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Communicable Disease Control Plan (CDCP) For LNGC Accommodation Village

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1. Purpose

The aim of this document is to provide information on the communicable disease control plan (CDCP), including preparedness and response, for the LNGC Accommodation Village (workers camp).

The intended benefits of this plan are:

- To avoid workers becoming unnecessarily infected and exposed to communicable diseases and at risk of adverse health outcomes as a result;
- To create an internal system that public health systems can readily and efficiently support to quickly contain the spread of infection;
- To mitigate potential lost productivity and unnecessary expenses incurred by prolonged infectious disease outbreaks; and
- To minimize potential impacts to neighbouring communities and the local health care system.

It is considered an “evergreen” document and will be updated as necessary. It will be reviewed and updated when changes (e.g. significant operational changes) warrant, as well as annually.

2. Scope

This plan is intended to address infectious disease outbreaks which have the potential to occur year-round and in the LNG Canada worker accommodation camp. This document will provide detailed requirements for an effective communicable disease control plan (CDCP) for the LNGC worker accommodation village on site (Cedar Valley Lodge), which is essential for the health and productivity of the project workforce. This plan not only addresses the prevention of communicable diseases in the accommodation village but also the minimization or mitigation of the potential impacts to the adjacent communities. The CDCP and supporting program(s) identify hazards and provide appropriate controls to minimize the likelihood of workers contracting communicable diseases at work and in the accommodation village. In the event of an outbreak, effective management requires a multidisciplinary approach and involves individuals with different responsibilities.

3. Infection Control Measures

3.1. Regulations

The operation of an industrial camp is prescribed as a regulated activity under B.C.'s Public Health Act. An industrial camp operator must comply with the requirements of the Industrial Camps Regulation that has provisions to prevent the potential for any communicable disease outbreaks. These include:

- Part 2, Division 1, number 6: ventilation;
- Part 2, Division 2, number 9: overcrowding;
- Part 2, Division 3, number 12: sanitary facilities;
- Part 3, Division 2, number 17: water supply, quality, and source;
- Part 3, Division 4, number 23: duty to report illness.

3.2. Control measures and prevention

The six elements of infection are:

- infectious agent;
- reservoir;
- portal of exit;
- mode of transmission;
- portal of entry;
- susceptible host.

Control measures may be aimed at each of these six elements.

The camp will be designed, constructed and operated in accordance with legal requirements, and with communicable disease control principles and practices in mind. The hierarchy of controls are:

1. Engineering controls – for example: HVAC system; single occupancy camp rooms with bathrooms and showers; camp construction with easily cleaned materials/surfaces in common areas (e.g. smooth, non-absorbent counters and flooring that are easy to clean); mechanical barriers to prevent ingress of disease vectors (e.g. screens on windows); adequate and strategically located hand washing facilities and foam hand sanitizers (≥70% alcohol) to promote hand hygiene; provision of secure sharps disposal containers and condom dispensing machines; leak-proof garbage and laundry containers; seasonal influenza immunization campaign

2. Administrative controls – for example: education and posters/signage promoting hand hygiene and respiratory (cough/sneeze) etiquette — 2 of the most important and effective measures in preventing the spread of infections; educational materials for workers about sexually transmitted infections (STIs) and safe sex practices; posters/signage directing workers to report to the on-site health facility if they develop symptoms of a potentially contagious respiratory or gastrointestinal (GI) illness; self-isolation of symptomatic workers in their camp rooms when directed to do so by health personnel; routine housecleaning with appropriate frequency for common/high-touch surfaces; training/safe work procedures for food service, housekeeping and laundry personnel (e.g. proper clean-up of blood/body fluid spills), including extra precautionary measures during an outbreak as appropriate; regular camp inspections/audits

3. Personal protective equipment (PPE) – for example: gloves, eye/face protection, gowns and respirators for health care professionals to follow standard precautions; appropriate PPE for housekeeping and laundry personnel, for routine duties as well as duties during an outbreak.

From an infection control perspective, the accommodation village can be divided into 2 sections:

- on-site health facility;
- the rest of the camp, with 3 areas of specific focus from an infection control perspective:
    - Kitchen and dining facilities/food handlers - food and drinking water safety;
    - Environmental cleaning;
    - Laundry.

The risk assessment for the biological health hazards (including communicable diseases) can be found in the Health Risk Assessment.

3.3. Camp operations

On-site health facility

The standard infection control program for a physician's office/medical clinic will be followed at the on-site health facility. The health services provider will be required to provide appropriate training, exposure control plans, written safe work procedures, supplies and PPE to their staff.

