A graphic of stylized handprints in shades of teal and lime green, arranged in a pattern that suggests a handshake or a firm grip. The handprints are composed of thick, rounded lines and are set against a teal background.

Antimicrobial Stewardship

Clinical Care Standard

November 2020

Published by the Australian Commission on Safety and Quality in Health Care
Level 5, 255 Elizabeth Street, Sydney NSW 2000

Phone: (02) 9126 3600

Fax: (02) 9126 3613

Email: mail@safetyandquality.gov.au

Website: www.safetyandquality.gov.au

ISBN: 978-1-925948-87-5

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First released 2014. Revised 2020.

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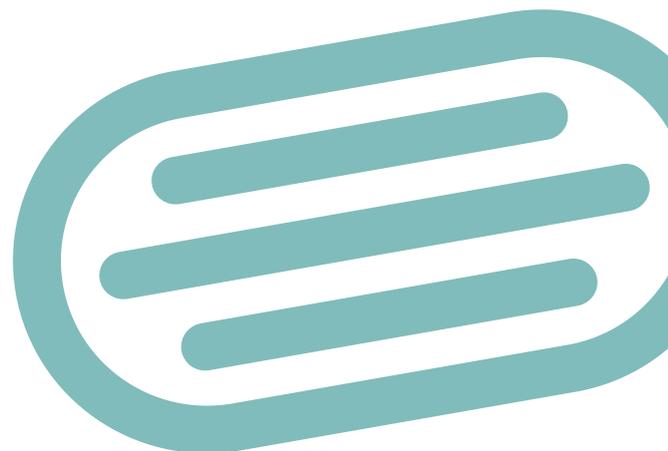
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Antimicrobial Stewardship Clinical Care Standard

Quality statements

- 1 Life-threatening conditions**

A patient with a life-threatening condition due to a suspected infection receives an appropriate antimicrobial immediately, without waiting for the results of investigations.
- 2 Use of guidelines**

When a patient is prescribed an antimicrobial, this is done in accordance with the current *Therapeutic Guidelines* or evidence-based, locally endorsed guidelines and the antimicrobial formulary.
- 3 Adverse reactions to antimicrobials**

When an adverse reaction (including an allergy) to an antimicrobial is reported by a patient or recorded in their healthcare record, the active ingredient(s), date, nature and severity of the reaction are assessed and documented. This enables the most appropriate antimicrobial to be used when required.
- 4 Microbiological testing**

A patient with a suspected infection has appropriate samples taken for microbiology testing as clinically indicated, preferably before starting antimicrobial therapy.
- 5 Patient information and shared decision making**

A patient with an infection, or at risk of an infection, is provided with information about their condition and treatment options in a way that they can understand. If antimicrobials are prescribed, information on how to use them, when to stop, potential side effects and a review plan is discussed with the patient.
- 6 Documentation**

When a patient is prescribed an antimicrobial, the indication, active ingredient, dose, frequency and route of administration, and the intended duration or review plan are documented in the patient's healthcare record.
- 7 Review of therapy**

A patient prescribed an antimicrobial has regular clinical review of their therapy, with the frequency of review dependent on patient acuity and risk factors. The need for ongoing antimicrobial use, appropriate microbial spectrum of activity, dose, frequency and route of administration are assessed and adjusted accordingly. Investigation results are reviewed promptly when they are reported.
- 8 Surgical and procedural prophylaxis**

A patient having surgery or a procedure is prescribed antimicrobial prophylaxis in accordance with the current *Therapeutic Guidelines* or evidence-based, locally endorsed guidelines. This includes recommendations about the need for prophylaxis, choice of antimicrobial, dose, route and timing of administration, and duration.

Note: For more information about the requirements of locally endorsed guidelines and antimicrobial formularies, see [page 9](#) of this document.

Indicators for local monitoring

The following indicators will support health service organisations to monitor how well they are implementing the care recommended in this clinical care standard and are intended to support local quality improvement activities.

2 Use of guidelines

Indicator 2a: The proportion of antimicrobial prescriptions that are in accordance with the current *Therapeutic Guidelines* or evidence-based, locally endorsed guidelines.

Indicator 2b: The proportion of prescriptions for restricted antimicrobials that are in accordance with the locally endorsed approval policy.

3 Assessment of antimicrobial allergy

Indicator 3a: The proportion of patients with an adverse reaction to an antimicrobial with comprehensive documentation of the reaction in their healthcare record.

6 Documentation

Indicator 6a: The proportion of prescriptions for which the indication for prescribing the antimicrobial is documented.

Indicator 6b: The proportion of prescriptions for which the duration, stop date or review date for the antimicrobial is documented.

7 Review of therapy

Indicator 7a: The proportion of prescriptions for which an antimicrobial review and updated treatment decision is documented within 48 hours from the first prescription.

8 Surgical and procedural prophylaxis

Indicator 8a: The proportion of patients for whom the perioperative prophylactic antimicrobial is prescribed in accordance with the current *Therapeutic Guidelines* or evidence-based, locally endorsed guidelines.

Indicator 8b: The proportion of patients for whom the perioperative prophylactic antimicrobial dose is prescribed in accordance with the current *Therapeutic Guidelines* or evidence-based, locally endorsed guidelines.

Indicator 8c: The proportion of patients who are administered prophylactic antimicrobials within the recommended time perioperatively.

Indicator 8d: The proportion of patients who were prescribed prolonged antimicrobials following a surgery or procedure that is discordant with the current *Therapeutic Guidelines* or evidence-based, locally endorsed guidelines.

The definitions required to collect and calculate indicator data are specified online at www.safetyandquality.gov.au/ams-ccs-indicators. More information about indicators and other quality improvement measures is provided in [Appendices B](#) and [C](#).

Clinical care standards

Clinical care standards help support the delivery of evidence-based clinical care and promote shared decision making between patients, carers and clinicians. They aim to reduce unwarranted variation and improve the appropriateness of care for a specific clinical condition or procedure, regardless of where people are treated in Australia.

A clinical care standard contains a small number of quality statements that describe the level of clinical care expected for a specific clinical condition or procedure. Indicators are included for some quality statements to assist health service organisations monitor how well they are implementing the care recommended in the clinical care standard.

A clinical care standard differs from a clinical practice guideline. Rather than describing all the components of care for a specific clinical condition or procedure, a clinical care standard focuses on key areas of care where the need for quality improvement is greatest.

Clinical care standards aim to support improved health care by considering the various perspectives of the community, clinicians and health service managers.

Clinical care standards are developed by the Australian Commission on Safety and Quality in Health Care (the Commission), an Australian Government agency that leads and coordinates national improvements in the safety and quality of health care, based on the best available evidence. By working in partnership with the Australian Government, states and territories, the private sector, clinical experts, and patients and carers, the Commission aims to ensure that the health system is better informed, supported and organised to deliver safe and high-quality care.



About the Antimicrobial Stewardship Clinical Care Standard

Context

Antimicrobial stewardship (AMS) is a systematic approach to optimising the use of antimicrobials, in order to preserve the effectiveness of these important medicines for treating infections. This clinical care standard was first developed in 2014 and has been widely implemented in Australian healthcare settings since that time.

This clinical care standard describes the key components of care that patients can expect when they have, or are suspected of having, an infection. It supports the provision of high-quality, evidence-based care, taking into account the context in which care is provided, local variation and the quality improvement priorities of the individual health services.

Goals

To ensure the appropriate use and review of antimicrobials to optimise patient outcomes, lessen the harms of adverse effects and reduce the emergence of antimicrobial resistance.

To ensure that a patient receives optimal antimicrobial therapy for the treatment or prevention of an infection, including assurance when an antimicrobial is not needed. This means using the right antimicrobial to treat the condition, at the right dose, at the right frequency, by the right route of administration, at the right time and for the right duration, based on accurate assessment and timely review.

Scope

This clinical care standard relates to the care all people (neonates, children, young adults and adults) should receive when they have, or are suspected of having, an infection or require an antimicrobial for prophylaxis. It covers patient care from the time of prophylaxis or diagnosis to cure of an infection and has been developed for use in a variety of healthcare settings. It also includes the consideration of conditions for which antimicrobials are not recommended.

Pathway of care

This standard applies to care provided in the following care settings:

- All hospital settings, including public and private hospitals, subacute facilities, outpatient and day procedure services
- Emergency services, including ambulance services
- General practice and other community and primary healthcare settings such as Hospital in the Home, Aboriginal community controlled health services, dental practices and community pharmacies
- Residential aged care services.

In this document, the term 'clinician' refers to all types of healthcare providers who deliver direct clinical care to patients including:

- Doctors
- Dentists
- Nurses
- Midwives
- Pharmacists
- Optometrists
- Nurse Practitioners
- Aboriginal and Torres Strait Islander health workers or practitioners
- Podiatrists endorsed for scheduled medicines
- Paramedics.

Updates in 2020

A review of the evidence sources used to develop the first *Antimicrobial Stewardship Clinical Care Standard* was undertaken for this update. The evidence base for the standard remained largely unchanged; however, aspects of antimicrobial stewardship have matured since the standard was first published in 2014. The revised clinical care standard intends to align the quality statements and indicators to the evidence base and current antimicrobial stewardship practice.

