissible the disease is (within and between species)
- The extent of distribution of the disease
- Public perception of the risk

If a private company is involved, the company may act and communicate directly with affected customers. Depending on the level of risk, the appropriate government partner will provide explicit timelines and expectations regarding company-directed communications. If these timelines/expectations are not met, or if the risk warrants, then public messaging by the government partner may occur. Identifying information would be released publicly if public health deems it necessary to protect the health of the BC population, as per the *BC Freedom of Information and Protection of Privacy Act*. This will be balanced against the potential negative impact on the company or industry associated with public identification.

Animal and human health partners should strive to ensure messages are as consistent as possible. Any media releases by partners should be shared in advance with other relevant partners, when practical, to harmonize public messages.

During an investigation, all implicated companies/organizations should be kept informed of developments. A single point of contact should be assigned to each implicated company/organization for this communication. All partners should agree on this point of contact at the beginning of the investigation. Additionally, the partners may discuss the information that is being provided to the implicated companies/organizations and provide further information or clarification to ensure that all information is accurate and integrated.

B.7 Prevent future outbreaks through informing the development of programs and policies

Public and animal health partners may also continue to collaborate following the resolution of the foodborne disease investigation in order to inform programs and policies to prevent future human enteric illness. Such collaboration could include educational programs, or post-outbreak data analysis to enhance the understanding of the distribution and transmission of foodborne disease in BC.

B.8 Protocol review

This protocol should be reviewed to assess whether there are any suggestions for revision after the resolution of an outbreak.

Annex C. Roles and Responsibilities of Partners

This Annex describes the roles and legislative responsibilities of each Partner when responding to a foodborne illness outbreak.

C.1 Federal Partners

C.1.1 Canadian Food Inspection Agency (CFIA)

The CFIA delivers all federal inspection and enforcement services related to food under the authority of the *Safe Food for Canadians Act* and the *Food and Drugs Act* that address all stages of the food continuum. The CFIA inspects not only foods, but also the seed, livestock feed, fertilizers, plants and animals on which a safe food supply depends.

The CFIA contributes to the investigation and control of foodborne illness outbreaks through its food safety investigation and recall activities, as well as its regulatory compliance and enforcement activities. Within the CFIA there are three groups that play key roles in the food safety response to foodborne illness outbreak situations:

- **Inspection staff including Regional Recall Coordinator (RRC)** involved in food safety inspection activities. The RRCs are also the usual first point of contact for local/regional and provincial/territorial foodborne illness outbreaks. In BC, a RRC is in place for the CFIA, and that position would be the first point of contact related to BC activities and the BC FIORP.
- The **Office of Food Safety and Recall** group is the usual first point of contact for national and international foodborne illness outbreaks and is responsible for the coordination and consistency of decision making on food safety issues and recalls.
- The **Food Safety Division** is responsible for providing scientific analysis and guidance to CFIA staff as well as being the link with Health Canada (HC) for obtaining health risk assessments (HRAs) as appropriate.

Under the *Canadian Food Inspection Agency Act*, if a food product poses a risk to public health, the Minister of Health may order that the product be recalled. The need to evoke a mandatory recall is usually considered only when a voluntary recall is not initiated.

The CFIA also delivers federal inspection and enforcement services related to animals under the *Health of Animals Act*. Activities are generally restricted to surveillance and control of animal reportable diseases, which includes zoonoses such as avian influenza, brucellosis, bovine tuberculosis, and anthrax. Enteric pathogens such as Shiga-toxin producing E. coli and Salmonella are not reportable animal diseases at the federal level in Canada. The CFIA provides some oversight in federally licensed hatcheries, under the Hatchery Regulations, and provides support during investigations linked to chicks from federally-licensed hatcheries. The CFIA also regulates domestic and imported animal feed and related products in order to prevent the introduction of foreign animal

disease which could pose a risk to the health of Canadian livestock and provides certification services for pet foods that are made in Canada and intended for export. Domestically manufactured pet food for sale in Canada is not regulated by the CFIA.

The CFIA has a limited regulatory role for enteric illness outbreaks linked to animals and animal foods. The CFIA may provide content expertise in traceback, testing, and identifying appropriate risk management options. Requests for CFIA assistance in the investigation and control of animal-related enteric illness outbreaks are reviewed as they are received and engagement will depend on the type of issue including the scale and seriousness, along with the type of assistance requested. In most circumstances, traceback and field investigations will be the responsibility of local/provincial/territorial public health authorities with support from provincial/territorial agriculture.