Food and drinking water safety

The camp operator will be required to establish and maintain a food and drinking water safety management program in line with the Hazard Analysis Critical Control Point (HACCPP) system, and will be required to provide written documentation of the program.

Food handlers who are sick with symptoms of a potentially communicable GI illness will be temporarily excluded from food handling duties until they are deemed fit to return to work (generally during, and for 48 hours after resolution of, symptoms). Food handlers must be deemed fit to return to work by the on-site health facility, prior to returning to work after an absence for health reasons. Guidelines for safe food handling are included in Appendix 4.

Environmental cleaning and laundry

Appropriate environmental cleaning and laundry practices are also important to prevent the spread of infections in the work camp setting. The camp operator will be required to establish and maintain such housekeeping practices, and will be required to provide: appropriate training (including occupational health and safety/WHMIS training), exposure control plans, written safe work procedures, supplies and PPE for their housekeeping and laundry personnel. Guidelines for both environmental cleaning and laundry practices, and a list of disinfectants commonly used in GI outbreaks, are also included in the appendices.

4. Communicable Disease Control Procedures

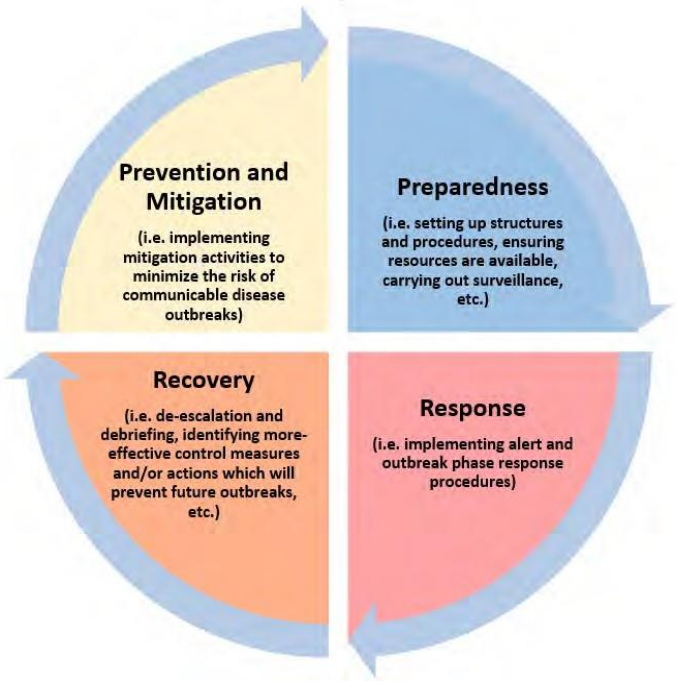
4.1. Regulations

The British Columbia ***Public Health Act*** **Health Act Communicable Disease Regulation** confirms the components of a reportable disease, as well as the actions and steps required in reporting. These include the responsibilities and time frames involved in such reporting. the contents of the report, verification of the reports, and the report of action taken. A schedule and list of the *Reportable Communicable Diseases* is also provided.

Per section 3.1 above, under the Industrial Camps Regulation, the "operator must notify a medical health officer 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."

4.2. Outbreak Preparation and Response

An iterative process can be used for communicable disease control purposes, per below diagram.



Outbreak preparation and response may be considered in four phases:

- Phase 1 – routine prevention, surveillance and monitoring;
- Phase 2 – outbreak “alert”;
- Phase 3 – outbreak;
- Phase 4 – post-outbreak.

4.2. Prevention

Per section 3.2, the hierarchy of engineering, administrative and PPE controls will be followed.

4.3. Surveillance and Monitoring

Early recognition of cases signalling suspected outbreaks and swift action are essential for effective management. Timely specimen collection, communication and the implementation of appropriate control measures have the potential to make a significant impact during the outbreak that will benefit both camp residents and staff. Workers will be encouraged to report to the on-site health care facility if they develop symptoms of a potentially contagious respiratory or gastrointestinal (GI) illness, and will be required to self-isolate themselves in their camp rooms if directed to do so by Northern Health and/or the on-site health services provider. The staff at the on-site health facility will play a key role in surveillance for sentinel events/cases that may indicate an outbreak, and will be encouraged to over, rather than under, report to Northern Health (at least initially, and a communication protocol will be developed for same).

4.4. Common outbreaks

The most commonly faced situations that may lead to an outbreak at a work or camp site include:

- influenza-like illness (ILI,); or
- gastrointestinal (GI) illness.

The staff at the on-site health facility will be routinely monitoring for these illnesses.

