



Module Two

Outbreak Management for Environmental and Support Services


Developed by
Grampians Region Infection Control Group
Developed 2017 Updated 2020

Modules of learning

There are two modules in this series discussing cleaning in healthcare settings.

These modules are no longer than 15 minutes each.


At the end of each module there is a test your knowledge quiz to be completed, printed and handed to your manager.

- ▶ Module One – Cleaning in healthcare settings
 - ▶ Module Two – Outbreak management for environmental and support services
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Welcome to Module Two

Learning Objectives Module Two

1. Understand the precautions required during an outbreak.
 2. Revisit infection prevention strategies during an outbreak.
 3. Understand cleaning methods and requirements for an outbreak.
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Introduction

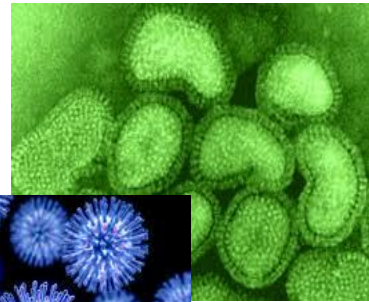
It is essential that potential outbreaks are identified quickly, so they can be stopped quickly!

- ▶ A definition of outbreak is "The occurrence of more cases of disease than expected in a given area or among a specific group of people over a particular period of time." (CDC)
 - ▶ There are Victorian guidelines that outline case definitions for particular infectious agents (bugs) to help determine if an outbreak is occurring.
 - ▶ Generally, when there are two or more cases of infection with the same infectious agents (bug) in healthcare be highly suspicious this may be an outbreak.
 - ▶ Many steps will be taken simultaneously to contain the outbreak. The steps for environmental and support services are discussed in this module.
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Common outbreaks in healthcare

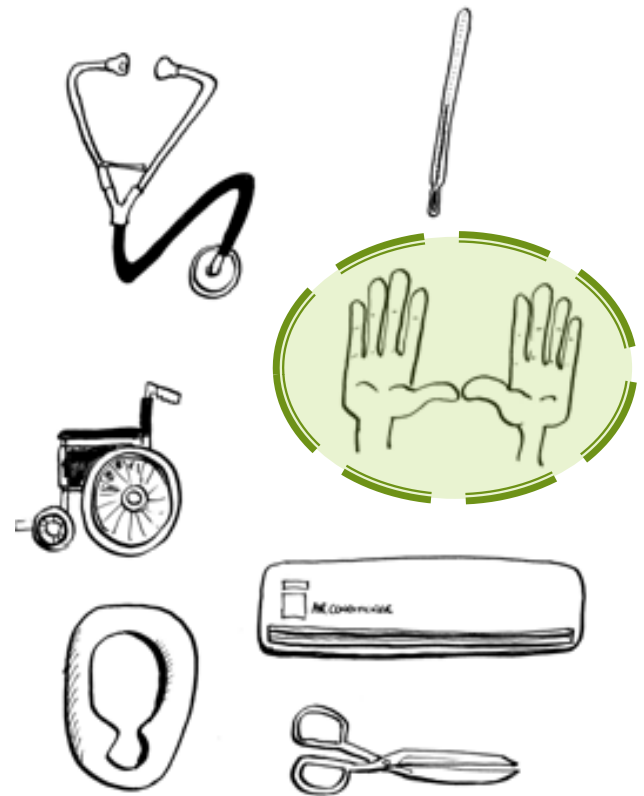
These are the common outbreaks we see in hospitals and residential care facilities:

- ▶ Influenza
- ▶ Other respiratory illnesses
- ▶ Gastroenteritis
- ▶ Clostridium difficile
- ▶ Resistant microorganisms (MROs).



Infection transmission

Many objects can transmit infectious agents (bugs) but healthcare workers and carer's hands are the most common.



Standard precautions

► For everyone

- 5 Moments of hand hygiene
- Clean and process shared patient/resident equipment
- Use of personal protective equipment
- Respiratory hygiene and cough etiquette
- Appropriate handling and disposal of sharps and sharps containers
- Using an aseptic technique for clinical procedures
- Routine environmental cleaning
- Appropriate waste management and handling
- Appropriate linen management and handling.



