

National Safety and Quality Health Service Standards

User Guide for the Review of Clinical Variation in Health Care

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Introduction

The National Safety and Quality Health Service (NSQHS) Standards were developed by the Australian Commission on Safety and Quality in Health Care (the Commission) in collaboration with the Australian Government, states and territories, the private sector, clinical experts, patients and carers. The primary aims of the NSQHS Standards are to protect the public from harm and to improve the quality of health service provision. They provide a quality assurance mechanism, which tests whether relevant systems are in place to ensure that expected standards of safety and quality are met.

This guide explains how health service organisations can implement **Action 1.28** of the Clinical Governance Standard (**Box 1**). The intent of Action 1.28 is that health service organisations use the data collected on clinical care processes and outcomes to identify potentially unwarranted variation, and regularly review and improve the appropriateness of clinical care. See **Box 2** for definitions.

In order to implement Action 1.28, a health service organisation needs to review performance in comparison to:

- Other health service organisations, and/or
- Evidence-based guidelines or clinical care standards.

These two comparisons can also be framed as questions:

- How does care delivered in this organisation compare with care in similar organisations?
- How does care delivered in this organisation compare with best practice care?

The health service organisation can choose to examine clinical variation at the level of clinical teams within the organisation and/or at an organisational level. Examining both levels is recommended. Clinical leaders and clinical teams should be involved throughout the entire process of examining variation in clinical care.

Box 1

NSQHS Standards: Clinical Governance Standard

Criteria: Clinical Performance and Effectiveness

Item: Variation in clinical practice and health outcomes

Action 1.28: The health service organisation has systems to:

- a. Monitor variation in practice against expected health outcomes
- b. Provide feedback to clinicians on variation in practice and health outcomes
- c. Review performance against external measures
- d. Support clinicians to take part in clinical review of their practice
- e. Use information on unwarranted clinical variation to inform improvements in safety and quality systems
- f. Record the risks identified from unwarranted clinical variation in the risk management system.

Box 2

Definitions

What is appropriate care?

Appropriate care means that patients are receiving the right care, and the right amount of care according to their needs and preferences, at the right time. The care offered should also be based on the best available evidence.

What is clinical variation?

Clinical variation is a difference in healthcare processes or outcomes, compared to peers, or to a standard, such as an evidence-based guideline recommendation. It is important to consider that clinical care can also vary within a health service organisation, for example, between clinicians, departments or sites.

Examples of clinical variation include:

- A higher rate of treating heavy menstrual bleeding with hysterectomy, and a lower rate of less invasive treatments, by one clinical team compared with others in the same hospital
- A lower rate of patients with stroke who have a comprehensive discharge plan completed in one hospital, compared with the national average and the top 15% of best-performing hospitals
- Not prescribing secondary prevention medicines for all eligible patients who have had an acute coronary syndrome, as in the Acute Coronary Syndromes Clinical Care Standard. See [Appendix 1](#) for links to each clinical care standard.

What is unwarranted variation?

Clinical variation is unwarranted when it does not reflect a difference in:

- Patients' clinical needs
- Patients' preferences.

If clinical variation does not reflect a difference in patients' clinical needs or preferences, it is unwarranted and may present an opportunity for the system to improve.

Key steps to implementing Action 1.28

Clinicians and managers work together to:

1. Select clinical priority areas for assessing and reporting variation

Focus on the clinical areas of highest preventable risk to patients or greatest activity in the health service organisation. Select these areas using the available clinical and administrative data, information on risks and input from clinicians.

2. Identify how clinical variation will be assessed

For the clinical priority area(s), identify:

- Reports, clinical quality registries or audits, or data-based quality improvement activities
- Evidence-based guideline recommendations or a clinical care standard.

3. Measure clinical variation and review performance

Implement processes to:

- Measure care delivered and outcomes achieved in the health service organisation at the level of clinicians, clinical teams and/or the whole organisation
- Compare the available internal data to external data and/or to evidence-based guideline recommendations or a clinical care standard. Sources of external data include clinical quality registries, external reports and audits, and comparisons with peer health service organisations
- Assess the clinical importance of any noted variation and take action if required.

4. Explore reasons for variation

If the variation is clinically important, determine the potential contributing factors. Consider any clinician, consumer and health system-related factors.

5. Act to improve care and embed changes within the health service organisation

Take action to improve care where needed.

6. Record and report activities to monitor clinical variation and improve appropriateness of care

Implement processes to:

- Maintain records of reviews of clinical variation and actions taken
- Report findings and resulting actions at clinical and management meetings
- Report to the governing body and the workforce
- Monitor the impact of actions to address unwarranted variation.

Each step is explained in detail in the following sections of this user guide.

See **Appendix 2** for case studies, which show examples of how each step could be completed.

Small service – simpler project

Projects conducted by small health service organisations can be simpler and targeted on one specific area of safety and quality. For example, they may involve auditing one clinical area against one aspect of an evidence-based guideline or a clinical care standard that is regularly used by the health service.

