APPENDICES

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Appendix 1: Common and important infectious diseases requiring isolation in hospitals

Disease	Transmission Route	Type of Precautions				Comments and additional guidance
		Standard	Contact	Droplet	Airborne	
Clostridioides difficile	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
Gastroenteritis – Bacterial and Parasitic e.g.: Campylobacter. Salmonella, Giardia, Shigella, and E. coli	Ingestion of contaminated food & 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* **Communicable Diseases Network Australia (CDNA)** Guidelines for the public health management of gastroenteritis outbreaks due to norovirus or suspected viral agents in Australia **NSW Health:** Gastro Pack for Hospitals Gastroenteritis in an institution control guideline Foodborne illness outbreak guideline Campylobacteriosis control guideline Giardiasis control guideline Rotovirus control guideline Salmonellosis control guideline Shigellosis control guideline Shiga toxigenic E. Coli control guideline
Gastroenteritis – Viral e.g.: Rotavirus, Norovirus	Ingestion of contaminated food & w ater Exposure to faecal and vomit aerosols	√	√	√		
Haemophilius influenzae type B	Respiratory droplets Contaminated fomites/environment	√	√	√		Can cease precautions after 24-48 hours of effective antibiotic treatment Children and immune compromised persons are most at risk of infection Invasive Haemophilus influenzae type B infections are notifiable to your local PHU under the *Public Health Act 2010* **NSW Health control guideline**: Haemophilus influenzae type b (Hib)
Hand, foot and mouth disease – Coxsackie virus and other enteroviruses	Contact w ith fluid in blisters or faeces Inhalation of respiratory secretions	√	√	√		**NSW Health**: HFMD factsheet Enteroviruses and human parechoviruses - information for clinicians
Herpes simplex virus - Disseminated	Contact w ith 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

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 Control Guideline:** Hepatitis A
Hepatitis B **Hepatitis C** **Hepatitis D**	Blood-Bourne	√				Immunise & test all HCW (Hepatitis B) Occupational exposure protocol for blood-borne viruses **NSW Health Control Guidelines:** Hepatitis B Hepatitis C Hepatitis D
Hepatitis E	Faecal/oral	√	√			Infectious for 14 days after onset of symptoms An ensuite bathroom or dedicated toilet is required **NSW Health Control Guideline**: Hepatitis E
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 receiving anti-influenza medication. Ant-influenza medications may be indicated for treatment of cases and prophylaxis of high risk contacts and for outbreak management. **Communicable Diseases Network Australia (CDNA)** Guidelines for the Prevention, Control and Public Health Management of Influenza Outbreaks in Residential Care Facilities in Australia **NSW Health Control Guideline:** Influenza
Lice – Head and body	Close person to person contact	√	√			Patient is 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 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 HCWs is required **NSW Health Control Guideline:** Measles

Disease	Transmission Route	Type of Precautions				Comments and additional guidance
		Standard	Contact	Droplet	Airborne	
Meningococcal disease – Neisseria meningitis (bacterial)	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 *Public Health Act 2010*. **NSW Health Control Guideline:** Meningococcal Disease
Multi-resistant organisms – MRSA, VRE, CPE, Candida auris	Contact with skin or secretions HCW unwashed hands Indirectly from contaminated fomites/environment	√	√			Refer to your local guidelines and risk assess for patient placement and PPE requirements **NSW Health Control Guidelines:** MRSA in the Community **CEC Guidelines:** Surveillance and Response for Carbapenemase-producing Enterobacterales (CPE) 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 HCWs is required **NSW Health Control Guideline**: Mumps
Mycobacterium tuberculosis (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 i.e. lower infectivity&/or lesion drainage has ceased. Negative pressure room. Patient to 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 Control Guideline**: Tuberculosis
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)
Pertussis – Whooping Cough	Respiratory Droplets	√		√		Infectious until completion of 5 days of appropriate antibiotics. If no antibiotic treatment has been commenced they are infectious for 21 days from onset of symptoms **NSW Health Control Guideline:** Pertussis
Emerging Respiratory coronaviruses – MERS and SARS etc.	Inhalation of respiratory secretions	√	√		√	Notify your local PHU immediately on suspicion MERS and SARS cases are notifiable to your local PHU under the *Public Health Act 2010.* **NSW Health Control Guidelines:** MERS- Coronavirus Control Guidelines 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 HCWs is required NSW Health Control Guideline: Rubella

