BEST PRACTICES FOR INDUSTRIAL WORK SETTINGS No.2

COMMUNICABLE DISEASE MANAGEMENT GUIDE

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OFFICE OF HEALTH AND RESOURCE DEVELOPMENT

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Contents

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Section 1: Introduction

Building on existing guidance, Northern Health (NH) has made available a series of management guides entitled *Northern Health Management Guides for Industrial Settings*. The first document in the series is the Health and Medical Services Plan (HMSP) Management Guide. This document, Communicable Disease (CD) Management Guide, is the second in the series and is intended to complement the HMSP Management Guide.

Purpose

The congregate working and living conditions inherent to industrial settings present communicable disease risk to workers and the communities with whom they interact. Shared services and facilities such as food and water, washrooms, laundry, lunchrooms, accommodation, and communal areas exist at the worksite and in worker accommodations and have the potential to transmit infections from person to person. Developing and maintaining a robust system for managing communicable disease is key and results in numerous benefits for employers and the public, including:

- Minimizing the number of workers who become infected with a communicable disease;
- Minimizing potential impacts to neighbouring communities and the health care system;
- Creating an internal management system that public health can readily and efficiently support to quickly contain the spread of infection; and
- Minimizing potential lost productivity and expenses incurred by cases, clusters, and outbreaks of infectious disease.

The CD Management Guide has been prepared for use by industrial organizations, including employers and accommodation providers, to aid in the protection of public health through development of a communicable disease management plan (CDMP). It is intended to be a tool for industrial settings that outlines the NH expectations for effective communicable disease management and provides general guidance for the development of infection prevention and outbreak protocols.

This document provides a scalable approach to communicable disease management that can be utilized by employers and camp operators in both large and small industrial projects and operations. The guidance set forth in this document is independent of, and intended to complement, the requirements of other applicable legislation, including the WorkSafe BC requirements.

Document Structure

Each document within the NH Best Practices for Industrial Settings series follows a similar structure:

- Section 1 provides information on the purpose of the best practice, instructions for use, and reference to other related documents and sources of information.
- Section 2 introduces the topic.

- Section 3 suggests content for developing a management plan and includes section by section description of key elements.
- Section 4 contains the glossary of acronyms and terms, and any resources and information not contained in the main body of the document.

Related Documents and Resources

To ensure compliance and consistency across the communicable disease management plan, other related documents and information sources must be considered. Key NH documents and other resources related to this guide are listed below.

Northern Health Documents

- Health and medical services plan best management guide for industrial camps
- Health and safety during the opioid overdose emergency: Northern Health's recommendations for industrial camps

Other Resources

- British Columbia Centre for Disease Control (BCCDC)
- Drinking Water Protection Act
- Public Health Act, Industrial Camps Regulation
- Public Health Act, Food Premises Regulation
- Public Health Act, Sewerage System Regulation
- WorkSafeBC

How to Use This Best Practice

NH requests that companies include a CDMP as a subcomponent of HMSP for industrial camps. The CDMP should outline the initiatives and procedures that the company will implement to prevent and manage communicable disease transmission and outbreaks.

An effective CDMP must be informed by a reasonable level of expertise in communicable disease control. NH recommends that plans are developed in consultation with the organization's private health and medical service providers or consultants who have a level of expertise in communicable disease control.

For most organizations, successful implementation of this best practice will require collaboration with several stakeholders. Section 3 provides a suggested framework for development of a CDMP which can be used to a) prepare a new CDMP, or b) to assess an existing CDMP and offer improvement opportunities.

Some of the information in this document should be transferred to the organization's CDMP; however, the information provided is not sufficient to prepare an organization's CDMP. Risk

assessment must be completed, and robust policies and procedures must be developed to address the findings of the risk assessment.

To aid the use of this document, a Glossary of Terms and Definitions is provided in Appendix A.

Best Practice Tip

Develop plans in consultation with Owners, Prime Contractors, Subcontractors, Camp Operators, Transportation Operators, Medical Service Providers, Health and Safety Specialists, Northern Health, and other key stakeholders to ensure integration of controls required for effective communicable disease management.

Privacy and Confidentiality

In accordance with the Public Health Act's Reporting Information Affecting Public Health Regulation, persons in charge must report persons exposed to a reportable communicable disease. Communicable disease control initiatives must pay careful attention to ensuring discretion, privacy and confidentiality are maintained to the highest reasonable standards and in accordance with applicable legislation, including but not limited to, the *Freedom of Information and Protection of Privacy Act*, *Personal Information Protection Act, Human Rights Code,* and *Workers' Compensation Act*. In some cases, workers' written consent may be required.

These standards should be clearly communicated to employees to promote an environment of trust between employees and the on-site services. This is of particular importance when considering services relating to sexually transmitted infection (STI) screening, blood-borne infections, safer sex and safer drug use.

Section 2: Overview of Communicable Disease

Defining Communicable Disease

Communicable diseases are illnesses that can be contracted through contact with a human or animal, their discharges, or contaminated items carrying an infectious agent. An infectious agent is a disease-causing organism such as a bacteria, virus or parasite. Once a person has contracted a communicable disease, they can then pass it on to others. Preventing the spread of these illnesses is important because some can lead to serious illness and even death.

Communicable Diseases within Industrial Settings

Within the context of industrial settings and congregate working and/or living arrangements, several communicable diseases may be anticipated and planned for, including but not limited to gastrointestinal illness, influenza-like illness, and sexually transmitted infections. Refer to the BCCDC guidelines which are updated regularly to reflect best practice.

Best Practice Tip

Ensure that communicable disease management plans address both *preventative* measures and *response* procedures to be activated in the event of cases, clusters, or outbreaks.

Chain of Infection

For an infectious disease transmission event to occur, a "chain of infection" must be completed that includes the following six elements:

1. **An infectious agent**: The microorganism/microbial toxin responsible for the illness (e.g., influenza virus).
2. **A reservoir**: The habitat in which an infectious agent lives and replicates (e.g., soil, an infected person).
3. **A portal of exit**: The route by which the infectious agent leaves the reservoir (e.g., the respiratory tract of an infected individual).
4. **A mode of transmission**: The process by which infectious agent is transferred from reservoir to the host. Communicable diseases may be spread through air (e.g., chicken pox, influenza, tuberculosis); blood borne (e.g., HIV/Aids, hepatitis B and C); contact (e.g., norovirus); or zoonotic (e.g., avian flu, campylobacteriosis, Hantavirus, rabies).
5. **A portal of entry**: The route by which the infectious agent enters the host.
6. **A susceptible host**: The host must be susceptible to infection by the infectious agent.

To be effective, the CDMP must consider and target all stages of the chain of infection. Risk management efforts should not only focus on controlling exposure, but also on increasing worker immunity and/or resilience. To build immunity and resiliency we recommend taking a holistic approach to health promotion initiatives that target the physical, mental, emotional and spiritual wellbeing of employees, as described in the Health and Medical Services Management Best Practice.

Section 3: Guidelines for a Communicable Disease Management Plan

This section outlines the minimum recommended elements of a CDMP and provides criteria to be addressed within each element. Figure 1 provides a summary of the seven recommended elements, each of which is outlined within this section. Each organization may approach their CDMP differently to align with organizational practices and procedures, legislated requirements, and other criteria. However the document is structured, each of these seven elements should be addressed clearly and fully.

Please note that while NH may review the final draft of a communicable disease management plan, in most cases we will not provide consultation to assist with its development. Instead, NH expects that

each organization will retain sufficient in-house or third-party expertise to be able to develop a robust CDMP with the guidance provided herein.

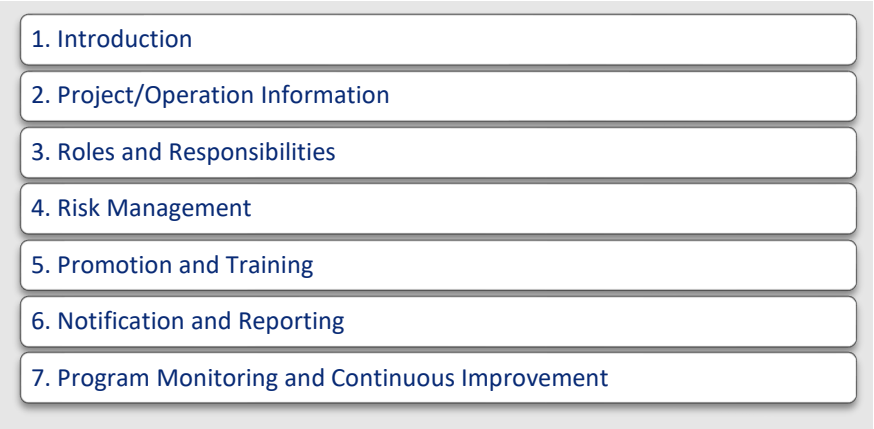


Figure 1. Recommended Elements of a Communicable Disease Management Plan

1. Introduction

Scope

The scope provides a clear summary of the application of the CDMP. It should clearly state who the plan applies to and how it connects to other plans which may be in use via sub-contractors and suppliers (e.g., camp operators, transportation operators). It should specify any geographical limits to its application as well as any hierarchical limits due to organizational structure. A fully developed scope statement will explain how the requirements set forth in the CDMP will be applied to all workers on the project, operation, or site.