Key changes in the current version include:

Adding:

- Quality statement 3: Adverse reactions to antimicrobials and Indicator 3a
- Indicator 2b to review restricted antimicrobial approvals
- Indicator 6b to measure the documentation of duration, planned review or stop dates for prescribed antimicrobials
- Indicator 8b to measure the dose of antimicrobials used for surgical and procedural prophylaxis.

Retiring:

- Indicator 1a 'median time to first dose of antibiotics for patients with actual or suspected sepsis' (to be revised during the development of the Sepsis Clinical Care Standard)
- Indicator 4b 'rate of antimicrobial-allergy mismatch in prescribing'.

Evidence that underpins this clinical care standard

Key sources that underpin the Antimicrobial Stewardship Clinical Care Standard are current clinical guidelines including:

- *Therapeutic Guidelines: Antibiotic*¹
- *Antimicrobial Stewardship in Australian Health Care* (2018)²
- Cochrane review of interventions to improve antibiotic prescribing practices for hospital inpatients³
- Public Health England's *Antimicrobial prescribing and stewardship competencies*⁴
- *Implementing an Antibiotic Stewardship Program: Guidelines by the Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America*.⁵

* *Therapeutic Guidelines: Antibiotic* is the main source; however, antimicrobial recommendations are also made in other guidelines such as *Therapeutic Guidelines: Oral and Dental*.

A list of the evidence sources for this clinical care standard is available on the Commission's website at www.safetyandquality.gov.au/ams-ccs.

Locally endorsed guidelines and antimicrobial formularies in acute care

Therapeutic Guidelines: Antibiotic provides national, evidence-based guidelines for antimicrobial use in Australia.¹ It is regularly revised on a 4-yearly schedule, with interim targeted updates made in response to significant changes in evidence and practice, which may be triggered by feedback from the healthcare community. However, in some cases, evidence-based and local adaptations that have been through a formal, robust endorsement process may be more relevant to local patterns of antimicrobial resistance or to specific patient populations requiring a localised approach or with highly specialised diagnoses out of the scope of *Therapeutic Guidelines*. It is important to ensure that local adaptations of guidelines are based on *Therapeutic Guidelines**. Any deviation should be accompanied by a clear rationale based on published clinical evidence and local epidemiology, and documented and endorsed by a governing body. Endorsing bodies may include peer review from a drug and therapeutics committee, an antimicrobial stewardship committee, a medicines advisory committee, or equivalent.

An antimicrobial formulary that includes a list of restricted antimicrobials is an essential component of AMS programs.² National and local guidelines help inform the antimicrobial formulary; however, the formulary should reflect the needs of the organisation, and consider the range of antimicrobials required according to national and local guidelines, the clinical orientation of the organisation, and local antimicrobial resistance patterns. The antimicrobial formulary should be reviewed periodically, and compliance should be audited as outlined in Indicator 2b. It is important that antimicrobial formulary decisions are informed by local microbiological data.

Guidelines in primary health care including general practice

Therapeutic Guidelines: Antibiotic are relevant in primary health care.^{1,6} *The Antibiotic Prescribing in Primary Care: Therapeutic Guidelines summary table* collates recommendations for common infections that present in general practice. It complements the more comprehensive content in *Therapeutic Guidelines*.

In some areas, evidence-based local adaptations that have been through a formal, robust endorsement process may be more relevant to local patterns of antimicrobial resistance or specific patient populations requiring a localised approach or with highly specialised diagnoses out of the scope of *Therapeutic Guidelines*.

Supporting documents

Clinical care standard resources

Supporting documents for this clinical care standard are available on the Commission's website at www.safetyandquality.gov.au/ams-ccs.

These include the:

- Clinician fact sheet
- Consumer guide.

Commission AMS resources

The Commission has developed a number of other AMS resources and links for clinicians, managers and executives, governing bodies, and others. These include:

- *Antimicrobial Stewardship in Australian Health Care* (2018)²
- Options for implementation of AMS in different facilities
- Antimicrobial stewardship indicators to support stewardship programs
- Fact sheet – *Improving Antimicrobial Prescribing Through Selective Reporting of Antimicrobials*
- Fact sheet – *Asymptomatic Bacteriuria: Reducing inappropriate antimicrobial prescribing for aged care facility residents*
- *Priority Antibacterial List for Antimicrobial Resistance Containment* – this is a stewardship resource that promotes improved prescribing by identifying whether broad- or narrow-spectrum antibiotics are being used at an organisational level; the Priority Antibacterial List may serve as a suitable framework at a hospital level for informing formulary restrictions for antimicrobials to contain antimicrobial resistance.⁷

These resources are available at www.safetyandquality.gov.au/our-work/antimicrobial-stewardship/antimicrobial-stewardship-ams-resources-and-links.

Resources are also available to support AMS in specific settings:

- Primary health care, available at www.safetyandquality.gov.au/our-work/antimicrobial-stewardship/antimicrobial-stewardship-primary-care
- Surgical antimicrobial prophylaxis, available at www.safetyandquality.gov.au/our-work/antimicrobial-stewardship/surgical-antimicrobial-prophylaxis
- AMS model formularies, available at www.safetyandquality.gov.au/ams-model-formulary.

Other resources

The Antimicrobial Stewardship Clinical Care Standard can be used in either paper or electronic healthcare record systems. *Electronic Medication Management Systems: A guide to safe implementation* may be a useful resource for implementation in electronic healthcare record systems.⁸

The following resources are also available:

- National Antimicrobial Prescribing Survey (NAPS) – a component of the Antimicrobial Use and Resistance in Australia (AURA) Surveillance System, conducted by the National Centre for Antimicrobial Stewardship (a Centre of Research Excellence) using a point-prevalence survey; it includes⁹
 - Hospital NAPS
 - Aged Care NAPS
 - Quality Improvement NAPS
 - Surgical NAPS
- National Antimicrobial Utilisation Surveillance Program – a component of the AURA Surveillance System, conducted by SA Health¹⁰
- *National Quality Use of Medicines Indicators for Australian Hospitals*.¹¹

How to use this clinical care standard

The quality statements describe the expected standard for key components of patient care. By describing what each statement means, they support:

- **Patients** to know what care may be offered by their healthcare system, and to make informed treatment decisions in partnership with their clinician
- **Clinicians** to make decisions about appropriate care
- **Health service organisations** to understand the policies, procedures and organisational factors that can enable the delivery of high-quality care.

This clinical care standard should be implemented as part of an overall approach to safety and quality, incorporating the following principles and standards.

General principles of care

When applying the information contained in a clinical care standard, clinicians are advised to use their clinical judgement and to consider the individual patient's circumstances, in consultation with the patient or their support people.

This clinical care standard aligns with key principles that are the foundation for achieving safe, high-quality care including:

- Person-centred care and shared decision making
- Informed consent
- Cultural safety for Aboriginal and Torres Strait Islander people.

For more information and additional Commission resources, see [Appendix A](#).

Measurement for quality improvement

Measurement is a key component of quality improvement processes. The Commission has developed a set of indicators to support clinicians and health service organisations to monitor how well they are implementing the care recommended in this clinical care standard. The indicators are intended to support local quality improvement activities. No benchmarks are set for these indicators.

The indicators are listed with the relevant quality statements. The definitions required to collect and calculate indicator data are available online at

www.safetyandquality.gov.au/ams-ccs-indicators. More information about indicators and other quality improvement measures is provided in [Appendix B](#).

Information on quality measures including patient-reported outcome measures and patient experience measures is provided in [Appendix C](#).

Meeting the requirements of national standards and accreditation

Implementing this clinical care standard can help health services fulfil a number of national standards and accreditation requirements.

National Safety and Quality Health Service (NSQHS) Standards

The NSQHS Preventing and Controlling Healthcare-Associated Infection Standard requires health service organisations to implement systems for the safe and appropriate prescribing and use of antimicrobials as part of an AMS program (Actions 3.15 and 3.16).

More information about clinical care standards and the NSQHS Standards can be found in [Appendix D](#).

Aged Care Quality Standards

The Aged Care Quality Standards¹² require Australian Government-subsidised aged care services to:

- Minimise infection-related risks (Standard 3(3)(g)) through implementing
 - standard- and transmission-based precautions to prevent and control infection
 - practices to promote appropriate antibiotic prescribing and use to support optimal care and reduce the risk of increasing resistance to antibiotics
- Have a clinical governance framework, including antimicrobial stewardship (Standard 8(3)(3)).

National General Practice Accreditation Scheme

Implementing this clinical care standard may assist general practices meet the requirements of the Royal Australian College of General Practitioners Standards for General Practices under the National General Practice Accreditation Scheme.

Background: Antimicrobial stewardship

Antimicrobial agents are important in the treatment and prevention of infections and have been called the miracle drugs of modern medicine.¹³ However, when microbes develop resistance to an antimicrobial, the agent is no longer effective for treating that infection. Although antimicrobial resistance is a natural feature of microbial evolution, the inappropriate use of antimicrobials has increased and accelerated the development of antimicrobial resistance in healthcare settings and in the community.^{2, 14, 15}

The responsibility for stewardship of antimicrobials lies with clinicians and patients in all parts of the health system. *Australia's National Antimicrobial Resistance Strategy – 2020 and Beyond* highlights the need to apply antimicrobial stewardship (AMS) standards in hospitals, as well as in the primary health care and aged care sectors. The strategy document also highlights the need to apply best-practice prescribing and AMS practices in these settings, and recommends identifying and eliminating any barriers.¹⁵

Antimicrobial use and resistance in Australia

The appropriate use of antimicrobials is essential as it ensures that consumers can receive adequate treatment, while avoiding unwanted outcomes, such as the acquisition of resistant pathogens and commensal flora.^{2, 15}

Table 1 summarises antimicrobial use and areas for improvement in different healthcare settings.

