

Antimicrobial Stewardship Clinical Care Standard



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Disclaimer


The Australian Commission on Safety and Quality in Health Care has produced this Clinical Care Standard to support the delivery of appropriate care for a defined condition and is based on the best evidence available at the time of development. Health care professionals are advised to use clinical discretion and consideration of the circumstances of the individual patient, in consultation with the patient and/or their carer or guardian when applying information contained within the Clinical Care Standard. Consumers should use the information in the Clinical Care Standard as a guide to inform discussions with their health care professional about the applicability of the Clinical Care Standard to their individual condition.


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Antimicrobial Stewardship Clinical Care Standard


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1 A patient with a life-threatening condition due to a suspected bacterial infection receives prompt antibiotic treatment without waiting for the results of investigations.
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2 A patient with a suspected bacterial infection has samples taken for microbiology testing as clinically indicated, preferably before starting antibiotic treatment.
- 


3 A patient with a suspected infection, and/or their carer, receives information on their health condition and treatment options in a format and language that they can understand.
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4 When a patient is prescribed antibiotics, whether empirical or directed, this is done in accordance with the current version of the *Therapeutic Guidelines*¹ (or local antibiotic formulary). This is also guided by the patient's clinical condition and/or the results of microbiology testing.
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5 When a patient is prescribed antibiotics, information about when, how and for how long to take them, as well as potential side effects and a review plan, is discussed with the patient and/or their carer.
- 

6 When a patient is prescribed antibiotics, the reason, drug name, dose, route of administration, intended duration and review plan is documented in the patient's health record.
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7 A patient who is treated with broad-spectrum antibiotics has the treatment reviewed and, if indicated, switched to treatment with a narrow-spectrum antibiotic. This is guided by the patient's clinical condition and the results of microbiology tests.
- 

8 If investigations are conducted for a suspected bacterial infection, the responsible clinician reviews these results in a timely manner (within 24 hours of results being available) and antibiotic therapy is adjusted taking into account the patient's clinical condition and investigation results.
- 

9 If a patient having surgery requires prophylactic antibiotics, the prescription is made in accordance with the current *Therapeutic Guidelines*¹ (or local antibiotic formulary), and takes into consideration the patient's clinical condition.

Introduction

A Clinical Care Standard is a small number of quality statements that describe the clinical care that a patient should be offered for a specific clinical condition. The Clinical Care Standard supports:

- people 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 services to examine the performance of their organisation and make improvements in the care they provide.

This Clinical Care Standard was developed by the Australian Commission on Safety and Quality in Health Care (the Commission) in collaboration with consumers, clinicians, researchers and health organisations.^a It complements existing efforts that support antimicrobial stewardship.

For more information about the development of this Clinical Care Standard, visit www.safetyandquality.gov.au/ccs.

Context

Antibiotic resistance poses a significant threat to public health because antibiotics underpin routine clinical practice in a variety of healthcare settings. Bacteria can develop resistance to specific antibiotics, meaning that the antibiotic is no longer effective against those bacteria. Although antibiotic resistance is a natural feature of bacterial evolution, inappropriate use of antibiotics has increased the development of antibiotic-resistant bacteria, not only in hospitals and healthcare services but also in the community.^{2,3}

To help prevent the development of current and future bacterial resistance, it is important to prescribe antibiotics according to the principles of antimicrobial stewardship, such as prescribing antibiotics only when needed (and not for mild infections such as colds, earache or sore throats).

The Antimicrobial Stewardship Clinical Care Standard aims to ensure that a patient with a bacterial infection receives optimal treatment with antibiotics. 'Optimal treatment' means treating patients with the right antibiotic to treat their condition, the right dose, by the right route, at the right time and for the right duration based on accurate assessment and timely review.

Central to the delivery of patient-centred care identified in this Clinical Care Standard is an integrated, systems-based approach supported by health services and networks of services.

Key elements of this approach include:

- an understanding of the capacity and limitations of each component of the health care system across metropolitan, regional and remote settings, including pre-hospital, within and across hospitals, through to community and other support services
- clear lines of communication across components of the health care system
- appropriate coordination so that patients receive timely access to optimal care regardless of how or where they enter the system.

^a The evidence base for these statements is available at www.safetyandquality.gov.au/ccs.

Scope

This Clinical Care Standard relates to the care that patients should receive when they have, or are suspected of having, a bacterial infection. It covers the care from the time of diagnosis to cure of an infection. The Antimicrobial Stewardship Clinical Care Standard has been developed for use in a variety of healthcare settings, including hospital, general practice and residential aged-care.

