

Gastroenteritis in an institution

Control Guideline for Public Health Units

Response summary

Public health priority

High

PHU response time

Respond to 2 or more probable cases in an institution. Respond within 1 working day of notification.

Case management

Advise cases who are healthcare workers, food handlers, children in childcare or those who care for children, the elderly or patients to stay away from work until at least 48 hours after symptoms cease.

Control of environment

Where food is the possible vehicle, liaise with the NSW Food Authority to identify the likely source and mode of transmission. Review infection control procedures. Introduce control measures.

Revision history

Version	Date	Revised by	Changes	Approval
1.0	01/07/2012	-	-	-
2.0	03/04/2019	Communicable Disease Branch	Definition of an institution, definition of a probable case, guidance on criteria to declare an outbreak over, and other general improvements for clarity.	02/05/2019

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1. Reason for surveillance

- To identify the source and so prevent further cases
- To monitor the epidemiology and so inform the development of better prevention strategies.

2. Definitions

Clusters of two (or more) **confirmed cases** or **probable cases** should be notified.

Probable case

A person within an institution who develops vomiting or diarrhoea within an incubation period of when at least one other person at the institution was infectious with vomiting or diarrhoea (i.e. overlapping infectious and incubation periods).

Confirmed case

Isolation of a pathogen consistent with the aetiology of illness from a vomitus or stool specimen in a probable case.

Cluster

Any two (or more) **confirmed cases** or **probable cases** in the same institution where one case develops vomiting or diarrhoea within an incubation period* following when at least one other person at the institution was infectious* with vomiting or diarrhoea.

*Infectious and incubation periods are given in 'Section 4. The disease' (table page 4). PHU investigation and assessment should be based on the appropriate timeframes for the suspected pathogen, given the clinical presentation of cases. However, to help facility staff understand when an outbreak may be occurring, the following time frames are given in the respective Gastro Packs:

- **Gastro Pack for Childcare Centres:** when two or more children or staff have sudden onset of vomiting or diarrhoea in a 2 day period.
- **Gastro Pack for Hospitals and Aged Care Facilities:** when two or more people have sudden onset of vomiting or diarrhoea at the one time in any institution. "At one time" means that at least one person with vomiting or diarrhoea is thought to have been infectious when at least one other person at the institution has vomiting or diarrhoea. This includes situations where patients are received from another facility/agent.

Institution

Any residential environment or organisation with a responsibility to care for a defined group of individuals, such as:

- Aged care facilities, disability and dementia care facilities
- Early education and child care centres
- Healthcare settings such as hospitals and rehabilitation services
- Schools (particularly boarding schools)
- Camps and excursions
- Military and other Defence Force facilities
- Correctional facilities
- Other residential environments such as hostels and university/college residences.

3. Notification criteria and procedure

Gastroenteritis among two or more people of any age in an institution is to be notified by:

- CEOs of hospitals, ACFs and other institutions (as defined above) or their delegates
- Medical practitioners.

All notifications should be made by phoning the local PHU on 1300 066 055.

4. The disease

Infectious agents

Numerous enteric pathogens, including viruses, bacteria and parasites, as well as toxins produced by bacteria, can produce gastroenteritis outbreaks. Noroviruses are the most common cause of large outbreaks in institutions.

Mode of transmission

Gastroenteritis is transmitted in different modes, including:

- Person to person spread
- Ingestion of contaminated food or drink
- Contact with contaminated surfaces
- Ingestion of airborne droplets has been suggested for norovirus.

Timeline and clinical presentation

Incubation periods and clinical features of selected agents of gastroenteritis are presented in the following Table 1 overleaf (page 4).

Symptoms of viral gastroenteritis usually last between 24 and 48 hours but can sometimes be longer. Cases are usually infectious for at least 48 hours after symptoms cease. Outbreaks where diarrhoea was the only/predominant symptom are unlikely to be caused by norovirus or rotavirus, and consideration of a food or other sources is important.

Clinical presentation

Clinical symptoms vary depending on the causal agent and may include nausea, vomiting, diarrhoea, abdominal pain, myalgia, headache, malaise and low-grade fever.

