OFFICIAL

SA Health

Clinical Guideline No: CG249

Multi-resistant Gram-negative (MRGN) Micro-organisms Infection Prevention and Control (IPC) Clinical Guideline

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Version 2.0

Approval date: 28/08/2025

Government of South Australia
SA Health

Contents

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1. Title of clinical guideline

Multi-resistant Gram-negative (MRGN) micro-organisms Infection Prevention and Control (IPC) Clinical Guideline

2. Key points

- Guidance covers inpatient, peri-operative, outpatient, residential, community, and transport settings.
- MRGN includes highly antibiotic-resistant Gram-negative bacteria, such as CPE, which can spread between patients and environments.
- Transmission occurs mainly via contact with contaminated hands, equipment, or surfaces.
- Apply standard and contact precautions for MRGN/CPE cases.
- Use targeted screening for high-risk patients (e.g. overseas hospital stays, known contacts).
- Record MRGN status in patient/resident records.
- Outbreaks require investigation, contact screening, environmental cleaning, and IPC staff input.
- Notify receiving facilities before patient transfers and include IPC requirements.
- MRGN status must never limit access to care or healthcare facility/residential admission.

3. Clinical Guideline statement

3.1 Purpose of guideline

This clinical guideline outlines exemplar IPC information for healthcare facilities (HCF) and services in relation to Multi-resistant Gram-negative micro-organisms (MRGN), including Carbapenemase-producing Enterobacterales (CPE). HCFs should also refer to local policy, guidelines and procedures.

The Infection Prevention and Control and Healthcare Associated Infection (HAI) Surveillance and Reporting Policy is the parent policy to this Multi-resistant Gram-negative micro-organisms (MRGN): Infection prevention and control Clinical Guideline.

For the purpose of this clinical guideline, MRGN are considered Gram-negative bacteria that are resistant to multiple antibiotics or carry important plasmid-mediated antibiotic resistance genes, in particular extended-spectrum β-lactamases (ESBL), Carbapenemase, and polymyxin resistance.

Resistance genes that are carried on mobile genetic elements, such as plasmids, may be transferred between different bacteria. Carbapenemase-producing MRGN (CPE) have been found in Australia amongst members of the Enterobacteriaceae (such as *Escherichia coli* and *Klebsiella pneumoniae*) and in *Acinetobacter baumannii* and *Pseudomonas aeruginosa*.

This guideline provides a standardised approach for identifying, managing, and preventing the spread of MRGN across all SA Health services, while ensuring that patient care and access to healthcare are not compromised.

3.2 Scope of guideline

This clinical guideline applies to all employees and contractors of SA Health; that is all employees and contractors of the Department for Health and Wellbeing (DHW), Local Health Networks (LHNs), including statewide services aligned with those Networks and SA Ambulance Service (SAAS).

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4. Background

MRGN are bacteria that have developed resistance to multiple antibiotics, including critical last-line treatments such as carbapenems. Some, like CPE, carry resistance genes on plasmids, allowing them to spread between different bacterial species.

In Australia, CPE has been identified in Enterobacterales (e.g. *E. coli*, *Klebsiella pneumoniae*), as well as *Acinetobacter baumannii* and *Pseudomonas aeruginosa*. These organisms can colonise the gastrointestinal tract, skin, wounds, and medical devices, and contaminate the healthcare environment.

Transmission occurs primarily through direct contact (e.g. hands of healthcare workers or patients) or indirect contact via contaminated equipment or surfaces. The persistence of MRGN in the environment and their potential to cause serious infections make effective IPC measures essential.

5. Definitions, acronyms and abbreviations

Definitions

carbapenemase	means an enzyme that has resistance to all carbapenem antibiotics such as meropenem or imipenem, which are considered one of the last line antibiotic classes for treatment of infections with MRGN; carbapenemases are usually carried on plasmids.
colonisation	means the presence, growth and multiplication of micro-organisms without observable signs or symptoms of infection or disease.
CPE	refers to: transferable carbapenemase-producing members of the Enterobacterales e.g. *Escherichia coli*, *Klebsiella*, *Enterobacter*, *Proteus* and *Morganella* species.
CRE	refers to: carbapenem-resistant members of the family Enterobacterales, such as *E. coli* and *Klebsiella pneumoniae*, and includes those strains that carry transferable carbapenemase and those that have other resistance mechanisms.
Infection	means invasion of micro-organisms into host tissues with replication of the organisms accompanied by signs or symptoms of illness.
MRGN	refers to: any clinically important Gram-negative bacillus that is reported as multidrug-resistant or carries important plasmid-mediated resistance genes. Organisms include: ESBLs, plasmid mediated AmpC, multi-resistant *Pseudomonas aeruginosa*, MR *Acinetobacter baumannii* and Carbapenemase producing Enterobacterales.
OACIS	refers to: Open architecture clinical information system.
Plasmid	means: a small, mobile genetic element that often carries antibiotic-resistance genes
Transferable	means: resistance that is able to be passed between different bacterial species by means of mobile genetic elements such as plasmids.
Statewide Services	means Statewide Clinical Support Services, Prison Health, SA Dental Service, BreastScreen SA and any other statewide services that fall under the governance of the Local Health Networks.

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Abbreviations

EMR	Electronic Medical Record
ESBL	extended-spectrum β-lactamases
ICIMS	Infection Control Management System
PPE	Personal protective equipment
TBP	Transmission-based precautions

Acronyms

HCF	Healthcare facilities
IPC	Infection prevention and control
LHN	Local Health Networks
SAAS	SA Ambulance Service
TGA	Therapeutic Goods Authority

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6. Guideline guidance

6.1 Guideline Principles

National IPC guidelines provide information and guidance to address the risk of spread and/or transmission of MRGN (including CPE) in HCFs. These include:

- Implementation of standard and transmission-based precautions (TBP), including hand hygiene as per the 5 Moments for Hand Hygiene, personal protective equipment (PPE) and environmental controls
- Patient risk-based screening in accordance with current national guidelines
- Surveillance, data analysis and reporting at the local and state level
- Antimicrobial stewardship
- Note: At no time should a person's MRGN status interfere with the provision of appropriate, high-quality healthcare. No person in South Australia should be refused admission to any healthcare facility or have their health care compromised solely due to being colonised or infected with MRGN. This includes the right to return to their place of residence.