Table 1: Summary of antimicrobial use and areas for improvement in different healthcare settings

	Hospital care ¹⁶	Primary health care ¹⁷	Aged care ¹⁸
Commonly overprescribed antimicrobials	Amoxicillin–clavulanic acid, azithromycin, cefalexin, cefazolin.	Amoxicillin–clavulanic acid, erythromycin, roxithromycin, cefalexin, cefaclor.	Cefalexin, topical clotrimazole.
Priorities for improvement	<ul style="list-style-type: none"> Documentation of review or stop date Compliance with <i>Therapeutic Guidelines: Antibiotic</i> or local guidelines Inappropriate prescribing of broad-spectrum antimicrobials Prescribing for specific indications, particularly surgical prophylaxis, chronic obstructive pulmonary disease and community-acquired pneumonia. 	<p>Avoiding antibiotic use in patients with:</p> <ul style="list-style-type: none"> Influenza Acute bronchitis. <p>Documentation of stop date.</p>	<ul style="list-style-type: none"> Access to and use of evidence-based guidelines for prescribing antimicrobials Inappropriate prescribing of broad-spectrum antimicrobials Use of microbiological testing to confirm infections and inform antimicrobial choices Documentation of indication, review or stop dates Allergy documentation Routine antimicrobial therapy review.

Background: Antimicrobial stewardship

Hospital care

AMS is well established in hospitals, because every Australian hospital and day procedure centre is required to implement systems for the safe and appropriate prescribing and use of antimicrobials as part of an AMS program, as an action in the National Safety and Quality Health Service (NSQHS) Preventing and Controlling Healthcare-Associated Infection Standard.^{15, 19} Most Australian states

and territories have implemented AMS programs and provided support within relevant health departments.²⁰⁻²⁵

Improvements have been seen in AMS programs since the release of the first Antimicrobial Stewardship Clinical Care Standard, which was supported by the NSQHS Standards (Table 2).

Despite this, there remains room for improvement (see Table 1).

Table 2: Changes in AMS activities before and after the NSQHS Standards, 2015²⁶

Before the NSQHS Standards	AMS activity	After the NSQHS Standards
36%	Had any specific AMS program	98%
89%	Access to <i>Therapeutic Guidelines: Antibiotic</i>	99%
32%	Regular audits of antimicrobial prescribing	92%
22%	Feedback to prescribers on audit results	88%
29%	Review of antimicrobial prescriptions with point-of-care interventions and direct feedback to prescribers	86%
41%	Formularies restricting use of broad-spectrum antimicrobials	86%

AMS = antimicrobial stewardship; NSQHS = National Safety and Quality Health Service

Primary health care

A large proportion of antimicrobial use occurs in the community. In 2017, 41.5% ($n = 10,215,109$) of Australians had at least one systemic antibiotic dispensed under the Pharmaceutical Benefits Scheme or Repatriation Pharmaceutical Benefits Scheme.¹⁷

There is also increasing non-susceptibility to fluoroquinolones in *Escherichia coli* and to vancomycin in *Enterococcus faecium*, and an increasing rate of community-onset methicillin-resistant *Staphylococcus aureus* infections in the community.¹⁷

Aged care

Aged care homes are recognised internationally as an important community setting for monitoring antimicrobial resistance and antimicrobial use. Nearly 1 in 10 people (9.9%) living in an aged care home were prescribed antimicrobials in 2018.¹⁸

Issues include a high prevalence of infection and colonisation by antimicrobial-resistant organisms in the people living in aged care homes. High levels of inappropriate antimicrobial prescribing and use in aged care homes are also well documented (see Table 1).

Antimicrobial stewardship

AMS is a systematic approach to optimising the use of antimicrobials.^{2,27} The benefits of AMS programs include reducing:^{2,3}

- Patient morbidity and mortality
- Unnecessary and inappropriate antimicrobial use
- Duration of antimicrobial treatment
- Length of hospital stay
- Microbial resistance rates
- Healthcare costs.

Box 1: Definition of antimicrobials^{2, 17, 28}

Antimicrobials are substances that are safe for human use and that are used to treat or prevent infections caused by microorganisms. Antimicrobial agents include:

- **Antibacterials (antibiotics)**, which kill or inhibit the growth of bacteria such as *Escherichia coli*, and are used for a range of infections such as urinary tract infections
- **Antifungals**, which kill or inhibit the growth of fungi and yeasts such as *Candida species*, and are used for fungal infections such as thrush
- **Antivirals**, which kill or inhibit viruses such as herpes simplex virus, and are used for viral infections such as cold sores
- **Antiparasitic agents**, which destroy parasites, and are used for parasitic infections such as intestinal worms
- **Antiseptic agents**, which are chemicals applied to the skin or other living tissue to inhibit or kill microorganisms, such as alcohol used to disinfect during hand hygiene.

Inappropriate uses of antimicrobials include²:

- Prescribing antimicrobials unnecessarily, such as antibiotics for viral infections (colds) or for prolonged prophylaxis
- Prescribing broad-spectrum antimicrobials; for example, third-generation cephalosporins such as ceftriaxone and cefotaxime, or carbapenems like meropenem, when narrow-spectrum antibiotics (such as benzylpenicillin) would be clinically appropriate and equally effective
- Prescribing inadequate treatment, such as when the antimicrobial is ineffective against the target pathogen(s) or the dosing regimen is too low, leading to treatment failure
- Prescribing an incorrect dosing regimen (either too high or too low), causing adverse effects or treatment failure, respectively

- Continuing treatment for longer than necessary by not time-limiting or cancelling courses
- Not prescribing according to microbiology results
- Patients omitting doses or delaying administration of doses
- Patients not taking antimicrobials as prescribed by their clinician.

AMS programs promote optimal antimicrobial prescribing and target care where inappropriate antimicrobial use may arise. They play an important role in preserving antimicrobials for future use for the benefit of the population as a whole.

1

Quality statement 1 – Life-threatening conditions

A patient with a life-threatening condition due to a suspected infection receives an appropriate antimicrobial immediately, without waiting for the results of investigations.

Purpose

To ensure access to timely and appropriate antimicrobial treatment for consumers with suspected life-threatening infections that can lead to sepsis, septic shock, bacterial meningitis, febrile neutropenia or necrotising fasciitis, when clinically appropriate.

What the quality statement means

■ For patients

Infections can be serious and may be life threatening. Examples of these conditions include:

- Sepsis (when the body's response to an infection injures its own tissues and organs)
- Meningitis (an infection of the tissues lining the brain)
- Necrotising fasciitis (a serious infection from a flesh-eating bacteria).

If you are unwell with a serious infection, you will be given appropriate medicine to treat the infection without delay.

■ For clinicians

When treating a patient with suspected sepsis* or another life-threatening infection, administer appropriate empiric antimicrobials as soon as possible. There should be prompt access to the appropriate antimicrobials.

Obtain clinical specimens as appropriate, but do not delay administration of antimicrobials and do not wait for results of investigations. When results are received, immediately reassess the treatment.

If there is no immediate access to the appropriate antimicrobials, arrange for immediate transfer of the patient to an acute care facility; for example, ambulance transfer to a hospital. This is relevant in community settings or for some rural hospitals.

* Sepsis as defined by the Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3).²⁹
See glossary for further information.

For health service organisations

Ensure that relevant clinical pathways and an appropriate local antimicrobial formulary are available so that clinicians can give optimal antimicrobial treatment promptly and within recommended time frames to patients with life-threatening infections.

End-of-life care

When considering the administration of antimicrobials for patients with life-threatening or serious infections, the patient's advance care plan should be considered. Safe and high-quality end-of-life care should be aligned with the values, needs and wishes of the individual, and their family or carers. For ethical reasons, it is important not to harm patients approaching the end of life by providing burdensome investigations and treatments that can be of no benefit.³⁰

Related resources

The Commission is developing a Sepsis Clinical Care Standard, which will be relevant to this quality statement.



2

Quality statement 2 – Use of guidelines

When a patient is prescribed an antimicrobial, this is done in accordance with the current *Therapeutic Guidelines* or evidence-based, locally endorsed guidelines and the antimicrobial formulary.

Purpose

To ensure that the most appropriate antimicrobial treatment is given. That is, to ensure that the appropriate spectrum microbial of activity, active ingredient, dose, frequency and route of administration, and duration of therapy is chosen.

What the quality statement means

■ For patients

If you are prescribed a medicine for an infection, your clinician will discuss which medicine is best for you, based on national or local recommendations. Your clinician should also consider any allergies and other health conditions you may have, as well as the cause of your infection.

■ For clinicians

Prescribe an antimicrobial according to the current *Therapeutic Guidelines* or locally endorsed guidelines, including the appropriate active ingredient, dose, formulation, route and frequency of administration, and duration for the patient's clinical condition.