Table 1 Selected agents of gastroenteritis

Agent	Incubation Period	Clinical Features*	Typical Duration	Transmission	When is the outbreak over?
<i>Bacillus cereus</i> (toxin)	1-6 hours (vomiting) 6-24 hours (diarrhoea)	Malaise, vomiting and/or diarrhoea	24-48 hours	Foodborne	1. Food source has been identified &/or eliminated <i>OR</i> 2. No new cases for 48 hours after the last episode of vomiting or diarrhoea in last case
<i>Campylobacter spp.</i> (bacteria)	1-10 days	Fever, nausea, abdominal cramps and/or diarrhoea (sometimes bloody)	2-5 days	Food or water borne; person to person (rarely)	1. Food or water source has been identified &/or eliminated <i>OR</i> 2. No new cases for 3 weeks after the last episode of vomiting or diarrhoea in last case
<i>Clostridium difficile</i> (toxin)	Unknown	Ranges from mild, self-limiting diarrhoea to a serious form of the disease, known as pseudomembranous colitis. Vomiting not common.	Days to weeks	Person to person	On advice from CDB
<i>Clostridium perfringens</i> (toxin)	6-24 hours	Abdominal cramps, diarrhoea and/or nausea	24-28 hours	Foodborne	1. Food source has been identified &/or eliminated <i>OR</i> 2. No new cases for 48 hours after the last episode of vomiting or diarrhoea in last case
<i>Giardia spp.</i> (parasite)	3-25 days	Abdominal cramps, diarrhoea, excessive gas, fatigue, floating greasy stools	May last for long periods of time if not treated	Person to person; water borne; foodborne (rarely)	1. Water (or food) source has been identified &/or eliminated <i>OR</i> 2. No new cases for 2 weeks after the last episode of vomiting or diarrhoea in last case
Norovirus (virus)	24-48 hours (range 10-50 hours)	Vomiting, fever, nausea, abdominal cramps, diarrhoea and/or headache	24-60 hours	Person to person; food or water borne	No new cases for 3 days (72 hours) after the last episode of vomiting or diarrhoea in last case
Rotavirus (virus)	1-3 days	Vomiting, watery diarrhoea and/or fever – infants, younger children, elderly and immunocompromised are vulnerable to severe disease	4-6 days	Person to person	No new cases for 7 days after the last episode of vomiting or diarrhoea in last case
<i>Salmonella spp.</i> (bacteria)	6-72 hours	Headache, fever, abdominal cramps, diarrhoea and/or nausea	4-7 days	Foodborne; person to person	1. Food source has been identified &/or eliminated <i>OR</i> 2. No new cases for 2 weeks after the last episode of vomiting or diarrhoea in last case
<i>Shigella spp.</i> (bacteria)	24-72 hours (occasionally up to 7 days)	Abdominal cramps, fever and/or diarrhoea (sometimes mucoid or bloody)	4-7 days	Person to person; foodborne	1. Food source has been identified &/or eliminated <i>OR</i> 2. No new cases for 2 weeks after the last episode of vomiting or diarrhoea in last case
Shiga toxin producing <i>E. coli</i> , STEC (bacteria)	2-8 days	Diarrhoea (sometimes bloody), abdominal cramps, vomiting and/or fever – children and elderly are vulnerable to complications e.g. HUS	2-7 days	Foodborne; person to person	1. Food source has been identified &/or eliminated <i>OR</i> 2. No new cases for 2 weeks after the last episode of vomiting or diarrhoea in last case
<i>Staphylococcus aureus</i> (toxin)	0.5-8 hours	Abdominal cramps, vomiting and/or diarrhoea	24-48 hours	Foodborne	1. Food source has been identified &/or eliminated <i>OR</i> 2. No new cases for 12 hours after the last episode of vomiting or diarrhoea in last case

Adapted from: SA Health. [Guidelines for the Management of Gastroenteritis Outbreaks in Residential Environments in South Australia](#). March 2016. Government of South Australia. List of causative pathogens is not intended to be complete. *Symptoms may not be present in all cases.

5. Case investigation

Response time

Investigation

On same working day of notification of two or more probable or confirmed cases in an institution, begin follow-up investigation.

Notify the Communicable Diseases Branch (email NSWH-Enteric@health.nsw.gov.au) within one working day of notification. If within a licensed aged care facility, include the Aged Care Quality and Safety Commission (ACQSC, nsw_office@agedcarequality.gov.au) in the email notification.

Data entry

On the same working day of notification ensure that the initial information is entered into NCIMS and notified to CDB.

Notify CDB (and ACQSC if a licensed ACF) by using the "institutional outbreak summary" template from NCIMS. Although the template will mostly auto-populate, the PHU should check that the following fields have been completed:

- Owing jurisdiction (PHU)
- Name of the facility
- Type of facility
- Date notified
- Onset date of first case
- Whether first case was staff, resident/child ("non-staff") or other
- Number of cases – non-staff, staff
- Number at risk – non-staff, staff
- Symptoms of cases
- Number of cases recovered so far
- Samples collected
- Infection control measures implemented
- Suspected cause of outbreak e.g. viral person to person, foodborne
- Deaths during the course of the outbreak should be reported to CDB using the template.