Disease	Transmission Route	Type of Precautions				Comments and additional guidance
		Standard	Contact	Droplet	Airborne	
Scabies	Skin to skin contact Indirectly from contaminated fomites/environment	√	√			Treatment and isolation of cases should occur concurrently Isolate for 24 hours after first treatment **NSW Health factsheet:** Scabies
Typhoid fever – Salmonella Typhi/paratyphi	Faecal/oral	√	√			Infectious for duration of illness Dedicate toilet for duration of hospitalisation **NSW Health Control Guideline:** Typhoid
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 HCWs is required Post exposure prophylaxis for non- immune HCWs recommended **The Australian Immunisation Handbook:** Varicella
Viral Haem orrhagic fevers	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 people with VHF	See NSW Contingency Plan for Viral Haemorrhagic Fevers for infection control measures VHFs are notifiable infectious diseases and scheduled medical conditions under the *NSW Public Health Act (2010*). VHFs are *Listed human diseases* 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. Ebola Virus Disease control guideline				

Appendix 2: 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:_____Telephone No:_____Fax No:_____Email:_____

PHU Notified ☐ *(tick)* Date Reported to PHU:_____Date First Case:_____Unique name/number for outbreak (PHU to fill in):_

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**

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)**

Please use the same Line Listing for new cases – do not start a new one each day

Appendix 3: Checklist for outbreak management team tasks

The principal aim of the outbreak management team (OMT) is to investigate the cause of the outbreak and to implement action to identify and remove the source, 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 preparation

☐	consider whether or not cases have the same illness and establish a tentative case definition
☐	establish epidemiology to determine if there is a real outbreak
☐	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
☐	Consult with local PHU

Outbreak investigation

☐	identify population at risk (e.g. healthcare workers, patients, visitors)
☐	identify persons posing a risk of further transmission
☐	initiate immediate control measures
☐	assess the availability of adequate resources to manage the outbreak
☐	notify the local Public Health Unit, Chief Health Officer (CHO) or Director General (DG) via the Executive Director of Communicable Diseases Branch (CDB) if required where the outbreak involves a notifiable disease or gives rise to broader public interest or is of state significance.
☐	establish a case definition (clinical and/or microbiological)
☐	identify other cases
☐	collect and collate data from affected and unaffected persons
☐	conduct appropriate environmental investigation including inspection of involved or implicated premises
☐	describe cases by time, place and person
☐	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) treatment of cases to reduce infectious period, where possible (e.g. antivirals) c) screening and monitoring of contacts

	d) protection of contacts by immunisation or chemo-prophylaxis e) enhanced infection control practices by staff and visitors including environmental cleaning, equipment decontamination procedures and hand hygiene f) closure of wards/beds
◯	monitor control measures by continued surveillance for disease
◯	declare the outbreak over

Communication

◯	daily situation updates to the HO 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 help-lines
◯	review the triggers for escalation of outbreaks document 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 (refer Section 11.3.4 *Outbreak management team - communication requirements* for items to include in the report)
◯	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 Section 11.4.4 *Evaluation of Outbreak Response* for possible criteria).

Appendix 4. Outbreak management checklist

Type of outbreak e.g. MRO, gastroenteritis, respiratory illness:

Date outbreak was reported to infection 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
Do you have an outbreak? i.e. a higher than expected number of cases of infection/infectious diseases, MROs with the same causative micro-organism (if known in the early stages of the outbreak)	❑	❑
Has the source of the outbreak been identified?	❑	❑
Do you need to convene the outbreak control team? • refer to section 11.3.1 11.3.1 *Factors to consider in convening an outbreak management team*	❑	❑
Inform staff • inform all staff that a possible outbreak is occurring including advice regarding infection control − include supply staff and operational staff in correspondence − consider the need to inform visitors and patients • inform senior nursing and medical staff on duty • inform your local microbiology unit of any additional specimen requirements	❑ ❑ ❑	❑ ❑ ❑
Implement infection control measures • ensure sufficient supplies of appropriate personnel protective equipment (PPE) is available in the affected areas e.g. mask, gloves, gowns, aprons, eyewear, as indicated by mode of transmission • isolate affected patients in single rooms or cohort • display signage regarding necessary additional precautions • reinforce hand hygiene practices as appropriate − alcohol-based hand hygiene products may not be suitable for certain micro-organisms e.g. Clostridium difficile, Norovirus	❑ ❑ ❑ ❑	❑ ❑ ❑ ❑
Stop or limit further spread • consider the need to dedicate staff to affected patients • consider the need to cohort patients with the same infection • increase cleaning frequencies in affected areas • limit transport of affected patients to essential purposes only • restrict visitors, non-essential staff/students, volunteers, pastoral care where necessary, young children and people with suppressed immune systems	❑ ❑ ❑ ❑	❑ ❑ ❑ ❑

• reinforce hand hygiene with patients, visitors and staff	○	○
Document the outbreak • list all know cases and update information daily • include details of affected patients and staff • include details of onset date of symptoms/diagnosis for each case	 ○ ○ ○	 ○ ○ ○
Notify authorities if applicable • review the triggers for escalation of outbreaks document to determine the need for further escalation)	○	○
Collect specimens • observe standard and transmission based precautions when collecting relevant specimens • collect appropriate specimens - liaise with infectious diseases physician or microbiology to determine collection method and specimen types • ensure specimens are labelled appropriately	 ○ ○ ○	 ○ ○ ○
Review and up-date outbreak management plan • regularly during the outbreak • following resolution of outbreak	○ ○	○ ○
Outbreak management report • complete outbreak management report highlighting recommendations for preventing	○	○

Appendix 5: NSW Health Respiratory Hygiene Poster

Appendix 6: Case studies

Case study 11: An outbreak in Ward 3B se study 10 - An outbreak in Ward Case Study 12: Lily's story – outbreak in the field
Case study 13: Risk Scenario – Investigating CPE outbreak

Case study 11 - An outbreak in Ward 3B

On a cold Monday morning in July, Ward 3B rang Infection Prevention and Control to notify three patients who had all started having vomiting and diarrhoea symptoms over the weekend. The ward was advised to implement contact precautions, isolate or cohort the patients away from other patients on the ward, collect stool samples to send for testing and ensure the staff use PPE when caring for these patients. The infection prevention and control CNC visited Ward B at around midday and it was noted that the ward had put up signs to alert visitors that they were currently experiencing a gastroenteritis outbreak and to re-consider the need to visit at this time. Fact sheets on viral gastroenteritis were made available to HWs, patients and visitors, and there was extra PPE outside the rooms of patients affected for HWs to use. The environmental cleaning team was notified and requested to increase the frequency of cleaning and disinfection. HWs were asked to notify their manager if they develop symptoms of gastroenteritis and no to return to work until symptom free for 48 hours.

A line list of cases was started to report to the local PHU in accordance with NSW Health Control Guidelines. The line list detailed the cases' onset dates, symptoms and specimen details. Click here for NSW Health line listing template.

NSW HEALTH

NSW Health Hospital Gastro Pack Section 5: Line Listing for Gastroenteritis in a Hospital (page 1)

Name of Hospital: Sunshine Hospital Name of ward/s or unit/s: 3B No patients on ward/unit: 35 No. of staff: 30
Contact Person: Position Title: Telephone No: Fax No: Email:
PHU Notified ☐ *(tick)* Date Reported to PHU: Date First Case: Unique name/number for outbreak (PHU to fill in):

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 Y es, *specify type*	Date Specimen Collected	Result *(specify name of bacteria, virus, parasite or toxin)*	Recovered (R) Died (D)
1	William Black 225334	23/09/ 43	M	P	Bed 12	4/07	9am	48hrs	D, V	Y	06/07		
2	Gary Brown 2233221	04/08/ 45	M	P	Bed 13	5/07	2am	3 days	D, V, F	Y	06/07		
3	Bob Smith 7766224	05/02/ 60	M	P	Bed 11	5/07	6am	2 days	D,V	Y	06/07		

Symptoms Key: V=Vomiting D=Diarrhoea BD=Bloody Diarrhoea F=Fever>38.5C AC=Abdominal Cramps N=Nausea

Please use the same Line Listing for new cases – do not start a new one each day
Please arrange stool samples (specimens) from affected persons

Information Pack for Gastroenteritis in a Hospital December 2010

The formation of an outbreak team in the hospital was not considered necessary as the outbreak was small and being managed appropriately by Ward B.