Related Documents

The CDMP works in conjunction with other documents both internal and external to the organization. Provide a list of key documents and their role in supporting the CDMP. Related documents to the Prime Contractor level should be listed, at a minimum.

Community Characteristics

Provide an overview of important aspects of the project that may influence communicable disease management. Examples include size and proximity of nearby communities, use of community services and resources, local health services, etc.

2. Project or Operation Information

Project Description

The CDMP may be developed as a separate document from the Health and Medical Services Plan (HMSP), or it may be included within the HMSP. If the CDMP is intended to be a standalone document, project or operation information should be included within this section and provide a brief

overview of the project or operation. However, this can be reduced if the CDMP is included as part of an overarching HMSP in which project or operation information is already provided.

3. Roles and Responsibilities

This section should include information on the allocation of responsibilities. Consideration must be given to how the project or operation is managed holistically to ensure the various organizations (Owner, Prime Contractor, Contractors, Camp Operator, etc.) will work together to address communicable disease. At minimum, the following roles and their responsibilities should be outlined.

Best Practice Tip

Ensure that all roles that are required to plan, develop, implement, assure, and improve the communicable disease management plan are identified within the plan. Specify the assigned roles and responsibilities so that they align with the activities specified within the plan. Every action or expectation within the plan should be connected with the roles and responsibilities.

Internal Roles and Responsibilities

Executive Sponsor(s)

Holds accountability for ensuring provision of resources such that the CDMP can be effectively implemented. May be otherwise titled (e.g., Director, Senior Manager) and will be a senior role within the organization. The Executive Sponsor is responsible for making decisions related to the plan and its continuous improvement. The Program Sponsor is the contact for issues escalation.

Communicable Disease Control Lead (CDCL)

An onsite role that oversees the day-to-day CD prevention and management practices. Acts as the single point of contact for routine communication with NH. The CDCL will direct the communicable disease management program for the project/operation/camp, and will be responsible for implementing, monitoring and assessing activities. This individual should have the decision-making authority required to complete these activities; direct access to the Executive Sponsor to implement programs and policies (e.g., enforcing work exclusion and remuneration policies for ill individuals); and the skills and experience required for role competency (e.g., experience in public health, health and medical services, administrative skills, capacity to oversee complex and fluid situations).

Communicable Disease Management Team (CDMT)

A CDMT is composed of key personnel, representing the various project organizations, who have the responsibility to oversee certain aspects of communicable disease management. The CDMT will hold routine team meetings to share monitoring information, ensure plans are implemented, review outcomes, and review and update the CDMP. In the event of an outbreak, the team will organize the response. The CDMT should include the following individuals:

- Health care practitioner(s) (e.g., a medical director, physician/nurse practitioner, nurse, or other health professional) that are procured by the project/operation/camp who possess the appropriate skills and abilities to apply infection prevention and control measures and, preferably, have specialized training and/or experience in communicable disease control.
- Individuals with responsibilities and/or decision-making authority required to implement specific programs and policies, including the following persons:
    - Staffing managers/human resources personnel;
    - Support services managers (food, housekeeping, laundry, janitorial, etc.);
    - Occupational health and safety personnel; and
    - Other on-site medical staff members.

Managers and Supervisors (General)

Managers and supervisors play an important role in the implementation of a CDMP. Specify the expectations for implementation of the plan and assurance of worker compliance.

Managers and Supervisors (Specific)

Managers and supervisors within key functions, such as food service, housekeeping, janitorial, etc., play a critical role and should have more detailed responsibilities outlined.

Workers

Workers should be included in the list of roles and responsibilities with detailed expectations for compliance and reporting. All employees are to be appropriately trained on the communicable disease control plan such that the policies and procedures may be adequately implemented.

External Parties

External parties with a role in supporting communicable disease management should be listed with a brief description of their scope of service and/or support. Examples include NH, BCCDC, BC Patient Transfer Network (BCPTN), BC Ambulance Services, and others.

Northern Health

NH's key public health and communicable disease contacts and scopes are as follows:

- **Communicable Disease Cases, Clusters, and Outbreaks**. During business hours, contact the Regional Communicable Disease Hub RegionalCD.HubTeam@NorthernHealth.ca or 1-855-565-2990. The Communicable Disease Unit is a central receiver of reports of communicable disease. It will direct all reports of, and inquiries related to, communicable disease to the appropriate departments within NH. Outside of business hours please contact the Medical Health Officer (MHO) On-Call at 1-250-565-2000, press 7 for switchboard.
- **Non-urgent, general inquiries relating to water, sewer, food, etc**. Contact the local Environmental Health team at php@northernhealth.ca.
- **General questions relating to CDMPs and environmental assessments**. Contact the Office of Health and Resource Development at resource.development@northernhealth.ca.

4. Risk Management

Effective risk management draws on the basic steps of identification of hazards, assessment of risks, and controlling risks[1]. When conducting hazard identification and risk assessment, organizations must recognize that communicable disease is a workplace hazard that has worker health and societal implications. As such, consideration must also be given to the potential impact upon public health and health services in the event that health resources are required to help manage cases, clusters, and/or outbreaks, or in the event of transmission to and from the public. Additional consideration must be given to the risks associated with administration of the CDCP such as information privacy and confidentiality.

Communicable Disease Control Phases

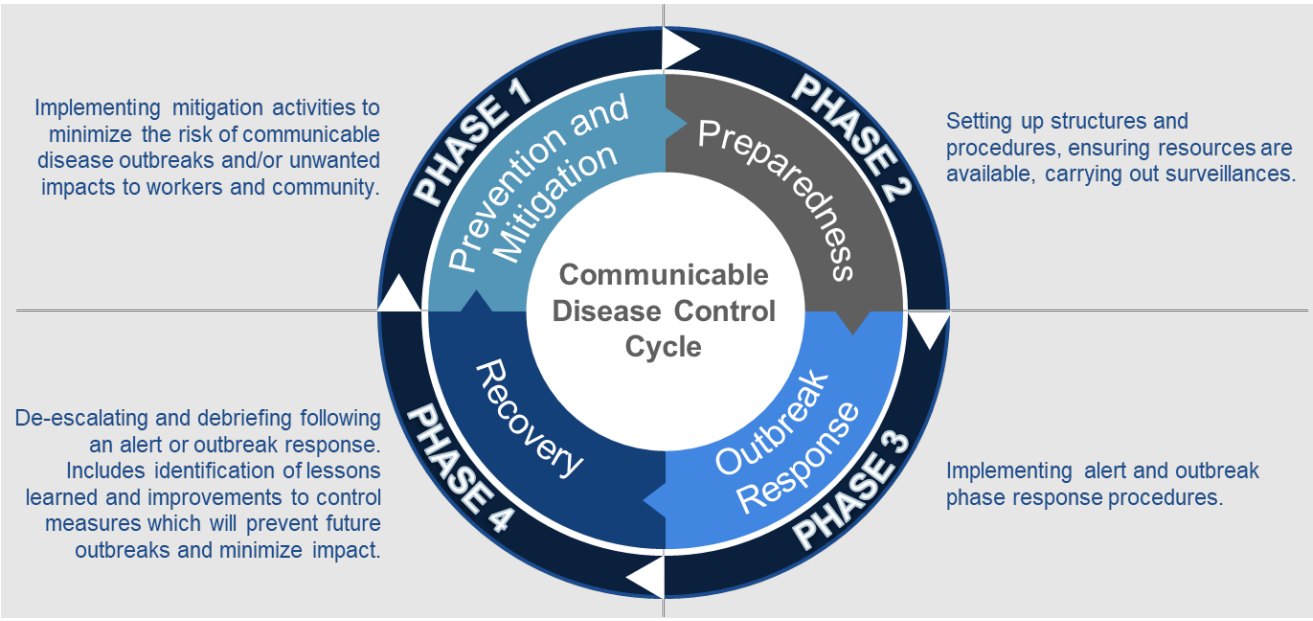
For the purpose of risk management, there are four iterative phases that reflect Deming's Plan-Do-Check/Study-Act cycle of management[2] (Figure 2). Within this framework, the four phases of communicable disease control are defined:

- **Phase 1: Prevention and Mitigation**. During this phase, risk assessment is conducted, and controls are selected. Efforts are undertaken to minimize the likelihood of outbreak.
- **Phase 2: Preparedness**. Practicing implementation of outbreak procedures, validating structures and procedures, surveillance of communicable disease, and other readiness activities.
- **Phase 3: Outbreak Response**. During this phase the planned response is activated; practices and procedures are implemented.
- **Phase 4: Recovery (Post-Outbreak).** This phase marks the de-escalation of controls implemented in the previous phase. It also includes after-action reviews to identify and address weak points that were observed in any one of the four phases, including de-escalation of controls.

Best Practice Tip

Conduct a risk identification and assessment that is specific to the project or operation. Generate a risk matrix in line with the four phases of disease control to maximize the application of timely interventions.

[1] Refer to WorkSafeBC for more information about managing risk Managing Risk - WorkSafeBC.
[2] Refer to The Deming Institute for more information about the PDSA and PDCA cycles.