Goal

To ensure the appropriate use and review of antibiotics to optimise a patient's health outcomes, lessen the risk of adverse effects and reduce the emergence of antibiotic resistance.⁴

Monitoring and evaluation

Monitoring quality of care is an effective way of identifying areas that require improvement. It can tell how well health services satisfy the Clinical Care Standards.

Monitoring how well the Clinical Care Standards are met is a key part of the National Safety and Quality Health Service (NSQHS) Standards, particularly *Standard 1: Governance for Safety and Quality*.

Clinical Care Standards can be monitored using a sample set of suggested indicators (see Appendix).

Supporting documentation

The following supporting information for this Clinical Care Standard is available on the Commission's web site at www.safetyandquality.gov.au/ccs

- a consumer fact sheet
- a clinician fact sheet
- indicator specification.

Quality statement 1 – Life-threatening conditions

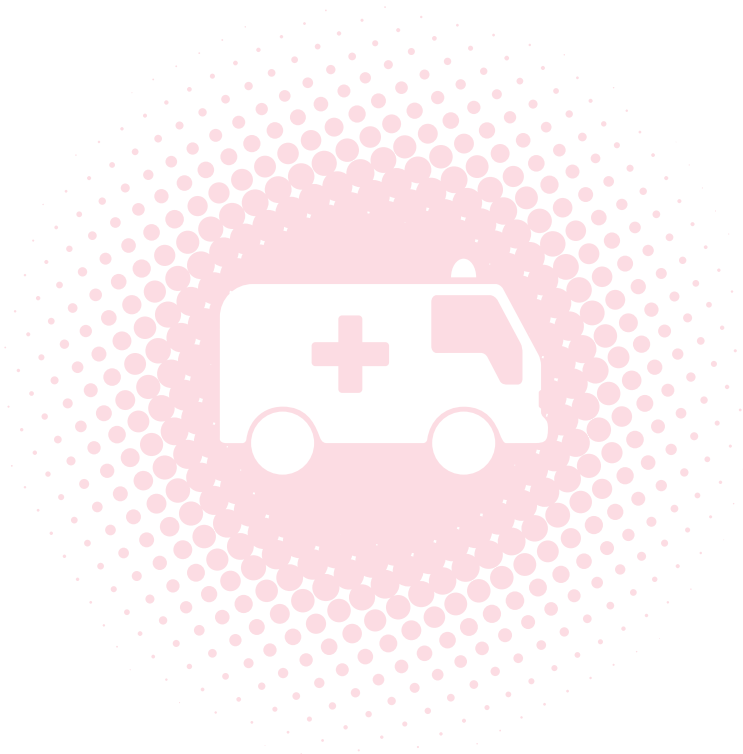
A patient with a life-threatening condition due to a suspected bacterial infection receives prompt antibiotic treatment without waiting for the results of investigations.

Purpose

To reduce the time taken to provide antibiotic treatment for suspected life-threatening bacterial infections.

What the quality statement means

- **For patients.** If you are extremely unwell with a suspected bacterial infection, you are given antibiotics as soon as possible.
- **For clinicians.** Prescribe and administer appropriate empirical antibiotic treatment to patients with a suspected life-threatening bacterial infection, obtain clinical specimens as appropriate but do not delay administration of antibiotics or wait for results of investigations.
- **For health services.** Ensure the availability of relevant clinical pathways and local antibiotic formulary so clinicians give patients with life-threatening bacterial infections appropriate antibiotic treatment without delay.



Quality statement 2 – Microbiological testing

A patient with a suspected bacterial infection has samples taken for microbiology testing as clinically indicated, preferably before starting antibiotic treatment.

Purpose

To support appropriate antibiotic selection through the appropriate use of microbiology testing.

In hospitals, microbiology testing routinely occurs before the administration of antibiotic treatment however, this may not be required in general practice and residential aged care settings. This quality statement aims to encourage all clinicians to undertake microbiology testing whenever indicated.

What the quality statement means

- **For patients.** Before you are prescribed antibiotics, samples may be taken to try to work out which antibiotic is the best to treat the infection. The samples may include blood tests, urine samples or wound swabs.
- **For clinicians.** Obtain samples for microbiology testing when clinically indicated and before starting antibiotic therapy whenever possible. This ensures that treatment is specifically directed against the infecting organism.
- **For health services.** Ensure systems are in place for clinicians to take samples for microbiology testing before starting antibiotic therapy as clinically indicated, and for the results to be available to clinicians in a timely manner.