Smaller, simpler projects are appropriate for day procedure services and small hospitals (generally under 50 beds).

Step 1. Select clinical priority areas for assessing and reporting variation

Select areas of clinical care based on:

- High volume of patients
- High risk to patients, regardless of volume
- High morbidity, mortality or patient dissatisfaction
- Clinical areas identified in the health service's risk register as high or potentially high risk
- Existence of an established evidence base for best practice
- Evidence that overuse or underuse of the intervention increases risk to patient health
- Advice from clinical leaders in the health service organisation
- Availability of external data or standards/guidelines for comparison with the health service organisation's practice
- Clinical areas where new evidence or technology has substantially changed the standard of care
- Interventions that have been identified as low-value care
- Choosing Wisely Australia recommendations.

The number and type of clinical areas selected should reflect the size and range of clinical activity, and the extent of their risks, in the health service organisation. See **Appendix 3** for some suggested clinical areas to investigate, and some example sources of evidence-based recommendations.

Decision making about selecting the priority areas to investigate can be aligned with the organisation's risk management approach (**Action 1.10** of Standard 1, Clinical Governance).

Useful Resources

- Australian Commission on Safety and Quality in Health Care
Clinical care standards
See **Appendix 1** or <https://www.safetyandquality.gov.au/standards/clinical-care-standards>
- National Health and Medical Research Council (NHMRC)
Clinical Guideline Portal
<https://www.clinicalguidelines.gov.au/>
- Choosing Wisely Australia
Choosing Wisely recommendations
<https://www.choosingwisely.org.au/recommendations>
- The Australian Register of Clinical Registries
<https://www.safetyandquality.gov.au/our-work/national-arrangements-clinical-quality-registries>

Step 2. Identify how clinical variation will be assessed

Once you have chosen the clinical area, you will need to decide whether you will compare your data against data from other health service organisations, and/or evidence-based guideline recommendations or a clinical care standard. This decision will be influenced by the availability of these comparators.

You will also need to decide whether you will use clinical team data, departmental-level data and/or health service organisation-level data, for comparison with external data, guideline recommendations or standards.

In some cases there may be substantial variation within the health service organisation even if the data does not show marked variation at a whole-of-organisation level compared with external data or with guidelines. For this reason, exploring the data at the level of clinical teams as well as whole-of-organisation level is very useful for ensuring appropriate care.

Comparison with external reports, clinical quality registries and/or audits

There are many sources of external data on clinical care that health service organisations can use for comparison with their own data.

State and territory performance reports

Reports that include data on aspects of clinical care delivery and appropriateness of care are available for many states and territories, such as:

- **Safer Care Victoria**
Victorian perinatal services performance indicators reports
<https://www.bettersafecare.vic.gov.au/reports-and-publications/victorian-perinatal-services-performance-indicators-reports>
- **Safer Care Victoria**
Victorian renal key performance indicators reports
<https://www.bettersafecare.vic.gov.au/reports-and-publications/victorian-renal-key-performance-indicators>
- **The New South Wales' Bureau of Health Information** reports a number of clinical indicators in Healthcare in Focus
http://www.bhi.nsw.gov.au/BHI_reports/healthcare_in_focus
- **The Western Australian Department of Health** provides WA public hospitals access to the Safety and Quality Indicator Set (SQuIS), which shows variation and outliers.

Clinical quality registries

Clinical quality registries monitor the appropriateness and effectiveness of specific types of care. The data collected are used to identify benchmarks and variation in clinical outcomes and the information is provided back to clinicians to help improve clinical practice. For example,

- **The Australian and New Zealand Society of Cardiothoracic Surgeons National Cardiac Surgery Database** records details of all adult cardiac surgery undertaken in participating hospitals and publishes annual reports
<https://anzscts.org/database/>

The Commission has developed a list of clinical registries:

- **The Australian Register of Clinical Registries**
<https://www.safetyandquality.gov.au/our-work/national-arrangements-clinical-quality-registries>

This database is searchable, which means that health service organisations can produce a comprehensive list of all clinical quality registries to which they contribute data.

Multiservice clinical audits

Some specialty groups conduct clinical audits across a number of health service organisations such as:

- **The Stroke Foundation** has a biennial audit of acute and rehabilitation services for stroke, and produces annual reports on the use of stroke clinical guidelines and on the processes and outcomes of care for patients included in the Australian Stroke Care Registry. These reports identify the levels of care achieved on average and by the highest performing 15% of services
<https://strokefoundation.org.au/What-we-do/Treatment-programs/Stroke-data-collection>
- **Victoria Health** publishes a Blood Matters audit
<https://www2.health.vic.gov.au/hospitals-and-health-services/patient-care/speciality-diagnostics-therapeutics/blood-matters>

Reports on Patient Reported Outcome Measures

Patient Reported Outcome Measures (PROMS) reflect the patient's assessment of how clinical care and health care interventions have affected their quality of life, daily functioning, symptom severity and other dimensions of their health. Routine reporting of PROMS is not yet embedded in the Australian healthcare system, but in some areas reports on PROMS are available. For example,