Partner	Legislation	Regulations, Policies, MOUs	Activity Type	Establishment Type/Scope
CFIA	<i>Food and Drugs Act</i>	Food and Drug Regulations	Food safety investigations	All establishment types
CFIA	<i>Safe Food for Canadians Act</i>	Safe Food for Canadians Regulations	Food safety investigations	All establishments licensed under the <i>Safe Food for Canadians Act</i>
CFIA	<i>Health of Animals Act</i>	Health of Animals Regulations	Determining and declaring the official status of Canada/any declared zones in Canada for all Federally regulated animal diseases	Farms/livestock producers

C.1.2 Health Canada (HC)

HC has the mandate to establish policies and standards related to the safety and nutritional quality of food sold in Canada, to assess the effectiveness of the CFIA’s activities related to food safety, and to contribute to the investigation and control of foodborne illness outbreaks.

Three Partners within HC may be involved or assist with investigations of foodborne illness:

- Within the **Health Products and Food Branch (HPFB)**, the Food Directorate and the Veterinary Drugs Directorate are responsible for providing, upon request, HRAs to the CFIA or other stakeholders (e.g., provincial/territorial governments).
- The **Pest Management Regulatory Agency (PMRA)** is responsible for providing, upon request, HRAs to the CFIA and assisting the CFIA, upon request, with investigations involving pesticides.
- Within the **Healthy Environments and Consumer Safety Branch (HECSB)**, the Consumer Product Safety Directorate identifies, assesses, manages, and communicates health or safety risks to Canadians of consumer products, such as some commercially sold prepared pet foods and treats that meet the definition of a consumer product and are not excluded under section 4 or schedule 1 of the Canada

Consumer Product Safety Act. If the contaminated product is determined to be a consumer product that poses a human health risk, the Consumer Product Safety Directorate will work in partnership with industry (manufacturers, retailers, and distributors) to facilitate the removal of the implicated product from the marketplace, and will post product advisories, warnings, or recalls as required.

Partner	Legislation	Regulations, Policies, MOUs	Activity Type	Establishment Type/Scope
HC - HPFB	<i>Food and Drugs Act</i>	Food and Drug Regulations	Food safety investigations involving foods and veterinary drugs. Provision of HRAs upon request.	All establishment types
HC – PMRA	<i>Pest Control Products Act</i>	Pest Control Products Regulations	Promotes and verifies compliance with the PCP Act and Regulations through investigations, inspections, and consultations.	All establishment types
HC - HECSB	<i>Department of Health Act</i> <i>Canada Consumer Product Safety Act</i>	N/A	Investigations involving consumer products.	Consumer products which could pose an unreasonable danger to human health or safety

C.1.3 Public Health Agency of Canada (PHAC)

PHAC was created to deliver on the Government of Canada’s commitment to help protect the health and safety of all Canadians. Its activities focus on preventing chronic diseases, preventing injuries, and responding to public health emergencies and infectious disease outbreaks.

- The **Centre for Foodborne, Environmental and Zoonotic Infectious Diseases** is the usual first point of contact within PHAC for issues related to actual or potential enteric (foodborne and zoonotic) illness outbreaks.
- The **Canadian Field Epidemiology Program** provides specialized training for health professionals in the practice of applied epidemiology. Field Epidemiologists may be mobilised to assist in field investigations of foodborne disease outbreaks within the jurisdiction of their placement or as a request for epidemiological assistance made to PHAC by local/provincial/territorial public health authorities.
- The **National Microbiology Laboratory (NML)** provides reference services for strain differentiation, national laboratory-based surveillance, and dissemination of information through PulseNet Canada and the [National Enteric Surveillance Program](#).
- The **Regulatory, Operations and Emergency Management Branch (ROEMB)**, through its Travelling Public Program (TPP), is responsible for the prevention and control of foodborne illness on common carriers (e.g., cruise ships, airlines, passenger ferries and passenger trains) and their ancillary services (e.g., flight kitchens). TPP may provide advice and consultation upon request, in regard to food and

water safety and the investigation of foodborne illness outbreaks to other federal departments. TPP also has a public health response role under the *Quarantine Act* at points of entry and aboard conveyances.