Reservoirs of MRGN

- The lower gastrointestinal tract is a reservoir for MRGN. MRGN are found in the faeces of colonised people and can also colonise skin surfaces. MRGN may contaminate the environment around a patient and survive there for several days; environmental contamination is increased when patients have diarrhoea. Surfaces or fomites (including medical instruments and patient equipment such as commodes, shower chairs, patient lockers, overway tables, ambulance stretchers and equipment) that come into contact with staff or patients may also become contaminated. Sinks, drains and soap containers can also be reservoirs for MRGN within a ward area.

Mode of transmission

- The most likely modes of transmission of MRGN are:
  - **direct contact** - by contaminated hands of health care personnel or colonised patients
  - **indirect contact** - by contact with contaminated medical and patient care equipment or environmental surfaces.

Factors that may increase the risk of transmission of MRGN include:

- Effectiveness and compliance with recommended IPC practices
- Patient associated factors e.g. uncontrolled diarrhoea or wound discharge not contained by dressings and other factors as per clinical assessment.

6.2 Surveillance and screening

Routine HCF admission screening of all patients/residents is not currently recommended; however, a selective targeted risk-based surveillance program may be considered by healthcare facilities (HCF).

Current recommendations for admission screening for CPE are available, refer to Appendix 4: Quick Reference Guide - Carbapenemase-producing Enterobacterales (CPE) patient management and Appendix 5: SA Health CPE admission screening flowchart. For additional information, refer to the Australian Commission on Safety and Quality in Health Care (ACSQHC) CPE Guideline. Also refer local policies and procedures.

Note: TBPs are not generally required for patients screened as part of point prevalence screening, however this would be based on a local risk assessment. Refer to local policies and procedures.

Patient consent to screening:

- Patients or residents being tested for MRGN (including CPE) should provide consent and be provided with information explaining the specimen collection process and the significance of the test results. Required documentation should be completed. Refer to local policies and procedures.

Screening on admission:

- To assist in the detection of Carbapenemase-producing Enterobacterales (CPE) carriage that may be present on admission, screening of the following patient groups is recommended:
  - direct inter-hospital transfers from any overseas or interstate hospital
  - any patient with an identified overnight stay, or who has received medical treatment in an overseas hospital in the past 12 months.
  - any patient identified as a “contact” of a positive CPE carriage patient during the current admission, or a previous hospital admission if not previously screened. A “contact” is defined as a patient who has shared the same bed space (room or ward bay), bathroom, or toilet facilities with a known colonised or infected patient for at least 24 hours.
  - Patients who are identified as contacts who have been discharged to a residential care facility or transferred to another hospital should be screened for CPE at that facility; the receiving facility should inform the transferring facility of the results.

Screening during admission

- Repeat screening during an admission may be indicated for patients with risk factors for MRGN on inter HCF transfer to a high-risk unit, such as intensive care or solid organ transplant unit. This should be undertaken in accordance with local health facility policy, taking into consideration a local risk assessment.

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- Additional point prevalence or admission/ discharge screening can be considered by HCFs in areas with increased risk of CPE acquisitions and/or transmission. Refer to SA Health CPE admission screening flowchart Appendix 5 for further information
- CPE Screening in neonatal units – refer to clinical advice and local policy, guidelines and procedures.

Screening to expire IPC alerts

- Patients or residents who fit the criteria to have screening for the purpose of expiring CPE contact alerts, require three negative screens taken greater than 24 hours apart before contact alert can be expired.

Screening sites and methods

- Recommended screening specimen sites can include:
  - faeces or a rectal swab
  - urine from catheterised patients
  - unhealed wounds
  - tracheostomy, or enterostomy.

Collection of specimens

- Correct method for specimen collection is important, this includes:
  - Follow LHN, statewide clinical support services (SCSS) and manufacturer's and/or laboratory instructions for specimen collection.
  - Swabs should be clearly labelled as per LHN/SCCS requirement, including the site of collection.
  - The pathology request form or electronic medical record (EMR) request should include information including "CPE screen".
  - The specimen(s) and the request form should be sent to the laboratory as soon as possible.
  - If a swab or specimen is not taken for surveillance screening reasons and has been ordered by a clinician and taken for clinical reasons, the request form or EMR request should include microscopy, culture and sensitivity (MC&S).
- **Note**: at the present time SA Pathology laboratory requests for 'MRGN screen' will only report on carriage of CPE and Carbapenem-resistant *Acinetobacter species*. Other laboratories may also include carbapenem-resistant *Pseudomonas aeruginosa*.

6.3 Alerting of MRGN status on patient records

MRGN status to be placed on the electronic and/or paper medical record (including OACIS and Infection Control Management System (ICIMS)) and include information on the resistance category, specimen site and any other relevant infection control information.

Contacts of patients identified with Carbapenemase-producing MRGN who have already been discharged should have a contact alert placed on electronic medical records so that they may be identified on readmission as requiring screening.

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6.4 Screening for discontinuation of transmission-based precautions

Current national infection control guidelines do not describe an agreed protocol for clearance of MRGN carriage; the following recommendations may change over time as more evidence becomes available. It is essential that senior infection control and/or medical personnel are involved in discussions regarding clearance of MRGN status.

It is recommended that:

- Patients infected or colonised with transmissible Carbapenemase resistance (CPE) are not "cleared" or de-alerted until further evidence supports a clearance protocol.
- Patients infected or colonised with all other types of MRGN may have their MRO alert retired and be managed with standard precautions provided the following conditions are met:
    - more than 3 months have elapsed since the last positive specimen
    - no current or recent antibiotic therapy (within the last 3 months)
    - no indwelling urinary catheter present
    - no unhealed discharging wounds
    - no enterostomy or tracheostomy present.