Phase 1: Prevention and Mitigation

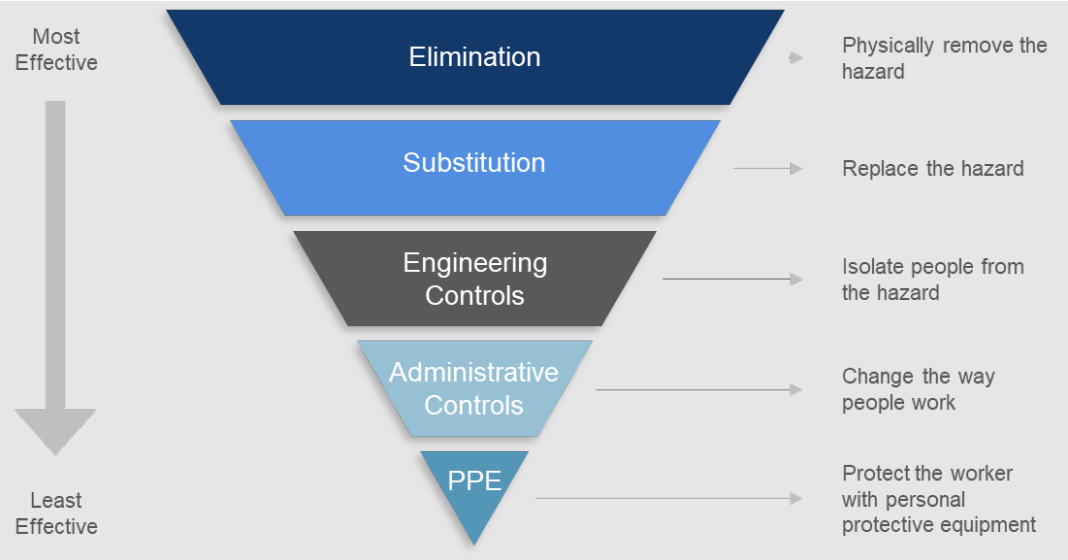
Hierarchy of Controls

Effective implementation of communicable disease management control measures requires planning for both proactive and reactive responses. Proactive controls are implemented in advance of cases, clusters and outbreaks and include ongoing worker awareness and education, hand hygiene, respiratory etiquette, cleaning and sanitization, physical distancing, private washroom facilities in accommodation, staying at home or at camp when ill, among others. Reactive controls are implemented in response to a case, cluster or outbreak and include activation of risk control procedures and often will involve strengthening of proactive controls through increased frequency or rigor (e.g., increasing cleaning frequency and/or utilization of a more effective cleaning agent).

No single control is sufficient to protect against communicable disease. Controls are most effective when they are used in combination with one another. For example, using signage to promote hand washing and provide awareness of current conditions and risks. Within industrial settings, the hierarchy of controls is a helpful tool that provides context to the control measures that may be implemented, as illustrated in Figure 3.

Best Practice Tip

Develop mitigations across the hierarchy of control and avoid over-reliance on PPE. Consult with stakeholders to identify effective measures.



Hazard Identification

Range of Communicable Diseases

The CDMP should consider the risk of, but not be limited to, blood-borne infectious diseases, influenza like illnesses (ILIs)/acute respiratory infections, gastrointestinal infections (GIs), sexually transmitted infections (STIs), and vector-borne infections. Regardless of size, every camp should conduct a robust risk review and ensure sufficient planning procedures are in place. Please refer to the BCCDC Communicable Disease Control Manual for more information.

Inclusive of All Worker Exposure Environments

Regardless of size, every camp should conduct a robust risk review and ensure sufficient planning procedures are in place. When identifying hazards, it is important to consider all worker environments including the worksite, accommodation, and transportation. The hazards within various environments may vary significantly and require different mitigations. Identification of hazards should consider how changes in the size of the workforce may affect hazards and their risks.

Administrative Considerations

The CDMP should consider potential hazards related to administration of the CDMP, such as protection of personal information, to ensure appropriate controls are in place during the collection, management, and sharing of personal medical records, and the NH Line List.

Special Considerations for Foreign Workers

The recruitment of foreign workers can result in additional or unique communicable disease risks to workers and communities which may require additional control strategies. Potential risks depend

upon several factors including country of origin, health, educational status, length of time in Canada, endemic diseases and vaccination schedules, etc. within country of origin, and the nature of their work. Workers travelling internationally may introduce pathogens that are highly infectious and have a long enough incubation period for workers to complete the trip to Canada while asymptomatic (e.g., tuberculosis, measles, Hepatitis A).

Hiring and training local workers would reduce some risks. However, to the extent that international workers will be part of the workforce, there are two potential risks to consider:

1. Imported pathogens carried by international workers; and
2. A higher-than-usual risk of transmission (including outbreaks) of infections endemic in Canada among foreign workers who may not have the same immunity as residents of Canada (e.g., as a result of vaccination schedules and coverage in home countries, a lack of prior exposure to certain pathogens, etc.).

These potential risks should be identified in the CDMP. In assessing these potential risks, consideration might be given to the following:

- Medical screening requirements by Immigration, Refugees and Citizenship Canada (IRCC) for international workers, with consideration of how screening requirements vary depending on the duration of stay
- Project-related fitness for duty screening requirements
- Immunization schedules of the countries of origin of workers and/or information from workers on their immunization history
- Any infectious diseases that are endemic in the countries of origin
- Any infectious diseases that are endemic in Canada and not in the countries of origin
- The length of shifts/rotations and how frequently workers are expected to return to countries of origin

Depending on the risks identified, mitigation strategies might include: (targeted or universal) screening, vaccination, education, and heightened surveillance for specific pathogens known to be more prevalent in the countries of origin of the workers.

It will be imperative to encourage workers to present for medical evaluation promptly if they do develop symptoms. As temporary workers may fear that they might lose their job and be deported if they are found to be ill, CDMPs will need to address this potential barrier to the early detection of communicable disease cases. It will also be important that any targeted communicable disease interventions are non-stigmatizing and respect confidentiality; control measures should not single out specific workers (or workers from specific countries or regions) as being potential risks to the rest of the work setting.

Best Practice Tip

Ensure the communicable disease risk assessment is be completed with consideration of all applicable communicable diseases and all aspects of work life, including at the worksite, within accommodation and recreation, and during transportation.

Risk Assessment

Informed Assessments

Risk assessments should be completed for infectious agents to determine the level of controls and planning that is necessary. We recommend the use of a risk assessment matrix or other risk assessment methodology that considers both the potential severity and likelihood of occurrence, as well as reliance on individuals with experience managing public health risks. When assessing risk to public health and/or local health services, please contact resource.development@northernhealth.ca for information on the potential impact related to the hazard and location of the project or operation.

Considerations for Assessment of Risk

When determining the hazard ratings, please consider the following parameters:

- **Characteristics of the infectious agent/illness**: Transmissibility and infectivity; potential for asymptomatic carriers; incubation period; period of communicability; pathogenicity and virulence; availability of effective treatment; availability of rapid testing; how easy it is to identify illness (e.g., is the symptom profile distinct to the infectious agent allowing cases to be easily identified and controlled?)
- **Where workers are coming from and returning to**: Local, regional, provincial, national or international; predicted prevalence of infectious disease amongst workers; predicted immunization history of workers; identification of workers migrating in from endemic regions; expected duration of stay; countries where workers are expected to return.
- **Number of employees** at the worksite, residing within the camp and other accommodations
- **Turnover patterns and work shifts**: Do workers fly in/fly out? How long are their shifts/rotations?
- **Proximity of camp and accommodations** to nearby communities and frequency of community contact.
- **Population of nearby communities**: Are there vulnerable/susceptible individuals nearby?
- **Camp set-up**: Are rooms and facilities private or shared?
- **Proximity of camp to reservoirs of infectious disease** (e.g., presence of animal and/or insect vectors).
- **Whether any medical device reprocessing is completed on-site** (e.g., the disinfection and sterilization of respiratory equipment, etc.)

Communicable Disease Control Practices and Procedures

At minimum, procedures must be developed for response to cases, clusters, and outbreaks of communicable disease, in accordance with the risk analysis. It may be helpful to develop a matrix of communicable disease control policies and procedures in alignment with the four phases to make the plan practicable and user-friendly. While the development of a communicable disease control matrix may be a helpful tool, it is important to think of communicable disease control as an ongoing and adaptive process.

The outbreak response section should include two stages: (1) an Alert Phase and (2) an Outbreak Phase. See Appendix C for guidelines on alert and outbreak criteria for common infectious illnesses.

When developing the plan, vulnerable individuals should be considered, including pregnant persons, persons aged 65 years and older, persons with chronic medical conditions (e.g., asthma, diabetes, or heart disease), Indigenous Peoples, those with a substance use disorder, and persons who are immunocompromised (e.g., taking immunosuppressive medications for cancer treatment or having an immunodeficiency disorder).

Best Practice Tip

Ensure that the practices and procedures developed include the specific criteria for implementation in the Alert and Outbreak phases, and that the specific controls are appropriate for each infectious disease, in accordance with the risk matrix.

