

Quick reference guide

Carbapenemase-producing Enterobacterales (CPE) patient management

This guide provides infection prevention and control recommendations for the care of patients/residents with CPE colonisation or infection in healthcare or residential care facilities.

Background

Carbapenemase-producing Enterobacterales (CPE) are a type of bacteria that carry a carbapenemase gene making the bacteria more resistant to many antibiotics.

CPE are multi-resistant organisms of concern as the antibiotic resistance can make CPE infections difficult to treat.

CPE is usually found in the bowel of infected or colonised people but can also be found in urine and wounds. CPE is usually spread person to person through contact with someone who is infected or colonised with CPE. People at higher risk of acquiring CPE include those who have had prolonged hospitalisations, been treated with many antibiotics or have invasive devices.

This guide provides general information for acute healthcare facilities (HCF) and residential care facilities (RCF) regarding the infection prevention and control (IP&C) actions and management of patients/residents identified as having CPE colonisation or infection. However, as this guide is not a full guideline for management of patients/residents with CPE, also refer to the [Australian Commission on Safety and Quality in Healthcare \(ACSQHC\) 2021 Recommendations for the control of carbapenemase-producing Enterobacterales \(2021 CPE Guide\)](#), and state and local policies (see [related information & resources](#) on page 5).

In 2019, SA Health made CPE a notifiable condition in South Australia under the *South Australian Public Health Act 2011*.

HCF and RCF governance and CPE management plan

As part of an effective IP&C program, HCFs and RCFs must have an effective IP&C management plan which includes CPE management.

To minimise CPE transmission risk and to promote patient/resident safety, HCFs and RCFs should ensure that the following are in place:

- > Appropriate governance and management including a designated responsible person and if required an outbreak management team.
- > An IP&C program and Outbreak Action Plan including standard and transmission-based precautions, environmental controls/cleaning and effective antimicrobial stewardship.
- > Systems for effective patient/resident screening, including a process to screen and identify patient/residents at high risk for CPE carriage on admission.
- > Systems to detect CPE clusters or outbreaks including:
 - access to a laboratory that can provide accurate testing and timely results
 - clinicians who can review CPE cases to identify the likely source of acquisition and need for further patient/resident screening (where possible)
 - a CPE alert system to ensure standard and transmission-based precautions are implemented as required each admission.
- > Education for HCF and RCF staff on how to respond to cases of CPE.



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The routes of transmission of CPE

CPE can be spread:

- > from person to person, including by direct contact through contaminated hands of healthcare and residential care workers
- > indirectly via contaminated environmental reservoirs/surfaces or shared equipment.

Minimising the spread of CPE

- > IP&C strategies including hand hygiene, aseptic technique, environmental cleaning and disinfection can limit the impact of CPE, by reducing cross transmission.
- > Movement of a patient/resident with CPE should be limited if possible, however, CPE colonisation or infection should not be a barrier to clinically required inter/intra hospital/RCF transfers.
- > A patient/resident's CPE status must not interfere with the provision of appropriate, high-quality care. No person in South Australia should be refused admission to any HCF or RCF or have their health care compromised solely due to being colonised or infected with CPE.

Patient/resident placement and precautions

- > Patient/residents with CPE are to be managed in a single room with a dedicated ensuite or dedicated shower/toilet. If this is not possible, a bedpan or dedicated commode is required. Also refer to the SA Health [Bed Management Toolkit](#) for infectious diseases and multi-resistant organisms for guidance when prioritising single rooms.
- > Standard and transmission-based precautions (contact) are required.
- > If a patient/resident with CPE is discharged or transferred to another facility, ensure the receiving facility and/or general practitioner is notified, and an infection control management plan discussed including the need for a risk assessment and the implementation of transmission-based precautions (TBP).
- > For further details, refer to the SA Health [Prevention and management of infection in healthcare settings](#) webpage.

Staff allocation

All staff (including medical, allied health and cleaning staff) must strictly adhere to standard and TBPs – including hand hygiene and personal protective equipment (PPE). Staff involved with the care of a CPE patient/resident should be educated and have heightened awareness of CPE risk and management.

Based on a local risk assessment, HCF/RCFs may consider allocation of a dedicated nurse/carer e.g. if a CPE patient/resident has been assessed as high risk for CPE transmission.

Patient/residents of higher risk of transmission may include people who:

- > require assistance from healthcare personnel for the activities of daily living
- > are ventilator dependent
- > are incontinent of faeces or urine
- > have draining wounds that are difficult to cover or control

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- > have invasive devices (e.g. indwelling urinary catheters and intravascular devices)
- > have cognitive impairment that affects their personal/hand hygiene.

