

Chapter 8 Outbreak and cluster management

8.1 Introduction

An outbreak is the occurrence of disease exceeding the expected level for a given population within a specific timeframe. This includes single cases of some diseases not previously seen or those that have previously been eliminated. Typically, in healthcare this has been defined as two or more cases in a patient group, health workers or visitor of a health facility which should trigger an outbreak management process.

A disease cluster is an unanticipated high incidence of a particular microorganism occurring in proximity in terms of both time and geography. A closely grouped series of events or cases of diseases that fulfils the definition of a case, for example, two or more surgical site infections from the same surveillance period or theatre session of the same type of surgery.

The outbreak and cluster management and response process should aim to optimise the safety of patients, visitors, and health workers by implementing measures to identify potential risk and limit spread of communicable diseases, multi-drug resistant organisms (MROs) or other non multi-drug resistant organisms of significance. The outbreak management and response process will differ according to the nature of disease, the virulence of the organism and the vulnerability of the patients concerned.

Typically, in healthcare settings the outbreak and cluster management and response process should be triggered when there are two or more cases of the same infection within a certain area of the facility. Lines of transmission should be explored to determine whether there is a link between cases before triggering the outbreak or cluster management and response process.

8.2 Risk assessment

Risk assessment is a systematic process for gathering, assessing, and documenting information to assign a level of risk for taking action to manage and reduce the negative consequences of an event.

All NSW Health Organisations are to have surveillance systems in place that detect outbreaks or clusters in a timely manner. The surveillance system can be:

- Indicator-based surveillance – the routine collection of pre-defined information about infection/disease using case definitions (for example, surveillance of surgical site infection in joint replacement)
- Event-based surveillance – the rapid collection of ad hoc information about infections/diseases (for example, influenza or gastroenteritis).

In the event of an outbreak or cluster a risk assessment should be conducted to understand the context, identification of potential control measures, continuous monitoring and evaluation of the event, effective ongoing communication and an evaluation of the lessons learned (Figure 22 Risk management cycle).

Rapid risk management of outbreaks or clusters reduces or prevents transmission and reduces negative consequences. Additional benefits include:

- better decision-making
- implementation of appropriate and timely control measures
- more effective operational communication
- more effective risk communication

- improved preparedness.

Figure 22 Risk management cycle



Source: [WHO Rapid risk assessment of acute public health events](#).

8.3 Outbreak preparedness and response procedure

NSW Health Organisations are to develop and maintain a facility specific Outbreak Management Plan that has been developed in consultation with facility chief executive or delegate, infection prevention and control, infectious diseases, microbiology, public health unit (PHU) and other stakeholders. This plan should be reviewed at least every two years and after an outbreak. The local outbreak response plan should be implemented in an outbreak.

The outbreak management and response process may include and identify the following:

Preparation

The preparation should include infection prevention and control human resources to initiate the investigation and contingency planning, along with:

- A description of the roles, responsibilities and accountabilities of each of the organisations and individuals
- An up-to-date list of stakeholders' contact details
- Arrangements for informing and consulting those who need to be informed of an outbreak
- Communication cascade for notification of the outbreak
- Arrangements for the implementation of an outbreak management team (OMT) to investigate and control a significant microorganism outbreak
- The support available to the OMT and their responsibilities in supporting the OMT
- Business continuity arrangements

- Resources required to manage an outbreak:
 - Human resource arrangements
 - Capacity to surge staff or a mechanism to activate surge staff
 - Training for all health workers involved in investigating the outbreak.
- Surveillance systems for outbreak detection.

Response procedure

Investigation of a disease outbreak involves a combination of epidemiological, laboratory and environmental components.

A case definition should be established by the OMT during the initial meeting by using standard criteria to determine whether an individual should be classified as a case.

A case definition usually includes clinical and epidemiological components:

- clinical and pathological information about the condition
- characteristics of the people who are affected
- information regarding the location and timing of the outbreak.

The OMT should also consider the following:

- Process for systematic collection and recording of information, including guidance on what information is required to be collected about each case
- Process for regular communication (situation reports) to stakeholders including guidance on information to be communicated
- Clear guidance to staff for outbreaks that are identified out of hours
- Criteria for when an outbreak is considered over
- The requirement to complete and disseminate the final outbreak report.