Resources and Supplies

Based on the risk assessment, identify the resources and supplies that are needed to implement risk mitigations. Considerations for this section include:

- Medical equipment and supplies
  - NH expects that medical equipment and supplies are available on-site as appropriate to the project. We recommend that any supplies that are necessary for communicable disease control are identified in advance of any case, cluster or outbreak, and that the operator can independently and directly procure supplies.
  - It is recommended that larger sites store a small number of BCCDC GI Outbreak Kits on site for prompt use, as instructed by the MHO.
- Personal protective equipment (PPE)
  - Protective gear to prevent communicable disease transmission should be available on-site (e.g., a variety of different sizes and types of gloves, protective gowns, masks, respirators, etc.). PPE requirements will vary depending on the nature of the project and the infectious agent risks that are identified.
- Outbreak signage
- Staff trained in communicable disease control

- This section should include appropriate linkages to the information on staffing qualifications/training as contained in the *Training and Exercises* section.

- Any other resources that may be required:
  - Various disinfectants, reporting forms, condom dispensers, etc. The early recognition of cases is essential in the control of an outbreak.

Recommendations for Communicable Disease Control

A combination of controls is required to effectively protect against communicable diseases. Appendix C includes a list of protective measures that may be used, in line with the hierarchy of controls illustrated in Figure 3.

Phase 2: Preparedness

Surveillance and Monitoring

The early recognition of cases is essential in the control of an outbreak. Include protocols for the routine monitoring and recording of GI, ILI and other communicable disease symptoms, as well as a list of reportable communicable diseases, which if observed or suspected, must be reported promptly.

Reporting of cases should not be delayed.

- During business hours (M-F, 8am-5pm), contact the Regional Communicable Disease Hub at RegionalCD.HubTeam@northernhealth.ca or 1-855-565-2990. The Regional Communicable Disease Hub is a central receiver of reports of communicable disease. It will direct all reports of, and inquiries related to, communicable disease to the appropriate departments within NH.

- Outside of business hours please contact the Medical Health Officer (MHO) On-Call at 1-250-565-2000, press 7 for switchboard. A full list of NH contacts can be found in Appendix B.

The monitoring section might include details on the following:

- **Data collection**: Keeping records of either (as deemed appropriate for the setting) all work absences or suspected infectious disease cases (e.g., maintaining case reports with symptom profile, date of symptom onset, symptom duration, response to treatment, room number, occupation, 3-day food and location history if showing GI symptoms, contact information).
- **Health care access:** Policies to ensure employees have consistent access to an on-site health care provider to report symptoms immediately.
- **Case evaluation:** Protocols for symptom evaluation and/or testing when an individual is suspected to be infected with a communicable disease.
- **Collaboration:** Plan for bridging communication with nearby communities and/or projects to stay informed of outbreaks. Regular CDMT meetings to review the CDMP.

Best Practice Tip

Plan and practice the communication protocol for Alerts and Outbreaks to ensure personnel are familiar with their role, who and when to make notifications, and where to find notification contact information for internal and external parties.

Response Flow Chart

To aid personnel in timely and adequate response, organizations should develop a response flow chart that provides information about the response process. Identification of a potential cluster may be made by a variety of personnel (clinicians, supervisors, housekeeping, foodservices, etc.).

It is important to outline how these notifications of actual or suspected cases and clusters, will be made known to those with roles in Section 3. Considerations for the response flow chart include:

- How might notifications of actual or potential cases, clusters, and outbreaks be made?
- Who needs to be notified immediately?
- Who contacts NH to notify of the potential case(s) or cluster ?
- When does the CDMT meet? What frequency are the meetings?
- Who maintains the line list? How is information updated?
- How are outbreak notices posted to make staff aware of risks?
- How does post-outbreak de-escalation occur?

Exercises and Drills

Like other safety-related activities, preparedness for response to communicable disease Alerts or Outbreaks requires opportunity to practice skills and ensure programs and policies reflect the needs of the organization. In this section outline the schedule of drills and exercises to be completed, and the process for capturing learnings from evaluation.

Schedule of Exercises and Drills

To develop the drill and exercise schedule, take a risk-based approach that helps to ensure key aspects of response are prepared for. Organizations should work with their contractors and service providers to develop the schedule, and ensure it includes:

- Type of exercise (typically used for training and program development) or drill (typically used to test knowledge and process)
- Participants
- Details of the event
- Purpose of the event (what policy, procedure, or part of a policy or procedure is being exercised)

- Expected outcome or learning
- Facilitator
- Process for review and capture of lessons learned

Phase 3: Response

Alert and Outbreak Phase Definition

To simplify the criteria for Alert definition, NH has adopted a 3-in-3 criteria for influenza-like illness (ILI) and gastrointestinal illness (GI). Table 1 outlines the description and phase criteria for ILI, GI, and other communicable diseases. Outbreaks will only be declared by the Medical Health Officer and will be situation dependent.

The criteria have been developed for groups of individuals who are in regular contact with one another through shared residential section/camp conditions, shared dining facilities, and/or who are otherwise connected by person, place or time.

To ensure that the level of response escalation is appropriate, criteria should be applied within groups where there is a reasonable probability of a communicable disease being transmitted between individuals through either direct or indirect contact, as is appropriate to the infectious agent under consideration.

Alert Phase Response

The Alert Phase response should be implemented when suspected cases have been identified but the criteria for declaring an "outbreak" for an infectious agent has not been met. Note that we do not recommend waiting for the causative agent to be confirmed before responding. Laboratory confirmation may not be required at all if it would not alter control measures.

When the Alert Phase criteria are met, the company must notify the designated NH contact of the suspected outbreak immediately, and implement Alert Phase procedures:

- During business hours, contact the Regional Communicable Disease Hub at RegionalCD.HubTeam@northernhealth.ca or 1-855-565-2990
- Outside business hours, MHO On-call (1-250-565-2000, press 7 for switchboard)

Description		**Alert Phase Criteria**	**Outbreak Phase Criteria**
Influenza Like Illness (ILI)	Influenza-like illness (ILI) is defined as a new respiratory illness with fever greater than 38°C and cough and one or more of the following: sore throat, joint pain, muscle pain, or fatigue.	When three (3) or more cases of ILI occur within a three (3) day period	Situation-dependent and will be decided by Northern

Gastrointestinal Illness (GI)	Gastrointestinal illness (GI) is defined as a new illness characterized by vomiting and/or diarrhea, and more precisely, any of the following conditions: • Three or more episodes of diarrhea in a 24 hour period; OR • Three or more episodes of vomiting in a 24 hours period; OR • One episode each of vomiting and diarrhea in a 24 hours period; OR • One episode of bloody diarrhea; OR • One episode of vomiting OR diarrhea, with laboratory confirmation of an infectious agent known to infect the gastrointestinal system.		Health's Medical Health Officer
Other	ILI and GI are the most common communicable diseases that we observe in camps. However, there are other communicable diseases of public health importance to be aware of, and report to, Northern Health. Please note that for some communicable diseases, even a single case may trigger mandatory reporting under the Reporting Information Affecting Public Health Regulation (B.C. Reg. 167/2018).	Varies by communicable disease	

Table 1. Alert and Outbreak Phase Definition Criteria for Common Communicable Diseases

Best Practice Tip

Incorporate and reference requirements from the Industrial Camp Regulation (BC Reg. 70/2012), which states the operator must notify the MHO of the outbreak/occurrence of illness within 24 hours after it comes to the attention of the operator that there is an outbreak or occurrence of illness, above the incident level that is normally expected, at an industrial camp.

Alert Phase Response Information

In this section of the CDMP, include information for each of the defined roles in Section 3. Personnel should be provided with clear, step-by-step instruction of initial actions to take in the event an Alert Phase response is required. It may be helpful to consider what actions people need to take from the time an Alert Phase is triggered until the time when the CDMT meets to develop a strategy. Considerations for the step-by-step instructions:

- What immediate changes need to be made?
- Who do they need to notify?
- What do they need to refer to?

Testing for Gastrointestinal Disease Outbreaks

If applicable, complete testing to confirm the infectious agent and diagnosis. It is recommended that BCCDC Gastrointestinal Disease Outbreak Kits are stored on site and readily available. To obtain the kits, contact NH's Environmental Health team[3]. These test kits are only to be used in consultation with NH; a health officer will provide direction on when to use test kits as well as protocols for sample collection, packaging and transport.

In certain situations, such as when symptoms are severe or unusual, or when there is a specific reason to suspect a food- or water-borne outbreak (as opposed to person-to-person transmission), the Medical Health Officer may request testing. Optionally, and when convenient, these test kits can also be used in more routine GI outbreaks in order to confirm the nature of the infection, but this is not normally required except on the advice of the Medical Health Officer.

- While we request that worksites maintain a small stock of stool specimen collection kits, stool specimen collection and testing is not mandatory for most GI outbreaks. Knowledge of the lab result often does not alter how the outbreak is managed, since general infection control measures are the same for all types of GI infections.
- If specimens are collected, it should be carried out on a voluntary basis, on-site, and only for a limited number of individuals. Two or three specimens will generally suffice.
- Sending individuals to local clinics or emergency rooms for the sole purpose of testing, when they are not sick enough to require a higher level of medical care, risks spreading the infection further. In addition, if testing is perceived as mandatory, this may discourage individuals from disclosing their symptoms.

Best Practice Tip

Ensure communicable disease plans include the provision of adequate care for individuals within the workplace and their company provided accommodations, and only utilize local clinics or emergency rooms when a higher level of medical care is required.