Quality statement 3 – Information on treatment options

A patient with a suspected infection, and/or their carer, receives information on their health condition and treatment options in a format and language that they can understand.

Purpose

To inform patients and/or their carers about their clinical condition so that they can participate in the decision-making process about their treatment, which may or may not include antibiotics.

What the quality statement means

- **For patients.** If you are thought to have a bacterial infection, your doctor or nurse discusses treatment options with you and/or your carer, which may or may not include giving you antibiotics.
- **For clinicians.** Discuss with the patient and/or their carer the progression of the infection and the risks and benefits of the treatment options, which may or may not include antibiotics. This discussion should be inclusive of the patient's preferences and needs.
- **For health services.** Ensure systems are in place for clinicians to provide patients and/or their carers with information and advice on antibiotic treatment options.



Quality statement 4 – Use of guidelines and clinical condition

When a patient is prescribed antibiotics, whether empirical or directed, this is done in accordance with the current version of the *Therapeutic Guidelines*¹ (or local antibiotic formulary). This is also guided by the patient's clinical condition and/or the results of microbiology testing.

Purpose

To ensure the right antibiotic treatment is given (i.e. the right drug, dose, route and duration of therapy is chosen).

What the quality statement means

- **For patients.** If you are prescribed an antibiotic, your doctor or nurse chooses which one, based on national or local recommendations. They should take into account any allergies and other health conditions you may have.
- **For clinicians.** Prescribe an antibiotic according to the current *Therapeutic Guidelines*¹ (or local antibiotic formulary). Consider the individual patient's characteristics, such as allergy status, other medicines prescribed and other health conditions.
- **For health services.** Ensure clinicians have access to and use the current version of *Therapeutic Guidelines*¹ or local antibiotic formulary when prescribing antibiotics.



Quality statement 5 – Taking antibiotics as prescribed

When a patient is prescribed antibiotics, information about when, how and for how long to take them, as well as potential side effects and a review plan, is discussed with the patient and/or their carer.

Purpose

To improve patients' compliance to prescribed antibiotic treatment.

What the quality statement means

- **For patients.** If you are prescribed antibiotics, your doctor or nurse discusses with you and/or your carer about when and how to take your antibiotics, how long to take them and any potential side effects. You may need to be seen again to review your progress.
- **For clinicians.** Discuss with the patient and/or their carer the importance of taking antibiotics as prescribed, how long to take them, any potential side effects and whether the treatment will need to be reviewed.
- **For health services.** Ensure systems are in place so that clinicians discuss with patients and/or their carers the need to take antibiotics as prescribed, how long to take them, any potential side effects and whether their treatment requires review.



Quality statement 6 – Documentation

When a patient is prescribed antibiotics, the reason, drug name, dose, route of administration, intended duration and review plan is documented in the patient's health record.

Purpose

To improve communication of antibiotic treatment between clinicians through a variety of mechanisms, including the Personally Controlled Electronic Health Record.

What the quality statement means

- **For patients.** Your health record contains the details of your antibiotic treatment. This includes information on why you were prescribed antibiotics, the medicine name, the dose, how you take them (i.e. as tablets or an injection), how long to take them and any plans to review your treatment.
- **For clinicians.** When prescribing antibiotics document the clinical reason, the medicine name, the dose, the route of administration, the intended duration and any review plan in the patient's health record.
- **For health services.** Ensure a system is in place so that when clinicians prescribe antibiotics they document the clinical reason, the medicine name, dose, route of administration, the intended duration and any treatment review plan in the patient's health record.



Quality statement 7 – Use of broad-spectrum antibiotics

A patient who is treated with broad-spectrum antibiotics has the treatment reviewed and, if indicated, switched to treatment with a narrow-spectrum antibiotic. This is guided by the patient's clinical condition and the results of microbiology tests.

Purpose

To reduce the unnecessary use of broad-spectrum antibiotics, particularly when microbiology tests indicate that a bacterial infection can be treated just as effectively with a narrow-spectrum antibiotic.