To close an outbreak, complete the "Date outbreak / exposure closed" field in NCIMS (General question package) and change the event/cluster status to "closed". This should be completed within one month of notification if cases are no longer occurring, or within one month of the last case in outbreaks which last longer.

Note: An institutional outbreak summary form from NCIMS does not need to be re-submitted to CDB at the closure of an outbreak of gastroenteritis.

Response procedure

The response to a notification will be carried out in collaboration with the cases' health carers and the institution that has been affected. But regardless of who does the follow up, PHU staff should ensure that action has been taken to:

- Confirm the onset dates and symptoms of the illness with cases or their carers
- Confirm results of relevant pathology tests, or recommend that tests be done
- Review control measures put in place by the institution
- Identify the cases that are in a high risk occupation (such as a food handler, child care attendant, carer)
- Ensure the facility has access to the appropriate Gastro Pack.

Where food is suspected as the cause of the outbreak, request the NSW Food Authority to conduct an environmental investigation. A joint inspection of the facility is recommended. Refer to the [Foodborne Illness Outbreak](#) protocol and seek advice from Communicable Diseases Branch.

Case management

Treatment

Treatment of cases is the responsibility of the health care provider.

Investigation

The response to a notification should be carried out in collaboration with the cases' health carers and the institution that has been affected. The following steps are a guide to the investigation of gastroenteritis outbreaks in institutions. The response to the outbreak will depend on the suspected mode of transmission, cause of illness and whether there is ongoing risk of transmission. **Steps marked with an asterisk (*) should have priority:**

1. If notified by someone other than the person in charge of the institution, contact the person in charge of the institution and advise them you are investigating a suspected outbreak*
2. Confirm the existence of the outbreak by determining:
 1. The number of staff and non-staff ill*
 2. The number of staff and non-staff at risk*
 3. Onset dates and symptoms of those ill*
 4. Whether any staff, carers or food handlers were ill before the outbreak and worked while symptomatic*
 5. Severity of illness, including any hospitalisations or deaths, and duration of symptoms
 6. Name and phone numbers of contact persons and if needed, exposed persons
 7. Menus for at least 3 days before the first case's onset of symptoms, if food is suspected as the source of illness.
3. Ensure the facility has access to the appropriate Gastro Pack and other guidelines (see Section 8. Additional Resources)
4. Encourage the collection of stool specimens from symptomatic cases wherever possible – ideally at least one specimen for every six cases as soon as practical after symptom onset, and tested for standard bacterial (MC&S) and viral pathogens*
5. Liaise with the receiving laboratory about testing requirements and obtaining results
6. Develop an epidemic curve to assist in establishing the mode of spread
7. Generate hypotheses on the source of the agent, the mode of transmission and the exposures that caused the disease*
8. Advise on immediate control measures to prevent further cases*
9. Identify the cases that are in a high risk occupation (such as a food handler, child care attendant, carers), exclude from work where appropriate – see 'Isolation and Restriction' below*
10. Monitor the situation to determine the effectiveness of control measures and the need for further intervention*

Where food is suspected as the cause of the outbreak, request the NSW Food Authority to conduct an environmental investigation by sending a completed [Environmental Investigation Request Form](#) to investigation.support@foodauthority.nsw.gov.au. A joint inspection of the facility is recommended. Refer to the [Foodborne Illness Outbreak Protocol](#) and seek advice from CDB.

If a notifiable medical condition is detected in a case, create separate event(s) for each case and for each confirmed result in NCIMS and link it to the NCIMS record for the outbreak. If applicable, complete the standard public health response for the condition.

Education

The case or relevant care-giver should be informed about the nature of the infection and the mode of transmission. Emphasise the importance of hand washing, particularly after going to the toilet, changing nappies, before eating and preparing food.

Letters and resources for facilities are available in the [Gastro Pack for Hospitals and Aged Care Facilities](#), and [Gastro Pack for Child Care Centres](#), as well as in the [ID Complementary Operating Procedures](#) on PopNet (see 8. Additional resources).

Provide a verbal or written report for the manager of the institution detailing control and prevention measures.

Isolation and Restriction

- Cases who are healthcare workers, food handlers, carers for children or carers for the elderly should not attend work until at least 48 hours after symptoms cease
- Cases who reside in the institution should be cohorted (separated from non-infected residents) if possible – this must include separate hand washing, toilet and bathroom facilities. Where this is not possible, consider cohorting staff.
- Cases who do not reside in the institution should be strongly encouraged to not attend the facility for at least 48 hours after their last episode of vomiting and/or diarrhoea
- Consider recommending closure of the facility to new admissions if the outbreak continues and new admissions are considered to be at risk. This decision to close the facility to new admissions should be made by the facility in conjunction with advice from the PHU.