Testing for Other Communicable Diseases

A variety of tests may be used to identify communicable diseases such as gonorrhea, syphilis, tuberculosis, coronavirus, and other infectious diseases. Testing may include collection of blood,

[3] Contact info available online at: https://northernhealth.ca/YourHealth/EnvironmentalHealth/ContactUs.aspx

urine, throat swabs, stool sample, or other collections. The MHO will provide guidance on the type of testing requested or required.

Personnel Precautions

Depending on the suspected mode of transmission of the infection, personnel experiencing symptoms may be placed in single occupancy rooms, assigned single occupancy washrooms, or share a room with another symptomatic personnel (i.e., cohorting), and encouraged to remain in their rooms with meals served to the room.

The decision to cohort sick workers is situation dependent. There are advantages and disadvantages to cohorting in an industrial setting that must be carefully considered. A discussion as to the best approach for housing those who are infectious should be held on the first call with the Medical Health Officer.

- For certain infections, recommending vaccinations and/or medication.
- Ill employees may be excluded from work during communicable period (e.g., for most GI outbreaks, this would mean 48 hours after symptoms have ended).
- Remuneration of employees who are on isolation precautions[4] for the *duration of their communicable period* to ensure those who are sick report their symptoms accurately and adhere to the isolation protocols. Providing workers with remuneration for the full duration of their illness or isolation has shown to be critical to controlling communicable disease outbreaks.
- Decreasing crowding using, for example, staggered mealtimes, cancelling community activities, temporarily closing communal spaces such as gyms and games rooms.
- Assessing and/or screening employees to ensure communicable period has ended (i.e., that they are no longer contagious) before allowing them to return to work.

Continued and Enhanced Routine Infection Control Practices

- Promotion of hand hygiene
- Use of personal protection equipment
- Cleaning of equipment and the environment
- Linen and waste management.

Enhanced Precautions

- Using appropriate contact/droplet/airborne precautions when in close proximity to infected individuals or cleaning contaminated areas.

[4] See Paid sick leave - Province of British Columbia (gov.bc.ca) for minimum requirements.

- Frequent cleaning and disinfection of commonly touched surfaces or items (e.g., handrails, door handles); See Appendix F Disinfectants Commonly Used in GI Outbreak
- Use of appropriate disinfection chemicals; ensuring contaminated laundry is handled as little as possible (with minimum agitation, and transported in sealed and labelled bags)
- Washing linen on the longest cycle

Reporting

- Increased monitoring and recording of relevant symptoms on remainder of employees.
- Maintaining a Line List for workers who meet the case definition for submission to NH. The Line List is a controlled document provided by NH to industry operators for maintaining current information about individuals with a communicable disease.

Best Practice Tip

Include training on the completion of the Northern Health Line List for appropriate personnel to ensure they are competent to complete the form in a timely manner when and as required.

Outbreak Phase Response

Outbreak phase management actions will be carried out in consultation with NH. This section of the CDMP should list the proposed Outbreak Phase control strategies that the camp plans to implement. They should include the planned Alert Phase control strategies, including communication, additional enhanced precautions, and outbreak reporting.

Communication

- Holding internal CDMT meeting
- Notifying all staff
- Posting outbreak signage at all entrances/exits to inform workers and visitors of outbreak until the outbreak has been declared over
- Maintaining communication with NH throughout the outbreak response, and supporting NH's outbreak investigation as requested

Additional Enhanced Precautions

- Emphasizing hand hygiene upon entering and exiting site
- Increased cleaning and disinfection procedures for washrooms, common areas and all frequently touched surfaces

Outbreak Reporting

- Companies should maintain a Line List with basic information about all cases. See Appendix D for Line List templates.

Phase 4: Recovery

Post Outbreak Response

This section of the plan should outline steps to be implemented after an outbreak has ended and include the following procedures:

- Declaring the end of an outbreak. In consultation with the CDMT and CDCL, the MHO will determine when the outbreak has ended:
    - Generally, an MHO will declare an outbreak as over when two incubation periods (as applicable to the infectious agent) have elapsed with no new cases, despite the implementation of effective surveillance
    - For a GI outbreak, the MHO typically declares the outbreak over 4 days after the onset of symptoms of the last case
    - For an ILI outbreak, the MHO typically declares the outbreak over 6 days after the onset of symptoms of the last case
- Notifying all staff
- De-escalating by returning to routine infection control measures
- Taking down outbreak-specific signage, etc.
- Debriefing and capturing lessons learned
    - CDMT and CDCL reviewing effectiveness and timeliness of the outbreak response.
    - Determining any lessons learned and opportunities for improvement, in order to prevent, limit, or better respond to the next outbreak.
    - Ensuring any necessary changes are communicated to individuals with appropriate decision-making authority and are implemented.
    - Considering the need to communicate results of review more widely (e.g., staff, First Nations, Northern Health, etc.).

Organizations should outline a framework for assigning controls (prevention, surveillance and outbreak responses) for infectious agents based upon the hazard-risk score or risk level. Provide justification for risk characterization/ scoring, which may be quantitative or qualitative, as well as for the estimation of risk for each infectious agent.

5. Promotion and Training

Protecting against communicable disease requires participation from all workers across a project or operation. It requires collaboration between the Owner, Prime Contractors, and service providers to

ensure adequate measures are applied across the work site, and work activities. Promotion and training are two important elements that help to ensure the efficacy of the CDMP.

Promotion

Awareness of the CDCP can be made to workers through a variety of mechanisms. This section of the plan should contain a planned promotion program that aligns with the four phases.

Prevention and Mitigation

Considerations for promotion during this phase include:

- Orientation materials for workers
- Contract clauses for vendors and suppliers
- Toolbox talks
- Posters
- Newsletters and updates
- Closed circuit television programming
- Provision of condoms, hand sanitizer, masks, etc., as appropriate

Preparedness

Provide personnel with appropriate resources to implement the CDMP:

- Provide all necessary equipment and supplies and audit and quality control these, as appropriate
- Conduct scenario testing
- Provide refresher training
- Provide access to resources and information

Response

During a response to either an Alert or Outbreak, communication to workers is essential:

- Follow MHO guidance for posting notices about the Alert/Outbreak
- Ensure leadership leads by example by following all protocols
- Use toolbox talks, posters, newsletters, and bulletins to communicate the need for heightened awareness and compliance to the CDMP
- Address any non-compliance through appropriate performance management
- Implement leadership walk-abouts or similar efforts to connect with workers and discuss communicable disease and protective measures

Recovery

Following an Alert or Outbreak it is helpful to communicate status updates to workers and share appreciation for their compliance. Considerations include:

- Sharing status updates through toolbox talks, bulletins, posters, and leadership messages
- Share lessons learned at all-staff meetings, and at toolbox talks
- Recognize leaders or champions

Training

Training requirements vary for each of the roles identified in Section 3. Organizations should assess, role by role, the training needs for compliance with this plan. Training should be conducted initially and at specified refresh times to ensure workers remain competent for their role.

The training itself requires monitoring to ensure it remains effective. Organizations should have a system in place to assess the effectiveness of the training against performance of workers in both drills and actual Alert or Outbreak events.

6. Notification and Reporting

Project Contact List for Communicable Disease

This section should include a contact list for all internal and external personnel and agencies for outbreak notification purposes. The list should include at minimum:

- Internal Parties
  - Camp and accommodation management for food, housekeeping, laundry, janitorial, communications
  - Worksite management
  - On site medical team
  - Medical Service Provider
  - CDMT
  - CDCL
- External Parties
  - NH Communicable Disease Reporting line (1-855-565-2990, available during business hours)
  - NH MHO on-call (1-250-565-2000, available outside of business hours).
  - NH Environmental Health team
  - NH Office of Health and Resource Development (
  - Key contacts from the BC Patient Transfer Network (BCPTN)
  - Key contacts from the BC Ambulance Service
  - WorksafeBC

7. Program Monitoring and Continuous Improvement

Document Management

The CDMP should identify how often the document will be reviewed and updated to ensure it reflects current best practices and contact information. At minimum, the plan should be reviewed annually, as well as during major changes in operations at the site. It is critical that the plan is maintained as a "living" document to ensure its utilization as an active prevention tool.

Program Evaluation and Continuous Improvement

Every drill, exercise, or actual Alert or Outbreak response is an opportunity for evaluation of the program and worker compliance with the CDMP. Organizations should have a clear process in place for evaluating individual and organizational performance against this plan. Assessments should be undertaken to identify gaps in the program itself, leadership, training requirements, communication, and so forth.

Best Practice Tip

Review and improvement of the communicable disease control plan should occur on at least an annual basis. More frequent updates may be made to capture lessons learned from actual events. Include these updates in project and operational planning and scheduling.