What the quality statement means

- **For patients.** If it is unclear which bacteria may be causing your infection, you may be prescribed an antibiotic that works against a wide range of bacteria (i.e. a broad-spectrum antibiotic). In this case, your doctor or nurse may order tests to review your progress and, on seeing the results, your treatment may change to a more specific antibiotic (i.e. a narrow-spectrum antibiotic).
- **For clinicians.** When prescribing a broad-spectrum antibiotic, review the patient's clinical status and any microbiology results to determine whether the patient's treatment can be switched to a narrow-spectrum antibiotic.
- **For health services.** Ensure processes are in place to support clinicians changing broad-spectrum antibiotics to appropriate narrow-spectrum antibiotics once the pathogen and its susceptibilities are known.³



Quality statement 8 – Review of treatment

If investigations are conducted for a suspected bacterial infection, the responsible clinician reviews these results in a timely manner (within 24 hours of results being available) and antibiotic therapy is adjusted taking into account the patient's clinical condition and investigation results.

Purpose

To optimise patients' antibiotic treatment by using clinical assessment and review of microbiology results.

What the quality statement means

- **For patients.** If tests have been done to identify a suspected bacterial infection, your doctor or nurse reviews these results as soon as they are available (usually within 24 hours of being available). These results may lead to your antibiotic treatment changing or stopping.
- **For clinicians.** If microbiology tests are ordered, review the results within 24 hours of them being available, and use this information to consider whether changing or stopping antibiotics is appropriate.
- **For health services.** Ensure systems are in place so clinicians review microbiology test results as soon as they are available and use the information to guide antibiotic treatment decisions.



Quality statement 9 – Surgical prophylaxis

If a patient having surgery requires prophylactic antibiotics, the prescription is made in accordance with the current *Therapeutic Guidelines*¹ (or local antibiotic formulary), and takes into consideration the patient's clinical condition.

Purpose

To reduce unwarranted variation in the use of antibiotics for surgical prophylaxis.

This quality statement relates to any setting/service that undertakes surgery. The statement has been included due to prevalence of unwarranted variations in the use of antibiotics for surgical prophylaxis. Statistics show that levels of inappropriate use range from 30 per cent to 90 per cent, especially with respect to timing and duration.¹

What the quality statement means

- **For patients.** Antibiotics may be given to you before surgery to reduce the risk of an infection after surgery. The prescription is also based on national or local recommendations.
- **For clinicians.** Prescribe and administer a surgical prophylactic antibiotic in accordance with the recommendations outlined in current *Therapeutic Guidelines*¹ (or local antibiotic formulary), and taking into account the patient's clinical condition.
- **For health services.** Ensure systems are in place for clinicians to provide appropriate prophylactic antibiotic therapy to patients undergoing surgery, and that this is based on the current *Therapeutic Guidelines*¹ (or local antibiotic formulary).



Glossary

Antibiotic: A substance that kills or inhibits the growth of bacteria.⁵

Antibiotic resistance: Antibiotic resistance happens when bacteria change to protect themselves from an antibiotic. When this happens, antibiotics that previously would have killed the bacteria, or stopped them from multiplying, no longer work against those bacteria.⁶

Antimicrobial: A chemical substance that kills or inhibits the growth of bacteria, viruses and fungi, including yeasts or moulds.⁵

Antimicrobial stewardship: An ongoing effort by a health service to optimise antimicrobial use in order to improve patient outcomes, ensure cost-effective therapy and reduce adverse sequelae of antimicrobial use, including antimicrobial resistance.⁴

Bacteria: Microscopic living organisms, usually one-celled, that can be found everywhere. Most bacteria are harmless, but they can become dangerous when they cause infections.⁷

Broad-spectrum antibiotics: Antibiotics that are active against a wide range of organisms are referred to as broad-spectrum antibiotics.⁸ See also *Narrow-spectrum antibiotics*.

Carers: People who provide unpaid care and support to family members and friends who have a disease, disability, mental illness, chronic condition, terminal illness or general frailty. Carers include parents and guardians caring for children or older persons.⁹

Clinically indicated: Having a symptom or condition that makes a particular treatment or procedure advisable.¹⁰

Clinician: A healthcare provider, trained as a health professional. Clinicians include registered and non-registered practitioners, or a team of health professionals, who provide direct clinical care.¹¹

Dose: A specified quantity of a therapeutic agent, such as a medicine, prescribed to be taken at one time or at stated intervals.¹²

Guidelines: Clinical practice guidelines are systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific circumstances.¹³


Health record: Information about a patient held in hard or soft copy. The health service record may comprise clinical records (such as medical history, treatment notes, observations, correspondence, investigations, test results, photographs, prescription records, medication charts), administrative records (such as contact and demographic information, legal and occupational health and safety reports) and financial records (such as invoices, payments and insurance information).¹¹

Health service: A service responsible for the clinical governance, administration and financial management of unit(s) providing health care. A service unit involves a grouping of clinicians and others working in a systematic way to deliver health care to patients and can be in any location or setting, including pharmacies, clinics, outpatient facilities, hospitals, patients' homes, community settings, practices and clinicians' rooms.¹¹

Hospital: A licensed facility providing healthcare services to patients for short periods of acute illness, injury or recovery.¹⁴

Infection: The invasion and reproduction of pathogenic or disease-causing organisms inside the body. This may cause tissue injury and disease.¹⁵ Infectious agents can include bacteria, viruses, fungi and parasites.