8.4 Outbreak investigation and management

The objective of outbreak management and response is to interrupt transmission as quickly as possible to prevent further cases. The key principles of outbreak investigation and management are:

- Recognising and confirming the outbreak
- Notification to public health
- Defining cases and collating information
- Implementing infection prevention and control measures to prevent further transmission
- Identifying and controlling the source of the outbreak
- Effective communication, education, escalation and reporting of the outbreak
- Debriefing and dissemination of findings to prevent recurrence.

8.5 Factors to consider in convening an outbreak management team

An OMT is a multidisciplinary group who work together to investigate and manage an outbreak. The core team is responsible for planning and coordinating the investigation.

The decision to convene an OMT will be made by the chairperson of the infection prevention and control committee or the local facility executive or LHD Chief Executive (CE) or their delegate. Not all outbreaks require an OMT. The following factors should be considered in the decision to convene an OMT:

- Epidemiology – number and characteristics of both cases and the population at risk
- Infectious agent, mode of transmission, infectiousness, and clinical significance
- Likely source of the outbreak
- Potential impact on service delivery
- Potential public health risk
- Public concern and media interest.

8.6 Outbreak management team – membership

An OMT may include expertise from the groups listed below. Where not available locally, the Health Organisation may contact the CEC to identify expert assistance as required. Communication and escalation should be as per [Triggers for Escalation Following Detection of Infection Outbreaks or Clusters](#) guideline and [Incident Management](#) policy directive. The lead of the OMT should have oversight of operations and management of the facility or service and be able to coordinate and direct the activities. The infection prevention and control team are to be heavily involved in the OMT and have regular input into the communications and logistics. The membership includes, but not limited to:

- Infection prevention and control
- Microbiology/Virology
- Laboratory
- Infectious diseases
- Hospital management
- Epidemiology
- Public Health Unit
- Communications
- Antimicrobial stewardship
- Environmental cleaning management
- Staff health
- Directors/managers of relevant clinical units – including nursing, medical and allied health where applicable.

A lead should be identified from the OMT, who is responsible for ensuring that:

- The OMT acts effectively, with all activities well-coordinated and managed
- Sufficient resources are allocated to the OMT
- Regular updates are provided to the LHD executive and the CEC
- Issues are escalated via an agreed pathway to the LHD/SHN executive

- Decisions made by the OMT are communicated and recorded appropriately
- An OMT report is prepared when the outbreak is over
- A debrief is held with the OMT and relevant clinical teams when the outbreak is over.

8.7 Outbreak management team – responsibilities

The responsibilities of the OMT may be grouped under operations, logistics and communications. The OMT should develop a plan to investigate and control the outbreak based on the following steps, which will be implemented concurrently. For more information refer to Appendix 8A Outbreak management teams tasks and Appendix 8B Outbreak management checklist.

Operations

The operations team responsibilities include:

- Review available evidence to establish the existence of an outbreak and identify additional information required
- Develop a case definition on which to base the epidemiological investigation
- Undertake active case finding using the agreed case definition
- Delegate the health worker responsible for developing and updating the line listing containing information on each case that includes potential risk factors
- Identify the source of the outbreak by examining common risk factors in cases; this may require an epidemiological analysis
- Implement control measures to prevent further transmission and assess the effectiveness of these measures
- Identify and utilise any opportunities for the acquisition of new knowledge about disease control
- Declare the conclusion of the outbreak, as per identified criteria and prepare and disseminate a final report. (Appendix 8E Outbreak situation report (example) and Appendix 8F Review, recommendations and reporting (sample))
- Evaluate the response to the outbreak and implement changes in OMT procedures as indicated.

Communications

Communication strategies include:

- Develop facility wide communication as required and maintain communication processes with key stakeholders, for example, situation reports
- Disseminate minutes and actions for each OMT meeting
- Keep relevant outside agencies, the public, and media appropriately informed.