Identified gaps should be maintained in a register to allow for monitoring of the program over time. It is expected that through the course of learning events, changes will be required. The evaluation register should include:

- Learning event (drill, exercise, or actual response event; feedback and recommendations)
- Date
- Key participants
- Identified gap
- Alternatives for improvement
- Selected alternative
- Follow up evaluation
- Action for further improvement
- Assigned party
- Due date for action
- Status of action

Section 4: Appendices

A. Glossary of Terms and Definitions

ASYMPTOMATIC CARRIER	An individual who does not present any signs or symptoms of an infection but is capable of transmitting the infectious agent to others.
BC CENTRE FOR DISEASE CONTROL (BCCDC)	British Columbia's provincial reporting centre for reportable cases and categories of communicable diseases.
BC PATIENT TRANSFER NETWORK (BCPTN)	The agency responsible for the planning and coordination of all inter-facility patient transfers in the province.
BLOOD-BORNE INFECTIOUS DISEASE	An infectious disease that can be spread through contact with infected blood and other potentially infectious body fluids.
CAMP OPERATOR	The organization responsible for day-to-day management of an Industrial Camp.
COMMUNICABLE DISEASE CONTROL LEAD (CDCL)	Person responsible for overseeing a company's communicable disease control activities.
COMMUNICABLE DISEASE MANAGEMENT PLAN (CDMP)	Also called a communicable disease control plan (CDCP), it is a "living" document that outlines the initiatives, policies, and procedures that prevent and manage infectious disease outbreaks.
COMMUNICABLE DISEASE MANAGEMENT TEAM (CDMT)	A group of people who are collaboratively responsible for implementing the initiatives, policies, and procedures within the CDCP.
CONTACT PRECAUTIONS	Interventions to reduce the risk of transmission of infectious agents through direct or indirect contact.
ENVIRONMENTAL	Also often called a Public Health Inspector, responsible for educating people about public health issues, monitoring facilities and development, and enforcing health legislation.
ENVIRONMENTAL HEALTH OFFICER (EHO)	Also called a Public Health Inspector, a person responsible for educating people about public health issues, monitoring facilities and development and enforcement of health legislation.

EPIDEMIC	An outbreak of infection that spreads rapidly and affects many individuals in a given area or population at the same time.
ENDEMIC	The continual, low-level presence of disease in a community.
FOMITE	An inanimate object that can be the vehicle for transmission of an infectious agent (e.g., bedding, towels, or surgical instruments).
GASTROINTESTINAL ILLNESS (GI)	An illness that may be caused by a variety of agents including bacteria, viruses and protozoa. It is characterized by diarrhea with or without nausea and/or vomiting.
HARM REDUCTION	Harm reduction refers to policies, programs and practices that seek to reduce the adverse health, social and economic harms associated with the use of psychoactive substances and sexual activity. Harm reduction is a pragmatic response that focuses on keeping people safe and minimizing death, disease and injury associated with risky behaviours, while recognizing that the behaviour may continue despite the risks.
HEALTH AND MEDICAL SERVICES PLAN (HMSP)	A "living" document that identifies information about a project, the project's infrastructure as it pertains to health, the health services and programs that will be offered, and the methods by which the project will work in collaboration with the health authority.
INCUBATION PERIOD	The time period between when an individual is infected by an infectious agent and the presentation of symptoms or signs.
INDUSTRY	A collective term used to describe all employers in connection with a logging, sawmill, mining, oil or gas operation, a railway construction project, a cannery, or a similar thing.
INDUSTRIAL CAMP	Includes a) as defined by the Industrial Camps Regulation, land or premises on which an employer, in connection with a logging, sawmill, mining, oil or gas operation, a railway construction project, a cannery, or a similar thing, owns, operates, or maintains, or has established, permanent or temporary structures for use, with or without charge, by employees as living quarters; or b) Work camps where Prime Contractors have procured accommodation offsite in a congregate setting.

INFECTIVITY	The ability of an infectious agent to cause infection, measured as the proportion of persons exposed to an infectious agent who become infected.
INFLUENZA-LIKE ILLNESS (ILI)	A new respiratory illness with fever greater than 38°C and cough and one or more of the following: sore throat, joint pain, muscle pain, or fatigue.
LINE LIST	A type of epidemiologic reporting tool, organized similar to a spreadsheet with rows and columns in which information from cases or patients are listed, each column represents a variable, and each row represents an individual case or patient. See Line List here.
MEDICAL HEALTH OFFICER (MHO)	An individual whose powers and duties are derived from the Public Health Act, and who has a legislated responsibility under a number of Acts and Regulations to promote and protect public health.
NORTHERN HEALTH (NH)	The regional health authority responsible for governing, planning and delivering health care services in northern British Columbia.
OFFICE OF HEALTH AND RESOURCE DEVELOPMENT (HRD)	A Northern Health Office that coordinates response to inquiries related to natural resource development.
OWNER	According to WorkSafeBC an owner includes: (a) a trustee, receiver, mortgagee in possession, tenant, lessee, licensee or occupier of any lands or premises used or to be used as a workplace, and (b) a person who acts for or on behalf of an owner as an agent or delegate;
PANDEMIC	An epidemic disease of widespread prevalence around the globe.
PATHOGENICITY	The ability of an agent to cause disease after infection, measured as the proportion of persons infected by an agent who then experience clinical disease.
PERIOD OF COMMUNICABILITY	The time period during which an infectious agent can be transmitted from an infected individual to another susceptible individual.
POINT-OF-CARE TEST	A diagnostic test used to rapidly identify an infectious agent.

PORTAL OF ENTRY	A pathway into the host that gives an agent access to tissue that will allow it to multiply or act.
POST-EXPOSURE PROPHYLAXIS	Treatment administered following an exposure event to prevent the progression of infection and acquisition of disease.
PRIME CONTRACTOR	According to WorkSafeBC a prime contractor: in relation to a multiple-employer workplace, means: (a) the directing contractor, employer or other person who enters into a written agreement with the owner of the workplace to be the prime contractor for the purposes of the OHS provisions, or (b) if there is no written agreement referred to in paragraph (a), the owner of the workplace;
SEXUALLY TRANSMITTED INFECTION (STI)	An infectious disease caused by an organism (bacteria, virus, or parasite) that is predominantly passed from one person to another during sex or intimate contact, although some sexually transmitted infections may pass through blood or blood products, or through contact with infected clothing, bed linens, or towels.
TRANSMISSIBILITY	A measure of how transmissible an infectious agent is between a host and a susceptible individual.
VECTOR-BORNE DISEASE	An infectious disease that is transmitted by insects and/or animals.
VIRULENCE	The ability of an infectious agent to cause severe disease, measured as the proportion of persons with the disease who become severely ill.
ZOONOTIC DISEASE	An infectious disease that is transmitted from animals to humans.

B. Northern Health Contacts

The NH contacts for the management and prevention of communicable disease is provided in Table 1.

Topic	Availability	Contact Group	Contact Details
Communicable Disease Control (Cases/Outbreaks)	Business Hours	Communicable Disease Reporting Line	1-855-565-2990 or RegionalCD.HubTeam@NorthernHealth.ca
	Non-business Hours	Medical Health Officer On-Call	1-250-565-2000
Information about communicable disease	Business Hours	Environmental Health Team	publichealth.protection@northernhealth.ca
	Non-business Hours	HealthLinkBC	8-1-1
Information about water, sewer, food, etc.	Business Hours	Environmental Health Officers	250-565-7322 or php@northernhealth.ca
Questions related to CDMPs and environmental assessments	Business Hours	Office of Health and Resource Development	Resource.development@northernhealth.ca

Table 1. Contact Information for Communicable Disease Management

C. Communicable Disease Control Recommendations

ELIMINATION CONTROLS *Consider how changes can be made to interrupt the chain of infection*
Sick policy to keep ill workers out of the workplace, with remuneration
Self-monitoring for early identification
Reduction of workers to minimize susceptible hosts
Physical distancing
Immunization
SUBSTITUTION CONTROLS *Consider how changes can be made to current protocols*
Change from self-serve food stations to full-serve
Change mode of transportation to provide increased distance between workers
Change to more effective cleaning and disinfecting agent
ENGINEERING CONTROLS *Consider how changes can be made to the built environment to reduce infection risk*
Enhanced ventilation systems
Hand washing sinks and hand sanitizer stations strategically located throughout site. Hand sanitizer should be a foam product with a minimum of 70% alcohol content.
Increased availability of laundry facilities
Leak-proof containers for laundry and waste
Mechanical control of disease vectors (e.g., window screens; cleaning and sealing small openings around buildings and other alterations to building designs)
Modified construction materials: walls, floors and countertops which are non-absorbent and easy to clean
Physical barriers (e.g., Plexiglas)
Placement of secure sharps disposal containers throughout site
Single occupancy rooms and bathrooms
Single occupancy showers, or separation of residents into smaller “pods” to share shower facilities
ADMINISTRATIVE CONTROLS *Consider how changes can be made to practices, procedures, and policies to reduce infection risks*
Communication plan to notify workers
Developing partnerships with health departments and community-based organizations for communicable disease control
Disinfection and cleaning procedures (including safe procedures for cleaning up blood/bodily fluid/biohazardous material spills; labelling contaminated waste/laundry)

Easy and confidential access to health promotion and primary care providers to access care for chronic diseases and episodic health issues that are not emergent[5].
Education on safe wildlife interactions, and ensuring wildlife are not interacted with. We are aware of high-risk contact with wildlife occurring at industrial camps in the North (e.g., animal bites with risk of rabies exposure).
Efforts to build trust between health care providers and employees including ensuring confidentiality policies are clear and transparent; lack of trust is a major barrier to access and adherence to care.
Exclusion policies and procedures for ill employees/contractors (e.g., until 48 hours after symptoms end for most viral gastrointestinal illnesses), and remuneration for missed days to encourage the self-reporting of symptoms and adherence to the work exclusion policy.
6Fatigue management plans[7].
Free condom distribution at readily accessible points around site.
Free, confidential and non-judgmental access to safer sex and drug use harm reduction supplies (e.g., sterile needles, condoms, Narcan) and services (e.g., health education and safer substance use counselling).
Free, confidential and non-judgmental access to STI prevention, testing and treatment services.
Hand hygiene and respiratory etiquette education initiatives and policies.
Implementing workplace wellness programs, and screening for mental health and substance use issues.
Infection-control practices for culinary, laundry, and cleaning services.
Routine inspections, to ensure infection control procedures are being followed.
Limit workers to essential only; utilize remote work where possible.
Linkage to mental health and addictions services: ensuring employees have access to services and/or are referred as necessary8.
Mandated immunization policies for residents.
Mandatory hand sanitizer use when entering and exiting any dining facilities or where food is available (e.g., lunch bag-up rooms).
Notification of Alert and Outbreaks via entry/exit posters
Nutrition programs[9] and access to nutritional counselling; provision of a variety of healthy food choices.
On-site diagnostic tests and linkages to external diagnostics (laboratory and medical imaging).