6.5 Communication of results

When the laboratory testing confirms the isolation of a MRGN from a patient (infected or colonised), key personnel should be notified as soon as possible, to ensure that appropriate IPC actions and patient information is initiated (including TBP). Key people for communication of results include:

- medical practitioner responsible for the care of the patient
- infection prevention and control (IPC) staff
- team leader and primary nurse of patient
- bed manager / duty nurse manager
- other personnel as may be specified in the facility's MRGN procedure.
- patients should be informed of their results by their clinician or delegate.

Note: Where IPC staff are responsible for receiving and actioning MRGN test results and the notification occurs outside the normal working hours of the IPC unit hours of operation, there should be a system in place to ensure results are communicated and actioned as soon as possible.

Recommended actions in responses to a positive MRGN test include:

- Alerting of MRGN status on patient records, including:
    - the electronic and/ or paper medical record (including EMR, OACIS and ICIMS) including information on the resistance category, specimen site and any other relevant infection control information.
    - When a decision has been made to discontinue TBP, the IPC alert can be retired/removed. Ensure that reasons for discontinuation of TBP are documented. Future risk assessment and screening should be undertaken in accordance with Section 6.2 of this document.

6.6 Transfer of patients between facilities

Patients with MRGN should not be refused admission or transfer to any healthcare facility based on their MRGN results and the following actions are recommended:

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- Clinical staff arranging the transfer should notify the receiving health facility before transfer of a patient with MRGN, to ensure appropriate bed management and TBP.
- Medical/nursing documents accompanying the patient should clearly state details relating to the patient's MRGN test results and be communicated verbally during the clinical handover process.
- If the transfer is being arranged and conducted by a healthcare provider, e.g. SA Ambulance Service, handover and transfer information should include the required IPC precautions.
- Transport via clinic car or taxi usually requires standard precautions provided all discharging wounds are covered and any incontinence issues have been addressed. If clinical care is required refer to local policy and procedures.
- If a receiving facility cultures a MRGN from a patient within 48 hours of transfer, they should advise the transferring institution of the positive result.

6.7 Outbreak management

An outbreak is defined as an increase in the number of cases (colonisations or infections) above the number normally occurring in a particular health care setting over a defined period of time. In a hospital setting, this may be indicated by a cluster of cases, including two or more epidemiologically linked cases, occurring in the same bay, ward, or clinical service over a short period of time, e.g. one week.

If an outbreak is suspected, this will require the implementation of a number of possible actions to assist with the investigation, such as contact screening, environmental testing, additional cleaning and strain typing etc.

The LHN Infection Prevention and Control Unit and or other relevant staff should liaise with the local Clinical Microbiologist/Infectious Diseases Consultant and senior nursing/ medical personnel.

Identification of any potential carriers may require screening of patients who had contact (see definition in section 6.2) at any time after admission of the first identified positive case. It is acknowledged that in some health care settings, where routine screening of patients is not commonly undertaken, identification of the index patient may be difficult because of the potential spread of the organism before it is detected.

For further guidance on suggested actions and investigations refer to the Australian Guidelines for the Prevention and Control of Infection in Healthcare, section 3.4 – Management of multi-resistant organisms and outbreak situations, and the Australian Commission for Safety and Quality in Health Care: Recommendations for the control of Carbapenemase-producing Enterobacterales (CPE) – A guide for acute care health facilities. The Infection Control Service of the Department for Health and Wellbeing can be contacted for assistance.

6.8 Management of patients with MRGN in inpatient areas of acute healthcare facilities

Standard and Transmission-based precautions

- All patients regardless of their infectious status require the implementation of standard precautions. Refer www.sahealth.sa.gov.au/infectionprevention.
- TBP – (Contact) are recommended for patients/residents identified with MRGN including critical antibiotic resistances, such as CPE.

Patient placement

- Patients with a MRGN alert or positive test result a single room with ensuite facilities or dedicated bathroom is desirable; but if these facilities are not available and a shared bathroom is to be used,

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refer to local risk assessment procedures to guide shared use and environmental controls.

- If there are limited facilities for isolation, via a risk assessment, prioritise isolating those patients with conditions that may represent an increased risk for MRGN transmission, e.g. presence of diarrhoea or faecal incontinence, or patients with poor hygiene practices.
- Patients with CPE should be placed in a single room (note: the door can be left open) with ensuite facilities. Cohorting of patients with CPE is not generally recommended.
- For further guidance refer to Appendix 1 - Bed management guide for patients in acute care facilities.

Personal protective equipment (PPE)

Gloves

- The use of gloves (sterile or non-sterile dependant on the task being performed) is recommended as per standard precautions and when direct contact with either the patient or the patient's environment is anticipated. The use of gloves does not negate the need for hand hygiene, when gloves are worn hand hygiene should be performed as per the 5 moments for hand hygiene.
- Correct glove use includes performing of hand hygiene before and after glove use, changing gloves between episodes of care on same patient, and on leaving the patient room area and as per the 5 moments for hand hygiene.

Gowns or aprons

- The choice of gown or apron can be based on a local risk assessment, including consideration of the procedure being undertaken and the risk of exposure of the healthcare worker. If an apron is used, it is important to ensure that wrists and forearms are included in the hand hygiene procedure.

Patient equipment

- Ensure that only required amounts of equipment and supplies are taken into the room.
- Dedicate the use of non-critical items (e.g. stethoscope, sphygmomanometer etc.) to a single patient, where possible.
- Patients can use communal phones; however, ensure that the patient performs hand hygiene using alcohol-based hand rub prior to using the phone and that the phone is decontaminated using a combined detergent disinfectant solution or wipe prior to returning to general use.
- Store patient charts and medical records outside of the patient's room.
- Mobile computers for EMR should be cleaned after use as per local procedures and manufacturer's instructions on leaving the patient room.