These are addressed below.

4.4.1. Influenza-like Illness (ILI)

ILI case definition	ILI outbreak definition
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.	Alert phase criteria When 2 or more cases of ILI occur within a 7-day period. Outbreak phase criteria Situation-dependent and will be decided by Northern Health's Medical Health Officer. End of outbreak 6 days after the onset of symptoms of the last case.

4.4.2. Gastro-intestinal illness (GI Illness)

GI case definition	
Defined as a new illness characterized by vomiting and/or diarrhea, and more precisely, any of the following conditions: • Two or more episodes of diarrhoea in a 24-hour period; OR • Two or more episodes of vomiting in a 24 hours period; OR • One episode each of vomiting and diarrhoea in a 24 hours period; OR • One episode of bloody diarrhoea; OR • One episode of vomiting or diarrhoea, with laboratory confirmation of an infectious agent known to infect the gastrointestinal system.	Alert phase criteria When 3 or more cases of GI infection occur within a 4-day period. Outbreak phase criteria Situation-dependent and will be decided by Northern Health's Medical Health Officer. End of outbreak 4 days after the onset of symptoms of the last case.

In addition to appropriate public health notification for ILI and GI illness, Northern Health will be notified of any suspected or confirmed case(s) of a reportable disease (see BC Reportable Disease List, http://www.bccdc.ca/health-info/disease-system-statistics/list-of-reportable-diseases).

4.5. Outbreak response

This includes phases 2 and 3 of the outbreak preparation and response process, i.e. outbreak alert and outbreak. See Appendix 1 for outbreak investigation.

4.5.1. Alert phase

The alert phase response will be implemented when suspected case(s) have been identified but the criteria for declaring an "outbreak" for an infectious agent has not been met.

When the alert phase criteria are met, **the designated Northern Health contact must be notified of the suspected outbreak immediately**, and alert phase control strategies will be implemented:

- During business hours, the Communicable Disease Unit (1-855-565-2990)
- Outside business hours, MHO On-call (1-250-565-2000)

Alert phase control strategies may include:

- Testing - If applicable, testing will be completed to confirm the infectious agents and diagnosis. The BC CDC gastrointestinal disease outbreak kits will only be used in consultation with Northern Health.
- Medical attention – consideration will be given as to how symptomatic workers will notify the on-site health centre (e.g. by phone rather than in person).
- Personnel precautions, e.g. isolation of sick workers in their rooms, vaccinations and/or medications as appropriate for the infection, decreasing crowding (staggering meal times, cancelling ommunity activities).
- Routine infection control practices, e.g. hand hygiene, use of PPE, equipment and environmental cleaning, linen and waste anagement.
- Enhanced precautions, e.g. appropriate infectious disease contact/droplet/airborne precautions, frequent environmental cleaning of commonly touched items and surfaces.
- Reporting – i.e. increased monitoring and recording of relevant symptoms amongst the camp population, and maintaining a list of workers who meet the case definition.

4.5.2 Outbreak phase

Outbreak phase management actions will be carried out in consultation with Northern Health.

Outbreak phase control strategies may include:

- Alert phase control strategies.
- Communication – i.e. appropriate internal communicable disease management team (CDMT) meetings will be held, appropriate signage will be posted at all entrances to alert incoming individuals of the outbreak and all camp residents will be notified, and appropriate communication and support will be maintained with Northern Health throughout the outbreak investigation and response.
- Additional enhanced precautions – e.g. emphasizing hand hygiene, increased environmental cleaning of commonly touched items and surfaces.

- Reporting – a line list with basic information about all cases will be maintained. See Appendix 2 for example templates.

4.6 CDCP roles and responsibilities

The following individuals should be included in the communicable disease management team (CDMT): Northern Health representative(s) including MOH or designate, on-site health provider's medical director or designate, LNGC/Shell medical director, LNGC Incident Commander, construction HSSE manager on-site, and camp operator's on-site senior manager. The LNGC Incident Commander will be the on-site communicable disease control lead (CDCL), and will be the single point of contact for Northern Health.

The involvement of the local BC Medical Officer of Health (MOH) and the Public Health department are essential from a regulatory and medical perspective. The roles and responsibilities of all members of the CDMT including the MOH or designate should be clarified at the first CDMT meeting, to which the public health representative is always invited.

5. Post-Outbreak

Determination of the end of the outbreak will be made in consultation with Northern Health. Generally, the outbreak may be declared over when two incubation periods (as applicable to the infectious agent) have lapsed with no new cases, despite the implementation of heightened surveillance.