Partner	Legislation	Regulations, Policies, MOUs	Activity Type	Establishment Type/Scope
PHAC	<i>Public Health Agency of Canada Act</i>	N/A	Health surveillance and epidemiology	All establishment types
PHAC – ROEMB	<i>Department of Health Act</i> <i>Quarantine Act</i> <i>Food and Drugs Act</i>	Potable Water on Board Trains, Vessels, Aircraft and Buses Regulations	Public health inspections to ensure safe food, potable water, and sanitary conditions; monitoring and responding to gastrointestinal disease outbreaks; and assists federal departments in implementation of drinking water management practices.	Passenger conveyances and their ancillary services (e.g., ferries, cruise ships and trains)

C.2 Provincial Partners

C.2.1 BC Centre for Disease Control (BCCDC)

The Office of the Provincial Health Officer (OPHO) has delegated authority to the BCCDC which has been delineated in the *Memorandum of Understanding between the Office of the Provincial Health Officer and the Ministry of Health and the BC Centre for Disease Control, PHSA* including accessing and receiving information and reports about communicable diseases and health threats and coordinating and/or supporting cross-regional outbreak planning and response.

- Coordination of multi-jurisdiction BC enteric outbreak response is the responsibility of **Public Health Response (PHR)**. PHR also conducts the surveillance of reportable enteric pathogens and illnesses at the provincial level and may provide epidemiological assistance to regional health authorities (RHAs) as appropriate.
- **Environmental Health Services (EHS)** provides subject matter expertise on food safety investigations, coordinates provincial recall activities, investigates toxin based foodborne illnesses, and documents shellfish biotoxin exposures. EHS licenses, inspects, conducts compliance and enforcement activities, and leads food safety investigations and outbreak response at dairy facilities.
- The **BC Drug and Poison Information Centre (DPIC)** conducts surveillance for cases of illness that may be due to biological or chemical contamination of food. DPIC provides expert review and guidance during responses to outbreaks of foodborne illness caused by chemical contamination, and provides consultation to the public and practitioners for illnesses due to toxic exposures in BC.

The BCCDC is responsible for the enforcement of regulations with respect to dairy processing only. The BCCDC licenses processing plants, plant workers, and inspects these premises. Authority to inspect dairy processing

plants located in BC is granted under the *BC Milk Industry Act* and delegated by the Minister of Agriculture and Food (AF).

The BCCDC, at the request of a Medical Health Officer (MHO), may provide consultation to RHAs even when suspected or confirmed cases are confined within a single regional jurisdiction.

BCCDC officials may also, in some cases, request the assistance of HC, PHAC, or the CFIA in the response to a potential foodborne illness outbreak.

Partner	Legislation	Regulations, Policies, MOUs	Activity Type	Establishment Type/Scope
BCCDC - PHR	N/A	MOU between OPHO, Ministry of Health (MoH) and BCCDC	Epidemiological surveillance, coordination, investigation, and reporting. Coordination with PHAC and provinces for inter-provincial outbreaks.	Multi-region, provincial
BCCDC - EHS	<i>Food Safety Act</i> <i>Milk Industry Act</i>	Milk Industry Standards Regulation (processing plants)	Food Safety investigations at dairy processing plants for which BCCDC issues licenses. Coordination of provincial response to recalls and multiple jurisdiction outbreaks.	Provincially licensed dairy processing plants

C.2.2 BCCDC Public Health Laboratory (PHL)

The BCCDC PHL provides reference diagnostic services to RHAs and other health partners in BC. They conduct reference testing of human specimens; help identify clusters of cases based on microbiological characteristics of clinical specimens; and conduct testing of foods implicated in foodborne illness outbreaks. The PHL works with NML through PulseNet Canada to provide this national surveillance and response to foodborne disease outbreaks. The PHL communicates these findings for BC cases during national Outbreak Investigation Coordinating Committee meetings and are also available to liaise directly with regional and BCCDC partners.

C.2.3 BC Ministry of Health (MoH)

The MoH is responsible for BC’s health system, with a mandate to guide and enhance the province's health services, including food protection services. The MoH provides leadership, direction, funding, and support to their service delivery partners, such as RHAs, health professionals, and others who directly deliver health services. The MoH continuously monitors and evaluates the delivery of health services and the health of the population.