Cleaning

- Cleaning should be performed according to local policies and procedures. Exemplar cleaning guidance is available in the SA Health Cleaning Standard. Key points include:
  - Use a Therapeutic Goods Authority (TGA) listed or registered hospital grade disinfectant (preferably with label claims against MRGN) for routine cleaning of the patient environment.
  - If using sodium hypochlorite for environmental cleaning and disinfection, refer to manufacturer's instructions and also exemplar information in the SA Health Fact Sheet for healthcare professionals Guide to dilution for chlorine-based disinfectant solutions.

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- Pay particular attention to all frequently touched surfaces, such as bedrails, commodes, toilet, hand basins and taps.
- Ensure that all cleaning equipment and solutions are changed after cleaning the room and before moving to the next patient area/room.
- Decontaminate all patient equipment using detergent/disinfectant solution or wipes prior to use on or by another patient.
- The room may be re-used once cleaning and disinfection has been completed and all surfaces are dry.

Infection control signage

- TBP signage which includes PPE guidance, can be placed outside of the patient's room. Exemplar signage can be accessed: Australian Commission on Safety and Quality in Healthcare Transmission Based Precaution Signage.
- Movement of patients within the hospital
  - A patient's MRGN status should not compromise patient management and care.
  - Patients with MRGN do not have to remain in their room and may go outside their isolation room for diagnostic testing and other activities. It is recommended that any lesions/wounds are covered/exudate contained and any faecal incontinence is managed.
  - Request the patient not to visit other patients during their hospital admission.
  - Encourage the patient to perform hand hygiene before leaving their room.
  - Staff accompanying patients can wear PPE if direct patient care is anticipated and should perform hand hygiene as per the 5 moments for hand hygiene.
- Visitors
  - Generally, there is no requirement for visitors to wear PPE, however there may be certain situations where PPE may be considered e.g. when a visitor is providing direct care and intends to visit another patient in the same facility.
  - Advise visitors to perform hand hygiene prior to leaving the room. The patient's clothing may be taken home in a plastic bag for washing using a normal wash cycle.
  - Provide a SA Health MRGN Consumer fact sheet
- Consumer education
  - Patients should be provided with information by their healthcare provider.
  - Provide patients with information about how to minimise the risk of MRGN transmission whilst in hospital and once discharged.
  - Refer to the exemplar information SA Health MRGN Consumer fact sheet.
- Staff colonised or infected with MRGN
  - Staff who are colonised or infected with MRGN should not be discriminated against.
  - Staff who become aware of their MRGN positive status are under no legal obligation to inform their employer.
  - All staff should be aware of their responsibilities for safe practice in accordance with relevant standards and guidelines.

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6.9 Management of patients with MRGN in the peri-operative setting

Standard and TBP apply and also refer to local policies, guidelines and procedures specific to this setting.

Additional IPC guidance for this setting includes:

- Pre-theatre
  - Ensure that all patients, regardless of infectious status, shower or bathe and put on a clean theatre gown as close as possible to the scheduled procedure time.
  - If the patient is an inpatient, change the bed linen as close as possible to the scheduled procedure time.
  - Clean bed rails and frequently touched surfaces of the bed with detergent/ disinfectant solution or wipes prior to transport to the operating theatre.
  - Patients may wait in a “holding area” provided standard precautions are adhered to; if close physical contact (i.e. physical examination) is anticipated gloves and a long-sleeved gown are required with strict attention to hand hygiene.
- Theatre environment
  - Staff involved in close physical patient contact (e.g., transferring patient from bed/barouche to operating room table) should wear a long-sleeved gown and gloves over theatre clothes. These should then be discarded immediately after patient contact and hand hygiene should be performed.
  - All routine theatre equipment is to remain in the operating room.
  - Patient case notes (paper or electronic) should be available in the theatre. Gloves should be removed, and hand hygiene performed before and after documentation.
  - Designate a “contact” and “non-contact” staff member to decrease the number of staff having direct contact with the patient (Refer to *Appendix 2*).
  - Electronic equipment, e.g. anaesthetic equipment, should be decontaminated by wiping over with a detergent disinfectant solution or wipe according to the manufacturer’s instructions.
  - There are no special requirements for the management of waste, linen and instruments used in the theatre environment. These items should be managed according to standard precautions and instruments according to AS 5369:2023 - Reprocessing of reusable medical devices and other devices in health and non-health related facilities.

Note: There is no special requirement to place the patient at the end of the operating list, since routine cleaning procedures between patients are sufficient to prevent transmission.

- Post-theatre (recovery)
  - Patients with a multi-resistant organism to recover in a designated area.
  - Staff involved in close physical patient contact e.g., transferring patient from barouche to bed, should wear appropriate PPE e.g. a long-sleeved gown and gloves over theatre clothes. These should then be discarded immediately after patient contact and hand hygiene should be performed.
  - When the patient is transferred from the perioperative setting clean all surfaces and patient care equipment in the patient zone with an appropriate detergent/disinfectant.
  - Patient privacy curtains do not require changing unless visibly soiled.

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6.10 Management of patients with MRGN in outpatient settings – outpatient clinics, emergency, radiology, dental, primary care

Standard and TBP apply and also refer to local policies, guidelines and procedures specific to this setting.

Additional IPC guidance for this setting includes:

- All patients, regardless of infectious status, should perform hand hygiene on admission to the area.
- Patients can sit in the waiting area providing all discharging wounds are covered with a clean dressing and there are no visible signs of faecal soiling.
- PPE is recommended for close physical contact (e.g. wound care or assistance with enterostomies and/or toileting).

6.11 Management of patients with MRGN in dialysis centres

Standard and TBP apply and also refer to local policies and procedures specific to haemodialysis settings.

Additional IPC guidance for this setting includes:

- MRGN colonisation should not prevent inpatient or outpatient treatment in dialysis centres.

6.12 Management of patients with MRGN in community home health care

Standard and TBP apply and also refer to local policies, guidelines and procedures specific to this setting. Community health care settings can include healthcare provided in a person's home environment.

Additional IPC guidance includes:

- Only take required items and equipment into the home.
- General waste generated in the care of the patient (excluding sharps) may be discarded in the household waste. For disposal of clinical or medical waste, including sharps/needles, refer to local policy and procedures.

