

Antimicrobial stewardship

Standardised care process



Objective

To promote evidence-based practice in the optimal use of antimicrobials for older people who live in residential aged care settings.

Why the management of antimicrobials is important

High rates of inappropriate antimicrobial use in residential aged care facilities pose an increased risk to the safety of residents and the acquisition of antimicrobial-resistant infections (National Centre for Antimicrobial Stewardship and Australian Commission on Safety and Quality in Health Care 2018). This can result in reduced quality of life, increased morbidity and mortality for the resident and increased costs of care for the facility (van Buul et al. 2012). The goals of antimicrobial stewardship are to improve resident safety and outcomes, reduce antimicrobial resistance and minimise healthcare costs (Australian Commission on Safety and Quality in Health Care (ACSQHC) 2018, p. 278).

The Aged Care Quality Standards identify that organisations must minimise infection-related risks to consumers, the workforce and the broader community through:

- a) implementing standard and transmission-based precautions to prevent and control infection
- b) implementing practices to promote appropriate antibiotic prescribing and use to support optimal care and reduce the risk of increasing resistance to antibiotics (Standard 3)
- c) effective governance supported by organisation-wide systems for safety and quality, including systems for antimicrobial stewardship (Standard 8) (Aged Care Quality and Safety Commission, 2018).

The nurse's role in antimicrobial stewardship activities is critical in settings where there is limited or no access to onsite infectious disease, microbiology or pharmacy services (ACSQHC 2018).

Antimicrobial stewardship is an important component of an infection prevention and control program. This SCP should be read/used in conjunction with the *Infection prevention and control* SCP.

Definitions

Antimicrobial: A chemical substance that kills or inhibits the growth of bacteria, viruses and fungi, including yeasts or moulds (ACSQHC 2014).

Antimicrobial resistance: Antimicrobial resistance happens when a microorganism, such as bacteria, change to protect themselves from an antimicrobial. When this happens antimicrobials that previously would have killed the bacteria, or stopped them from multiplying, no longer work against those microorganism bacteria (ACSQHC 2014).

Antimicrobial stewardship: Coordinated actions designed to promote and increase the appropriate use of antimicrobials and is a key strategy to conserve the effectiveness of antibiotics (Department of Health and Department of Agriculture 2015).

Clinical risk: Where action or inaction on the part of the organisation results in a potential or actual adverse health outcome on consumers of health care (Department of Health 2012, p. 5).

Optimal use of antimicrobials: 'Treating consumers with the right antibiotic to treat their confirmed condition, the right dose, by the right route at the right time and for the right duration based on accurate assessment and timely review' (ACSQHC 2014).

Standardised care process (SCP): This has been developed for the department's Strengthening Care Outcomes for Residents with Evidence (SCORE) initiative through a comprehensive review of the evidence and consultation with public sector residential aged care stakeholders and experts to mitigate significant clinical risk in residential aged care services.

Team

Manager, registered nurses, enrolled nurses, personal care attendants, general practitioner (GP), microbiologist, antimicrobial stewardship program specialists, infection control professionals, pharmacists, residents and/or family/carers.

Acknowledgement

This SCP has been developed and reviewed by the Australian Centre for Evidence Based Care, La Trobe University for the Department of Health and Human Services based on the best available evidence in 2018.



Brief standardised care process

Recognition and assessment

- Identify residents who require antimicrobial therapy and recognise the risks associated with high, or inappropriate, antimicrobial use in residential aged care.
- Collect clinical evidence to confirm the presence, source and type of infection. Where present, carry out diagnostic testing.
- Follow up and review microbiology results.
- Communicate the clinical signs and symptoms of infection to the medical officer/GP.
- Establish and verify if the resident has a history of antimicrobial allergies or other antimicrobial adverse effects.
- Establish the resident's goals of care.
- If antimicrobial therapy is not indicated, document any concerns and investigations and let resident(s) and families know why this is the case.

Interventions

Establish an antimicrobial stewardship program.