Prescribe, dispense and administer antimicrobials in line with local antimicrobial formularies and restrictions, where available, including those applied to broad-spectrum antimicrobials.

Consider the individual patient's characteristics, such as age, weight, renal function, allergies, other medicines prescribed and other health conditions.

■ For health service organisations

Ensure clinicians have access to and use the current *Therapeutic Guidelines* and evidence-based, locally endorsed guidelines when prescribing antimicrobials.

Ensure clinicians have access to and use the local antimicrobial formulary, as required, and that it is evidence based. Monitor adherence with the antimicrobial formulary, including broad-spectrum antimicrobials.

Locally endorsed guidelines

For more information about the requirements of locally endorsed guidelines and antimicrobial formularies, including restriction lists, see [page 9](#) of this document.

Indicators for local monitoring

2a The proportion of antimicrobial prescriptions that are in accordance with the current *Therapeutic Guidelines* or evidence-based, locally endorsed guidelines.

2b The proportion of prescriptions for restricted antimicrobials that are in accordance with the locally endorsed approval policy.

More information about the indicators, and the definitions needed to collect and calculate them can be found online at www.safetyandquality.gov.au/ams-ccs-indicators.

3

Quality statement 3 – Adverse reactions to antimicrobials

When an adverse reaction (including an allergy) to an antimicrobial is reported by a patient or recorded in their healthcare record, the active ingredient(s), date, nature and severity of the reaction are assessed and documented. This enables the most appropriate antimicrobial to be used when required.

Purpose

To ensure the accurate assessment and documentation of patient adverse reaction information to allow for optimal antimicrobial prescribing. This means using the most appropriate and narrow-spectrum antimicrobial possible, while ensuring that potential harms (such as anaphylaxis) are avoided.

What the quality statement means

■ For patients

Adverse reactions are any unwanted effects of a medicine. Many adverse reactions are expected side effects of medicines, and can range from mild to severe. An ‘allergic reaction’ is one type of adverse reaction.

If you have ever had an unwanted response to a medicine used to treat an infection, even if it was many years ago, talk to your clinician. They will ask you about what happened to find out whether it was because of the medicine, how severe it was and what it means for your care. As a result, your treatment may change and your healthcare record will be updated. Important changes will be communicated to you and your regular doctor.

If you have had an adverse reaction to a medicine, it is important that this information is added to your healthcare record. You can also review and update your information in your My Health Record. Carry a list of your medicines with you, and make sure that it includes the most up-to-date information about your previous adverse reactions to medicines, including allergies.

■ For clinicians

Before prescribing, dispensing or administering an antimicrobial, consider the patient's previous adverse reactions to medicines. Check the healthcare record and ask the patient about their previous adverse reactions, including the active ingredient(s), date the adverse event occurred, nature and severity of the reaction (including how it was managed), and where they recorded it (such as on an allergy bracelet or a medicines list). If any of the essential elements for assessing an adverse reaction are unknown (Box 2), this should be explicitly documented in the patient's healthcare record.

Box 2: Essential elements for assessing an adverse reaction to a medicine

The essential elements for assessing an adverse reaction are the:

- **Patient's description of the event** (what happened to the patient)
- **Nature of the reaction** (diagnosis of the reaction)
- **Active ingredient(s)** thought to have caused the adverse reaction
- **Assessment of likelihood** (certainty it was caused by the active ingredient)
- **Severity of event** (consequence to the patient, for example hospitalisation)
- **Date and location of the care** (because the original record may have more detail).

Note: in some cases the adverse reaction may be due to the formulation, batch, a combination of ingredients or the inactive ingredients.

Assess the likelihood of the adverse reaction being caused by the active ingredient(s). Factors relevant to your decision about whether to use an antimicrobial or not include the potential for the adverse reaction to recur and the likely consequences to the patient. Use information about the patient's adverse reaction history, along with evidence-based guidelines, to assess the most appropriate antimicrobial to use. Review the accuracy of the documentation and update the patient's healthcare record.

Communicate any changes to a patient's adverse reaction or allergy status to the patient and their regular clinician (for example, in My Health Record or a discharge summary for the general practitioner). It may also be necessary to update the patient's medicines list.

If a patient experiences a new adverse reaction to an antimicrobial, document the essential elements (Box 2) in the patient's healthcare record. Any new or suspected adverse reactions should also be recorded in the organisation-wide incident reporting system and reported to the Therapeutic Goods Administration.³¹

■ For health service organisations

Ensure processes are in place to support clinicians to document adverse reactions to medicines that are reported or experienced by a patient in the patient's healthcare record (see Box 2 for essential elements to document).

Ensure processes are in place for clinicians to review and update information about patients' adverse reactions to medicines in their healthcare records at each encounter, including the My Health Record system.

Ensure guidelines are available for clinicians to assess adverse reactions to antimicrobials and to use the most appropriate antimicrobial when required.

Ensure relevant information about adverse reactions to medicines is available for clinicians to provide to patients.

Ensure processes are in place to review adverse reactions to antimicrobials in the organisation-wide incident reporting system and report them to the Therapeutic Goods Administration.

Related resources

Resources available to support communication about adverse reactions to antimicrobials include:

- Clinical Excellence Commission NSW [*Do You Have a True Antibiotic Allergy? Information for patients and carers*](#)³²
- [Centre for Antibiotic Allergy and Research](#) resources, guidelines and consumer information.

Indicator for local monitoring

3a The proportion of patients with an adverse reaction to an antimicrobial with comprehensive documentation of the reaction in their healthcare record.

More information about the indicator, and the definitions needed to collect and calculate it can be found online at www.safetyandquality.gov.au/ams-ccs-indicators.

4

Quality statement 4 – Microbiological testing

A patient with a suspected infection has appropriate samples taken for microbiology testing as clinically indicated, preferably before starting antimicrobial therapy.

Purpose

To support appropriate antimicrobial selection with relevant microbiology testing when clinically indicated.

What the quality statement means

■ For patients

Before you are given medicines to treat an infection, your clinician will try to find out what is causing the infection. This will help them to decide which medicine is best for you. You may need to have a sample taken – for example, from your blood (a blood test), urine (a urine test) or a wound (wound swab) to find out what kind of microbe (sometimes known as a bug) is causing the infection. It may be important to start treating the infection straight away, before you have the test results. However, your medicine can be changed later if needed.

■ For clinicians

Obtain appropriate samples for microbiology testing when clinically indicated and before starting antimicrobial therapy whenever possible. This ensures that treatment can be specific for the infecting organism, and that the most appropriate narrow-spectrum antimicrobial is used.

For patients with a life-threatening or serious infection (such as sepsis), obtain clinical specimens as appropriate but start administering antimicrobials as soon as possible. Reassess the treatment as soon as the test results are available.

Follow guidelines for appropriate microbiological testing, such as *Therapeutic Guidelines*.

■ For health service organisations

Ensure clinicians have access to and use the current *Therapeutic Guidelines* and evidence-based, locally endorsed guidelines for clinically appropriate microbiological testing.

Ensure systems are in place for clinicians to take samples for microbiological testing before starting antimicrobial therapy, when clinically indicated, and for the results to be available to clinicians in a timely manner.

5

Quality statement 5 – Patient information and shared decision making

A patient with an infection, or at risk of an infection, is provided with information about their condition and treatment options in a way that they can understand. If antimicrobials are prescribed, information on how to use them, when to stop, potential side effects and a review plan is discussed with the patient.

Purpose

To inform patients about their clinical condition so that they can participate in decision-making about their treatment options in collaboration with their clinician. This may or may not include antimicrobials.

To improve patient understanding on how to take prescribed antimicrobials and to improve concordance with therapy.

What the quality statement means

■ For patients

If you have an infection, or are at risk of developing an infection, your clinician will talk to you about your treatment options. This may mean taking medicines depending on the type or risk of infection you have. Your clinician will explain the possible benefits and harms (the good things and bad things) that might happen.

If you decide to take the medicine, your clinician will give you instructions about what you need to do. It is important that you follow these instructions correctly so that the medicine can work to fight your infection. Talk to your clinician if you are not sure what to do, or if you have questions.

Some medicines may have side effects. Understanding the possible side effects can help you know what to expect.

Some other things that you need to know about the antimicrobial medicine are:

- When to start the medicine
- How many times a day to take, use or apply the medicine
- Whether to take tablets or capsules with food or on an empty stomach
- How the medicine will affect other medicines you use
- What the potential side effects are
- Signs or symptoms of when to seek urgent care, depending on the type or risk of infection
- When to stop the medicine.

You may need another appointment with your clinician to check that the medicine is working.

■ For clinicians

Discuss with the patient the expected progression of the infection and the potential benefits and harms of the treatment options, which may or may not include antimicrobials. This discussion should consider the patient's preferences and needs.

If antimicrobials are not needed, reassure the patient and inform them of other treatments that can help with symptoms.

If antimicrobials are needed, discuss with the patient the importance of using antimicrobials as prescribed, how long to take them, any potential adverse effects, any potential drug interactions with existing medicines, and when the treatment will be reviewed or ceased.