6.13 Management of patients with MRGN in ambulance services and aeromedical transport services

Standard and TBP apply and also refer to local policies, guidelines and procedures specific to this setting.

6.14 Management of residents with MRGN in residential care facilities

Standard and TBP apply and also refer to local policies, guidelines and procedures specific to this setting.

The term residential care facility (RCF), as used in this document, applies to a diverse group of residential settings ranging from aged or disability care settings, residential mental health facilities and long-term rehabilitation settings. Isolation or restriction of residents to their room as part of TBP in this setting may require risk assessment and/or modification

Note: A person should not be refused admission to any residential care facility on the basis of MRGN colonisation or infection.

For further information refer to The Aged Care Infection Prevention and Control Guide | Australian Commission on Safety and Quality in Health Care

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Additional IPC guidance for this setting includes:
Screening
The Australian Guidelines for the Prevention and Control of Infection in Healthcare suggests that current evidence does not support routine screening for MRGN in residential aged care settings. There may be exceptions when screening is appropriate for an individual resident's management or in the investigation of a facility outbreak. This should occur as part of the facility IPC program and support should be sought from a specialist infection control professional, infectious disease physician, microbiologist or clinical care delegate, especially if the MRGN is carbapenem-resistant.

Resident placement

- RACF can undertake a local risk assessment regarding resident room placement.
- Single rooms are recommended for residents with conditions that facilitate transmission e.g. uncontrolled faecal incontinence or draining wounds.
- If single rooms are not available, a local risk assessment may be indicated, this may include assessing the risk of transmission and other residents who are considered to share the same room (who are at low risk of acquisition, i.e. no unhealed wounds, not on antibiotic therapy, no indwelling invasive devices, not immunosuppressed). For further information, refer to Appendix 3 - Bed management guide for long term facilities.
- In rehabilitation settings or facilities providing therapy all residents/patients should perform hand hygiene before entering a gym or therapy room. High touch surfaces on all equipment such as handrails, should be wiped over with a detergent/disinfectant wipe between patient/resident use.

7. Associated policies / guidelines / clinical guidelines / resources

- Australian Commission on Safety and Quality in Health Care.(ACSQHC) Carbapenemase-producing Enterobacterales
- The Aged Care Infection Prevention and Control Guide | Australian Commission on Safety and Quality in Health Care
- Australian guidelines for the prevention and control of infection in health care facilities
- Centers for Disease Control. Carbapenem-Resistant Enterobacteriaceae (CRE) Control
- Cleaning Standard for South Australian Healthcare facilities
- Infection Prevention and Control and Healthcare Associated Infection (HAI) Surveillance and Reporting Policy
- SA Health Bed Management Toolkit
- SA Health CPE Management Quick Management Guide
- SA Health Hand Hygiene Clinical Guideline
- SA Health Hand Hygiene in the healthcare environment webpage
- SA Health MRGN Consumer fact sheet

8. Appendices

Appendix 1: Bed management guide for patients in acute care facilities
Appendix 2: Contact and non-contact zones for control of MRGNs in the peri-operative setting
Appendix 3: Bed management guide for residents in long term care facilities
Appendix 4: Quick Reference Guide - Carbapenemase-producing Enterobacterales (CPE) patient management
Appendix 5: Quick Reference Guide - Carbapenemase-producing Enterobacterales (CPE) admission screening

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9. Document Ownership and History

Developed by: Infection Control Service, Communicable Disease Control Branch, Public Health Division

Contact: HealthICS@sa.gov.au

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CG history: Is this a new clinical guideline (V1)? **N**

Does this clinical guideline amend or update and existing clinical guideline? **Y**

If so, which version? **V1.2**

Does this clinical guideline replace another clinical guideline with a different title? **N**

Approval Date	Version	Who approved New/Revised Version	Reason for Change
28/08/2025	v2.0	Clinical Guideline Domain Custodian	Placed into new template, full review with subject matter experts
11/11/2019	v1.2	Director Communicable Disease Control Branch	Placed into new template, updated reference
01/08/2017	v1.1	SA Health Policy Committee	Placed into new template, restructured and minor amendments to content
21/06/2016	v1.0	SA Health Safety & Quality Strategic Governance Committee	Original version