Ensure optimal use of antimicrobials by:

- evaluating the risk of antimicrobial-related harms to the resident
- identifying infection based on standardised criteria
- using evidence-based antimicrobial prescribing guidelines
- identifying antimicrobial use that does not align with policy or guidelines
- aligning prescriptions to the goals of care
- checking the resident's allergy status before administration
- safely administering antimicrobials and preventing medication errors
- correctly managing phone or fax orders
- returning unused antimicrobials to the pharmacist
- documenting the antimicrobial treatment plan in the resident's health record.

Referral

- General practitioner
- Microbiologist
- Pharmacist
- Antimicrobial stewardship program specialist working at the local hospital
- Infection control professional
- Nurse practitioner

Evaluation and reassessment

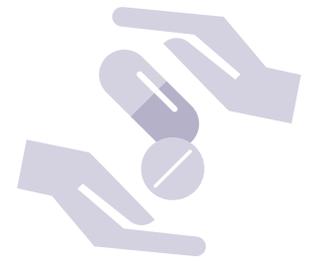
- Following initiation of an antimicrobial, monitor and document the resident's response to treatment, allergic responses, adverse effects and the consequences of antimicrobial use.
- Where antimicrobial therapy for a suspected infection was started before receiving investigation results, the responsible clinician must review the results within 24 hours of receipt and adjust or cease antimicrobial therapy as appropriate.
- The clinical team must initiate an antimicrobial review process after 48–72 hours of starting treatment or on the documented review date to assess the ongoing need for and choice of antimicrobial.

Resident involvement

- When an antimicrobial has been prescribed, provide the resident and their family with information in an accessible format. This includes information about the infection, treatment, benefits and risks of treatment.
- Provide general education related to infection, infection control and antimicrobial stewardship to residents and their families.

Staff knowledge and education

- A member of the clinical team with commensurate training holds the portfolio for antimicrobial stewardship.
- Provide education to the care team on the principles of antimicrobial stewardship and the roles and responsibilities for implementation.



Full standardised care process

Recognition

Identify residents who require antimicrobial therapy and recognise the risks associated with high, or inappropriate, antimicrobial use in residential aged care.

Risks include:

- antimicrobial-related harms to the resident
- antimicrobial resistance
- increased rates of *Clostridium difficile* (*C. difficile*) infection
- increased care costs

Assessment

Identifying infection needs to be based on standardised criteria such as the McGeer Criteria.

- Collect clinical evidence to confirm the presence, source and type of infection.
- If the clinical criteria of new, or increasing, infection are present carry out diagnostic testing. Specimens for microbiology must be collected correctly and in a timely manner before commencing antimicrobials.
- Follow up and review microbiology results in a timely manner to confirm the presence of infection.
- Communicate the clinical indicators of infection in a timely and effective manner to the medical officer/GP.
- The response to residents presenting with serious infection or acute deterioration must be escalated.

Establish and verify if the resident has a history of antimicrobial allergies or other antimicrobial adverse effects.

Establish the resident's goals of care (comfort versus survival) on entry to the facility or when their condition changes – this will inform antimicrobial use at end of life.

If antimicrobial therapy is not indicated, document any concerns and investigations and let resident(s) and families know why this is the case.

Interventions

Antimicrobial stewardship program

The use of antimicrobials in residential aged care must be governed through an antimicrobial stewardship program. The following elements need to be actioned:

- a policy for antimicrobial use that includes:
 - prescribing and administration practices
 - restrictions to prescribing that limit the use of broad-spectrum antibiotics
 - appropriate diagnostic testing
 - treatment recommendations for infections
- access to guidelines and formulary for antimicrobial use in residential aged care for clinicians
- establishing an infection control committee and infection control plan at the residential aged care facility
- identifying staff positions with accountability for stewardship activities
- including antimicrobial stewardship responsibilities in leadership position descriptions
- providing access to expert advice on antimicrobial management and an infection control professional
- surveillance of antimicrobial resistant organisms and antimicrobial use, including participation in the Aged Care National Antimicrobial Prescribing Survey (AC NAPS) program
- collecting and reporting on data related to antimicrobial prescribing and use, antimicrobial-resistant organisms, culturing, adverse drug events and *C. difficile*
- providing staff education
- providing information and support to residents and their visitors about antimicrobial stewardship.