Life-threatening bacterial infection: Bacterial infections resulting in life-threatening illnesses that require immediate intervention (e.g. severe sepsis, septic shock, bacterial meningitis or meningococcal septicaemia).¹



Microbiology testing: Tests performed on specimens (e.g. a blood sample) in a laboratory to determine the cause of an infection and to identify suitable treatments.¹⁵

Narrow-spectrum antibiotics: Antibiotics that target particular organisms or groups of organisms are referred to as narrow-spectrum antibiotics⁸. See also *Broad-spectrum antibiotics*.

Personally Controlled Electronic Health (eHealth) Record: an electronic record for a patient that contains a summary of their health information.¹⁶

Prophylactic use: The use of antibiotics to prevent an infection in clinical situations where there is significant risk of infection occurring.¹ For example, antibiotics are sometimes given before surgery as a preventative measure against infection.

Residential aged care facility: A special-purpose facility that provides accommodation and other types of support, including assistance with day-to-day living, intensive forms of care, and assistance towards independent living, to frail and aged residents.¹⁷

Sepsis: A serious medical condition that is characterised by a whole-body inflammatory state (called a systemic inflammatory response syndrome) and the presence of a known or suspected infection.³

Surgical site infection: An infection that occurs after surgery in the part of the body where the surgery took place. Surgical site infections can sometimes be superficial infections involving the skin only. Other surgical site infections are more serious and can involve tissues under the skin, organs or implanted material.¹⁸

Susceptibility testing: A microbiology test carried out to determine which antibiotic will be most successful in treating a bacterial infection.¹⁹

Appendix

Monitoring quality of care is an effective way of identifying areas that require improvement. It can tell how well the services satisfy the Clinical Care Standards.

Monitoring how well the Clinical Care Standards are met is also a key part of the National Safety and Quality Health Service (NSQHS) Standards, particularly *Standard 1: Governance for Safety and Quality*.

Organisations are likely to already have mechanisms in place that monitor care provided. However if additional measures are needed then the indicators below are suggested.

Full details on these indicators can be found in the Indicator Specification: Antimicrobial Stewardship Clinical Care Standard available from www.safetyandquality.gov.au/ccs.

Quality statement 1 – Life-threatening conditions

- **1a:** Median time from first clinical contact to the first dose of antibiotics for patients with suspected bacterial meningitis, or for patients requiring admission to an intensive care unit (ICU) for suspected sepsis.

Quality statement 2 – Microbiological testing

- **2a:** No appropriate indicators for this quality statement have been identified.

Quality statement 3 – Information on treatment options

- **3a:** No appropriate indicators have been identified for this quality statement. However, patient experience surveys in many cases address the issue of informed consent, and may be used as a measure towards this statement.

Quality statement 4 – Use of guidelines and clinical condition

- **4a:** Proportion of antibiotic prescriptions that are in accordance with guidelines.
- **4b:** Rate of antibiotic-allergy mismatch in prescribing.



Quality statement 5 – Taking antibiotics as prescribed

- **5a:** No appropriate indicators have been identified for this quality statement. However, patient experience surveys in many cases include questions on whether patients felt that their care was adequately explained and discussed, and may be used as measures towards this statement.

Quality statement 6 – Documentation

- **6a:** Rate of documentation of clinical reason (or indication) for prescribing antibiotics.

Quality statement 7 – Use of broad-spectrum antibiotics

- **7a:** Proportion of patient prescriptions of broad-spectrum antibiotics for which a medical review is documented within 48 hours from first prescription.

Quality statement 8 – Review of treatment


- **7a** is applicable to measure this quality statement.

Quality statement 9 – Surgical prophylaxis

- **9a:** Proportion of patients for whom surgical prophylactic antibiotics were prescribed in accordance with guidelines.
- **9b:** Proportion of patients who are administered indicated prophylactic antibiotics within 2 hours before a surgical procedure.
- **9c:** Proportion of patients whose prophylactic antibiotics were discontinued within 24 hours after surgery, or 48 hours for vascular surgery.

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