The MoH is also responsible for:

- Consultation with partners on environmental health issues, including food safety issues.

- Developing inter-government and inter-partners protocols and agreements for environmental health issues.
- Data management for environmental health issues.
- Development and coordination of promotional and educational materials for environmental health issues.

Health Protection Branch

Health Protection is the branch that is responsible for the development and implementation of legislation, policies, and programs in the areas of food safety. Health Protection works closely with the BCCDC, the OPHO and RHAs who have the primary responsibility for providing surveillance and monitoring of activities and premises, which may affect the public's health.

The Branch is responsible for the development and ongoing review of the following food safety legislation: *Public Health Act*, *Food Safety Act* (shared with AF), and the *Milk Industry Act* (shared with AF).

Partner	Legislation	Regulations, Policies, MOUs	Activity Type	Establishment Type/Scope
MoH (PHO or designate)	<i>Public Health Act</i>	Reporting Information Affecting Public Health Regulation MOU between the OPHO, BCCDC, and the MoH	Provides authority for all matters pertaining to public health and disease prevention. Establishes governance framework for public health and tools for preventing and removing a broad range of health hazards. Sets out roles and responsibilities of the PHO in relation to outbreak management and oversight of other public health professionals, as well as advisory and educational roles provided to the Minister of Health and BC public.	Standards for a variety of institutions, facilities, and businesses that could pose a risk to public health (e.g., processing plants, restaurants and grocery stores)
MoH	<i>Public Health Act</i>	Food Premises Regulation	Outlines food safety requirements for businesses processing or preparing and selling food to the public.	Food premises conducting business within BC
MoH	<i>Food Safety Act</i> (except provisions of the Act relating to food establishments where animals are slaughtered for food purposes)	N/A	Outlines public health requirements for all food related businesses (farm to fork) that produce, supply, and serve food to the public. Sets out regulatory regime for licensing and food safety inspections. Includes legislative authority for recall of food.	Food establishments conducting business within BC
MoH	<i>Milk Industry Act</i> (section 12, except as that provision relates to bulk tank milk grader licences)	N/A	Regulate the safety of milk and other dairy products.	Licensing of dairy plants and dairy plant workers

Partner	Legislation	Regulations, Policies, MOUs	Activity Type	Establishment Type/Scope
MoH	<i>Drinking Water Protection Act</i>	Drinking Water Protection Regulation	Establishes requirements for water suppliers permitted under the Act in delivering safe drinking water. These requirements include treating and monitoring water, to ensure the delivery of potable water quality.	Permitted water systems that supply water to the public, including those that supply water to food premises and dairy plants

C.2.4 Office of the Provincial Health Officer (OPHO)

The Provincial Health Officer (PHO) is the senior public health official for BC. The PHO's responsibilities are outlined in the Public Health Act and include:

- Providing independent advice on health issues to the Minister, MoH, and public officials.
- Reporting to British Columbians on the health of the population and other health issues.
- Recommending actions to improve health and wellness.
- Reporting on the extent to which population health targets established by the government, if any, have been achieved.
- Working with the BCCDC, RHAs, and MHO to fulfill their legislated mandates on disease control and health protection.

The PHO plays a key role in the management of foodborne illness outbreaks, acting as the main provincial liaison on the matter, unless designated to BCCDC, helping marshal provincial resources as needed, and providing updates and advice to the Province.

Partner	Legislation	Regulations, Policies, MOUs	Activity Type	Establishment Type/Scope
MoH (PHO or designate)	<i>Public Health Act</i>	Reporting Information Affecting Public Health Regulation MOU between the OPHO, BCCDC, and the MoH	Provides authority for all matters pertaining to public health and disease prevention. Establishes governance framework for public health and tools for preventing and removing a broad range of health hazards. Sets out roles and responsibilities of the PHO in relation to outbreak management and oversight of other public health professionals, as well as advisory and educational roles provided to the Minister of Health and BC public.	Standards for a variety of institutions, facilities, and businesses that could pose a risk to public health (e.g., processing plants, restaurants and grocery stores)

Partner	Legislation	Regulations, Policies, MOUs	Activity Type	Establishment Type/Scope
PHO, Provincial Drinking Water Officer	<i>Drinking Water Protection Act</i>	Drinking Water Protection Regulation	Provides oversight and independent advice.	Permitted water systems that supply water to the public, including those that supply water to food premises and dairy plants

C.2.5 BC Ministry of Agriculture and Food (AF)

AF may play a supporting role during foodborne outbreaks, primarily where an outbreak is traced to animals or plants and their products that are produced in BC. In that capacity, they may work directly with the CFIA, MoH, the BCCDC, and RHAs.