[5] This component is included because an individual's susceptibility to infection can be impacted by their overall health status.

7 This component is included because stress and exhaustion can increase an individual's susceptibility to infection.

8 This component is included because mental health and addictions problems can be associated with an increased risk of infection acquisition, as well as decreased adherence to infection control procedures.

9 This component is included because an individual's nutritional status can impact their susceptibility to infection.

On-site immunization programs (annual influenza vaccinations, Hepatitis B vaccinations, etc.).
On-site sample collection kits.
Plan of action for transfer/linkage to Northern Health Public Health when post-exposure prophylaxis is needed (e.g., in the event of an animal bite).
Prompt evaluation of rashes or skin lesions, and monitoring for ectoparasites (e.g., scabies, lice).
Protocols for completing travel and medical histories for people entering the site.
Protocols for maintaining up-to-date records on employee immunization history.
Provide vaccinations and anti-viral medication.
Provisioning of clean personal care items on-site (e.g., razors, soap, shampoo).
Routine sanitation practices, and the cleaning of "high touch" surfaces (e.g., handles, light switches, handrails, tables).
Sexual health and communicable disease education initiatives.
Systems for controlling dining and eating area hygiene (e.g., table cards, take-away, barriers).
The use of tick/mosquito repellents and protective clothing to prevent tick/mosquito bites.
Use of rapid diagnostic tests that can be completed on-site.
Vector-borne and zoonotic disease education programs (including information on: signs/symptoms to look for; the avoidance and reduction of time spent in tick-infested habitats; tick checks and tick removal; safe wildlife interactions, etc.).
Wildlife and rodent control initiatives. For example, habitat disruption (draining backyard water to prevent mosquito breeding; removing leaf litter, brush piles and wood piles from areas of high activity; mowing grass along trails and near buildings) and the decontamination of mouse-infested areas and use of appropriate mask protection as necessary to prevent Hantavirus transmission.
PERSONAL PROTECTIVE EQUIPMENT CONTROLS *Consider how changes can be made to protective gear to reduce infection risk*
As necessary, implementing the use of gear to protect: • Eyes - goggles or face shield • Lung - mask or respirator • Skin - gloves, protective suit/gown, footwear • Masks
Anyone interacting with ill and potentially contagious people should have access to gloves, masks, eye protection, and gowns for use as indicated by the BCCDC.

D. Line List

The Line List is a type of epidemiologic reporting tool, organized similar to a spreadsheet with rows and columns in which information from cases or patients are listed, each column represents a variable, and each row represents an individual case or patient. Line Lists are typically required to be submitted to the NH Communicable Disease Team on a weekly basis when there are active cases, clusters, or outbreaks. However, the Communicable Disease Team, or MHO, may request submission of the Line List at an alternate frequency based on analysis of the situation.

Confidentiality

Some information contained within the Line List must be kept confidential, even when sharing within the organization. When collecting, using and disclosing the personal information of individuals in, employers should be aware of their legal obligations under the Province of British Columbia's Personal Information Protection Act, Industrial Camp Order and other relevant provincial information and privacy legislation.

Template

The Line List template is included below.


2020 Line List

E. Agents That Are Common in GI Outbreaks

Information about outbreak guidelines found online at the Provincial Infection Control Network of British Columbia. An excerpt of Appendix 3: Agents that are Common in Gastrointestinal Infection Outbreaks is provided below for convenience.

Agent	Reservoir	Survival on Surfaces	Incubation Period	Symptoms	Duration of Symptoms	Period of Communicability	Person to Person Transmission	Type of Precautions and Duration
Calicivirus (i.e. Norovirus or Sapovirus)	Humans	Feline calicivirus (FCV), a surrogate, can survive on glass surfaces for 21-28 days at room temperature and for longer periods at 4°C. At 37°C, FCV survives over 24 hours	Usually 24-48 hours (range-10-50 hours)	Self-limited mild to moderate vomiting and diarrhea	24-48 hours	During acute symptoms and up to 48 hours after symptoms resolve	Yes	Contact until asymptomatic for 48 hours. Use a surgical mask with eye/facial protection in specific situations (see p.14)
Rotavirus	Probably humans	May survive for a few hours on human hands and for days on hard and dry surfaces.	24-72 hours	Abrupt onset of vomiting and diarrhea and rapid dehydration, fever	4-6 days	Abrupt onset of vomiting and diarrhea and rapid dehydration, low grade fever	Yes	Contact until asymptomatic for 48 hours. Use a surgical mask with eye/facial protection in specific situations (see p. 14).
Adenovirus	Humans	Very stable in the environment and persist for 7 days to 3 months on dry inanimate surfaces	3-10 days	Abrupt onset of vomiting and diarrhea and rapid dehydration, low grade fever	4-6 days	During acute symptoms and up to 14 days after onset	Yes	Contact (a surgical mask with eye/facial protection in specific situations) until asymptomatic for 48 hours or longer if poor hygiene or continence issues (consult MHO)

Agent	Reservoir	Survival on Surfaces	Incubation Period	Symptoms	Duration of Symptoms	Period of Communicability	Person to Person Transmission	Type of Precautions and Duration
Campylobacter species (bacteria)	Animals, mostly raw poultry; pets	Can survive freezing for several months in frozen poultry, minced meat, and other cold food products. Can survive for many weeks in water at 4°C, but only a few days in water above 15°C	Usually 2-5 days (range 1-10 days)	Diarrhea, abdominal pain, malaise, fever, nausea and vomiting	2-5 days	Throughout infection, from several days to weeks if not treated	May be possible in food handlers or if individual is faecally incontinent and has poor hygiene	Routine
Clostridium difficile	Humans and some animals	Weeks to months	Unknown	Mild to severe diarrhea capable of causing bowel perforation	Several days to months	Duration of symptoms until 48 hours after resolution	Yes	Contact precautions until stools have normalized for 48 hours
Clostridium perfringens	Soil; GI tract of healthy people and animals (cattle, fish, pigs, poultry)	Ever present in soil, decaying vegetation, etc. Common in raw meats, dehydrated soups, sauces, raw vegetables, and spices. Spores can survive cooking and grow rapidly in foods inadequately hot held or refrigerated after cooking. Survival times depends on temperature, pH, water activity, salts & oxygen	Usually 10-12 hours (range= 6-24 hours)	Mild disease of short duration; sudden onset abdominal cramping and diarrhea; vomiting and fever usually absent	1 day or less	N/A	No	Routine

Agent	Reservoir	Survival on Surfaces	Incubation Period	Symptoms	Duration of Symptoms	Period of Communicability	Person to Person Transmission	Type of Precautions and Duration
E. coli O157:H7	Agricultural animals especially cattle, goats, sheep and humans	Variable: butter - up to 50 min; cream - 10 days; hamburger meat - survives well; does not survive long in slurry systems	2-8 days	Range from mild non-bloody to grossly bloody diarrhea Hemolytic uremic syndrome in 2-7% of cases	Typically less than a week, usually longer in children	1 week in adults; up to 3 weeks in children	Yes	Contact for 1-3 weeks depending upon age, ability to control excretions and hygiene
Salmonella	Domestic and wild animals and humans	Known to survive on fingertips for up to 80 minutes. Can live up to 63 days on lettuce, 231 days on parsley, 32 weeks in pecans, 10 months on refrigerated cheddar cheese, 9 months in butter, up to 63 days in frozen yogurt, and up to 20 weeks on frozen minced beef and chicken	Usually 6-12 hours (range= 6-72 hours)	Sudden onset headache, abdominal pain, diarrhea, nausea and sometimes vomiting. Usually fever	Several days to several weeks Can become a chronic carrier	While symptomatic, shedding continues after symptoms resolve	Yes	Contact until asymptomatic for 48 hours or longer if poor hygiene, continence issues or if person is employed as a food handler (consult MHO)
Salmonella *typhi* and *paratyphi*	Humans	As above	*S*. Typhi 5-28 days *S*. Paratyphi 1-10 days	Often begins with fever, Abdominal pain, later diarrhea, Multiple side effects	*S. typhi* can become a chronic infection, especially if treated with incorrect antibiotic	Primarily while GI symptoms are occurring	yes Food borne spread is usually via infected food handlers.	Contact while symptomatic