Logistics

The following strategies are to be considered:

- Conduct formal outbreak control meetings on a regular basis
- Ensure adequate staff and resources are available for outbreak management, seek assistance from facility executive for additional resources if needed

- Allocate tasks to outbreak team members ensuring roles and responsibilities are clear
- Provide support and advice to everyone directly involved in the outbreak
- Consider the potential for health worker training opportunities generated by the outbreak.

8.8 Outbreak management team – communication requirements

The OMT should determine communication requirements locally and develop a communication plan accordingly. [Triggers for Escalation Following Detection of Infection Outbreaks or Clusters](#) should be used to determine the need to further escalate communication.

Outbreaks in specialty clinical areas that have limited bed numbers (for example, NICUs, Spinal and Burns units) have the potential to adversely affect service delivery and require immediate escalation locally and to relevant outside agencies.

At the conclusion of the outbreak, a final report should be prepared. The final report should be considered a public document so due regard should be given to confidentiality. The final report should include:

- The results of the outbreak investigation and control interventions
- Any difficulties or problems encountered
- Any action required to prevent recurrence and the agency responsible
- Any recommended revisions to the facility-specific outbreak management plan.

The final report should be circulated to all members of the OMT, the LHD executive, any relevant patient safety and quality committee members and any other relevant agencies.

8.9 The investigation and control of an outbreak

Outbreak management falls into four phases – detection, investigation, response, and evaluation of response. In practice there is considerable overlap between the phases especially between the detection, investigative and response phases.

8.9.1 Outbreak detection

Outbreak management begins with the detection and confirmation of an outbreak. Confirmation of an outbreak requires verification of the diagnosis of the disease (symptoms or pathology results) and evidence the number of infected individuals exceeds the expected number of cases.

If confirmed, the extent and significance of the outbreak is assessed, which will inform the decision to implement the facility-specific outbreak response plan and convene the OMT.

8.9.2 Outbreak investigation

In the initial stage of an outbreak investigation a case definition should be established. A case definition is a standard set of criteria to be used in outbreak investigation to decide who is a case and who is not. It should include well-defined clinical symptoms (+/- laboratory criteria) and restrictions by time, place and person. Once established, attempts should be made to find additional cases meeting the definition.

Detailed epidemiological data should be collected from each case. Information to be collected includes:

- Identifying information (name, identification number, date of admission)
- Demographic information (age, gender, address, and so forth)

- Clinical information (date/time of onset, place of onset, signs and symptoms, death, hospitalisation, treatment, and so forth)
- Laboratory information
- Potential risk factors (contact with known case, or individuals with similar symptoms, recent travel, immunosuppression, environmental exposure, other co-morbidities, and so forth).

The most common way this information is collated is by using a line list. An example line list form can be found in Appendix 8C Line listing for outbreaks in a hospital.

Other information which may assist in identifying the source include:

- Patient health record
- Environmental assessment (for example, identification of contaminated food or food handling equipment, infection prevention and control breaches, building infrastructure – location of sink, cleaning – product details, curtains – change, environmental sampling)
- Analysis of epidemiological data (for example, movements and contacts of cases)
- Laboratory data (for example, whole genome sequencing).

Depending on the infectious cause of the outbreak, it may be necessary to identify contacts of cases. Liaise with local PHU for guidance on what constitutes a contact. Contact tracing of staff and other individuals exposed within a facility should be carried out by that Health Organisation. If the exposure occurred in the community, contact tracing should be carried out by the local PHU. For individuals exposed in facilities, but who are now in the community, for example, patients discharged from emergency departments, local plans should specify who should conduct contact tracing. What constitutes a contact and management of contacts varies depending on the infection causing the outbreak.

Further information on the identification and management of contacts of different infections can be found in NSW Health [control guidelines](#).

8.9.3 Outbreak response

The primary goal of outbreak response is control and prevention of further transmission. Control measures should be considered and implemented as soon as possible. Refer to Appendix 8D Common and important infectious diseases requiring isolation in hospitals for/and recommended precautions.

If an OMT is required, it should be established at this stage. The OMT should review and implement further control measures as deemed necessary. Control measures should aim to either eliminate the potential source of infection or prevent further transmissions.