Provide verbal and/or written information and resources to the patient about their treatment options and their antimicrobial therapy. Document in the patient's healthcare record what patient information was conveyed, including the provision of written information such as a consumer medicine information sheet, and the outcome of the shared decision making process. Examples include a hospital discharge referral, or an outpatient clinic note.

■ For health service organisations

Ensure systems are in place for clinicians to provide patients and/or their carers with information and advice on antimicrobial treatment options.

Ensure systems are in place so that clinicians discuss with patients and/or their carers the need to take antimicrobials as prescribed, how long to take them, any potential side effects and whether their treatment requires review.

Provide high-quality written patient materials and resources for use by clinicians and patients.

Monitor patient understanding of information provided for antimicrobial therapy and evidence of shared decision making, for example, qualitative patient surveys, patient-reported experience measures, patient-reported outcome measures and/or measuring uptake of shared decision making tools. See [Appendix C](#) for more information.

Ensure processes are in place to ensure information is communicated to the patient at transitions of care (such as on referral in a community setting, or on admission to or discharge from hospital) about their treatment options and antimicrobial plan.

Related resources

Resources available to support patient information and shared decision making include:

- [Choosing Wisely recommendations on antibiotics](#)³³
- NPS MedicineWise consumer resources, including *Respiratory Tract Infections (RTIs) – Nose, throat and lungs*³⁴
- Shared decision making tools for patients including³⁵
 - *Middle Ear Infection: Should my child take antibiotics?*
 - *Acute Bronchitis: Should I take antibiotics?*
 - *Sore Throat: Should I take antibiotics?*
- Clinical Excellence Commission NSW [Receiving Antibiotics in Hospital: Information for patients and carers](#).³²

6

Quality statement 6 – Documentation

When a patient is prescribed an antimicrobial, the indication, active ingredient, dose, frequency and route of administration, and the intended duration or review plan are documented in the patient's healthcare record.

Purpose

To improve documentation of antimicrobial treatment to support effective communication among clinicians through the patient's healthcare record. This record may include mechanisms such as paper or electronic healthcare records, the My Health Record system, prescription records or the medication chart. Documentation allows the appropriateness of the prescription to be assessed, and ensures that all clinicians involved in the patient's care have access to consistent and current information.

What the quality statement means

■ For patients

Your healthcare record contains information about your antimicrobial therapy. This includes information on:

- The medicines you have been prescribed (active ingredients)
- Why they were prescribed and by whom
- When they were prescribed
- The dose
- What form of the medicine you use (such as tablets or an injection)
- How often you have them
- How long to use them for
- Any plans to review your treatment.

■ For clinicians

When prescribing antimicrobials, document the indication, active ingredient, dose, frequency and route of administration, intended duration, and a review plan in the patient's healthcare record. If required, document any plans for therapeutic drug monitoring.

■ For health service organisations

Ensure a system is in place so that when clinicians prescribe antimicrobials, they document the clinical reason, active ingredient, dose, frequency and route of administration, intended duration and a treatment review plan in the patient's healthcare record. Where electronic healthcare records are being used, incorporate flags and reminders into the record management system to support documentation in all relevant fields or consider making them mandatory fields.

Indicators for local monitoring

6a The proportion of prescriptions for which the indication for prescribing the antimicrobial is documented.

6b The proportion of prescriptions for which the duration, stop date or review date for the antimicrobial is documented.

More information about the indicators, and the definitions needed to collect and calculate them can be found online at www.safetyandquality.gov.au/ams-ccs-indicators.

7

Quality statement 7 – Review of therapy

A patient prescribed an antimicrobial has regular clinical review of their therapy, with the frequency of review dependent on patient acuity and risk factors. The need for ongoing antimicrobial use, appropriate microbial spectrum of activity, dose, frequency and route of administration are assessed and adjusted accordingly. Investigation results are reviewed promptly when they are reported.

Purpose

To optimise patients' antimicrobial therapy through clinical assessment and review of the appropriateness of the antimicrobial and of investigation results.

To prevent unnecessary antimicrobial use, including of the use of broad-spectrum antimicrobials where a narrow-spectrum antimicrobial could be used, to reduce the potential to drive antimicrobial resistance.

To ensure the appropriate dosing regimen and route of antimicrobials to adequately treat or prevent an infection, improve patient outcomes and reduce patient harm (for example, when a patient has renal impairment, or when oral options can replace intravenous use). This may include therapeutic drug monitoring.

What the quality statement means

■ For patients

If you are prescribed a medicine for an infection, your clinician should regularly check that you still need the medicine and that it's the best medicine for you. If tests have been done to find out what kind of infection you have, your clinician should review these results as soon as they are available. When your infection has improved, it may be appropriate to stop or change how you use this medicine (for example, changing from an injection, infusion or drip to a medicine you take by mouth).

If the cause of your infection is unclear, you may be prescribed a medicine that works against different types of infections. You may need to have tests (such as a blood or urine test) to check if the medicine is working. Depending on the test results, your treatment may need to continue, change or stop.

■ For clinicians

If antimicrobials are prescribed, review the patient's progress to assess whether ongoing treatment is needed. If the patient is on intravenous agents, consider oral options to reduce hospital-acquired infections. Ensure the antimicrobial agent and dose are appropriate for the site of the infection and patient parameters (such as renal function).

If microbiological tests are ordered, review the results within 24 hours of them being available, and use this information to consider whether changing or stopping antimicrobials is appropriate.

When prescribing a broad-spectrum antimicrobial, review the patient's clinical status and any microbiology results to determine whether the patient's treatment can be switched to a more narrow-spectrum agent to reduce potential patient harms and the risk of developing antimicrobial resistance.

■ For health service organisations

Ensure systems are in place for clinicians to regularly review patients who are prescribed antimicrobials, as appropriate to the clinical condition and healthcare setting. In hospital, this includes ceasing antimicrobials when no longer necessary, and reviewing within 48 hours from the first prescription. In the community, this includes communicating with the consumer about signs and symptoms for re-presentation to the clinician or a hospital.

Ensure systems are in place for clinicians to review microbiology test results as soon as they are available and use the information to guide antimicrobial treatment decisions. Where electronic healthcare records are in place, consider incorporating flags and reminders into the record management system.

Ensure processes are in place to support clinicians changing from broad-spectrum antimicrobials to appropriate narrow-spectrum agents once the pathogen and its susceptibilities are known, or after review of the patient's clinical condition and diagnosis. Consider having processes in place to flag potential intravenous to oral switch for antimicrobials.

Related resources

A resource available to support the review of therapy includes the Clinical Excellence Commission NSW [***Changing from intravenous to oral antibiotics: Information for patients and carers.***](#)³²

Indicator for local monitoring

7a The proportion of prescriptions for which an antimicrobial review and updated treatment decision is documented within 48 hours from the first prescription.

More information about the indicator, and the definitions needed to collect and calculate it can be found online at www.safetyandquality.gov.au/ams-ccs-indicators.

8

Quality statement 8 – Surgical and procedural prophylaxis

A patient having surgery or a procedure is prescribed antimicrobial prophylaxis in accordance with the current *Therapeutic Guidelines* or evidence-based, locally endorsed guidelines. This includes recommendations about the need for prophylaxis, choice of antimicrobial, dose, route and timing of administration, and duration.

Purpose

To reduce the risk of surgical site infections from procedures including surgery, dental procedures, gastrointestinal endoscopic procedures, implantable cardiac device insertions, diagnostic interventions, cleaning and debridement of traumatic wounds, and ophthalmic surgery including cataract removal.

To ensure appropriate antimicrobial prophylaxis, including avoiding the use of antimicrobials when not required.

What the quality statement means

■ For patients

Before a surgical procedure, medicines may be given to you to reduce the risk of an infection. The prescription will be based on national or local recommendations. After having a surgical procedure, antimicrobials are not usually needed unless you have an infection.

■ For clinicians

Prescribe, dispense and administer surgical antimicrobial prophylaxis according to the recommendations outlined in the current *Therapeutic Guidelines* or locally endorsed guidelines. Consider the patient's clinical condition (for example, colonisation with a multidrug-resistant organism, or patient allergies).

Avoid prescribing antimicrobials post-procedurally, as prolonged antimicrobial use is not usually required. Prescribe according to guidelines with respect to the choice of antimicrobial, dose and optimal timing and consider the route of administration; topical antimicrobials are not recommended for surgical prophylaxis.¹ Avoid using off-label routes of administration for antimicrobials such as irrigations, pastes, washes or topical applications for surgical prophylaxis without evidence-based guidelines.

■ For health service organisations

Ensure systems are in place for clinicians to provide appropriate antimicrobial therapy to patients undergoing surgery or a procedure. Ensure these systems are based on the current *Therapeutic Guidelines* or evidence-based, locally endorsed guidelines.

Ensure systems and processes are in place to allow for the clear documentation of peri-procedural antimicrobial active ingredient, dose, administration time and incision time.

Assess adherence to guidelines regularly as part of a quality improvement approach. Ensure systems are in place to meet the health service organisation's requirements for surgical antimicrobial prophylaxis in the [Antimicrobial Stewardship Advisory](#),

as part of the National Safety and Quality Health Service Preventing and Controlling Healthcare-Associated Infection Standard.³⁶

Locally endorsed guidelines

For more information about the requirements of locally endorsed guidelines, refer to [page 9](#) of this document.