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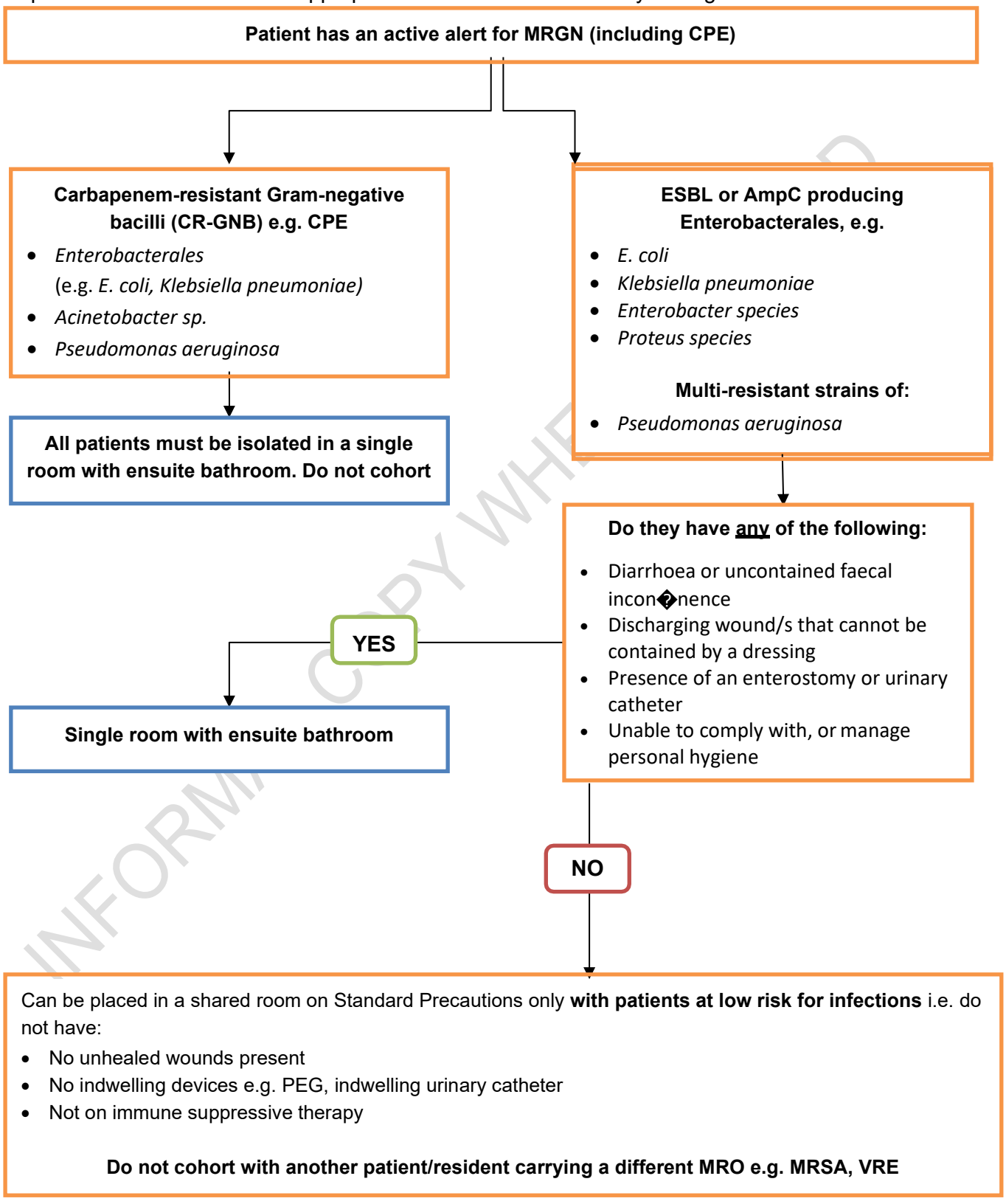
Appendix 1 – Bed management guide for patients in acute care settings

Ideally patients with an MRGN should be placed in a single room with ensuite facilities. However, if this is not possible, perform a local risk assessment to identify and mitigate known or potential transmission risks appropriate for the healthcare facility/setting.