All staff and camp residents will be notified when the outbreak has been declared over. Enhanced infection control measures will be de-escalated to routine measures (e.g. removal of any outbreak-related signage). A thorough, enhanced cleaning of all affected areas at the end of the outbreak will be conducted, prior to return to routine environmental cleaning.

Heightened illness surveillance will be maintained for at least 72 hours after restrictions are lifted, if unrecognized transmission is occurring in the facility. Any new cases during this period will be reported in the same manner of a reported outbreak. The Outbreak Response Lead will assess to determine if restrictions should again be implemented.

The CDCL will also arrange a de-brief with appropriate individuals to:

- Review the effectiveness and timeliness of the outbreak response.
- Determine any lessons learned and opportunities for improvement, to prevent, limit, or better respond to the next outbreak.
- Ensure any necessary changes are communicated to individuals with appropriate decision-making authority and are implemented.
- Consider the need to communicate results of review more widely (e.g. to all staff).

6. Summary

Based on the type of illness presenting (ILI or GI illness), the initial IPC measures outlined below help reduce the spread of infection. One does not need to wait until the causative agent is identified. These would apply both at the camp residences and the on-site health facility.

6.1. Hygiene

Strict hand hygiene is the most important measure in preventing spread of infections for both health facility staff and camp residents.

Frequent and thorough hand hygiene should be performed.

Alcohol-based hand rubs containing a minimum of 70% alcohol are as effective as soap and water when hands are not visibly soiled.

Wash hands with soap and water when: hands are visibly soiled; or after removal of gloves when caring for a resident that has diarrhea and/or vomiting.

For healthcare staff, hand hygiene is required before and after providing care to patients/residents and after touching used patient care equipment or soiled environmental surfaces. Glove use is not a substitute for hand hygiene; hand washing is needed after glove removal.

6.2. Restriction of symptomatic camp residents

Symptomatic camp residents should be placed on appropriate isolation. When possible, they should be confined to their rooms with their meals served to them in the room. If this is not practical, symptomatic residents should be restricted to their own units.

They should avoid contact with other workers in common areas as much as possible.

6.3. Regarding staff at the on-site health facility:

Exclude symptomatic health staff from working.

Assign staff to care for asymptomatic camp residents presenting with other injuries or medical concerns before symptomatic residents.

If possible, during initial investigations of ILI, assign staff who have been immunized against influenza to care for symptomatic residents. Routine practices help prevent the spread of infection and reduce the possibility that healthcare staff will be exposed. Additional precautions such as droplet and contact precautions are determined and implemented as required by presenting symptoms.

6.4. IPC Precautions

Sites/floors/wings experiencing an outbreak must implement additional IPC precautions to the extent that resources are available (e.g. private rooms with washroom facilities, housekeeping procedures and staffing patterns).

Consideration should be given to cancellation/postponement of group/social activities previously scheduled on affected areas or entire facility (as applicable) until the outbreak is declared over by Public Health. It is also recommended that

consideration be given to cancellation/postponement of other events (e.g. meetings) booked in the outbreak facility. If an ILI outbreak investigation has been initiated, Public Health will advise if such restrictions are to be implemented.

6.5. Communication

Use outbreak signage to notify and inform health staff and camp residents that an outbreak is being investigated.

7. References

- Northern Health, Communicable Disease Control Plan, Best Management Guide for Industrial Camps,
- British Columbia Centre for Disease Control / Provincial Infection Control Network of BC: Foodborne Illness Outbreak Response Protocol (FIORP), Gastrointestinal Outbreak Guidelines, and Respiratory Infection Outbreak Guidelines
- Haliburton, Kawartha, Pine Ridge District Health Unit, Infection Control Guidelines for Camps
- Manitoba Communicable Disease Control, Infection Control Guidelines for Community Shelters and Group Homes
- https://www.northernhealth.ca/Portals/0/Your_Health/Programs/Public%20Health/OfficeHealthResourceDevelopment/2017-Infection-Control-Best-Managment-Guide-for-Industrial-Camps.pdf
- Communicable Diseases in BC Link to list of communicable diseases in BC http://www.bccdc.ca/NR/rdonlyres/261E1CF3-7D31-4DEB-AE13-968D330C91BC/0/Epid_Guidelines_reportable_diseases_British_Columbia_July2009.pdf

Appendix 1 – Communicable Disease Control Plan (CDCP) – Focal Point List and Contact Details Template