Transmission-based Precautions

- ▶ Transmission based precautions (TBP) are always used in addition to standard precautions.
- ▶ TBP are put into place as soon as an outbreak is suspected.
- ▶ Most common TBP's in outbreak situations are:

contact precautions

droplet precautions

- ▶ However there is also airborne precautions too!
- ▶ These precautions may be used on their own or in combination, that is two or more at the same time.

Types of precautions

Contact Precautions

- For viral illnesses and resistant bacteria which are transmitted by direct or indirect contact with the patient/ resident or the patient's/ resident's environment.

E.g. Gastro, MRSA, VRE, CPE, C auris

Droplet Precautions

- For respiratory infections transmitted by larger respiratory droplets which only travel about one metre and do not remain suspended in air (E.g. when someone with these infections talk or cough).

E.g. Whooping cough, diphtheria, influenza, rubella

Airborne Precautions

- For respiratory infections transmitted by fine, floating particles which are easily spread by air currents (E.g. by opening and closing doors).

E.g. Tuberculosis, measles, chickenpox



There will be signs on the door of isolation rooms similar to the ones below. Sometimes there may be two different signs because the infectious agent (bug) requires these actions to stop it from spreading. It is important to follow all instructions. If you are unsure on what to do, ask!



Visitors

See a nurse for information before entering the room

For all staff

Contact Precautions

in addition to Standard Precautions

Before entering room

- 1  Perform hand hygiene
- 2  Put on gown or apron
- 3  Put on gloves

On leaving room

- 1  Dispose of gloves
- 2  Perform hand hygiene
- 3  Dispose of gown or apron
- 4  Perform hand hygiene



Visitors

See a nurse for information before entering the room

For all staff

Droplet Precautions

in addition to Standard Precautions

Before entering room

- 1  Perform hand hygiene
- 2  Put on a surgical mask

On leaving room

- 1  Dispose of mask
- 2  Perform hand hygiene



Visitors

See a nurse for information before entering the room

For all staff

Airborne Precautions

in addition to Standard Precautions

Before entering room

- 1  Perform hand hygiene
- 2  Put on N95 or P2 mask
- 3  Perform a fit check of the mask

On leaving room

- 1  Dispose of mask
- 2  Perform hand hygiene

Keep door closed at all times

Standard Precautions

And always follow these standard precautions

- Perform hand hygiene before and after every patient contact
- Use PPE when risk of body fluid exposure
- Use and dispose of sharps safely
- Perform routine environmental cleaning
- Clean and reprocess shared patient equipment
- Follow respiratory hygiene and cough etiquette
- Use aseptic technique
- Handle and dispose of waste and used linen safely

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Hand hygiene – REMINDER

Hand hygiene helps to prevent the spread of infection on the hands of health care workers/ carer's to patients/residents and the environment.

The 5 moments of hand hygiene are:

1. Before starting to clean an area.
2. After cleaning one area and before moving onto the next area in the same room – e.g. bedroom, hand hygiene, then bathroom.
3. After blood or body fluid contact.
4. After finishing cleaning each area.
5. After touching a patient/resident's immediate surroundings.



Hand hygiene during an outbreak



- ▶ While washing with soap and running water does not kill infectious agents (bugs), it can physically wash them off the skin and down the drain, which reduces the numbers of infectious agents on the hands to a safer level. This reduces the risk of infection transmission significantly.
- ▶ In an outbreak situation using gloves whenever appropriate will help keep contamination of hands to a minimum.
- ▶ If gloves are worn during cleaning Alcohol Based Hand Rub (ABHR) remains the product of choice for hand hygiene; however if gloves have not been worn or hands are visibly soiled, they must be washed with soap and water.
- ▶ If there are no hand washing facilities within easy access, use a alcohol based hand rub until you are able to wash with soap and water.

Hand Hygiene – key messages

- ▶ After performing hand hygiene, hands should be completely dry before undertaking any further activities.
- ▶ Multi-use cloth towels must not be used to dry hands. Single use paper towel is recommended.
- ▶ There must be adequate access for staff to hand hygiene stations that are stocked and maintained at all times.
- ▶ Access to hand basins for staff can be limited in healthcare care facilities, ABHR must not be removed from clinical settings or patient/resident care areas during an outbreak.