8.9.4 Evaluation of response (debrief)

An evaluation of the outbreak response should be undertaken at the conclusion of the outbreak as part of the final report. The evaluation should determine if the incident objectives were met, identify positive outcomes and evaluate areas for improvement.

Aspects of the outbreak response for evaluation may include:

- Preparedness for this type of investigation (includes governance, resources, guidelines, questionnaires, databases, and so forth)
- Coordination of outbreak meetings, communication with stakeholders (including media management)

- Administration and record keeping
- Timeliness of outbreak detection, identification of source and implementation of control measures
- Effectiveness of investigation process and control initiatives implemented.

8.10 Outbreak management in community settings

The principles of outbreak investigation and response in community settings remain the same as those used in healthcare facilities. Escalation of the outbreak should occur by the local PHU to determine the need and scale of the response.

8.11 Emerging infectious diseases

An emerging infectious disease is one that has newly appeared in the population or has existed but is rapidly increasing in incidence or geographic range.

Emerging infections can be caused by:

- Previously undetected or unknown infectious agents
- Known agents that have spread to new geographic locations or new populations
- Previously known agents whose role in specific diseases has previously gone unrecognised
- Re-emergence of agents whose incidence of disease had significantly declined in the past, but whose incidence of disease has reappeared. This class of diseases is known as re-emerging infectious diseases.

The list of emerging infectious diseases is growing continuously, but the best examples include a wide variety of haemorrhagic fevers and other syndromes caused by viruses such as dengue, arenaviruses, filoviruses, and hantaviruses.

With people traveling more frequently and far greater distances than in the past, living in more densely populated areas, and coming into closer contact with wild animals, the potential for emerging infectious diseases to spread rapidly and cause global epidemics is a major concern.

The threat of emerging respiratory viruses such as pandemic influenza or a novel coronavirus are a potential cause of concern for the health system. One of the difficulties about the emergence of these viral infections is that no one can predict where and when the next epidemic or pandemic will occur.

Health Organisations should follow the disease specific NSW Health control guidelines in the event of a respiratory virus outbreak. Refer to NSW Health [Pandemic influenza preparedness](#), NSW Health [Early Response to High Consequence Infectious Diseases](#) and [Guidelines for management of specific high consequence infectious diseases](#), [COVID-19: Managing Health Worker Exposures and Return to Work in a Healthcare Setting](#) for more information.

For escalation and communication refer to [Triggers for Escalation Following Detection of Infection Outbreaks or Clusters](#).

Appendix 8A Outbreak management teams tasks

The principal task of the outbreak management team (OMT) is to investigate the cause of the outbreak and to implement action to identify and remove/isolate the source and prevent further transmission of the communicable disease. The following tasks should be undertaken to deal effectively with an outbreak. The step-by-step approach does not imply that each action must follow the one preceding it. In practice, some steps must be carried out simultaneously and not all steps will be required on every occasion.

Outbreak management task list	
☐	Consider whether cases have the same illness and establish a tentative case definition
☐	Review epidemiology and laboratory data to determine disease in the group
☐	Establish a single comprehensive case list that meet the case definition
☐	Collect relevant clinical or environmental specimens for laboratory analysis
☐	Conduct unstructured, in-depth interviews of index cases if applicable
☐	Consider consulting with local public health unit (PHU) as required
Outbreak investigation	
☐	Identify population(s) at risk (for example, health workers, patients, visitors)
☐	Identify persons posing a risk of further transmission (contact trace)
☐	Initiate immediate control measures
☐	Assess the availability of adequate resources to manage the outbreak
☐	Notify the local PHU, the LHD executive, any relevant patient safety and quality committee members and any other relevant agencies as required
☐	If the outbreak involves a notifiable disease or gives rise to broader public interest or is of state significance notify the local PHU
☐	The PHU to notify Health Protection NSW who would then notify the Chief Health Officer (CHO) and/or Health Secretary
☐	Establish a case definition (clinical and/or microbiological)
☐	Identify other cases
☐	Complete the list (describe cases by time, place and person)
☐	Collect relevant clinical specimens, collect environmental specimens as directed by infectious diseases as required (environmental specimens are only collected in some outbreaks and pathogens)