Staff allocation during a CPE outbreak

An outbreak is the occurrence of more cases of disease than expected in a given area among a specific group of people, over a particular period of time. This would include two or more linked cases of CPE with the same molecular epidemiology.

In order to limit the risk of CPE transmission to other patient/residents/people, a dedicated nurse can be considered to be allocated to patient/residents with CPE, however this should be risk assessed locally.

The staff caring for the patient/resident should be:

- > be educated and have heightened awareness of CPE risk and management
- > ensure multidisciplinary staff are compliant with TBPs, including correct donning/doffing of PPE, hand hygiene and cleaning multi-use patient/resident care equipment between uses. eg stethoscopes.

Consider allocating a dedicated “nurse buddy” to minimise the number of healthcare/residential care staff having contact with the patient/resident with CPE and can assist with patient/resident care if required and relieving during breaks. If possible, this staff member should not be caring for patient/residents with high risk factors (i.e. wounds, indwelling urinary catheters, invasive devices).

Antimicrobial stewardship actions

- > Optimising antimicrobial use is an important component of addressing CPE transmission and infection risk in an institution.
- > Antibiotic prescribing for both the patient/resident and HCF/RCF should be reviewed and assessed for appropriateness.
- > Hospitals contributing to the [National Antimicrobial Utilisation Surveillance Program \(NAUSP\)](#) can review antimicrobial utilisation rates for their facility and benchmark against other similar hospitals.

Patient/resident education

Provide guidance to the patient/resident with CPE to:

- > Regularly wash their hands with soap and water or use an alcohol-based hand rub, including when leaving their room if relevant.
- > Use allocated toilet facilities (e.g. ensuite) or assist with continence management.
- > If unwell e.g. diarrhoea, avoid using communal areas such as tearooms, sitting rooms and gyms. It is important to maintain patients/residents’ ability to socialise and have access to rehabilitation opportunities. If use of communal areas is clinically required ensure infection control precautions are in place e.g. continence management, covering wounds etc.
- > Read the ACSQHC [CPE patient information sheet](#) provided and ask questions if unsure.

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Environmental cleaning

CPE may be present on surfaces in the patient/resident environment, so it is important to undertake cleaning and disinfection of environmental surfaces, fixtures, fittings and equipment.

A Therapeutic Goods Administration (TGA) listed or registered detergent and disinfectant product is recommended and manufacturer's instructions should be followed, including cleaning methods, correct amounts, dilutions and contact time. For more information refer to the SA Health [Environmental hygiene in healthcare](#) web page.

Medical equipment

Daily cleaning of medical equipment using a detergent and disinfectant (as per manufacturer's requirements) is essential.

Where possible, medical equipment should be disposable or dedicated to the individual patient/resident and not shared between other patients/residents. If equipment is unable to be dedicated as single patient/resident use it must be cleaned and disinfected after each use.

Linen management

Standard precautions apply for the management of linen and waste from patients/residents with CPE. A linen skip/trolley should be placed in the patient/resident's room for their exclusive use.

Waste management

Waste generated in relation to care of patients/residents with CPE should be handled as per standard and TBPs and discarded in general or clinical waste according to local policies and guidelines.

CPE contact screening and alerting

A Quick Reference Guide detailing infection control screening and alerting of CPE contacts, including direct transfers from an identified transmission risk healthcare facility can be accessed via the SA Health [Carbapenemase-producing Enterobacterales \(CPE\) infection control](#) webpage

Staff, volunteer and patient/resident education

All clinical and non-clinical staff, volunteers and patient/residents are to be provided with IP&C and CPE education as indicated.

Monitoring and auditing of IP&C strategies

An outbreak action plan must be developed and maintained by HCFs during CPE outbreaks. Facilities must monitor and record audit results and IP&C strategies including hand hygiene, TBP adherence, PPE donning / doffing technique, environmental and equipment cleaning. Refer to Standard 3 – prevention and controlling healthcare associated infection suite of audit tools located on the SA Health [Healthcare associated infections](#) web page.

[Appendix A](#) is a checklist to ensure specific IP&C measures for care of patients/residents with CPE are in place (adapted from the [Victorian guideline on CPE for long-term RCFs](#)).