Agent	Reservoir	Survival on Surfaces	Incubation Period	Symptoms	Duration of Symptoms	Period of Communicability	Person to Person Transmission	Type of Precautions and Duration
Shigella sp.	Humans	Can survive up to months on dry surfaces, up to 10 days in citric juices and carbonated soft drinks, several days on contaminated vegetables, over 3 hours on fingers, 2 – 28 days on metal utensils at 15°C or 0 – 13 days at 37°C, in feces for 12 days at 25°C and water for under 3 days	1-3 days	Diarrhea accompanied by fever, vomiting and cramps.	4-7 days	During acute symptoms and up to 4 weeks after illness	Yes	Contact until asymptomatic for 48 hours or longer if poor hygiene or continence issues or if person is employed as a food handler (consult MHO)
S. aureus enterotoxigenic	Humans sometimes cows, dogs, and fowl	Survives on floors (less than 7 days), glass (46 hours), sunlight (17 hours), UV (7 hours), meat products (60 days), coins (up to 7 days), skin (30 minutes to 38 days). Depending on colony size, *S. aureus* can survive on fabrics from days to months	Usually 2-4 hours (range= 30 min.-8 hours)	Abrupt onset nausea, cramps, vomiting and sometimes diarrhea	1-2 days	N/A	No	Routine

Table 2. Agents that are Common in GI Outbreaks

*For more information on food safety, go to: http://www.bccdc.ca/foodhealth/default.htm

F. Disinfectants Commonly Used in GI Outbreaks

Information about outbreak guidelines found online at the Provincial Infection Control Network of British Columbia. An excerpt of Appendix 7: Disinfectants Commonly Used in GI Outbreaks is provided below for convenience.

Agent and Concentration	Uses	Active Against	Properties/Cautions
Chlorine: Household bleach (5.25%) 1:100 (500 ppm solution) 10 ml bleach to 990 ml water	Used for disinfecting general household surfaces. (make fresh daily) Allow surface to air dry naturally	Vegetative bacteria (*Salmonella, E. coli*), Enveloped viruses (Hepatitis B and C)	All organic matter must be cleaned from surface first Make fresh daily as shelf life shortens when diluted Store in closed containers which do not allow light to pass through away from light and heat Irritant to skin and mucous membranes Area should be well ventilated to prevent respiratory tract irritation Corrosive to metals Discolors carpets and clothing **NEVER** mix with any other cleaning solution
1:50 (1000 ppm solution) 20 ml bleach to 980 ml water	Used for disinfecting surfaces contaminated with bodily fluids and waste like vomit, diarrhea, mucus, or feces. Allow surface to air dry naturally	Vegetative bacteria Enveloped viruses Non-enveloped viruses (Norovirus, Hepatitis A)	
1:10 (5000 ppm solution) 100 ml bleach to 900 ml water	Used for disinfecting surfaces contaminated by blood Allow surface to air dry naturally	Bacterial spores (e.g.,*C difficile*)	
Accelerated hydrogen Peroxide 0.5%	Used for disinfecting general surfaces and surfaces contaminated with body fluids and waste Follow manufacturer's instructions for contact time (1-5 min.)	Bacteria Enveloped viruses Non-enveloped virus (norovirus)	Active in the presence of organic matter Good cleaning ability due to detergent properties Non-toxic

Agent and Concentration	Uses	Active Against	Properties/Cautions
Accelerated hydrogen Peroxide 4.5%	Use for cleaning and disinfecting toilet bowls, sinks, basins, commodes Follow manufacturer's instructions for contact time	Sporicidal, use when *C. difficile* is suspected	
Quaternary Ammonium Compounds (QUAT)	Use for general cleaning of floors, walls, furnishings Saturate thoroughly and allow surfaces to air dry naturally	Vegetative bacteria Enveloped viruses Some fungi	Detergent properties Non-corrosive Do **Not** use to disinfect instruments Many preparations have limited effectiveness against common organisms that cause GI infections (e.g.,norovirus). Use in well-ventilated areas Always check for DIN and manufactures list of indications

Table 3. Disinfectants Commonly Used in GI Outbreaks

VERY IMPORTANT:

- Ensure product has a DIN.
- Check manufacturers information to ensure that product is effective against organisms in question.
- Follow product instructions for dilution and contact time.
- Unless otherwise stated on the product, use a detergent to clean surface of all visible debris prior to application of disinfectant.
- Alcohol (70%) may be used on some small equipment such as stethoscopes but not as a general surface disinfectant.

G. Recommended Resources

General

- BCCDC:
  - Diseases & Conditions http://www.bccdc.ca/health-info/diseases-conditions
    - Influenza: http://www.bccdc.ca/health-info/diseases-conditions/influenza
    - Norovirus/Norwalk-like virus: http://www.bccdc.ca/health-info/diseases-conditions/norovirus-norwalk-like-virus
  - Food Safety: http://www.bccdc.ca/health-info/food-your-health/food-safety
  - Case definitions: http://www.bccdc.ca/health-professionals/clinical-resources/case-definitions
  - Communicable Disease Control Manual: http://www.bccdc.ca/health-professionals/clinical-resources/communicable-disease-control-manual
- BCGEU/BC Public Service Agency Guide to Prevention and Control of Infectious Diseases in the Workplace: http://www2.gov.bc.ca/local/myhr/documents/safety/infectious_disease_guide.pdf
- Canadian Public Health Association (CPHA) Infectious Diseases Portal: http://www.cpha.ca/en/programs/portals/idp.aspx
- Immunize Canada: http://immunize.ca/en/default.aspx
- Norovirus and the Hospitality Industry, A Guide for Hotel Operators, Vancouver Coastal Health: http://www.vch.ca/media/norovirus_guide.pdf
- Northern Health:
  - Position Statements Addressing Risk Factors: https://northernhealth.ca/AboutUs/PositionStatementsAddressingRiskFactors.aspx#532436-position-snapshots
  - Environmental Health
  - Environmental Health Topic index: https://northernhealth.ca/YourHealth/EnvironmentalHealth/A-ZIndex.aspx
  - Communicable Disease Control: https://northernhealth.ca/YourHealth/EnvironmentalHealth/CommunicableDiseaseControl.aspx#9766298-food-borne-illness-food-poisoning
- PICNet (Provincial Infection Control Network of British Columbia): https://www.picnet.ca/
  - Infection Control Resources: https://www.picnet.ca/resources/
  - Guidelines and Toolkits: https://www.picnet.ca/guidelines/
  - Hand Hygiene: https://www.picnet.ca/guidelines/hand-hygiene/

- Gastrointestinal Infection Outbreak Guidelines for Healthcare Facilities: https://www.picnet.ca/wp-content/uploads/PICNet-GI-Outbreak-Guidelines_Revised-June-2016.pdf
- Respiratory Infection Outbreak Guidelines for Healthcare Facilities: https://www.picnet.ca/wp-content/uploads/PICNet_RI_Outbreak_Guidelines.pdf
- *Clostridium difficile* Infection (CDI) Toolkit: https://www.picnet.ca/wp-content/uploads/Toolkit-for-Management-of-CDI-in-Acute-Care-Settings-2013.pdf

- Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Healthcare Settings: http://publications.gc.ca/collections/collection_2013/aspc-phac/HP40-83-2013-eng.pdf
- Webber Training Tele-class Education for Infection Prevention and Control:
  - Posters: http://www.webbertraining.com/freeposterdownloadsc97.php
  - Recordings Library: http://www.webbertraining.com/recordingslibraryc4.php
  - Infection Prevention and Control Canada Courses: http://ipac-canada.org/canadian-ipac-course.php

Harm Reduction

- Toward the Heart: A Project of the Provincial Harm Reduction Program: http://towardtheheart.com/

HIV/AIDS

- HIV Testing Guidelines for the Province of BC: http://hivguide.ca/images/HIV_Guide.pdf
- International Finance Corporation: HIV/AIDS Guide for the Mining Sector: http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/learning+and+adapting/knowledge+products/publications/publications_gpn_hivaids-mining
- IPIECA / OGP: HIV/AIDS management in the oil and gas industry: http://www.ogp.org.uk/pubs/374.pdf

Sexual Health

- Canadian Guidelines for Sexual Health Education: http://www.phac-aspc.gc.ca/publicat/cgshe-ldnemss/cgshe_toc-eng.php
- HealthLink BC:
  - Sexually Transmitted Infections: https://www.healthlinkbc.ca/health-topics/stdis
  - Preventing Sexually Transmitted Infections: https://www.healthlinkbc.ca/healthlinkbc-files/preventing-sti

- Sexually Transmitted Infections Series: https://www.healthlinkbc.ca/services-and-resources/healthlinkbc-files/series#STD

- Smart Sex Resource: A service provided by the BCCDC: https://smartsexresource.com/about-stis/got-symptoms

Tuberculosis

- Tuberculosis (TB): Tuberculosis (TB) | HealthLink BC
- Home Isolation for TB: Home Isolation for Tuberculosis (TB) | HealthLink BC
- BCCDC Tuberculosis Manual: Tuberculosis Manual (bccdc.ca)

Vector-borne Infectious Diseases

- BC Ministry of Healthy Living and Sport: Evidence Review of Vector-borne Disease Management: http://www2.gov.bc.ca/assets/gov/health/about-bc-s-health-care-system/public-health/communicable-disease-prevention/communicable_disease_vector-borne_disease_management-evidence_review.pdf