On Tuesday one more patient and two HWs reported symptoms. The patient was isolated and the HWs were advised to remain off work until 48 hours after their symptoms had ceased. All details were added to the line list and faxed to the public health unit.

NSW HEALTH

NSW Health Hospital Gastro Pack Section 5: Line Listing for Gastroenteritis in a Hospital (page 1)

Name of Hospital: Sunshine Hospital Name of ward/s or unit/s: 3B No patients on ward/unit: 35 No. of staff: 30
Contact Person: Position Title: Telephone No: Fax No: Email:
PHU Notified ☐ *(tick)* Date Reported to PHU: Date First Case: Unique name/number for outbreak (PHU to fill in):

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)
1	William Black 225334	23/09/43	M	P	Bed 12	4/07	9am	48hrs	D, V	Y	06/07		
2	Gary Brown 2233221	04/08/45	M	P	Bed 13	5/07	2am	3 days	D, V, F	Y	06/07		
3	Bob Smith 7766224	05/02/60	M	P	Bed 11	5/07	6am	2 days	D,V	Y	06/07		
4	Mary Burke	05/09/85	F	S		6/07	11am	2 days	D,V	N			
5	Tim Styles	25/06/90	M	S		6/07	6pm	1 day	D	Y	07/07		
6	John Ward 7766553	5/08/55	M	P	Bed 10	6/07	9pm	3 days	D, V	N			

Symptoms Key: V=Vomiting D=Diarrhoea BD=Bloody Diarrhoea F=Fever>38.5C AC=Abdominal Cramps N=Nausea

Please use the same Line Listing for new cases – do not start a new one each day
Please arrange stool samples (specimens) from affected persons

On Wednesday three stool samples came back positive for norovirus and one was positive for norovirus and *C. difficile*. The *C. difficile* was considered an incidental finding and the outbreak was reported as being caused by norovirus.

By Thursday afternoon there had been no more cases reported for more than 24 hours. After discussion with the outbreak team the outbreak was considered over. Patients were released from isolation, terminal cleaning was performed and work on Ward B returned to normal. A final line list completed with all stool sample results was faxed to the PHU.

NSW HEALTH

NSW Health Hospital Gastro Pack Section 5: Line Listing for Gastroenteritis in a Hospital (page 1)

Name of Hospital: Sunshine Hospital Name of ward/s or unit/s: 3B No patients on ward/unit: 35 No. of staff: 30
Contact Person: Position Title: Telephone No: Fax No: Email:
PHU Notified ☐ *(tick)* Date Reported to PHU: Date First Case: Unique name/number for outbreak (PHU to fill in):

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)
1	William Black 225334	23/09/43	M	P	Bed 12	4/07	9am	48hrs	D, V	Y	06/07	norovirus	R
2	Gary Brown 2233221	04/08/45	M	P	Bed 13	5/07	2am	3 days	D, V, F	Y	06/07	Norovirus c.difficile	R
3	Bob Smith 7766224	05/02/60	M	P	Bed 11	5/07	6am	2 days	D,V	Y	06/07	norovirus	R
4	Mary Burke	05/09/85	F	S		6/07	11am	2 days	D,V	N			R
5	Tim Styles	25/06/90	M	S		6/07	6pm	1 day	D	Y	07/07	Norovirus	R
6	John Ward 7766553	5/08/55	M	P	Bed 10	6/07	9pm	3 days	D, V	N			R

Symptoms Key: V=Vomiting D=Diarrhoea BD=Bloody Diarrhoea F=Fever>38.5C AC=Abdominal Cramps N=Nausea

Please use the same Line Listing for new cases – do not start a new one each day
Please arrange stool samples (specimens) from affected persons

Information Pack for Gastroenteritis in a Hospital December 2010

Case Study 12: Lily's story - Outbreaks in the field

Lily is a Child and Family Health Nurse who developed respiratory symptoms including a persistent paroxysmal cough. Five years ago, Lily was vaccinated for pertussis.