Related resources

Resources to support the use of effective surgical or procedural antimicrobial prophylaxis include:

- The Commission's [surgical antimicrobial prophylaxis](#) resources,³⁷ including the [Antimicrobial Stewardship Advisory](#),³⁶ presentation, infographic and other resources
- The Commission's [Approaches to Surgical Site Infection Surveillance: For acute care settings in Australia](#)³⁸
- Local quality improvement audits, either prospectively in operating theatre suites and procedure rooms, or retrospectively by medical chart review
- Surgical National Antimicrobial Prescribing Survey – conducted by the National Centre for Antimicrobial Stewardship, using a point-prevalence survey
- *National Quality Use of Medicines Indicators for Australian Hospitals*¹¹
- Clinical Excellence Commission NSW [surgical antibiotic prophylaxis](#) fact sheets and guides, quality improvement tools and templates for correspondence.³⁹

Indicators for local monitoring

8a The proportion of patients for whom the perioperative prophylactic antimicrobial is prescribed in accordance with the current *Therapeutic Guidelines* or evidence-based, locally endorsed guidelines.

8b The proportion of patients for whom the perioperative prophylactic antimicrobial dose is prescribed in accordance with the current *Therapeutic Guidelines* or evidence-based, locally endorsed guidelines.

8c The proportion of patients who are administered prophylactic antimicrobials within the recommended time perioperatively.

8d The proportion of patients who were prescribed prolonged antimicrobials following a surgery or procedure that is discordant with the current *Therapeutic Guidelines* or evidence-based, locally endorsed guidelines.

More information about the indicators, and the definitions needed to collect and calculate them can be found online at www.safetyandquality.gov.au/ams-ccs-indicators.

Appendix A:

General principles of care

This clinical care standard aligns with key principles that are the foundation for achieving safe, high-quality care. When implementing this clinical care standard, health services should ensure quality improvement activities support these principles.

Person-centred care

Person-centred care is health care that is respectful of, and responsive to, the preferences, needs and values of patients and consumers.^{19, 40}

Clinical care standards support the key principles of person-centred care, namely:

- Treating patients with dignity and respect
- Encouraging patient participation in decision-making (see 'Shared decision making')
- Communicating with patients about their clinical condition and treatment options
- Providing patients with information in a format that they understand, and encouraging them to participate in decision-making.

Shared decision making

Shared decision making involves discussion and collaboration between a consumer and their clinician. It is about bringing together the consumer's values, goals and preferences with the best available evidence about benefits, harms and uncertainties of treatment, to reach the most appropriate healthcare decisions for that person.

Involving support people

The **Australian Charter of Healthcare Rights** (second edition) describes the rights that consumers, or someone they care for, can expect when receiving health care.⁴¹

Patients have the right to involve the people they want in planning and making decisions about their health care and treatment. This could be a family member, carer, friend or a consumer advocate such as a social worker. Many health services employ different types of liaison officers, such as Aboriginal and/or Torres Strait Islander liaison officers, who can provide patients with advocacy, information and support.

This clinical care standard does not specifically refer to carers and family members, but statements which refer to clinicians' discussions with patients about their care should be understood to include support people if this is what the patient wishes, or a substitute decision-maker if the person is unable to provide their consent.

Informed consent

Informed consent is a person's voluntary and informed decision about a healthcare treatment, procedure or intervention that is made with adequate knowledge and understanding of the benefits and harms to them, and the alternative options available. The Commission developed an informed consent fact sheet for consumers, available at www.safetyandquality.gov.au/publications-and-resources/resource-library/informed-consent-fact-sheet-clinicians.

Action 2.4 in the National Safety and Quality Health Service (NSQHS) Standards requires health service organisations to ensure that informed consent processes comply with legislation and best practice.¹⁹



Cultural safety and patient safety

Cultural safety is about overcoming the cultural power imbalances of places, people and policies to contribute to improvements in Aboriginal and Torres Strait Islander health.⁴²

The [Cultural Respect Framework 2016–2026](#) commits the Australian Government and all states and territories to embed cultural respect principles into their health systems.⁴³ The Framework should be used to develop, implement and evaluate cultural awareness and cultural competency strategies.

Health consumers are safest when clinicians have considered power relations, cultural differences and patients' rights. Part of this process requires clinicians to review their own beliefs and attitudes.⁴⁴

The NSQHS Standards *User Guide for Aboriginal and Torres Strait Islander Health* describes six specific actions that aim to help health services improve the quality of care and health outcomes for Aboriginal and Torres Strait Islander peoples.^{19, 44}

Appendix B:

Indicators to support local monitoring

The Commission has developed a set of indicators to support clinicians and health services in monitoring how well they implement the care described in this clinical care standard. The indicators are a tool to support local quality improvement activities. No benchmarks are set for any indicator.

The process to develop the indicators specified in this document comprised:

- A review of existing Australian and international indicators
- Prioritisation, review and refinement of the indicators with the topic working group.

Most of the data underlying these indicators will be collected from local sources, through prospective data collection, retrospective chart audits, or review of policies and protocols. Indicators can be collected through intermittent or continuous data collection. The [National Quality Use of Medicines Indicators for Australian Hospitals: User guide](#) is a useful resource to guide methodological considerations for indicator use.¹¹

In this document, the indicator titles and hyperlinks to the specifications are included with the relevant quality statement under the heading 'Indicator(s) for local monitoring'. Full specifications for the Antimicrobial Stewardship Clinical Care Standard indicators can be found in the Metadata Online Registry (METeOR) available from www.safetyandquality.gov.au/ams-ccs-indicators.

METeOR is Australia's web-based repository for national metadata standards for the health, community services and housing assistance sectors. Hosted by the Australian Institute of Health and Welfare, METeOR provides users with online access to a wide range of nationally endorsed data and indicator definitions.

The Commission recommends other quality improvement indicators listed below to support monitoring.

Other Commission-endorsed indicators and resources to support local monitoring

Antimicrobial stewardship measurement and monitoring

The Commission has developed a number of antimicrobial stewardship (AMS) resources that support measurement and monitoring of AMS, such as:

- 'Measuring performance and evaluating antimicrobial stewardship programs', Chapter 6 in *Antimicrobial Stewardship in Australian Health Care*²
- *Structure Indicators for Antimicrobial Stewardship Programs in Health Service Organisations*.⁴⁵

These are available at www.safetyandquality.gov.au/our-work/antimicrobial-stewardship/antimicrobial-stewardship-ams-resources-and-links.

The National Antimicrobial Prescribing Survey measures:⁹

- Antimicrobial start date, active ingredient, route, dose, frequency and prescriber code
- Documentation of indication, review or stop date, allergies and adverse drug reactions to antimicrobials, and microbiology
- The specified documented or presumed indication, guideline compliance and appropriateness
- The reason for not complying with guidelines or inappropriate use, including whether the indication did not require any antimicrobials, incorrect route, dose, frequency, duration or spectrum of activity
- Surgical prophylaxis beyond 24 hours
- Allergy and microbiology mismatch
- If the active ingredient is restricted, whether approval was given.

The National Antimicrobial Utilisation Surveillance Program provides a standardised measurement of antimicrobial use in Australian adult public and private hospitals, reported as defined daily doses per 1,000 occupied bed days.¹⁰

The *National Quality Use of Medicines Indicators for Australian Hospitals* is under review in 2020; however, it currently measures the following indicators with tools:¹¹

- Percentage of patients undergoing specified surgical procedures that receive an appropriate prophylactic antibiotic regimen
- Percentage of prescriptions for restricted antibiotics that are concordant with drug and therapeutics committee-approved criteria
- Percentage of patients in whom doses of empirical aminoglycoside therapy are continued beyond 48 hours
- Percentage of adult patients with community-acquired pneumonia that are assessed using an appropriate validated objective measure of pneumonia severity
- Percentage of patients presenting with community-acquired pneumonia that are prescribed guideline concordant antibiotic therapy.

Hospital-acquired complications

A hospital-acquired complication (HAC) refers to a complication for which clinical risk mitigation strategies may reduce (but not necessarily eliminate) the risk of that complication occurring.⁴⁶ The HACs list comprises 16 agreed, high-priority complications for which clinicians, managers and others can work together to address and improve patient care. Each of the HACs has several associated diagnoses and codes, which allow further exploration of the data. Data for HACs are derived from the admitted patient data collection.

The relevant HACs for the Antimicrobial Stewardship Clinical Care Standard are:

- Urinary tract infection
- Surgical site infection
- Pneumonia
- Blood stream infection
- Infections or inflammatory complications associated with peripheral/central venous catheters
- Multi-resistant organism
- Infection associated with prosthetics/implantable devices
- Gastrointestinal infections
- Other high impact infections.

The Commission has developed several resources for clinicians, managers and executives, governing bodies and others that can help them put in place strategies that reduce the occurrence of HACs. These are available at www.safetyandquality.gov.au/our-work/indicators/hospital-acquired-complications.



Appendix C:

Measuring and monitoring patient experiences

Systematic, routine monitoring of patients' experiences of, and outcomes from, health care is an important way to ensure that the patient's perspective drives service improvements and patient-centred care. This is the case in all health services.