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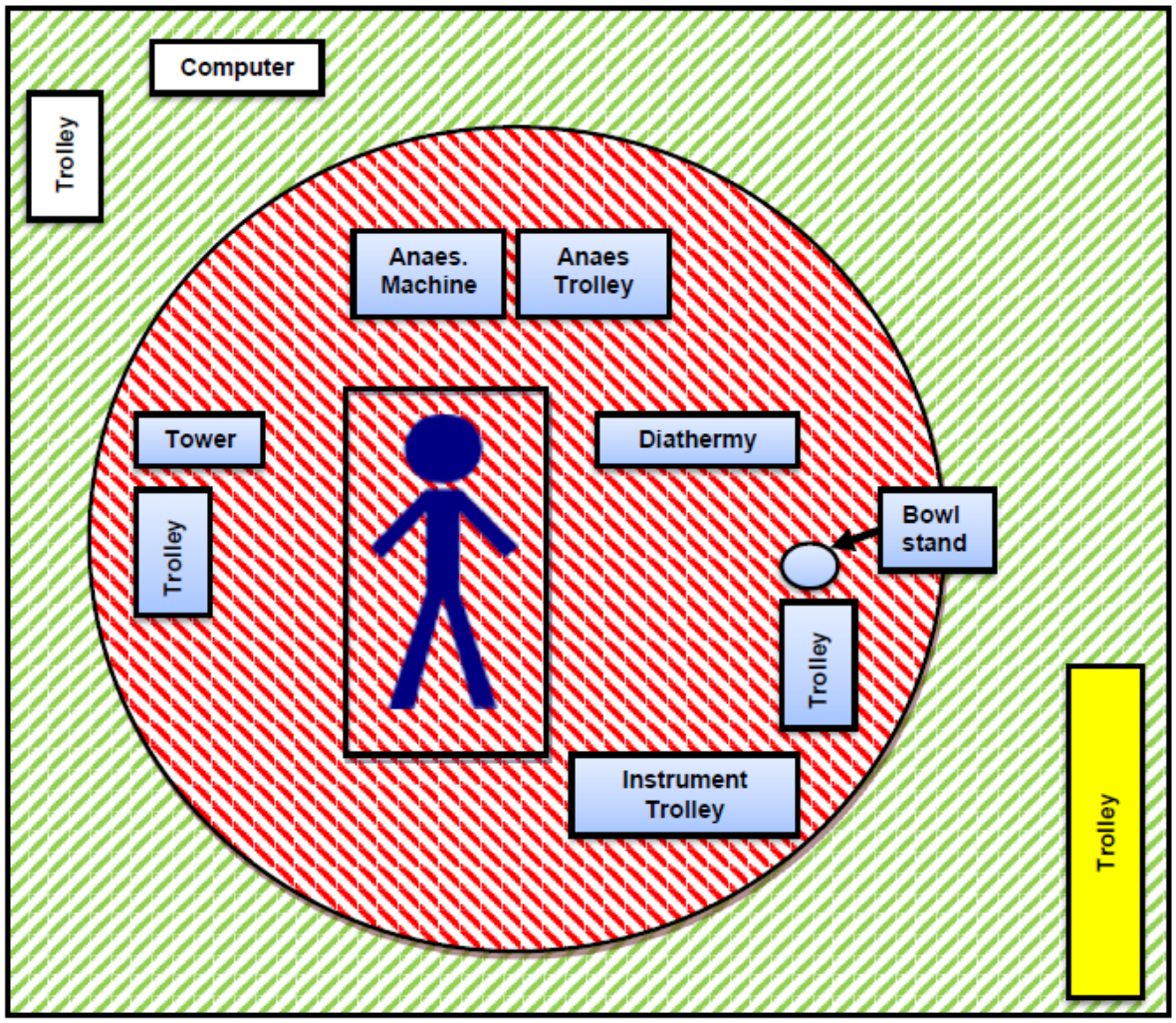
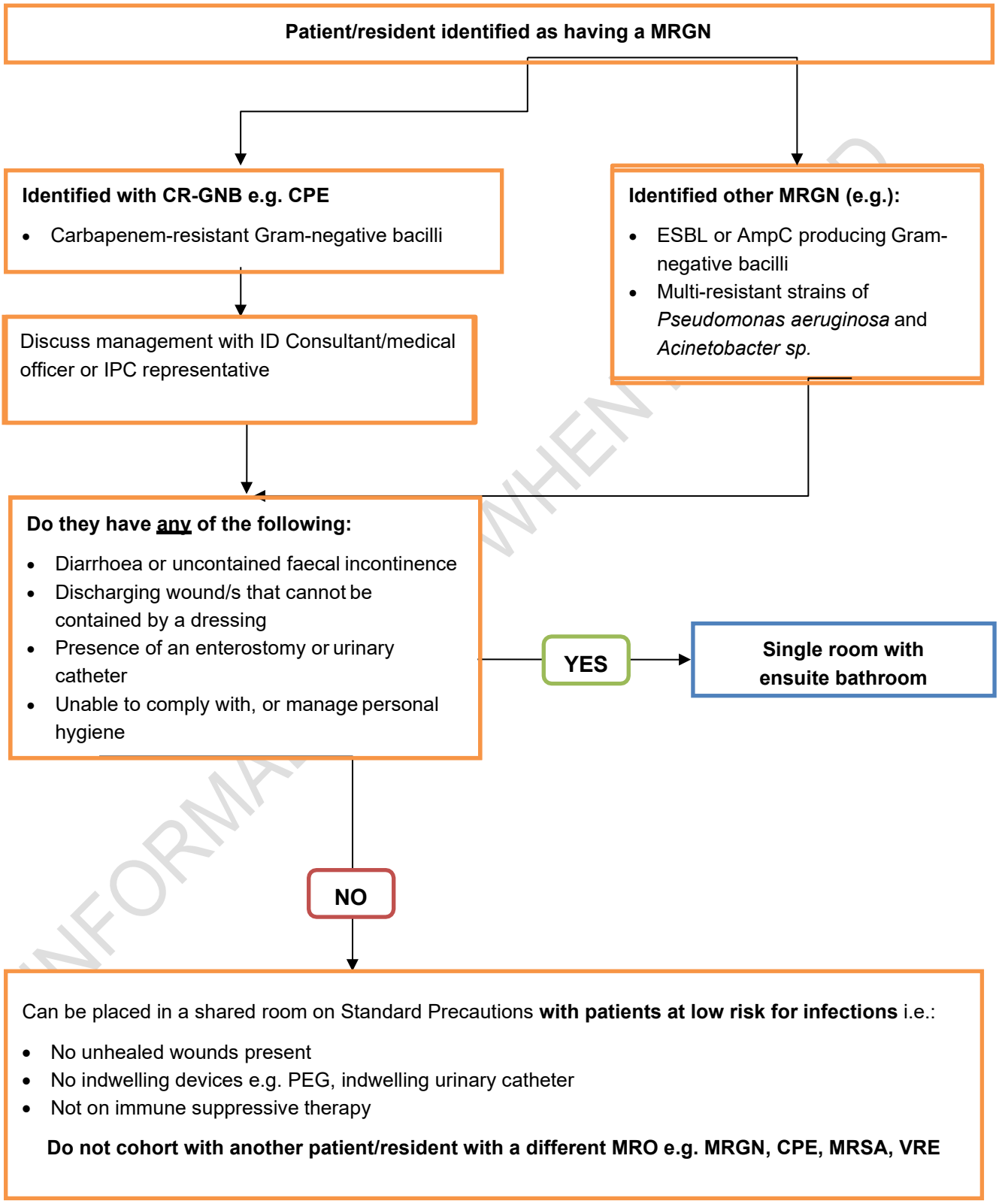
Appendix 2 – Contact and non-contact zones for control of MROs in the perioperative setting