PPE – REMINDER

- ▶ Personal protective equipment (PPE) is used to protect your skin and clothing from contamination.
- ▶ PPE is used when:
 - There is potential contact with someone else's blood or body substances.
 - For transmission based precautions (isolation) in outbreak situations.
- ▶ Always perform hand hygiene before putting on PPE and immediately after removal of PPE and whenever you are going near your face to remove any PPE.
- ▶ There is a way this PPE is put on and taken off to prevent contamination of your skin or clothing and the environment around you.



PPE On



Perform hand hygiene

Put on gown

Put on mask

Apply protective eyewear such as goggles or face shield

Apply gloves

PPE Off



Remove gloves

Perform hand hygiene

Remove protective eyewear such as goggles or face shield

Remove gown

Perform hand hygiene

Remove mask

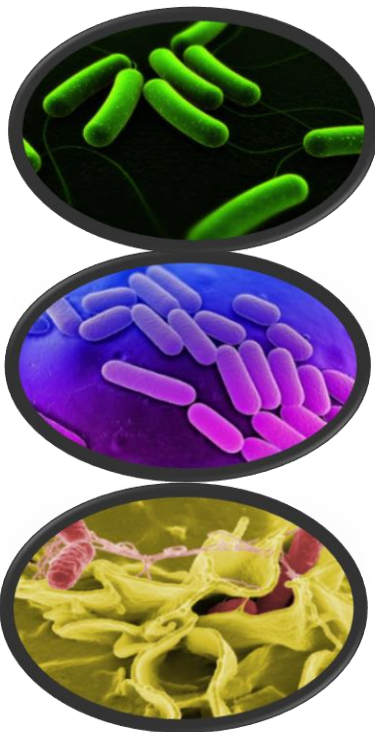
Perform hand hygiene

Cleaning during an outbreak

- ▶ Always speak with nursing staff before entering isolation rooms.
- ▶ Put on the correct PPE.
- ▶ Increase the frequency of cleaning and disinfection to at least 2 times per day
 - patient/resident care areas
 - high traffic clinical areas
 - frequently touched surfaces.



Remember infectious agents (bugs) can stay on dry environmental surfaces for a long time!



Pathogen	Survival Time
<i>S. aureus</i> (including MRSA)	>12 months
<i>Enterococcus</i> spp. (including VRE)	>48 months
<i>Acinetobacter</i> spp	3 days to 11 months
<i>Clostridium difficile</i> (spore form)	>5 months
Norovirus	8 hours to 28 days (Temp dependent)
<i>Pseudomonas aeruginosa</i>	6 hours to 16 months
<i>Klebsiella</i> spp.	>30 months

Hota B, et al. *Clin Infect Dis* 2004;39:1182-9

Kramer A, et al. *BMC Infectious Diseases* 2006;6:130

Remember frequently touched surfaces will be the most contaminated



Bed frames	Bed rails
Bed controls	Bedside lockers
Nurse call buttons	TV remotes
Light switches	Patient chairs
Door handles	IV pole and pumps
Telephones	Bedrails
Chairs	Toilet, commode
Computer keyboard	Bedside equipment
Over bed table	Taps

Don't spread the bug ...

- ▶ Use disposable cleaning cloths and equipment wherever possible.
- ▶ Clean the rooms of well patients/residents first, leaving isolation rooms until last.
- ▶ Clean and disinfect shared equipment between patients — single use products should be used wherever possible.
- ▶ Before moving between rooms, cleaning cloths and bucket contents should be renewed to prevent transport of bugs.



Outbreak cleaning methods

THREE-STEP CLEAN

- ▶ A “3-step” cleaning process means that the surfaces requiring decontamination are cleaned using warm water and detergent first, then disinfected using the application of 1000 ppm of available chlorine, left for 10 minutes, then the chlorine is rinsed off with cold water and dried.

STEP 1 = CLEAN

STEP 2 = DISINFECT

STEP 3 = RINSE/DRY

ONE-STEP CLEAN

- ▶ A ‘1-step’ cleaning process uses a combined detergent/disinfectant (chorine) product used according to the manufacturer’s instructions to achieve 1000 ppm to clean and disinfect in one process or step.


Outbreak cleaning methods

IMPORTANT Messages for a 1-Step Clean

A 2-in-1 combined cleaning and disinfecting allows for a 1-step cleaning and disinfection process as opposed to the 3-step (clean, disinfect, then rinse/dry). There are a number of 2-in-1 detergent and disinfectant products available that are simple and effective to use.