Name	Role	Organization	Phone Number	Email
TBD	Medical Officer of Health (MOH)	Northern Health	TBD	TBD
TBD	Communicable Disease Unit during office hours	Northern Health	1-855-565-2990	TBD
TBD	MHO on-call outside of business hours	Northern Health	1-250-565-2000	TBD
TBD	LNGC Incident Commander/CDCP Lead	LNGC	TBD	TBD
TBD	LNGC/Shell Medical Director	LNGC/Shell	TBD	TBD
TBD	On-site health provider Medical Director or designate	On-site health provider	TBD	TBD
TBD	LNGC construction HSSE manager	LNGC	TBD	TBD
TBD	EPCM construction HSSE manager	EPCM	TBD	TBD
TBD	Camp operator senior manager	Camp operator	TBD	TBD

Appendix 2 – Outbreak investigation

Outbreak investigation framework

The steps to investigate an outbreak are outlined below:

STEPS	
Immediate response	1 – confirm cases and decide if outbreak
	2 – institute immediate control measures
Outbreak investigation	3 – establish outbreak management team (OMT)
	4 – determine type of investigation
	5 – establish case definition
	6 – identify and manage cases
	7 – describe the data
	8 – develop and test hypothesis re source and mode of transmission
Outbreak control	9 – implement definitive host-agent-environment control measures
Communication	10 - communicate and evaluate

*For individual cases or a pre-outbreak situation, use steps 1, 2 and 10:

1 - Confirm case and rule out outbreak

2 - Control measures that are immediate including case and contact management

10 – Communication

Outbreak investigation

The following steps should not be taken as a prescriptive approach to outbreak management. Many of these steps may be performed concurrently. (Details of the steps may be out of the scope of this document but can be adapted from any federal, provincial, territorial public health, infection prevention, or outbreak management guidelines):

STEPS	
1	Assess the suspect or confirmed outbreak. Establish a preliminary case definition, and begin a line-list. Notify Northern Health during suspect outbreak stage: the Communicable Disease Unit @ 1-855-565-2990 during office hours, and the MHO on-call @ 1-250-565-2000 outside of business hours
2	Implement general infection control measures
3	Based on case definition and guidelines, if criteria fulfilled, declare an outbreak and update Northern Health per step 1.
4	Notify appropriate individuals and establish an outbreak management team (OMT)
5	Call an initial OMT meeting
6	Communicate the results of laboratory tests

STEPS	
7	Monitor the outbreak on an ongoing basis
8	Implement definitive host-agent-environment control measures
9	Declare the outbreak over when criteria and guidelines are met
10	Complete the outbreak investigation file

The following individuals should be included in the OMT: Northern Health representative(s) including MOH or designate, on-site health provider's medical director or designate, LNGC/Shell medical director, LNGC Incident Commander, construction HSSE manager on-site, and camp operator's on-site senior manager. The LNGC Incident Commander will be the single point of contact for Northern Health.

The involvement of the local BC Medical Officer of Health (MOH) and the Public Health department are essential from a regulatory and medical perspective. The roles and responsibilities of all members of the OMT including the MOH or designate should be clarified at the first OMT meeting, to which the public health representative is always invited. An Outbreak Response Lead should also be appointed at the first OMT meeting.

Outbreak investigation checklist

Outbreak Investigation Action	Check and date completed
Is there a suspected outbreak and has an assessment been conducted?	
Have general infection prevention and control measures been implemented?	
Has the local MOH or designate been notified?	
Has an outbreak investigation laboratory number been obtained from Northern Health?	
Have appropriate individuals been notified of the suspected/confirmed outbreak?	
Has an initial OMT meeting been set which will address the establishment of a working case definition for the outbreak, review of control measures, and confirming communication issues and systems?	
Has the communication of laboratory results been reviewed?	
Have organism specific control measures been reviewed and implemented (if appropriate to do so)?	
Has the responsibility for ongoing monitoring of the outbreak been established?	
Have the criteria to declare the outbreak over been confirmed?	
Have the individuals who were notified of the onset of the outbreak been notified that the outbreak has been declared over?	
Once the outbreak has been declared over, has the outbreak summary report been completed?	
Has a post outbreak review meeting been set to review the management of the outbreak?	

Appendix 3 – Surveillance/Line List Templates (for Outbreak Response)

ILI Outbreak Line List Template

Fax Daily Updates By 10am to Environmental Health Officer and Medical Health Officer

Definition of a confirmed case of 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.

Alert Phase Criteria: When two (2) or more cases of ILI occur within a 7-day period.

Outbreak Phase Criteria: Situation-dependent and will be decided by Northern Health's Medical Health Officer. The typical incubation period for influenza is **1-4 days** (average: **2 days**). Adults can be infectious from 1 day before onset of symptoms to 5-7 days after illness onset.