AF is responsible for:

- Policy and programming related to domestic animal health in BC.
- The Animal Health Act and the Reportable and Notifiable Disease Regulation.
- Licensing and inspection of dairy farms and bulk tank milk graders under the Milk Industry Act and Milk Industry Standards Regulation.
- Licensing and inspection of provincially licensed slaughter establishments under the Meat Inspection Regulation.
- Administration and enforcement of the Fish and Seafood Act, and the Fish and Seafood Regulation, except for the portions related to aquaculture and aquatic plant harvesting.
- Compliance and enforcement of activities related to organic label use, and violations of the B.C. Food Safety Act under the Meat Inspection Regulation.

AF through its Plant and Animal Health Laboratory, provides surveillance, risk assessment, and diagnostic services to address plant and animal health risks.

- The **Plant Health Laboratory** diagnoses plant health problems caused by insects and diseases affecting crops and plants grown in BC.
- The **Animal Health Centre (AHC)** is the leading accredited full-service veterinary laboratory in Western Canada and offers more than 400 laboratory diagnostic tests for agents that may be found in wild and domestic birds, mammals, fish, reptiles, and amphibians. The AHC also provides world-class veterinary pathology services. Through diagnostic services and surveillance, the AHC helps protect human health with the timely and accurate diagnosis of zoonotic diseases in the public health and food safety sectors (e.g., SARS-CoV-2, influenza, Salmonella).

AF, through the Office of the Chief Veterinarian, provides leadership for animal health policy and programming, One Health, and One Welfare in BC. The Office of the Chief Veterinarian staff are responsible for provincial dairy, apiary, game farm, fur farm, and veterinary drug outlet licensing and inspections.

Partner	Legislation	Regulations, Policies, MOUs	Activity Type	Establishment Type/Scope
AF	<i>Milk Industry Act</i>	Milk Industry Standards Regulation	Monitor food safety standards for raw milk produced in BC through inspection and licensing of dairy farms and bulk tank milk graders, milk quality testing, and technical support to address food safety issues.	Dairy Farms Transportation of raw milk
AF	<i>Fish and Seafood Act</i>	Fish and Seafood Licensing Regulation Enforcement Regulation Food Premises Regulation (MOU for inspection of food premises at slaughter establishments)	Administer and enforce BC's <i>Fish and Seafood Act</i> and regulations, except portions related to aquaculture and wild aquatic plant harvesting. Administer annual licensing for fish, seafood and aquatic plant processors, fish receivers, and fisher vendors.	Seafood and aquatic plant processors Fish receivers and fisher vendors
AF	<i>Food Safety Act</i>	Meat Inspection Regulation	License and inspect provincial slaughter establishments under the Meat Inspection Regulation.	Licensed (abattoir, farmgate, and farm gate plus) slaughter establishments in BC
AF	<i>Animal Health Act</i>	Reportable and Notifiable Diseases Regulation Poultry Health and Buying Regulation Game Farming Regulation Livestock Licensing Regulation	Respond to the detection of regulated animal diseases in BC. Issue licence to purchase poultry for the purposes of slaughter and resale. Issue licence for game-farms: bison, fallow deer, and reindeer. Issue licence for Livestock Dealer, Livestock Dealer Agent, Public Sale Yard, Hide Dealer, and Livestock One Day Sale Permits.	Domestic animals and the premises in which they are kept

C.2.6 BC Ministry of Water, Land and Resource Stewardship (WLRS)

WLRS is accountable for integrated land and natural resource management, including objective setting for terrestrial environments, effectively managing cumulative effects, advancing reconciliation with Indigenous peoples, environmental sustainability, and economic growth. The wildlife veterinarian:

- Receives reports of sick or dead wild animals from public or government staff.
- Obtains samples from live animals or performs necropsies on dead wild animals.
- Submits samples to AHC or other laboratories.
- Receives reports from laboratories and interprets results.
- Provides advice on wild animal disease investigations as requested.