A week after the onset of her symptoms, Lily's cough had not improved so Lily made an appointment to see her GP. A nasopharyngeal swab was collected and sent to the laboratory for nucleic acid testing, also known as PCR. Two days later Lily was notified by her GP that she returned a positive swab result for pertussis and was commenced on Azithromycin.

Lily notified her Nursing Unit Manager who informed the local infection prevention and control service. An Infection Prevention and Control nurse contacted Lily to obtain a history, verify the diagnosis and compile a list of contacts in consultation with the local PHU in accordance with the NSW Health Control Guideline for Pertussis.

In accordance with this guideline, five babies were identified as close contacts because they:

a) had contact of less than 1metre with Lily during the infectious period for more than one hour; and
b) were under six months of age.

Four HWs, regardless of their vaccination status, were defined as close contacts because they:

a) had contact of less than 1metre with Lily during the infectious period for more than one hour; and
b) worked with infants who were less than six months of age.

No pregnant contacts in the last month of pregnancy were identified.

All high risk contacts were contacted by the PHU and advised to attend a predetermined clinic organised by the PHU for assessment and antibiotic prophylaxis. Those who could not attend the clinic were advised to contact their GP for antibiotic prophylaxis.

The event was used to review HWs' vaccination status and update where required.

The executive management for the community health service were notified and a Brief regarding action taken was later forwarded.

Case study 13: Risk Scenario – Investigating CPE outbreak

Scenarios developed for acute hospitals, ambulance and a paediatric hospital. Each answered the following questions:

1. What is your response?
2. What does your communication plan look like?
3. What potential barriers will you face? What are some solutions for these barriers?
4. How will you evaluate the effectiveness of your response?
5. What could you do to help prevent this from happening in the future?

Scenario:

Anthony Fowler- 39yo Male, 24/07/1978, NKA

Anthony was BIBA to ED with surgical wound infections to left wrist and right knee.

Presented with history of:

- Motor Vehicle Accident 14 days ago
- Multiple cuts and abrasions requiring suturing
- # Wrist (left) requiring of open reduction and internal fixation (ORIF) surgery. Right knee required debridement and suturing.

Admitted to the **Orthopaedic ward**

- Placed in 4-bed room with shared bathroom facilities
- Wash out of wrist and knee wounds in operating theatre
- Wound swabs collected
- Cefazolin commenced

It is now **day 4** and pathology results are in....

Pathology Results

- Positive for CPE
- Klebsiella Pneumonia

Antimicrobial susceptibility testing of KPC-2-producing *K. pneumoniae*[a]

Antibiotic(s)	MIC (µg/ml)	Interpretation
Ampicillin	≥32	Resistant
Ciprofloxacin	≥4	Resistant
Ceftriaxone	≥64	Resistant
Cefepime	32	Resistant
Meropenem	≥16	Resistant
Imipenem	32	Resistant
Gentamicin	≥16	Resistant
Amikacin	32	Intermediate
Colistin	0.5	Susceptible
Nitrofurantoin	256	Resistant
Piperacillin-tazobactam	≥128/4	Resistant
Fosfomycin	32	Susceptible

Team Review 5pm: Team asks if there is any history of overseas travel in last 6mths:

- MVA happened in Greece 15 days ago
- Surgery was performed in a Greek Hospital
  - Anthony was a patient for 4 days post-op before returning to Australia

The next day: Bob White- patient currently in ICU tests positive for the same strain of CPE.

- Bob shared the 4-bed room and bathroom facilities with Anthony on the Orthopaedics ward
- Further testing revealed the 2 cases of CPE are related

Suggestions from the workshop to assist with each type of investigation

What is your response?