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Further information and resources:

- > Australian Commission on Safety and Quality in Healthcare (ACSQHC) [2021 Recommendations for the control of carbapenemase-producing Enterobacterales \(2021 CPE Guide\)](#)
- > [Victorian guideline on CPE for long-term residential care facilities, version 1.1](#)
- > C.E French, C Coope, et al. Control of carbapenemase-producing Enterobacteriaceae outbreaks in acute settings: an evidence review. The Journal of Hospital Infection: Jan 2017;95:3–45
- > SA Health [Bed management toolkit for infectious diseases and multi-resistant organisms](#)
- > SA Health [Carbapenemase-producing Enterobacterales \(CPE\) infection control](#) webpage
- > SA Health [Multi-resistant Gram-negative bacilli \(MRGN\)](#) webpage
- > SA Health [Environmental Hygiene in Healthcare](#) webpage
- > SA Health [Prevention and management of infection in healthcare settings](#) webpage
- > SA Health [Standard 3 – prevention and controlling healthcare associated infection audit tools](#)
- > Also refer to local guidelines and policies.

Appendix

Appendix A – [Example of an Infection Prevention and Control Checklist for care and management of a patient/resident with CPE in a healthcare or residential care facility.](#)

For more information

Infection Control Service
Communicable Disease Control Branch
Telephone: 1300 232 272
www.sahealth.sa.gov.au/infectionprevention

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Appendix A: Example of an Infection Prevention and Control Checklist for the management of a patient/resident with Carbapenemase-producing Enterobacterales (CPE) in a healthcare or residential care facility

Instructions: This checklist is to be completed daily by the nurse/carer looking after the patient/resident with CPE. “No” responses are to be discussed and risk assessed with the shift coordinator/team leader/manager.		
1	Does the facility have a guideline/protocol regarding the management and care of patients/residents with multi-resistant organisms, including CPE?	Yes / No
2	Have all staff received specific education regarding the management and care of patients/residents with CPE?	Yes / No
	<ul style="list-style-type: none"> Is this training compulsory? 	Yes / No
	<ul style="list-style-type: none"> How often is training provided? _____ 	
	<ul style="list-style-type: none"> Do staff have access to written information pertaining to CPE? 	Yes / No
3	Have patient/residents and family members received specific consumer education regarding CPE?	Yes / No
4	Do all patients/residents with CPE have a single room with their own ensuite? <i>(If Yes go to Q5)</i>	Yes / No
	<ul style="list-style-type: none"> If No, are patients/residents with CPE assigned a dedicated bathroom? 	Yes / No
5	Are patients/residents with CPE always toileted in their own bathroom or have a dedicated commode in their room? <i>(If Yes go to Q6)</i>	Yes / No
	<ul style="list-style-type: none"> If No, are patients/residents with CPE assigned a dedicated toilet? <i>(If Yes go to Q6)</i> 	Yes / No
	<ul style="list-style-type: none"> If No, are the toilets used by patients/residents with CPE outside their own room cleaned and disinfected immediately after use? 	Yes / No
6	Is there an alert mechanism (for example signage displayed at the entrance to the room) alert staff that contact precautions are required for the management and care of patients/residents with CPE, including hand hygiene?	Yes / No
7	Is there personal protective equipment (PPE), including gowns/aprons and gloves that easily accessible for staff to wear and hand hygiene facilities (i.e soap and water and/or alcohol-based hand gel) when attending to close personal care of patients/residents with CPE?	Yes / No
8	Do all staff use gowns/aprons and gloves for all close personal care (for example toileting) of patients/residents with CPE?	Yes / No
9	Do rooms of patients/residents with CPE receive a full clean and disinfection daily?	Yes / No
10	Are the following areas of the rooms of patients/residents with CPE cleaned and disinfected daily, including?	Yes / No
	<ul style="list-style-type: none"> Bathrooms/toilets/commode chair 	Yes / No
	<ul style="list-style-type: none"> Frequently touched surfaces (i.e. door handles, light switches, sinks, bed rails) 	Yes / No
	<ul style="list-style-type: none"> Equipment/furniture in the immediate vicinity of the patient/resident 	Yes / No
11	Is a TGA listed or registered disinfectant used to disinfect environmental surfaces in rooms of patients/residents with CPE? <i>(If Yes go to Q11)</i>	Yes / No
	<ul style="list-style-type: none"> If No, what alternative method for cleaning/disinfection is used? _____ 	

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12	Is all equipment (for example commode chair, lifting machine, frames) used for patients/residents with CPE dedicated to their use?	Yes / No
	<ul style="list-style-type: none"> • List shared equipment: _____ 	
	<ul style="list-style-type: none"> • Are these items cleaned and disinfected after use/prior to use on another patient/resident? 	Yes / No
13	Is shared equipment used by patients/residents with CPE in group activities cleaned and disinfected prior to use by other patients/residents?	Yes / No
14	Are other healthcare or residential care facilities advised of a patients/residents CPE status prior to being transferred to a different site?	Yes / No
	<ul style="list-style-type: none"> • If Yes, is a template letter of transfer used to document all necessary information? 	Yes / No