Date:	Name of facility/unit and location:
Contact person and phone number at the facility:	
Onset date of outbreak:	
Total # of confirmed cases since the start of the outbreak:	
# of new cases in the last 24 hours:	
Were specimens collected (yes/no)? If yes, what are the results:	

Core Criteria												**Other Criteria**
Initials	**Onsite or offsite residence**	**Housing complex name**	**Name of worksite**	**Onset of symptoms (date and time)**	**Date reported**	**Tentative return to work date**	**Actual return to work date**	**Confirmed case (Yes/No/ Undecided)**	**Type of employment (e.g. labourer, food handler, housekeeping, etc.)**	**Has individual been on-site at some point between 1-4 days prior to symptom onset? (Yes/no)**	**Community of residence**	**Other notes from practitioner**

GI Outbreak Line List Template - Fax Daily Updates By 10am to Environmental Health Officer and Medical Health Officer

Definition of a confirmed case of GI Illness:

A new illness characterized by vomiting and/or diarrhea, and more precisely, any of the following conditions:

- Two or more episodes of diarrhea in a 24 hour period; OR
- Two or more episodes of vomiting in a 24 hours period; OR
- One episode each of vomiting and diarrhoea in a 24 hours period; OR
- One episode of bloody diarrhoea; OR
- One episode of vomiting OR diarrhoea, with laboratory confirmation of an infectious agent known to infect the gastrointestinal system.

Alert Phase Criteria: When three (3) or more cases of GI infection occur within a 4-day period.

Outbreak Phase Criteria: Situation-dependent and will be decided by Northern Health's Medical Health Officer.

The average incubation period for norovirus-associated gastroenteritis is **12 to 48 hours**, with a median period of approximately **33 hours**

Date:	Name of facility/unit and location:
Onset date of outbreak:	Contact person and phone number at the facility:
# of new cases in the last 24 hours:	
Were specimens collected (yes/no)? If yes, what are the results	

Core Criteria													Other Criteria	
Initials	Onsite or offsite residence	Housing complex name	Name of worksite	Onset of symptoms (date and time	Onset of vomiting or diarrhea episode (date and time	Date reported	Tentative return to work date	Actual return to work date	Confirmed case (Yes/No/ Undecided	Type of employment (e.g. labourer, food handler, housekeeping, etc.)	Has individual been on-site at some point between 12-48 hours prior to symptom onset? (Yes/no)	Community of residence	Other notes from practitioner	

Total # of confirmed cases since the start of the outbreak:

*Other criteria may need to be added in the event of an outbreak

Appendix 4 - Guidelines for Safe Food Handling

Sanitizing solution

- Use unscented chlorine bleach.
- To sanitize cutting boards, surfaces etc., mix one tablespoon (15 ml) in four litres (3.5 quarts) of water.
- To sanitize dishes, dishcloths, etc., mix one teaspoon (5 ml) in four litres (3.5 quarts) of water.

Purchasing and receiving food

- Only purchase or accept food from reliable sources.
- Take care not to allow frozen or perishable foods to be left unrefrigerated for extended periods.
- Refrigerate foods as soon as possible.
- Do not use cans which are dented, swollen, or badly rusted.
- Do not use unpasteurized milk or ungraded eggs.

Food storage

- If repackaging foods, date and label them before putting them away.
- Always rotate stock (first in, first out).
- Label bulk food products with the date and product name.
- Avoid using products that are beyond the best before date.
- Store raw meats or poultry on a plate, or in a container, below the other items in the refrigerator so that blood cannot drip onto anything else.
- Store food separately from cleaning products and poisons so they cannot be accidentally mistaken. Avoid repackaging cleaning products and poisons to ensure they are identifiable.
- Always refrigerate foods such as meat, dairy products, shelled eggs, etc. If left unrefrigerated, these foods allow bacteria to grow rapidly

Food preparation

- Perform hand hygiene often and always before handling food, after handling raw foods or soiled utensils, equipment or garbage.
- Avoid cross-contamination by remembering to wash and sanitize (one tablespoon/15 ml unscented chlorine bleach in four litres/3.5 quarts water) cutting boards, counter tops and utensils after each use, especially after meat and poultry.
- Ensure cutting boards have been sanitized (one tablespoon/15 ml unscented chlorine bleach in four litres/3.5 quarts water) if previously used by someone else.
- Use utensils or wash hands well when handling ready-to-eat foods.
- Do not use the same plate or utensils for raw meat and cooked meats.
- Wipe up spills immediately. Bacteria grow very quickly and spread.