Partner	Legislation	Regulations, Policies, MOUs	Activity Type	Establishment Type/Scope
WLRS	<i>Wildlife Act</i> (hunting and other activities such as wildlife capture, handling, and possession are permitted)	Canadian Wildlife Health Cooperative (CWHC) MOU (outlines health testing and data sharing relationship between AF, WLRS and CWHC)	WLRS's roles are to permit and conduct activities where wildlife are handled and health samples may be collected, respond to the public on wildlife health matters, coordinate response to disease outbreaks, conduct wildlife health and disease surveillance, conduct wildlife necropsies and samples collection, submit samples to laboratories, and interpret and report wildlife health and disease testing results.	Provincial

C.2.7 First Nations Health Authority (FNHA)

FNHA is the health and wellness partner to over 200 diverse First Nations communities and citizens across BC. FNHA collaborates, integrates, and coordinates with the RHAs to provide community-based services focused on health promotion and disease prevention, and embed cultural safety and humility into health service delivery for First Nations people.

Partner	Legislation	Regulations, Policies, MOUs	Activity Type	Establishment Type/Scope
FNHA (MHO or designate)	N/A	Transformative Change Accord: First Nations Health Plan Tripartite First Nations Health Plan Tripartite Framework Agreement on First Nations Health Governance	Community-based services encompassing health promotion and disease prevention. Prevent foodborne illness in First Nations communities by addressing public health issues related to both traditional and conventional foods through inspection, review of plans, consultation, training, public education, and public health research.	First Nations communities and citizens Establishments on federal reserves

C.3 Regional Partners

C.3.1 BC Regional Health Authorities (RHA)

The first contact for outbreaks within a geographic region usually involves one of more of BC’s five RHAs. RHAs have the mandate to prevent, investigate, and respond to human illness outbreaks that occur within their respective boundaries. An outbreak is considered to be within a RHA’s boundaries if all or the majority of cases reside in the RHA, or the source of the outbreak is within that RHA. If the source of the outbreak is a food originating from a provincially or federally licensed plant/processor, other partners also have a mandate to respond. During their investigations, the RHA may take steps to control potential causes of foodborne illness.

RHAs provide oversight of further processing and retail sales of meat to the public. Meat processing establishments that do not slaughter animals such as butcher shops, cut-and-wrap facilities, or commercial kitchens are regulated as food premises by RHAs.

Partner	Legislation	Regulations, Policies, MOUs	Activity Type	Establishment Type/Scope
RHA (MHO or designate)	<i>Public Health Act</i>	Food Premises Regulation Reporting Information Affecting Public Health Regulation	Foodborne illness investigations, food safety investigations	All food premises, excluding federally licensed establishments and those listed under Food Protection Services, BCCDC
	<i>Food Safety Act</i>	Meat Inspection Regulation		
	<i>Drinking Water Protection Act</i>	Drinking Water Protection Regulations		

C.3.2 Royal Canadian Mounted Police (RCMP) / Local Police

If an outbreak is suspected to be related to criminal activity (e.g., terrorism), police assume the responsibility for the law enforcement response and the criminal investigation.

The RCMP may activate the National Counter-Terrorism Plan, if required, which identifies the authorities for command and action at various levels. The National Counter-Terrorism Plan is administered by the Solicitor General of Canada under the *Anti-Terrorism Act* of 2001.

The RCMP has installed four Integrated National Security Enforcement Teams (INSET) in major urban centres in Canada, including one in Vancouver to serve BC. INSETs gather information to prevent, detect, and prosecute criminal offences against national security, and may include local police resources.

In the event of suspected criminal activity related to the outbreak of a foodborne illness, the Coordinating Committee (CC) should contact the police department in the affected jurisdiction and INSET at 778-290-4195 during business hours and the Operational Communication Center in E-Division Headquarters at 778-290-6000 after hours.

Partner	Legislation	Regulations, Policies, MOUs	Activity Type	Establishment Type/Scope
RCMP, Integrated National Security Enforcement Team (INSET)	<i>Anti-Terrorism Act</i>	National Counter-Terrorism Plan	Investigation, law enforcement, security	All suspected locations

Annex D. BC FIORP Contact List

The BCCDC regularly updates and maintains the BC FIORP Contact List for accuracy and distributes it electronically. Changes to contact names are promptly reflected, and an updated BC FIORP Contact List is shared to those on the List.