Patient experience measures

While this clinical care standard does not include indicators specific to measuring patient experiences, the Commission strongly encourages health services to use the Australian Hospital Patient Experience Question Set (AHPEQS). AHPEQS is a 12-question generic patient experience survey that has been validated in both day-only and admitted hospital patients across many clinical settings. The [instrument is available for download](#) to both private and public sector health services.

Patient-reported outcome measures

In Australia, patient-reported outcome measures (PROMs) are an emerging method of assessing the quality of health care. The Commission is leading a national work program to support the consistent and routine use of PROMs to drive quality improvement.

PROMs are standardised, validated questionnaires that patients complete, without any input from clinicians. They are often administered at least twice to an individual patient – at baseline and again after an intervention, or at regular intervals during a chronic illness. The information contributed by patients filling out PROMs questionnaires can be used to support and monitor the movement of health systems towards person-centred, value-based health care.

PROMs are being used to evaluate healthcare effectiveness at different levels of the health system, from the individual level to service and system levels. There is growing interest across Australia and internationally in the routine interrogation of patient-reported outcome information for evaluation and decision-making activities at levels of the health system beyond the clinical consultation.



Appendix D: Integration with National Standards

National Safety and Quality Health Service Standards

Monitoring the implementation of this clinical care standard will help organisations to meet some of the requirements of the National Safety and Quality Health Service (NSQHS) Standards (second edition).¹⁹

The NSQHS Standards aim to protect the public from harm and improve the quality of health service provision. They provide a quality assurance mechanism that tests whether relevant systems are in place to ensure that expected standards of safety and quality are met.

Within the NSQHS Standards, the Clinical Governance Standard and the Partnering with Consumers Standard combine to form the clinical governance framework for all health service organisations that applies to all other standards.

- The Clinical Governance Standard aims to ensure that systems are in place within health service organisations to maintain and improve the reliability, safety and quality of health care.
- The Partnering with Consumers Standard aims to ensure that consumers are partners in the design, delivery and evaluation of healthcare systems and services, and that patients are given the opportunity to be partners in their own care, to the extent that they choose.

Action 1.27b and Action 1.28

Under the Clinical Governance Standard, health service organisations are expected to support clinicians to use the best available evidence, including clinical care standards (see Action 1.27b), and to monitor and respond to unwarranted clinical variation (Action 1.28).

Health service organisations are expected to implement the NSQHS Standards in a way that suits the clinical services provided and their associated risks. Specific aspects of the NSQHS Standards (2nd ed.) that are relevant to this clinical care standard are included in Table 3.

Action 3.15 and Action 3.16

Under the Preventing and Controlling Healthcare-Associated Infection Standard, health service organisations are expected to support clinicians to implement systems for the safe and appropriate prescribing and use of antimicrobials as part of an antimicrobial stewardship (AMS) program.

Specifically, health service organisations are expected to have an AMS program that incorporates core elements, recommendations and principles from the current AMS Clinical Care Standard (Action 3.15d), and review antimicrobial prescribing and use (Action 3.16a).

Appendix D

Table 3: Actions from the National Safety and Quality Health Service Standards (2nd ed.) relevant to this clinical care standard

Clinical Governance Standard	Partnering with Consumers Standard	Preventing and Controlling Healthcare Associated Infection Standard	Medication Safety Standard	Communicating for Safety Standard	Recognising and Responding to Acute Deterioration Standard
Governance, leadership and culture (1.1 and 1.2)	Informed consent (2.3, 2.4 and 2.5)	Integrated clinical governance (3.1)	Clinical governance and quality improvement to support medication management (4.1 to 4.4)	Communication of critical information (6.9)	Responding to deterioration (8.10)
Organisational leadership (1.3)	Sharing decisions and planning care (2.6 and 2.7)	Applying quality improvement systems (3.2)	Documentation of patient information (4.5 to 4.9)	Documentation of information (6.11)	
Safety and quality monitoring, including incident reporting systems (1.8, 1.9 and 1.11)	Information for consumers (2.9) and communication of clinical information (2.10)	Partnering with consumers (3.3)	Continuity of medication management (4.10 to 4.12)		
Policies and procedures (1.7)		Surveillance (3.4)	Information and decision support tools for medicines (4.13)		
Healthcare records (1.17 and 1.18)		Antimicrobial stewardship (3.15 and 3.16)			
Credentialing and scope of clinical practice (1.23 and 1.24)					
Safety and quality roles and responsibilities (1.25 and 1.26)					
Evidence-based care (1.27)					
Variation in clinical practice and health outcomes (1.28)					

Information about the NSQHS Standards is available at the [NSQHS Standards website](#).

Glossary

Term	Definition
active ingredient	Any component of a pharmaceutical product that exerts pharmacologic activity. ⁴⁷ See medicine
adverse reaction to a medicine	A response to a medicinal product that is noxious and unintended, and occurs at doses normally used in people for the prophylaxis, diagnosis or therapy of disease, or for the restoration, correction or modification of physiological function. This may include, but is not limited to, nausea, allergy and anaphylaxis to medicines. ^{11, 48} Also known as adverse drug reactions (ADRs). See side effects
allergen	A substance that causes an allergic reaction. Typical allergens include some medicines, some foods and latex. An allergen may be encountered through inhalation, ingestion, injection or contact with skin. ²
allergy or allergic reaction	Allergy occurs when a person's immune system reacts to substances in the environment that are harmless for most people. These substances are known as allergens and are found in dust mites, pets, pollen, insects, ticks, moulds, foods and some medicines. ² See adverse reaction to a medicine
antibiotic	A substance that kills or inhibits the growth of bacteria. ²
antimicrobial	A substance that inhibits or destroys bacteria, parasites, viruses or fungi, and can be safely administered to humans or animals. Used when broadly referring to agents used to treat or prevent infections caused by microorganisms, the term embraces antibacterial, antifungal, antiviral, antiparasitic and antiseptic agents. ^{2, 17, 28}
antimicrobial formulary	A list of antimicrobial agents approved for use within an organisation or a network that includes descriptions of restrictions and criteria for use. ² For information on the Commission's recommendations for an antimicrobial formulary, see page 9 of this document.
antimicrobial resistance	The failure of an antimicrobial to inhibit a microorganism at the antimicrobial concentrations usually achieved over time with standard dosing regimens. ^{2, 19}
antimicrobial stewardship (AMS)	The safe and appropriate use of antimicrobials to reduce harm, while curtailing the incidence of antimicrobial resistance. ¹⁵
Antimicrobial Use and Resistance in Australia (AURA) Surveillance System	The AURA Surveillance System coordinates data from many sources to provide a comprehensive and integrated picture of patterns and trends of antimicrobial resistance and antimicrobial use in human health across Australia. ¹⁵
appropriate antimicrobial	The prescription complies with the current <i>Therapeutic Guidelines</i> or evidence-based, locally endorsed guidelines, including the active ingredient, route, dose and frequency, and considers acceptable alterations due to age, weight, renal function, allergies, other prescribed medicines and other factors.

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Term	Definition
assessment	A clinician's evaluation of a disease or condition, based on the patient's subjective report of the symptoms and course of the illness or condition and the clinician's objective findings. These findings include data obtained through laboratory tests, physical examination and medical history, and information reported by carers, family members and other members of the healthcare team. ¹⁹
broad-spectrum antimicrobial	An antimicrobial that kills or inhibits a wide range of organisms. ²
carer	A person who provides personal care, support and assistance to another individual who needs it because they have a disability, medical condition (including a terminal or chronic illness) or mental illness, or they are frail or older. An individual is not a carer merely because they are a spouse, de facto partner, parent, child, other relative or guardian of an individual, or live with an individual who requires care. A person is not considered a carer if they are paid, a volunteer for an organisation, or caring as part of a training or education program. ⁴⁹
clinical practice guidelines	Statements that include recommendations intended to optimise patient care that are informed by a systematic review of evidence and an assessment of the benefits and harms of alternative care options. ⁵⁰
clinician	A trained health professional who provides direct clinical care to patients including registered and non-registered practitioners. Clinicians may provide care within a health service organisation as an employee, a contractor or a credentialed healthcare provider, or under other working arrangements. They include nurses, midwives, medical practitioners, allied health professionals, nurse practitioners, and other clinicians who provide health care, and students who provide health care under supervision.
colonisation	The sustained presence of replicating infectious microorganisms on or in the body, without producing an immune response or disease. ²
commensal	Living in a relationship in which one organism derives food or other benefits from another organism without hurting or helping it. Commensal bacteria are part of the normal flora in the mouth. ⁵¹
consumer	A person who has used, or may potentially use a health service, or is a carer for a patient using health services. A healthcare consumer may also act as a consumer representative to provide a consumer perspective, contribute consumer experiences, advocate for the interests of current and potential health service users, and take part in decision-making processes. ⁵²
drug and therapeutics committee	A drug and therapeutics committee (or equivalent) is a multidisciplinary committee with a commitment to the overall governance of the medicines management system in their health service organisation to ensure the judicious, appropriate, safe, effective and cost-effective use of medicines. ⁵³
empiric antimicrobial	When antimicrobial therapy is directed against an anticipated and likely cause of an infection, before the results of microbiological investigations are available.
healthcare-associated infection	Infections that are acquired in healthcare facilities (nosocomial infections) or that occur as a result of healthcare interventions (iatrogenic infections). Healthcare-associated infections may manifest after people leave the healthcare facility. ²