- Defrost frozen foods in the refrigerator, microwave or under cold running water. Plan ahead so that meat or poultry is not thawed on the counter.
- Do not thaw and then refreeze meats. Defrost as described above, cook, and then refreeze if necessary.

Cooking and food service

- Keep hot foods hot (60°C/140°F or higher) and cold foods cold (4°C /40°F or lower).
- Use a meat thermometer to ensure meat is properly cooked.
- Cook or reheat all foods to a minimum of 74°C/165°F.
- Cook poultry to an internal temperature of 85°C/180°F.
- Ensure all ground meat and poultry are thoroughly cooked. Juices should run clear when the meat is cut.
- Prepare and cook foods as close to the meal time as possible.
- Avoid using raw eggs in ready-to-eat products such as Caesar salad dressing.

Leftovers

- Perform hand hygiene before handling leftovers. Ensure all utensils and surfaces are clean.
- Wrap leftovers and refrigerate immediately. Do not leave leftovers on the counter to cool.
- Divide large quantities of leftovers into small containers so they cool more quickly.
- Date leftovers before placing them in the refrigerator and then use or freeze them soon.

Remember: if in doubt, throw it out!

Facility maintenance and construction

- Floors, walls and ceilings should be nonabsorbent, smooth and easily cleanable. Kitchen facilities should be washed daily to remove all visible dirt and debris.
- Walls, grease vents and equipment should be kept clean and regularly washed.
- Be alert for rodent or insect infestations and take immediate action if evidence exists.

Equipment and utensils

- Utensils should be washed, rinsed and sanitized (one teaspoon/5 ml unscented chlorine bleach in four litres/3.5 quarts water) after each use.
- Counter tops and cutting boards should be washed and sanitized (one tablespoon/15 ml unscented chlorine bleach in four litres/3.5 quarts water) after each use.
- Refrigerators should be an adequate size for the volume of food stored inside and should be monitored with a thermometer.
- Throw out worn or chipped cups, plates and utensils.
- Do not reuse single-service utensils such as plastic spoons and forks.
- Store wash cloths and table sponges during the day in a pail with sanitizing solution (one teaspoon/5 ml unscented chlorine bleach in four litres/3.5 quarts water).
- Garbage containers should be durable, easily cleanable and rodent-proof. They should be covered at all times when not in use.

Dishwashing

- When washing dishes by hand:
    - Pre-scrape to remove uneaten food.
    - Wash in warm water and detergent.
    - Rinse dishes in clean water to remove film and soap before sanitizing.
    - Sanitize dishes (one tablespoon/15 ml unscented chlorine bleach in four litres/3.5 quarts water) for at least one minute at a temperature not lower than 24°C/75°F.
    - Air dry.
    - Change the wash and rinse water often.
- When using an automatic dishwasher:
    - The dishwasher should reach a sanitization temperature of 80°C/180°F.
    - Purchase dishwasher heat test strips and test the dishwasher monthly.

Personnel

- Food handlers should not smoke while preparing or serving food.
- Use a clean utensil each time for food tasting (no double dipping).
- Kitchen personnel should not prepare food if they have sores or cuts on their hands, or have a respiratory or gastrointestinal illness (nausea, vomiting or diarrhea).
- Wear clean clothes and preferably wear a hair restraint (e.g. a hair net).
- Avoid touching mouth or nose or wiping hands on dish towels or aprons.
- Perform hand hygiene:
    - Before and after eating;
    - Before and after cleaning a wound;
    - Before and after smoking;
    - After handling raw food;
    - After using the toilet or wiping nose;
    - After contact with blood or body fluids/wastes; and
    - After removing gloves.

Appendix 5 - Guidelines for Environmental Cleaning

Purpose:

To minimize germs on environmental surfaces and thereby reduce the spread of infection to camp residents and staff.

Principles:

- Cleaning products should be:
    - Selected on the basis of effectiveness, acceptability, safety and cost;
    - Appropriate to the task;
    - Diluted and used according to manufacturer's instructions;
    - Stored in a safe manner; and
    - Mix appropriately (e.g. do not combine Chlorine and toilet bowl cleaner, which forms a toxic gas).
- Surfaces must not show any visible soil before they are sanitized.
- Cleaning equipment should be maintained in a clean, dry state after use. Cloths, mop heads, etc., should be changed when soiled after use.
- Personal protective equipment (e.g. gloves) should be available and used appropriately.
- Garbage should be contained and disposed of by usual methods. Sharp objects (such as needles) should be placed in approved, puncture-resistant containers to prevent puncture injuries or cuts to the skin.