Annex E. BC FIORP Meeting Agenda Template

Date and time of meeting	
Participants: <ul style="list-style-type: none"> - List of participants and affiliation 	
Land Acknowledgment and Introductions	
Situation update: <ul style="list-style-type: none"> - Short bullet statements with key points or information items (e.g., new cases, media inquiries, new or ongoing key initiatives, etc.) - Epi Summary - Regional Update - Lab Update - Outbreak Summary - Next Steps <ul style="list-style-type: none"> o Establishing Meeting Frequency o Discuss centralizing collation of data and analysis o Others as needed 	
Activation of BC FIORP and determination of the Lead (For Assessment Call)	
Action items: <ul style="list-style-type: none"> - Actions following from discussion, including person responsible for reporting status at next meeting 	
Next meeting: <ul style="list-style-type: none"> - Date and time of next call 	

Annex F. Suggested Questions to be Addressed During the Post-Outbreak Debrief

Adapted from Canada’s Foodborne Illness Outbreak Response Protocol (FIORP), Annex 11, 2017

Steps and issues	What worked well? What could work better next time?	Action items and responsible person (If applicable)
<p>Initial stages of outbreak</p> <ul style="list-style-type: none"> -Outbreak detection through surveillance systems -Diagnosis confirmation by laboratory analysis (serotyping, WGS) -Identification of cases with case definitions -Notification between partners <p><i>Did notification occur in a timely manner? Was sufficient information provided?</i></p>		
<p>Coordinating Committee Assessment</p> <ul style="list-style-type: none"> -Initial assessment <p><i>Was the assessment call held in a timely manner? Was sufficient information provided to support decision making?</i></p> <ul style="list-style-type: none"> -Activation <p><i>How was the decision making and the building of a consensus around activation of the BC FIORP?</i></p> <ul style="list-style-type: none"> -Calls <p><i>Were the frequency, structure, and attendees of the Coordinating Committee calls adequate?</i></p>		
<p>Epidemiological summaries</p> <p><i>Were they clear and helpful? Did they allow to describe and orient the data in person, place and time? Were they distributed in a timely manner?</i></p>		
<p>Generation of hypothesis</p> <p><i>Did the hypothesis generating interviews allow for rapid generation of hypotheses? How were the interactions between partners to develop hypotheses? Were additional studies necessary to refine hypotheses?</i></p>		

Steps and issues	What worked well? What could work better next time?	Action items and responsible person (if applicable)
<p>Lab investigations</p> <p><i>Did we use sequencing as part of the investigation? How were laboratory results communicated?</i></p>		
<p>Food/environmental safety investigation</p> <p><i>Were food and environmental sampling necessary? Was the right information shared in a timely manner?</i></p>		
<p>Analytics</p> <p>- Reporting processes</p> <p><i>How were case report forms and additional interview questions developed, administered, collected, transmitted and analyzed? Were these created in a timely manner by the appropriate people to capture high quality information? How did the existing data infrastructure help or hinder the response?</i></p> <p>- Information application and evaluation</p> <p><i>What needed to be enhanced or put into place to inform decision making? If additional analyses occurred, how were they enabled and what affected their effectiveness?</i></p>		
<p>Communications</p> <p>-Between Partners</p> <p><i>Were email updates informative and at an appropriate frequency? How was the communication within the Coordinating Committee?</i></p> <p>-Industry</p> <p>-Public</p> <p><i>How was the decision-making around public communications? Were communications issued by different partners consistent and coordinated? Were public communications effective? Were local communities and Indigenous groups consulted as appropriate, following principles outlined in the Declaration on the Rights of Indigenous Peoples Act Action Plan?</i></p>		

Steps and issues	What worked well? What could work better next time?	Action items and responsible person (if applicable)
Public Health control and prevention measures <i>What public health measures were implemented? Were measures effective? Were recalls initiated in a timely manner?</i>		
Post-outbreak <i>Decision making around declaring the outbreak over and closing the Coordinating Committee Was the debrief session held in a timely manner following the outbreak?</i>		
Other issues?		