Optimal antimicrobial use

Before beginning antimicrobial therapy consider the risk of antimicrobial-related harms to the resident. These include:

- risk of serious diarrheal infections from *C. difficile*
- increased adverse drug events and drug interactions

- colonisation and/or infection with antimicrobial-resistant organisms.

Considered prescribing of an antimicrobial is undertaken by the multidisciplinary team. This includes:

- evidence-based indication of infection:
 - clinical assessment
 - microbiological test results to inform the treatment regimen
 - referral to previous antimicrobial susceptibility results where a specimen/culture could not be collected, or microbiology results are not available
- using evidence-based antimicrobial prescribing guidelines (for example, Therapeutic Guidelines Ltd) for:
 - duration of therapy (kept at a minimum for resolving the infection)
 - dosage and frequency targeted to the resident's clinical condition, site and type of infection
 - the narrowest spectrum therapy required
 - the use of alternative interventions to manage asymptomatic bacteriuria
- aligning the decision to prescribe an antimicrobial with the resident's goals of care – comfort or end-of-life care or extended survival (consider whether the clinical symptoms justify prescribing antimicrobials and if the goals of care have been discussed with the resident/family).

The antimicrobial stewardship program will support safe administration of antimicrobials and prevention of medication errors by:

- checking the resident's allergy status before administration
- ensuring the right antimicrobial is administered to the right resident at the right dose, route, form and time, and then documented
- correctly managing phone/fax orders – the resident is reviewed, and phone orders are signed by the prescriber as soon as possible after ordering
- identifying and challenging antimicrobial use that does not align with policy or guidelines
- returning unused antimicrobials to the pharmacist for appropriate disposal
- ensuring the resident's antimicrobial treatment plan is documented in a timely manner in the health record and includes:
 - indication(s) for treatment

- generic drug name, dose, time and route of administration
- planned duration of treatment
- review/stop date.

Referral

- General practitioner
- Microbiologist
- Pharmacist to ensure antimicrobials are ordered and managed correctly and microbiology data is reviewed
- Antimicrobial stewardship program specialist working at the local hospital
- Infection control professional
- Nurse practitioner

Evaluation and reassessment

Following initiation of an antimicrobial, monitor and document the resident's response to treatment including any allergic responses and adverse effects of antimicrobial use such as:

- diarrhoea associated with *C. difficile*
- increased incidence of diarrhoea among other residents, suggesting transmission
- candidiasis (oropharyngeal, vulvovaginal).

Where antimicrobial therapy for a suspected infection was started before receiving investigation results, the responsible clinician must:

- review the results within 24 hours of receipt
- adjust or cease antimicrobial therapy as appropriate.

The clinical team (nurse, medical officer/GP, pharmacist) needs to initiate an antimicrobial review process after 48–72 hours of starting treatment or on the documented review date to assess the ongoing need for and choice of antimicrobial.

This review needs to include:

- identifying treatment that is not in line with microbiological results or recommended guidance, and highlighting this to prescribers
- repeating microbiology to inform continuation or cessation of the antimicrobial
- reconciling and adjusting the prescription (appropriateness of antimicrobial, dose, duration and route of administration) in accordance with the resident's clinical need and response to treatment

- switching treatment with a broad-spectrum antibiotic to a narrow-spectrum antibiotic as guided by microbiology results and clinical condition
- specialist advice to ensure optimal treatment is being provided.

Resident involvement

When an antimicrobial has been prescribed, the resident and their family need to be given information in an accessible and understandable format. This includes information about the infection, treatment, benefits and risks of treatment.

General education to residents and families needs to include:

- what antimicrobial stewardship is, and why it is important
- the difference between bacterial and viral infections and the role of antimicrobials
- safe and appropriate medication use
- expectations and goals of care.