It is important to check the 1-step cleaning product information sheet to confirm it is effective against the infectious agent (bug) you are dealing with. It is important to ensure the manufacturers' instructions are followed for correct dilution and use including contact time (a specific time required for the surface to dry before it is touched again).

If care facilities use an alternative method for cleaning and disinfection, the method must be validated to be equivalent to the above steps (microfibre, wipes and steam).



IMPORTANT



- ▶ Sanitisers/disinfectants will not work correctly if the surface to be decontaminated has not been thoroughly cleaned first.
- ▶ Faeces or vomit should always be cleaned up using paper towels to soak up excess and disposed of immediately into clinical waste.
- ▶ The area must then be cleaned and disinfected using either a 3-step clean or a 1-step clean (follow your facility outbreak cleaning policy), or if carpet it must be steam cleaned.

Disinfectant use




- ▶ ALWAYS CHECK DIRECTIONS ON PRODUCT TO ENSURE YOU ARE ACHIEVING THE CORRECT DILUTION FACTOR OF 1000 ppm of available chlorine — measure to confirm correct amount if necessary.
- ▶ ALWAYS CHECK USE BY DATE TO ENSURE THE PRODUCT IS FRESH.

Safe use of chlorine

- ▶ Use a TGA listed or registered product with label claims for the infectious agent (bug) you are dealing with in the outbreak.
- ▶ Dilute disinfectant according to directions, never use undiluted.
- ▶ Never use in a spray bottle.
- ▶ Do not use hot water to dilute.
- ▶ Do not mix with other chemicals.
- ▶ Add chlorine to water rather than water to chlorine.
- ▶ Read and follow safety and handling instructions on all disinfectant containers.



Safe use of chlorine

- ▶ Make up a new batch of chlorine each time – effectiveness is lost quickly once diluted.
 - ▶ Chlorine loses concentration during storage, always check use-by date before using.
 - ▶ Wear gloves when handling and preparing chlorine.
 - ▶ Chlorine is corrosive to metals other than stainless steel at concentrations of 1000 ppm of available chlorine.
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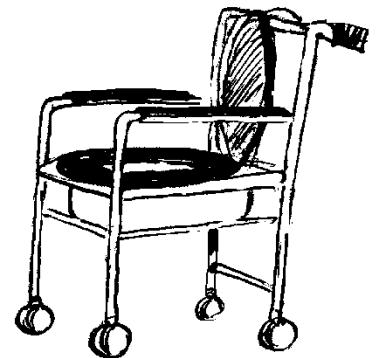
Care of cleaning equipment

- ▶ Wherever possible in an outbreak use disposable cleaning equipment.
- ▶ If using reusable cloths and mops
 - Do not use elsewhere during outbreak
 - After use send to laundry for normal laundry procedure immediately.
- ▶ Cleaning equipment, such as the mop bucket, mop handle and bowls that are not disposable should be cleaned and decontaminated by thermal or chemical disinfection or cleaned with a solution of 500 ppm sodium hypochlorite, left for 10 minutes, rinsed with warm water and then left to dry.



Avoid aerosolization

- ▶ Vacuuming carpets and polishing floors should not occur during the outbreak to reduce risk of recirculation of the infectious agent (bug).
- ▶ Toilet lids should be closed before flushing to prevent faecal and/or vomit contaminated airborne droplets being generated.




Body fluid accidents!

Vomiting or diarrhoea



- ▶ All people should be immediately removed from the area for at least one hour when someone has vomited in a communal area (when a person vomits a fine mist of virus particles is introduced into the air and can easily infect others and contaminate surfaces).
- ▶ Close off soiled area until surface and floor cleaning has been conducted.
- ▶ Ensure that disposable brushes, mops and cloths are used whenever possible and discarded immediately after use.

Carpet cleaning

- ▶ All areas of carpet contaminated by vomit and/or faeces should be steam cleaned.
 - ▶ All carpets are different. The cleaning instructions may be different for each type of carpet/carpet square in your facility. Manually clean the contaminated carpet area with detergent as per manufacturers instructions before steam cleaning.
 - ▶ Use a vapour steam cleaner that boils the water until it turns to steam.
 - ▶ True steam cleaners release steam under pressure, which ensures that the temperature is above 100°C, and the carpet dries quickly.
- 

Handling clinical waste safely

- ▶ Discard at point of generation.
- ▶ No decanting/double handling.
- ▶ No compacting by hand.
- ▶ No handing waste from one person to another for disposal.
- ▶ No carrying waste bags close to the body.
- ▶ No over filling of waste bags/bins.
- ▶ Close waste bags securely when full.
- ▶ Transport waste bags to storage areas using mobile trolleys or bins.