Term	Definition
healthcare record	Includes a record of the patient's medical history, treatment notes, observations, correspondence, investigations, test results, photographs, prescription records and medication charts for an episode of care. ¹⁹
health service organisation	A separately constituted health service that is responsible for implementing clinical governance, administration and financial management of a service unit or service units providing health care at the direction of the governing body. A service unit involves a group of clinicians and others working in a systematic way to deliver health care to patients. It can be in any location or setting, including pharmacies, clinics, outpatient facilities, hospitals, patients' homes, community settings, practices and clinicians' rooms. ¹⁹
hospital	A licensed facility providing healthcare services to patients for short periods of acute illness, injury or recovery. ¹⁹
indication	The clinical reason for using a medicine.
infection	The invasion and reproduction of pathogenic (disease-causing) organisms inside the body, which may cause tissue injury and disease. ²
informed consent	A process of communication between a patient and clinician about options for treatment, care processes and potential outcomes. This communication results in the patient's authorisation or agreement to undergo a specific intervention or participate in planned care. The communication should ensure that the patient has an understanding of the care they will receive, all the available options and the expected outcomes, including success rates and side effects for each option. ⁵⁴
intolerance	See side effects
investigations	Include tests such as blood or urine cultures, X-rays, or other laboratory and microbiology samples that help to diagnose and treat infections.
locally endorsed guidelines	<p>While many forms of local guidelines exist, in this document, the term locally endorsed guidelines should meet the following specific requirements:</p> <p><i>Therapeutic Guidelines: Antibiotic</i> provides national, evidence-based guidelines for antimicrobial use in Australia. However, in some cases, evidence-based and formally endorsed local adaptations may be more relevant to local patterns of antimicrobial resistance or specific patient populations requiring a localised approach or with highly specialised diagnoses out of the scope of <i>Therapeutic Guidelines</i>. Ensure that local adaptations of guidelines are based on <i>Therapeutic Guidelines</i> and, where they deviate, a clear rationale based on published clinical evidence and local epidemiology is documented and endorsed by a governing body. Endorsing bodies may include peer review at a drug and therapeutics, antimicrobial stewardship or medicines advisory committee, or equivalent. See page 9 of this document.</p> <p>See prescribing guidelines</p>
medical practitioner	A medically qualified person whose primary role is the diagnosis and treatment of physical and mental illnesses, disorders and injuries. They include general practitioners, medical specialists, interns and residents.

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Term	Definition
medicine	A chemical substance given with the intention of preventing, diagnosing, curing, controlling or alleviating disease, or otherwise improving the physical or mental wellbeing of people. These include prescription, non-prescription, investigational, clinical trial and complementary medicines, regardless of how they are administered. ⁵⁵
narrow-spectrum antimicrobial	An antimicrobial that kills or inhibits a limited range of organisms.
patient	A person who is receiving care in a health service organisation. ¹⁹
point of care	The time and location of an interaction between a patient and a clinician to deliver care. ¹⁹
post-prescription review	Review of antimicrobial prescribing, with intervention and direct and timely feedback to the prescriber to educate clinicians on appropriate prescribing. The review may be by a single clinician or by a multidisciplinary AMS team. ²
prescriber	A clinician authorised to prescribe within the scope of their practice. ⁵⁶
prescribing guidelines	Guidelines that describe evidence-based best prescribing practice, and provide a standard against which prescribing behaviour can be compared. ²
primary health care	The first level of care or entry point to the healthcare system, such as general practice clinics, community health practice (for example, clinics, outreach or home visiting services), ambulance services, pharmacists or services for specific populations (for example, Aboriginal or refugee health services).
prophylactic	Medicines or other treatments used to prevent disease or illness. For example, antimicrobials are sometimes given prophylactically before surgery to prevent infection. ²
qSOFA	Quick SOFA; SOFA: Sequential [Sepsis-related] Organ Failure Assessment. A measure of alteration in mental status, systolic blood pressure ≤ 100 mm Hg, or respiratory rate ≥ 22 /min. ²⁹ See sepsis
quality improvement	The combined efforts of the workforce and others – including consumers, patients and their families, researchers, planners and educators – to make changes that will lead to better patient outcomes (health), better system performance (care) and better professional development. ⁵⁷ Quality improvement activities may be sequential, intermittent or continuous. ¹⁹
restricted antimicrobial	An antimicrobial that could contribute to the development of multidrug-resistant organisms, has considerable side effects or is expensive, and for which prescribing needs to meet certain criteria. See antimicrobial formulary
risk factor	A characteristic, condition or behaviour that increases the possibility of disease, injury or loss of wellbeing.
scope of practice	The extent of an individual clinician's approved clinical practice within a particular organisation, based on the clinician's skills, knowledge, performance and professional suitability, and the needs and service capability of the organisation. ⁵⁸

Term	Definition
sepsis	<p>A life-threatening condition that arises when the body's response to infection injures its own tissues and organs. Sepsis can present in any patient and in any clinical setting, and is a medical emergency. It is one of the leading causes of inpatient death worldwide.²</p> <p>Organ dysfunction can be identified as an acute change in total SOFA score of ≥ 2 points consequent to the infection.²⁹ The 'quick SOFA' or qSOFA score is recommended to facilitate easier identification of patients potentially at risk of dying from sepsis.⁵⁹</p> <p>See qSOFA</p>
septic shock	<p>Septic shock is a subset of sepsis in which underlying circulatory and cellular/metabolic abnormalities are profound enough to substantially increase mortality. Septic shock reflects a more severe illness with a much higher likelihood of death than sepsis alone.²⁹</p> <p>Patients with septic shock can be identified with a clinical construct of sepsis with persisting hypotension requiring vasopressors to maintain mean arterial pressure ≥ 65 mm Hg and having a serum lactate level >2 mmol/L (18 mg/dL) despite adequate volume resuscitation.²⁹</p>
shared decision making	<p>A consultation process in which a clinician and a patient jointly participate in making a health decision, having discussed the options and their benefits and harms, and having considered the patient's values, preferences and circumstances.⁶⁰</p>
side effects	<p>Unintended effects from a medicine, treatment or device. This includes intolerances to medicines.</p> <p>See adverse reaction to a medicine</p>
spectrum of activity	<p>The range of organisms that an antimicrobial kills or inhibits.</p> <p>See broad-spectrum antimicrobial and narrow-spectrum antimicrobial</p>
susceptible isolate	<p>A microbe isolate from a specimen (for example, stool, blood, urine) that is not resistant to any of the antibiotics tested.⁶¹</p>
system	<p>The resources, policies, processes and procedures that are organised, integrated, regulated and administered to accomplish a stated goal. A system:</p> <ul style="list-style-type: none"> ■ Brings together risk management, governance, and operational processes and procedures, including education, training and orientation ■ Deploys an active implementation plan; feedback mechanisms include agreed protocols and guidelines, decision support tools and other resource materials ■ Uses several incentives and sanctions to influence behaviour and encourage compliance with policies, protocols, regulations and procedures. <p>The workforce is both a resource in the system and involved in all elements of systems development, implementation, monitoring, improvement and evaluation.¹⁹</p>
therapeutic drug monitoring	<p>The management of a patient's medication regimen based on the serum, plasma or whole blood concentration of a medicine.⁶²</p>

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Acknowledgements

Many individuals and organisations have freely given their time and expertise in the development of this document. In particular, the Commission wishes to thank the AMS Clinical Care Standard Topic Working Group who advised on the first version of the standard in 2014, some of whom, with other experts, participated in the review of the AMS Clinical Care Standard in 2020. The involvement and willingness of all concerned to share their experience and expertise is greatly appreciated:

- Dr Minyon Avent
- Dr Marissa Basil
- Dr Alexandra (Sasha) Bennett
- Dr Philippa Binns
- Mrs Joanne Bird
- Dr Kirsty Buising
- Ms Kelly Cairns
- Dr Kathryn Daveson
- Ms Paula Doherty
- Mr Chris Freeman
- Professor Paul Glasziou
- Dr Bruce Hall
- Dr John Hall
- Professor Jennifer May AM
- Professor Rhonda Stuart
- Dr Murray Thomas
- Prof Karin Thursky
- Dr Phil Truskett
- Prof John Turnidge AO
- Ms Diane Walsh
- Dr Morgyn Warner.

Several Commission staff were also involved in the writing and review of this publication, and the Commission wishes to acknowledge:

- Ms Alice Bhasale
- Ms Fiona Doukas
- Ms Suzanna Henderson
- Dr Robert Herkes
- Adjunct Professor Kathy Meleady
- Adjunct Professor Debora Picone AM
- Ms Kim Stewart
- Mr Girish Swaminathan
- Ms Kristin Xenos.





AUSTRALIAN COMMISSION
ON SAFETY AND QUALITY IN HEALTH CARE

Level 5, 255 Elizabeth Street, Sydney NSW 2000
GPO Box 5480, Sydney NSW 2001

PHONE: (02) 9126 3600

FAX: (02) 9126 3613

mail@safetyandquality.gov.au

safetyandquality.gov.au