Products for cleaning and sanitizing:

- Cleaning with detergent and water is generally acceptable.
- Commercial household products are acceptable to sanitize environmental surfaces and should be used according to manufacturer's instructions.
- To prepare a non-commercial sanitizing solution, use unscented chlorine bleach:
    - For wiping cutting boards, surfaces, etc., mix one tablespoon (15 ml) in four litres (3.5 quarts) of water.
    - For immersing dishes, dishcloths etc., mix one tablespoon (15 ml) in four litres (3.5 quarts) of water.

Method:

- Cleaning should proceed from least to most soiled (high to low point in a room, outside walls of a room to inside/centre of the room, clean to dirty). Cleaning solutions should be changed when they appear dirty and/or after a spill cleanup.
- Cleaning primarily involves horizontal surfaces (e.g. countertops, table tops, floors) and surfaces that are frequently handled (e.g. door knobs, telephones, bathroom fixtures). Walls may require spot cleaning.
- Spills involving blood or body wastes should be cleaned up with disposable towels/cloths, which should be placed in a plastic bag for disposal in the garbage. The area involved should be cleaned with detergent and water and then sanitized with an appropriate product. Reusable gloves should be worn.

Cleaning schedules

- • Cleaning schedules should be established according to the type of surface to be cleaned and the type of soiling that occurs. For example:
    - Spills – clean immediately.

- Surfaces used for food preparation – clean after each use.
  kitchen, bathrooms – clean daily and as necessary.
- Resident rooms, living rooms, offices, appliances – clean weekly and as necessary.
- Mattresses, pillows, bedframes, bedroom furniture – clean between occupants.
- Household furniture, walls, carpets, etc – follow a rotating schedule (monthly/yearly) and as necessary.
- Reusable gloves – clean after each use.

Sanitizing is indicated for:

- Food preparation surfaces
- Spill clean-up
- Reusable gloves

Enhanced environmental cleaning – e.g. in the event of an outbreak

- Provide additional training, safe work procedures, supplies and PPE to housekeeping personnel.
- Increase frequency of cleaning and disinfection of all high risk, common touch environmental surfaces.
- Clean from unaffected to affected areas, and within affected areas from least likely contaminated to most highly contaminated areas.
- Use an appropriate disinfectant product, e.g. accelerated hydrogen peroxide for suspected/confirmed Norovirus.
- Consider the use of disposable cleaning materials (e.g. mops and cloths); or dedicate reusable cleaning equipment to affected areas, and thoroughly decontaminate between uses.

Appendix 6 – Disinfectants Commonly Used in GI Outbreaks

Reference: PICNet Gastrointestinal Infection Outbreak Guidelines for Healthcare Facilities (Appendix 7, page 44)

[14, 49, 51, 53, 79, 80]

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

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

Appendix 7 - Guidelines for Laundry

Purpose:

To prevent contamination of the environment from soiled laundry, to reduce the spread of infection to residents and staff, and to provide clean laundry.

Principles

- Personal protective attire (e.g. gloves) should be available for use in sorting/handling laundry soiled with blood or other bodily fluids.
- Cleaning products should be:
    - Selected on the basis of effectiveness, acceptability, safety and cost;
    - Appropriate to the task; and
    - Used according to the manufacturer's instructions.

Method

- Collection:
    - Laundry should be collected in a manner that prevents contamination of the environment. Baskets or hampers are appropriate and should be cleaned if visibly soiled. Laundry soiled with blood or body wastes should be washed as soon as possible. The time during which laundry can be held before washing depends on issues of odour control and stain removal rather than infection control.
- Sorting:
    - Sorting should be done in a way that prevents the contamination of clean laundry either by handling or by being placed too close to unwashed laundry.
    - Sorting is usually done according to temperature and product requirements.
    - Care should be taken to identify objects (e.g. needles) that may injure individuals or damage appliances.
- Washing
    - The usual cycles of household washing machines are adequate. Using hot water for heavily soiled items is beneficial. Bleach will decrease the number of germs but may not be compatible with the fabric.
- Drying
    - Use an automatic dryer to dry clothes.
- Storage
    - Clean laundry should be stored in a way that prevents contamination.

Laundry during enhanced environmental cleaning – e.g. in the event of an outbreak

- Provide additional training, safe work procedures, supplies and PPE to laundry personnel.
- An enhanced laundry process is a wash cycle that will achieve 71 degrees Celsius for at least three minutes, or 65 degrees Celsius for at least 10 minutes.