☐	Conduct appropriate environmental investigation including inspection of involved or implicated premises
☐	Form preliminary hypotheses on the cause of the outbreak
☐	Make decision about whether to undertake detailed analytical studies
☐	Calculate attack rates if required
☐	Confirm factors common to all or most cases
☐	Where available, use whole genome sequencing (WGS) to confirm links and source of outbreak
☐	Test and review hypotheses of the cause
☐	Collect further clinical or environmental specimens for laboratory analysis
☐	Ascertain source and mode of transmission
Outbreak response	
☐	Control the source: patient, staff, equipment or environment
☐	Control the transmission by: a) isolation or exclusion of cases and contacts b) cohorting" if exclusion is not possible as in the case of inpatients or parents in children's ward or NICU c) personal protective equipment (PPE) for, for example masks for contacts and cases to minimise spread -anywhere relevant d) restrict movement in and out of the ward e) signage, entry to the ward/department, in the ward f) treatment of cases to reduce infectious period, where possible (for example, antivirals) g) screening and monitoring of contacts h) protection of contacts by immunisation or chemoprophylaxis i) enhanced infection prevention and control practices by staff and visitors including environmental cleaning, equipment decontamination procedures and hand hygiene j) education and communication, on the pathogen, transmissibility k) closure of wards/beds
☐	Monitor control measures by continued surveillance for disease
☐	Declare the outbreak over

Communication	
☐	Daily situation updates to the facility Executive, LHD Chief Executive (CE) or their delegate
☐	Consider the best means of communication with colleagues, patients and the public, including the need for an incident room and/or helplines
☐	Review the Triggers for Escalation Following Detection of Infection Outbreaks or Clusters guideline to determine the need for further escalation of communication
☐	Ensure appropriate information is given to the public, especially those at high risk
☐	Ensure accuracy and timeliness
☐	Prepare written final report as per the communication requirements
☐	Disseminate information on any lessons learnt from managing the outbreak and modify the procedure or standard operating procedures as required
Evaluation of response	
☐	Evaluate the management of the outbreak and make recommendations for the future (refer to section 8.9.4 Evaluation of Outbreak Response for possible criteria)

Appendix 8B Outbreak management checklist

Type of outbreak: _____
(for example, MRO, gastroenteritis, respiratory illness)

Date outbreak reported to infection prevention and control:

Reported by: _____

Outbreak location/facility: _____

Ward(s) affected:

Likely mode of transmission: ☐Contact ☐Airborne ☐Droplet ☐Food-borne

☐ Water-borne ☐ Unknown

The outbreak management team (OMT) should ensure the following steps are initiated as soon as possible and if initiated, completed. The order in which the tasks are undertaken may vary.

Action	✓ If action indicated	✓ If action completed	N/A
Do you have an outbreak? Such as, a higher-than-expected number of cases of infection/infectious diseases, multi-drug resistant organisms (MROs) with the same causative agent (if known in the early stages of the outbreak)	☐	☐	☐
Has the source of the outbreak been identified?	☐	☐	☐
Do you need to convene the outbreak management team? refer to section 8.5 on factors to consider in convening an outbreak management team	☐	☐	☐
Inform health workers - inform relevant health workers that a possible outbreak is occurring including advice regarding infection prevention control - include supply and operational staff in correspondence - consider the need to inform visitors and patients - inform senior nursing and medical services on duty - inform your local microbiology unit of any additional specimen requirements	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐
Implement infection prevention and control measures			

Appendix 8C Line listing for outbreaks in a hospital

Name of ward(s) or unit(s):				No. patients on ward/unit:				No. of staff:			
Contact person:				Position/title:							
Phone No:				Email:							
PHU notified:		☐		Date reported to PHU:				Date of first case:			
Unique name/number for outbreak (PHU to fill in):											

Please use the same line listing for new cases – do not start a new one each day

Case details						Description of illness				Specimen			Outcome
Case No.	Full name & MRN	DOB & Age (yrs.)	Gender	Staff (S) or Patient (P)	Current ward/bed	Date of onset	Time of onset	Length of illness (hrs.)	Symptoms (see key)	Specimen collected (Y/N) if yes, specify type	Date specimen collected	Result (specify name of bacteria, virus, parasite or toxin)	Recovered (R) Died (D) Transferred (T)