Clinical waste during an outbreak

- ▶ All PPE used and any disposable cleaning equipment should be disposed of into clinical waste for the duration of the outbreak.



Handling linen safely

- ▶ Place soiled linen directly into a linen skip at point of use – do not overfill.
- ▶ Do not carry soiled linen close to the body to prevent contamination of uniform.
- ▶ Do not sort in ward area.
- ▶ Do not place on floor.
- ▶ Do not rinse gross soiling (faeces or vomit) in ward area.
- ▶ Secure and transport full linen bags to storage areas/laundry using mobile trolleys.



Handling linen safely



- ▶ Place linen heavily soiled with blood or body fluids into a leak proof plastic bag.
- ▶ In most cases double bagging of “infectious linen” is not required – Use of water soluble bags is not recommended as these require hot water washes that may cause stains to set. Water soluble bags offer no benefit from an infection control perspective and needlessly add to costs.
- ▶ All soiled linen should be laundered separately using the hottest washing machine cycle (AS/NZS 4146: 2000).
- ▶ Steam clean pillows, curtains and doonas contaminated by vomit and/or faeces.
- ▶ The laundry should be informed about the outbreak so they can take necessary precautions.

Food handling during an outbreak



- ▶ Only catering staff should have access to the kitchen.
- ▶ If there is a suspicion the outbreak is food related, cleaning of the kitchen should take place immediately (as per the relevant outbreak guidelines) and then ongoing during the outbreak as instructed.
- ▶ Instructions from your local EHO regarding food safety and other public health instructions should be followed. Instructions are usually relayed to environmental/support services by infection control.
- ▶ Where possible ensure staff are dedicated for food preparation, cleaning and patient/resident care.
- ▶ Where possible, meals should be served directly to patients/residents rooms, rather than in a communal dining area.
- ▶ Any food that has been handled by an infected person or food that may have been in close proximity to someone vomiting or coughing must be discarded.

Food handling

- ▶ Don't leave communal fruit, lollies, biscuits or other food around during an outbreak.
- ▶ Don't allow food to come in from the community.
- ▶ No special precautions are needed for crockery or cutlery — the combination of hot water and detergents used in dishwashers is sufficient to decontaminate – if this cannot be met, disposable crockery and cutlery should be used.
- ▶ Staff cups, crockery and cutlery must be washed in a dishwasher and not hand washed in staff tea room.
- ▶ Discard any cracked or chipped cups in staff room.




Staff considerations

- ▶ Staff from outbreak areas should not mix with staff from non-infected areas during meal breaks.
- ▶ Staff who have been in contact with infected persons do not prepare or serve food.
- ▶ Staff with influenza-like illness should not come to work until symptoms resolved. Can be up to 7–10 days.
- ▶ Staff with symptoms of gastroenteritis must be sent home or asked not to come to work if they become sick overnight.
- ▶ Staff with gastro must stay away from work until at least 48 hours after their vomiting or diarrhoea has stopped.



Final clean up

- ▶ Put on PPE (including mask if using steam cleaner).
 - ▶ All surfaces, furniture, bedding, equipment and items in contact with ill persons must be cleaned and decontaminated using a chlorine at 1000 ppm.
 - ▶ Mattresses, pillows, curtains, blinds and other soft furnishings that have been contaminated with vomit or faeces must be steam cleaned.
 - ▶ All single use equipment in the ill persons room must be discarded.
 - ▶ Toilet rolls and hand towels in ill persons room must be discarded.
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Final clean up

- ▶ Blankets must be washed on hottest cycle then dry in a dryer on the hot cycle.
- ▶ Change privacy curtains when they are visibly soiled and at final clean.
- ▶ Carpets that have been soiled with vomit or faeces must be steam cleaned.
- ▶ All communal areas and high traffic clinical areas must be cleaned and decontaminated using 1000 ppm of available chlorine with particular attention to frequently touched surfaces.