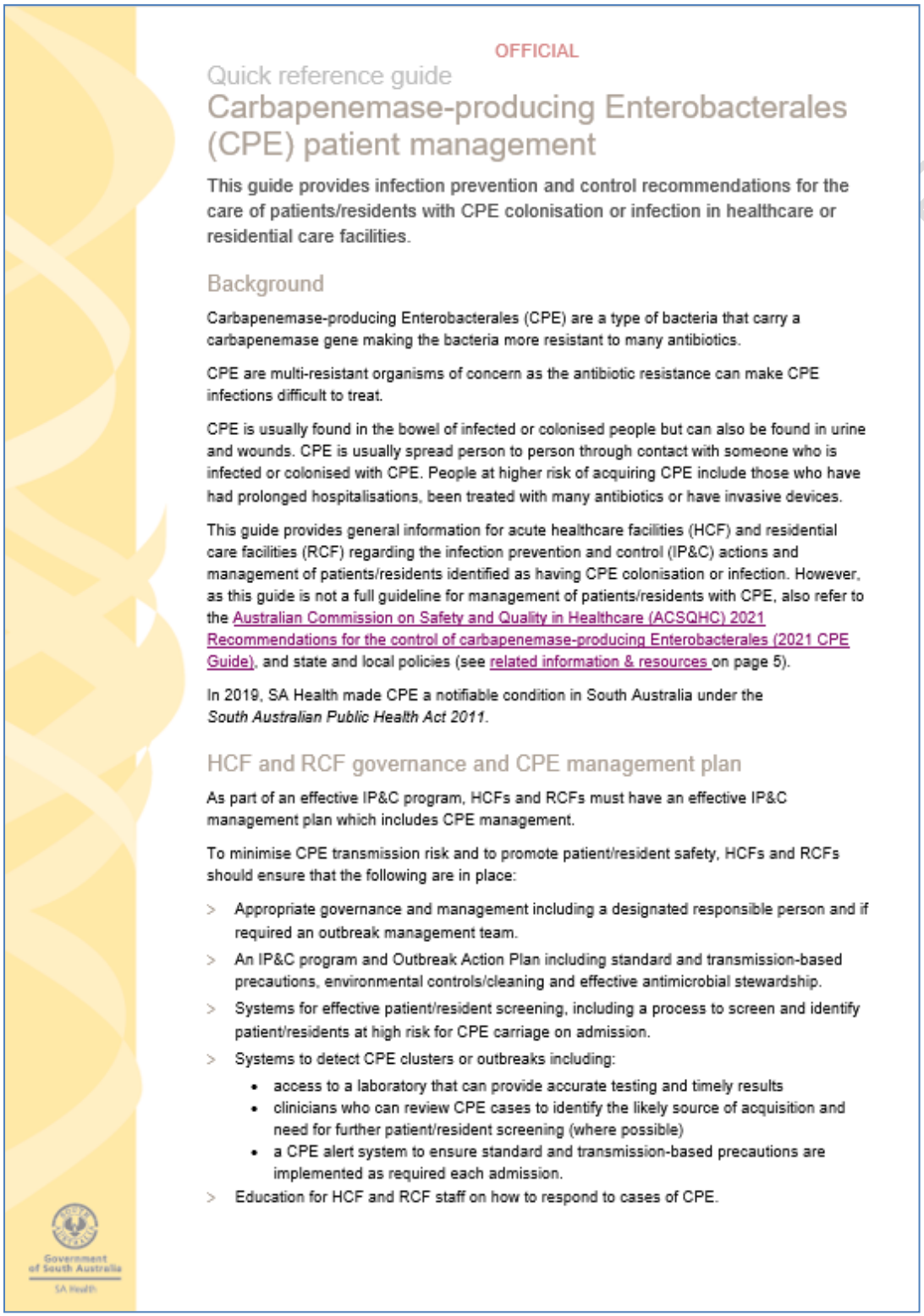
Appendix 3 – Bed management guide for residents in long term care facilities

e.g. aged care, rehabilitation, mental health



Appendix 4 – Quick Reference Guide - Carbapenemase-producing Enterobacterales (CPE) patient management

Available via the SA Health Multidrug-resistant organisms (MRO) webpage.



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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.

Government of South Australia
SA Health

Appendix 5: Quick Reference Guide - Carbapenemase-producing Enterobacterales (CPE) admission screening

Available via the SA Health Multidrug-resistant organisms (MRO) webpage.

Carbapenemase-producing Enterobacterales (CPE) admission screening

Is the patient a direct hospital transfer from either:
- an overseas healthcare facility
- an interstate healthcare facility
- an intrastate healthcare facility with a current CPE outbreak?

YES

1. Isolate in a single room (with ensuite) on contact transmission-based precautions (TBP) pending completion of screening requirements
2. Screen for CPE on admission to hospital by first ward/unit/patient group
3. Contact the hospital Infection Control Unit
4. Add contact alert as per local procedure

NOTES:
Three (3) negative screens taken greater than 24 hours apart* are required before isolation and contact TBP can be discontinued or Contact alert can be expired.
*Ensure the results of each screen is received prior to the next screen

NO

In the last 12 months, has the patient either:
- been an inpatient of an overseas healthcare facility or residential care
- received medical treatment in an overseas hospital e.g. dialysis or day / cosmetic surgery
- been an inpatient of an interstate hospital with endemic CPE or known CPE outbreak?

YES

NO

Has the patient been advised or alerted as a contact of a CPE case?

YES

1. Screen for CPE on admission
2. A single room and TBP are not required while awaiting screening results unless advised by Infection Control

NO

Is the patient being admitted:
- to a High Risk# ward?
- as a patient of a High Risk# clinical unit?

and has not been screened as part of a local periodic screening program for High Risk# wards/patient groups in the previous 6 months?

YES

1. Provide patients with information about the screening being undertaken in order to ensure informed consent.
2. Positive patients should be managed in accordance with local multi-resistant organism (MRO) guidelines, including isolation and contact TBP.

NO → **No CPE screening indicated**

NOTES:
Additional point prevalence or admission/discharge screening should be considered for units/wards with increased risk of CPE acquisition and / or transmission (refer example schedule below) and may also be required as advised by Infection Control Service (ICS) during outbreak management.
#e.g. intensive care, haematology/oncology, transplant, burns, dialysis or gastroenterology/gastrointestinal surgery, and NICU babies born to CPE mothers

Additional CPE Screening - for consideration

Location/Unit	Admission	Discharge	Weekly	Monthly	6 monthly
Discharge from Intensive care units		✓			
Discharge to Rehabilitation facilities		✓			
Discharge to Residential Aged Care		✓			
Dialysis Units					✓
Wards with a known CPE case who has transmission risk factors e.g. diarrhoea, faecal incontinence, uncontained discharging wounds			✓		
Ward stay >30 days* in acute healthcare facility				✓	

Transmission risk areas: weekly and discharge screens for 8 weeks, then monthly screens for 6 months, and 3 monthly for 6 months (unless otherwise advised by Infection Control)
* Excluding wards undergoing weekly or fortnightly screening and areas identified as low risk by local infection control unit.

A CPE screen is a test for the detection of carbapenemase-producing Enterobacterales

A CPE screen includes:
- faecal specimen (stomal specimen if enterostomy present)
  OR
- rectal swab with visible faecal matter.

Other specimens:
- Urine from catheterised patients should be included for screening
- Specimens from open wounds, or aspirates from any tubes or drains should also be considered for screening

NOTE: For SA Pathology requests, document "**CRE screen**" on the pathology request form.
If a clinical specimen is required e.g. catheter urine and/or wound swab, document MC&S on the pathology request form.

Additional information can be found at the below websites:
1. SA Health CPE webpage
2. Australian Commission on Safety and Quality in Healthcare (ACSQHC) CPE webpage

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