Case details						Description of illness				Specimen			Outcome
Case No.	Full name & MRN	DOB & Age (yrs.)	Gender	Staff (S) or Patient (P)	Current ward/ bed	Date of onset	Time of onset	Length of illness (hrs.)	Symptoms (see key)	Specimen collected (Y/N) if yes, specify type	Date specimen collected	Result (specify name of bacteria, virus, parasite or toxin)	Recovered (R) Died (D) Transferred (T)
Symptoms key: V = vomiting D = diarrhoea BD = bloody diarrhoea F = Fever>38.5° AC = Abdominal cramps N = Nausea													

Appendix 8D Common and important infectious diseases requiring isolation in hospitals

Disease	Transmission route	Type of precautions				Comments and additional guidance
		Standard	Contact*	Droplet	Airborne	
<i>Clostridioides difficile</i>	Faecal/oral	✓	✓			Consider patient to be infectious until at least 48 hours after cessation of diarrhoea. Precautions can then cease. An ensuite bathroom or dedicated toilet is required. Review patients with stoma, ileostomy or colostomy. CEC: Resources
COVID-19	Exposure to infectious respiratory particles	✓			✓	Infection prevention and control Manual Acute Respiratory Infections including COVID-19
Gastroenteritis – bacterial and parasitic For example, <i>Campylobacter</i> , <i>Salmonella</i> , <i>Giardia</i> , <i>Shigella</i> , and <i>E. coli</i>	Ingestion of contaminated food and water Contact transmission from infected animals	✓	✓			Consider patient to be infectious until at least 48 hours after cessation of diarrhoea. Contact precautions can then cease. An ensuite bathroom or dedicated toilet is required. Gastroenteritis outbreaks in institutions are notifiable to your local PHU under the Public Health Act 2010. Giardiasis is not a notifiable condition in NSW and there is no public health response required for individual infections.
Gastroenteritis – viral For example, Rotavirus, Norovirus	Ingestion of contaminated food and water Exposure to faecal and vomit aerosols	✓	✓	✓		Communicable Diseases Network Australia (CDNA) Norovirus and suspected viral gastroenteritis – CDNA National Guidelines for Public Health Units NSW Health: Gastro Pack for Hospitals Gastroenteritis in an institution control guideline Foodborne-illness outbreak guideline Campylobacteriosis control guideline

Disease	Transmission route	Type of precautions				Comments and additional guidance
		Standard	Contact*	Droplet	Airborne	
						Giardiasis control guideline Rotavirus control guideline Salmonellosis control guideline Shigellosis control guideline Shiga toxigenic E. Coli control guideline
Haemophilus influenzae type B	Respiratory droplets Contaminated fomites/environment	✓	✓	✓		Can cease precautions after 24-48 hours of effective antibiotic treatment Children and immune compromised people are most at risk of infection Invasive Haemophilus influenzae type B infections are notifiable to your local PHU under the <i>Public Health Act 2010</i> NSW Health: Haemophilus influenzae type b (Hib) control guideline
Hand, foot and mouth disease – Coxsackie virus and other enteroviruses	Contact with fluid in blisters or faeces Inhalation of respiratory secretions	✓	✓	✓		NSW Health: Hand, foot and mouth disease factsheet Enteroviruses and human parechoviruses - information for clinicians
Herpes simplex virus – disseminated	Contact with fluid from lesions Contaminated fomites/environment	✓	✓			Precautions to remain in place until lesions are dried and crusted Immune compromised staff should not care for patients Infected staff will require urgent review for leave/ redeployment in high-risk clinical areas such as maternity and NICU WHO: Herpes simplex virus