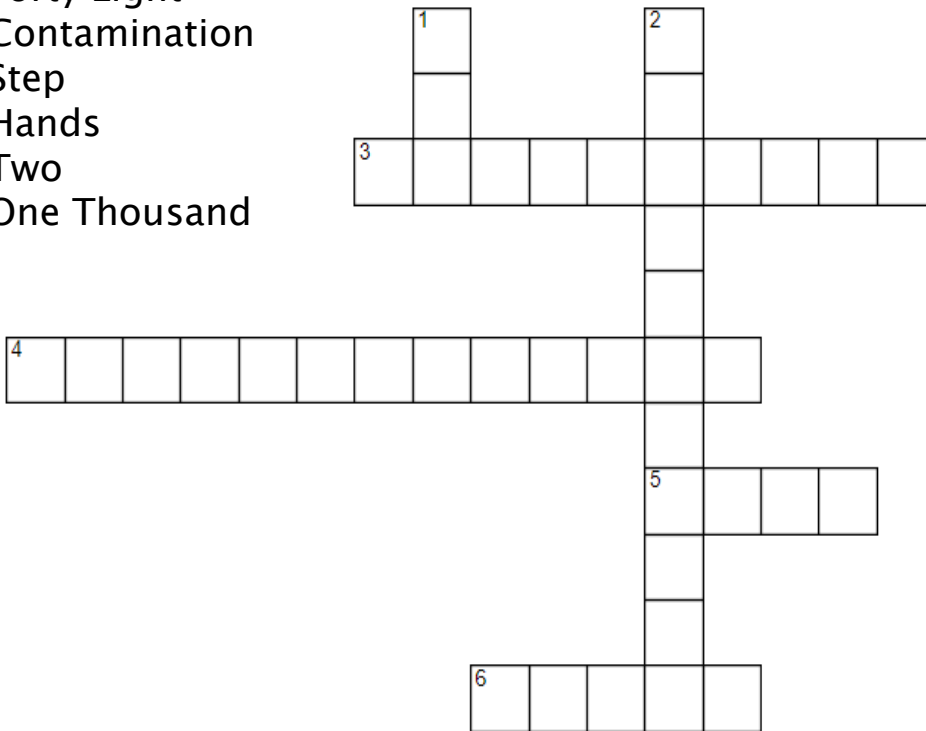


Test your knowledge

Print and complete

Name:

Forty Eight
Contamination
Step
Hands
Two
One Thousand



Across

- 3 A gastro outbreak is usually declared over ----- hours after vomiting and diarrhoea has ceased in the last case.
- 4 Wearing PPE is recommended to prevent ----- of your skin and clothing.
- 5 A three ---- cleaning process is necessary to clean up body fluid accidents (vomit & faeces).
- 6 Carers ----- are the most common source of infection transmission in healthcare.

Down

- 1 The frequency of cleaning is increased to at least --- times per day during an outbreak.
- 2 Surfaces soiled with faeces or vomit must be cleaned with detergent and water followed by wiping with a solution of --- ----- PPM of available chlorine.

References / further reading

- ▶ Axel Kramer, Ingeborg Schwebke and Günter Kampf. *BMC Infectious Diseases*. How long do nosocomial pathogens persist on inanimate surfaces? A systematic review. Article number: 130 (2006).
- ▶ Robert A. Weinstein, Bala Hota. *Clinical Infectious Diseases*. Contamination, Disinfection, and Cross-Colonization: Are Hospital Surfaces Reservoirs for Nosocomial Infection? Volume 39, Issue 8 (2014).
- ▶ NHMRC (2019). Australian Guidelines for the Prevention and Control of Infection in Healthcare. Commonwealth of Australia.
- ▶ A guide for the management and control of gastroenteritis outbreaks in aged care, special care, health care and residential care facilities (December 2018). Communicable Disease Prevention and Control Unit, Department of Health and Human Services, Victoria.
- ▶ Respiratory illness in residential and aged care facilities – guidelines and information kit (April 2018). Department of Health and Human Services, Victoria.
- ▶ Victorian guideline on carbapenemase-producing Enterobacteriaceae for health services (V2.1 2018). Department of Health and Human Services, Victoria.
- ▶ Victorian guidelines on *Candida auris* for health services (V1 2019). Department of Health and Human Services, Victoria.
- ▶ Grampians Region Infection Control Group (GRICG). Screening for Resistant Organisms Flowchart (V2 2019).