Environmental evaluation

A basic environmental evaluation is recommended for all outbreaks. Most evaluations may be completed over the phone. Occasionally, a site visit by PHU staff may be warranted to aid investigations into the source of infection and review control measures. An investigation tool (template) has been developed to assist this process and is available in the [ID Complementary Operating Procedures](#) on PopNet (see 8. Additional resources).

- Review hand washing facilities and adequacy of hand washing practices
- Review environmental clean-up procedures – surfaces exposed to infectious faecal matter or vomitus should be cleaned (refer to the Department of Health Fact Sheet); bleach 0.1% is required to inactivate norovirus
- Where a food is suspected, request the NSW Food Authority to conduct an environmental investigation by sending a completed [Environmental Investigation Request Form](#) to investigation.support@foodauthority.nsw.gov.au and follow the [Foodborne Illness Outbreak protocol](#)
- Where water is suspected as a source, environmental evaluations should involve local environmental health officers, Environmental Health Branch and Local Council, where appropriate.

Declaring an outbreak over

The end of an outbreak should be determined on a case-by-case basis, and will be decided by the PHU leading the investigation by considering all available evidence. Considerations should include:

- The aetiology of the outbreak:
 - If confirmed or strongly suspected – it is recommended to wait at least **two average incubation periods** for that organism after the last episode of vomiting or diarrhoea in last case (see Table 1)
 - If unknown or viral gastroenteritis is suspected – it is recommended to wait at least **72 hours** after the last episode of vomiting or diarrhoea in last case
 - If multiple pathogens are suspected, it is recommended to wait for whichever period is longer
- If case monitoring has been adequately completed
- If appropriate control measures and precautions have been taken – if a source of infection was implicated if that source between removed/restricted/decontaminated
- The type of institution affected and if residents are especially vulnerable to severe disease
- If cases have been isolated with strict infection prevention and control measures, or excluded from attending the institution – in such situations, it may be possible to declare the outbreak over after one incubation period, and/or reduce some control measures (e.g. temporary closures of affected facilities/wards)
- If additional information or evidence needs to be collected prior to declaring the outbreak over.

If the decision to close an outbreak deviates from 72 hours after the last episode of vomiting or diarrhoea in the last case, the PHU should communicate the rationale to the institution (i.e. specific pathogen, vulnerability of residents, good control, etc.) to avoid any confusion about how this decision may differ from previous advice.

After an outbreak is declared over, provide advice to the manager of the institution to:

- Continue to monitor residents and staff for illness for at least another week as infection may recur despite the time elapsed between cases
- Note a potential for sporadic gastroenteritis to occur in non-outbreak situations, and that PHU staff can assist in differentiate between these events and outbreak cases where required
- Note and report any deaths that occurred after the outbreak, including whether the deceased was part of the outbreak
- Gradually resume some activities and discontinue some highlighted control measures (where appropriate)
- Maintain standard precautions for all residents at all times.

6. Contact management

Secondary cases should be anticipated in persons exposed to the faeces or vomitus of cases. Staff and residents should be given information about the outbreak and how to prevent infection and placed under surveillance.

No specific treatment is recommended for asymptomatic contacts.

7. Epidemiological Investigation

Where available data indicates that an unidentified source remains an ongoing risk, then a cohort or case-control study may be required to identify the source.

Refer to the [Foodborne Illness Outbreak Protocol](#) and seek advice from Communicable Diseases Branch.

8. Additional resources

The following factsheets and guidelines are available to assist in managing gastroenteritis in various institutional settings:

Guidelines:

- [Gastro-Info Gastroenteritis Kit for Aged Care: Resources to Assist Residential Aged Care Homes in Preventing, Identifying and Managing Outbreaks of Gastroenteritis](#) from the Department of Health
- [Guidelines for the public health management of gastroenteritis outbreaks due to norovirus or suspected viral agents in Australia](#) from the Department of Health
- [Gastro Pack for Childcare Centres](#) from NSW Health
- [Gastro Pack for Hospitals and Aged Care Facilities](#) from NSW Health

Factsheets:

- [Norovirus Factsheet](#) from NSW Health
- [Gastroenteritis - Controlling Viral Outbreaks in Childcare Centres and Schools Factsheet](#) from NSW Health
- [Viral gastroenteritis - infection control implications for hospitals and aged care facilities](#) from NSW Health
- [Gastroenteritis in Aged Care Facilities](#) from NSW Health
- [Gastroenteritis in Children Factsheet](#) from the Sydney Children's Hospitals Network

Templates and PHU Resources:

- [Foodborne Illness Outbreak Protocol](#) from NSW Health
- [ID Complementary Operating Procedures](#) for Gastroenteritis in Institutions on PopNet
- [Environmental Investigation Request Form](#) from NSW Food Authority