Disease	Transmission route	Type of precautions				Comments and additional guidance
		Standard	Contact*	Droplet	Airborne	
Hepatitis A	Faecal/oral	✓	✓			Duration of precautions: - Adults - for 7 days after onset of jaundice - Children <5 yrs- duration of hospitalisation. An ensuite bathroom or dedicated toilet is required NSW Health: Hepatitis A control guideline
Hepatitis B Hepatitis C Hepatitis D	Blood-borne	✓				Immunise and test all health workers (Hepatitis B) Occupational exposure protocol for blood-borne viruses NSW Health: Hepatitis B control guideline Hepatitis C control guideline Hepatitis D control guideline
Hepatitis E	Faecal/oral	✓	✓			Infectious for 14 days after onset of symptoms. An ensuite bathroom or dedicated toilet is required. NSW Health: Hepatitis E control guideline
Impetigo	Contact with lesions	✓	✓			Infectious as long as there is discharge from the sores or until 24 hours after effective therapy
Influenza	Respiratory droplets Indirectly from contaminated fomites/ environment	✓	✓	✓		Annual immunisation of staff recommended. Patients are infectious for 3-5 days after onset of symptoms (longer in children, elderly and immune suppressed patients) or until after 72 hours of the patient receives anti-influenza medication. Ant-influenza medications may be indicated for treatment of cases and prophylaxis of high-risk contacts and for outbreak management.

Disease	Transmission route	Type of precautions				Comments and additional guidance
		Standard	Contact*	Droplet	Airborne	
						Communicable Diseases Network Australia (CDNA) National Guideline for the Prevention, Control and Public Health Management of Outbreaks of Acute Respiratory Infection in Residential Aged Care Homes NSW Health: Influenza control guideline , Acute respiratory infections including COVID-19
Lice – head and body	Close person to person contact	✓	✓			Patients are infectious until 24 hours of effective treatment. Repeat treatment after 7 days.
Measles	Inhalation of respiratory secretions	✓			✓	Non-immune staff should not care for patient Airborne precautions (negative pressure room if available) are required for 4 days after onset of rash Patients transported for tests/procedures to wear a surgical mask if infectious. Room with at least 12 air changes per hour must be left 30 minutes prior to reuse. Measles cases are notifiable to your local PHU under the Public Health Act 2010. Pre-employment screen for HWs are required. NSW Health: Measles control guideline
Meningococcal disease – <i>Neisseria meningitidis</i>	Close contact with respiratory droplets	✓		✓		The patient is infectious until 24 hours of effective treatment Invasive meningococcal disease cases are notifiable to your local PHU under the <i>Public Health Act 2010</i> . NSW Health: Meningococcal disease control guidelines

Disease	Transmission route	Type of precautions				Comments and additional guidance
		Standard	Contact*	Droplet	Airborne	
Multi-resistant organisms – MRSA, VRE, CPE, <i>Candidoizyia auris</i>	Contact with skin or secretions HW unwashed hands Indirectly from contaminated fomites/environment	✓	✓			Refer to your local guidelines and risk assess for patient placement and PPE requirements. NSW Health: MRSA in the community control guideline Surveillance and Response for Carbapenemase-producing Enterobacterales (CPE) in NSW Health Facilities guideline Management and Control of Candida auris in NSW Health facilities
Mumps	Respiratory droplets Contaminated fomites/ environment	✓		✓		The patient is infectious until 9 days after onset of swelling reported. Non-immune staff should avoid caring for the patient Pre-employment screen for HWs are required NSW Health: Mumps control guideline
<i>Mycoplasma pneumoniae</i>		✓		✓		Apply droplet precautions for patients with respiratory symptoms when providing prolonged care.
<i>Mycobacterium tuberculosis</i> (TB) – pulmonary or laryngeal	Inhalation of respiratory secretions	✓			✓	Precautions required until 3 negative expectorated sputum smears (AFBs) and PCR if available or one induced sputum smear negative and PCR negative, such as lower infectivity &/or lesion drainage has ceased. Negative pressure room. Patients wear surgical mask when outside room or attending tests. Wait until 30 mins after the patient has left before reuse. Confirm room air exchange/hour with local infection prevention and control team. NSW Health: Tuberculosis control guideline