Staff knowledge and education

A member of the clinical team with appropriate training should hold the portfolio for antimicrobial stewardship.

Education provided to the whole care team should include:

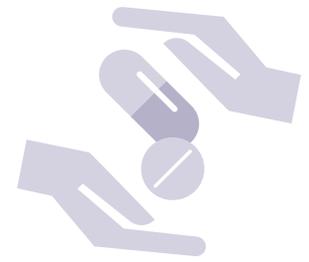
- the principles of antimicrobial stewardship
- roles and responsibilities for implementing the program.

Clinical staff should be provided with education on:

- antimicrobial stewardship
- appropriate antimicrobial prescribing practice
- effective antimicrobial use
- antimicrobial resistance
- the importance of accurate and descriptive documentation.

Training resources and activities include:

- audits of antimicrobial use and feedback of audit results
- a prescribing guide
- posters and other educational materials in clinical work areas
- case studies relevant to the aged care setting.



Evidence base for this standardised care process

Aged Care Quality and Safety Commission 2018, Aged Care Quality Standards and Guidance and resources for providers to support the Aged Care Standards, Australian Government.

Australian Commission on Safety and Quality in Health Care (ACSQHC) 2014, *Antimicrobial Stewardship Clinical Care Standard*, ACSQHC, Sydney.

Australian Commission on Safety and Quality in Health Care (ACSQHC) 2018, *Antimicrobial stewardship in Australian health care*, ACSQHC, Sydney.

Centers for Disease Prevention and Control (CDC) 2015, *The core elements of antibiotic stewardship for nursing homes*, US Department of Health and Human Services, CDC, Atlanta.

Department of Health and Department of Agriculture 2015, *Responding to the threat of antimicrobial resistance. Australia's first national antimicrobial resistance strategy 2015–2019*, Australian Government, Canberra.

Department of Health 2012, *Strengthening care outcomes for residents with evidence (SCORE)*, Ageing and Aged Care Branch, Victorian Government, Melbourne.

Katz M, Gurses A, Tamma P, Cosgrove S, Miller M, Jump P 2017, 'Implementing antimicrobial stewardship in long-term care settings: an integrative review using a human factors approach', *Clinical Infectious Diseases*, vol. 65, no. 11, pp. 1943–1951.

Lim CJ, Stuart RL, Kong DC 2015, 'Antibiotic use in residential aged care facilities', *Australian Family Physician*, vol. 44, no. 4, pp. 192-196.

National Centre for Antimicrobial Stewardship and Australian Commission on Safety and Quality in Health Care 2018, *Antimicrobial prescribing and infections in Australian aged care homes: Results of the 2017 Aged Care National Antimicrobial Prescribing Survey*, ACSQHC, Sydney.

Stone N, Ashraf M, Calder J, Crnich C, Crossley K, Drinka P, et al. 2012, 'Surveillance definitions of infections in long-term care facilities: revisiting the McGeer Criteria', *Infection Control and Hospital Epidemiology*, vol. 33, no. 10, pp. 965–977.

Therapeutic Guidelines Limited 2014, *Antibiotic* [revised 2015], in: eTG complete, TGL, Melbourne, viewed 28 November 2018, <<https://tgldcdp.tg.org.au/etgAccess>>.

van Buul LW, van der Steen JT, Veenhuizen RB, Achterberg WP, Schellevis FG, Essink RT, van Benthem HB, Natsch S, Hertogh CM 2012, 'Antibiotic use and resistance in long term care facilities', *JAMDA*, vol. 13, no. 568, e1e568.e13.

Important note: This SCP is a general resource only and should not be relied upon as an exhaustive or determinative clinical decision-making tool. It is just one element of good clinical care decision making, which also takes into account resident/patient preferences and values. All decisions in relation to resident/patient care should be made by appropriately qualified personnel in each case. To the extent allowed by law, the Department of Health and Human Services and the State of Victoria disclaim all liability for any loss or damage that arises from any use of this SCP.

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