- Notify the lab of the suspected outbreak and request to expedite testing
- Notify, NUM, treating MO, HO exec, patients, Infection prevention and control team/infectious diseases
  - Isolate patients
  - Contact precautions
  - Document in the medical record positive result, flag/alert and need for contact precautions
  - Staff education (including HealthShare staff
- Contact tracing (ward, ICU, theatre)
  - Manage contacts (cohort)
- Enhanced environmental and shared equipment cleaning
- Patient, family/visitors and staff education/ notification
- ED education admission risk assessment- travel history/ risk assessment
- Outbreak management team if needed
- Investigate why patient was missed on screening
- Empower staff to understand and manage CPE
- Follow local reporting process for incidents such as missed screening etc.
- Communication, executive briefing, ward for isolation
  - Discussions with key stakeholders
  - Speak with at-risk patients
  - Notify treating teams/ management/ patient flow
  - MO at rural facility- ID consult re patient management
  - Talk to the lab to expedite testing

What does your communication plan look like?

- Brief to CEO and Communication's unit (PR)
- Identify key stakeholder (Ambulance/ ID/ Micro/ Pt Flow, clinical governance, medical services, infection control, patient safety,
- Identify roles and responsibilities of staff
- Email- After hours nurse managers, patient flow, ward NUMs, environmental cleaners, treating teams, PR
- Patient notes (education/ communication), electronic flagging of patients and contacts
- Infectious Diseases team- support over the weekend
- Talk to patient/ contacts, provide information sheet
- Staff education (all)
- Discharge summary- notify discharge site, GPs
- Outbreak management team
  - Resources

- Visitors and patient
- Review clinical products/ stock levels
- Other facilities
- Media information sharing

What potential barriers will you face? What are some solutions for these barriers?

Barriers	Solutions
• Lack of knowledge and education: ward staff, medical staff, cleaning/ food services • Resources: information/ factsheets, contact tracing/ pathology, extra cleaning staff • Escalation Plan: lack of coordinator, person who knows how to manage an outbreak (e.g. ICP) • Infrastructure: lack of isolation rooms, aging facilities, ward layout • Lack of antimicrobial stewardship • Staff anxiety, inconsistent communication, compliance • Infection Control Practitioner time and availability, resource • Executive support and money • After hours support • Contact tracing: time consuming and resource intensive • Additional cleaning resources, negotiating time, accountability and lines of communication • Time, resources, availability of isolation rooms, cost of PPE, increased LOS, patient flow • Delayed pathology results • Media Hysteria • Difficult to get advice from ID (rural) • Laboratory- timing of notification, WGS testing, accuracy and sensitivity of screening	• Supportive executive team • Have resources readily available • Have a clearly articulated action plan • Identify and implement strategies/actions • Communication, clear and concise • Good relationships with your network • Ask other facilities for PPE if required • Robust screening policy, education for ED HWs • Risk assessment- patient condition, comorbidities • Cohort staff and patients • Education and training of patient and staff • Quarantine contacts, involve patient flow, increased cleaning • Alert pathology (finalised <4days) • Enhance resource (program, manpower) • AHNM & IPC Resource Nurses • Education, simplified instruction (1 page/ tick box)

What could you do to help prevent this from happening in the future?

• Screening of at-risk patients • Process to identify patient risk factors on admission • Good environmental cleaning • Appropriate cleaning of shared equipment • Maintenance of equipment/ HCF • Remove carpet/ install cleanable flooring • Up to date resources- evidence based • Good standard precautions • Ongoing education of staff • Ongoing auditing and compliance to PPE, standard precautions, cleaning, hand hygiene, bare below the elbow, product availability etc. • Learn from experience • Screen overseas patients • Education- HWs, patient, family/visitors • On admission travel history assessment • Contact precautions for all cases of diarrhoea	• Times cleaners are available • Increased awareness • Screening • AMS • Standard precautions • Cleaning- environment and shared equipment • Education • Rapid testing • Increased IPC resources • Reporting and surveillance • Research project • Identify high risk patients • Risk asses patient placement on admission • Reporting to wards • Education and training- lessons learnt • National reporting • Constant screening process

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