Disease	Transmission route	Type of precautions				Comments and additional guidance
		Standard	Contact*	Droplet	Airborne	
Parvovirus B19	Respiratory droplets	✓		✓		Immune compromised individuals may be infected for longer periods. Can cross the placenta (rare). Infected pregnant women need urgent referral to an obstetrician Pregnant healthcare workers must not look after infected patient (s). NSW Health: Parvovirus B19 (Fifth Disease) fact sheet
Pertussis – Whooping Cough	Respiratory Droplets	✓		✓		Infectious until completion of 5 days of appropriate antibiotics. If no antibiotic treatment has commenced, they are infectious for 21 days from onset of symptoms. NSW Health: Pertussis control guideline
Emerging respiratory coronaviruses – MERS and SARS	Inhalation of respiratory secretions	✓	✓		✓	Notify your local PHU immediately on suspicion. MERS and SARS cases are notifiable to your local PHU under the <i>Public Health Act 2010</i>. NSW Health: MERS-CoV control guideline Severe Acute Respiratory Syndrome coronavirus (SARS-CoV) control guideline
Rubella	Inhalation of respiratory secretions	✓			✓	Infectious until 7 days after onset of rash Non-immune pregnant staff must not care for the patient Pre-employment screen for HWs is required Australian Guidelines for the Prevention and Control of Infection in Healthcare
Scabies	Skin to skin contact Indirectly from contaminated	✓	✓			Treatment and isolation of cases should occur concurrently

Disease	Transmission route	Type of precautions				Comments and additional guidance
		Standard	Contact*	Droplet	Airborne	
	fomites/environment					Isolate for 24 hours after first treatment NSW Health: Scabies factsheet WHO: Scabies
Typhoid fever – <i>Salmonella typhi/paratyphi</i>	Faecal/oral	✓	✓			Infectious for duration of illness Dedicate toilet for duration of hospitalisation. NSW Health: Typhoid and paratyphoid fevers control guideline
Varicella-zoster virus Chickenpox and Shingles	Inhalation of respiratory secretions (Chickenpox only) Contact with fluid from lesions Contaminated fomites/ environment	✓	✓		✓	Airborne precautions are NOT required for localised shingles. Disseminated zoster and primary varicella (chicken pox) require airborne precautions and negative pressure room if available. Duration of precautions must continue until all lesions are dry & crusted non-immune staff should not care for patients Pre-employment screen for HWs is required Post exposure prophylaxis for non-immune HWs recommended The Australian Immunisation Handbook: Varicella (chickenpox)
Viral Haemorrhagic fevers (VHF)	Contact with the blood or bodily fluids of people with VHF, and the bodies of people who have died of VHF. Objects contaminated with blood or bodily fluids of	See NSW Health Early Response to High Consequence Infectious Diseases policy directive for infection control measures. VHFs are notifiable infectious diseases and scheduled medical conditions under the <i>NSW Public Health Act (2010)</i> . VHFs are <i>listed human diseases</i> under the national Biosecurity Act 2015. This allows biosecurity measures to be implemented to manage risks to human health, mainly through imposing human biosecurity control orders such as isolation measures.				

Disease	Transmission route	Type of precautions				Comments and additional guidance
		Standard	Contact*	Droplet	Airborne	
	people with VHF.	NSW Health: Ebola virus disease control guideline				
*Apply contact precautions based on risk assessment, if aerosol generating procedures are conducted apply airborne precautions.						

Appendix 8E Outbreak situation report (sample)

Outbreak situation update			
Outbreak name			
Date of report		Investigation start date	
Person completing		Ward/department	
Case information			
Confirmed	Possible	Total	Inpatients
Case definition			
Confirmed outbreak cases:			
Possible outbreak cases:			
Summary of investigation			
Epidemiological:			
Control measures			
Actions			
Supporting documents			
For example, epidemic curve, line listing, tables			

Appendix 8F Review, recommendations and reporting (sample)

Brief overview of case presentation	
Brief overview of case or outbreak management Include as relevant: Were visitation restrictions put in place Were appropriate isolation facilities available, including aspects such as ventilation air conditioning suitable for management of patients Was there adequate space for health worker to safely don and doff PPE? What was the number and proportion of potentially preventable cases?	
Brief overview of impact to service delivery Include as relevant: How timely was the response in relation to the index case and subsequent cases? Did health workers comply with policy?	
Red flags or policy gaps identified Free text description	

Source: Adapted from ISLHD Infection management and control service.