- **The Palliative Care Outcomes Collaboration** provides patient outcome reports every six months, including state/territory and national benchmarks, to participating clinical services
<https://ahsri.uow.edu.au/pcoc/index.html>

The Australian Atlas of Healthcare Variation series

The [Australian Atlas of Healthcare Variation](#) series maps age- and sex-standardised variation in use of health care according to where people live. For example, data showing the variation in age- and sex-standardised rates of both public and private hospital admissions for specific conditions or procedures, the rates of dispensing for medicines included in the Pharmaceutical Benefits Scheme, and the rates of tests and procedures subsidised by the Medical Benefits Schedule are available. Health service organisations with defined catchment areas can use these reports to examine use of health-care interventions in their area.

Comparison with clinical care standards and evidence-based guideline recommendations

A range of clinical care standards and evidence-based guideline recommendations are available for comparison with clinical practice. Clinical leaders and managers should identify which specific aspects of a standard or guideline will be assessed in the health service organisation.

Clinical care standards

Clinical care standards define the care people should be offered for a specific condition, regardless of where they are treated in Australia. Each clinical care standard contains a small number of quality statements that align with current best evidence.

Every clinical care standard has a set of recommended indicators to monitor implementation. See [Appendix 1](#) for links to each clinical care standard.

Evidence-based guidelines

Clinical practice guidelines often have a large number of recommendations covering different aspects of care. These recommendations usually vary in the strength of the underlying evidence, the strength of the recommendation itself, the likely impact on patient outcomes and the extent to which adherence to the recommendation can be easily measured. These factors should be taken into account when clinicians and health service organisations are choosing which aspects of guideline adherence they will monitor.

Links to clinical practice guidelines can be found on the NHMRC website:

- **NHMRC Clinical Guideline Portal**
<https://www.clinicalguidelines.gov.au/>

In addition, specialty group sites (e.g. Cancer Council Australia, Stroke Foundation, Kidney Foundation, National Blood Authority) and portals provided by state and territory governments provide links to clinical guidelines. For example,

- **Clinical Information Access Portal**
<https://www.ciap.health.nsw.gov.au/>

Recommendations by specialty groups in Australia and New Zealand as part of the global Choosing Wisely initiative or the Royal Australasian College of Physicians' (RACP) Evolve program can also be used for assessing variation in care:

- **Choosing Wisely Australia**
<http://www.choosingwisely.org.au/recommendations>
- **RACP Evolve Program**
<https://evolve.edu.au/>

Step 3. Measure clinical variation and review performance

This step requires health service organisations to have processes that:

- Measure clinical care delivered and outcomes achieved in the health service organisation
- Compare the care delivered or outcomes achieved within the health service organisation to those of other organisations, using external reports, clinical quality registries and audits, and/or
- Assess the extent to which care delivery and outcomes align with evidence-based guideline recommendations and clinical care standards
- Assess the clinical importance of any noted variation and take action if required.

Use a clear, consistent definition of the measures or indicators to be assessed to allow meaningful comparison with other health service organisations' data and with guidelines or standards. In many instances there are existing high-quality indicators that can be used to consistently measure data over periods of time, and that allow comparison with results from similar health service organisations. Most of the quality statements that form clinical care standards have accompanying indicators that can be used by health services to review their performance and make improvements in the care that they provide ([Appendix 1](#)).

Other key requirements include a definition of the target population – the group of patients who should be offered the specific type of care outlined in the clinical care standards or guideline recommendations – and identification of the benchmarks that should be achieved within the health service organisation.

Clinical records can then be audited using the systems established for this purpose.

Action 1.16 of Standard 1, Clinical Governance requires the health service organisation to have healthcare record systems that support systematic audit of clinical information.

If electronic systems are used to extract information it should be possible to determine whether care was provided to all eligible patients within a certain time period. However, if manual collection of information from medical records is required, it may only be feasible to collect information from a sample of patients. Once the information has been collected it can be summarised, and the extent of any identified gaps between best evidence and current practice can be assessed.

See [Appendix 2](#) for a hypothetical example of collecting data on clinical care: Variation in prescribing secondary prevention medicines after acute coronary syndrome.

For detailed advice on data collection and analysis, see resources such as:

- **The Victoria Quality Council**
A guide to using data for health care quality improvement
https://www.aci.health.nsw.gov.au/_data/assets/pdf_file/0006/273336/vqc-guide-to-using-data.pdf
- **The NSW Clinical Excellence Commission**
Quality improvement tools
<http://www.cec.health.nsw.gov.au/quality-improvement/improvement-academy/quality-improvement-tools>
- **The Institute for Healthcare Improvement**
Quality Improvement Essentials Toolkit
<http://www.ihl.org/resources/Pages/Tools/Quality-Improvement-Essentials-Toolkit.aspx>

These resources are also useful for Step 4 and Step 5 of this process.

Step 4. Explore reasons for clinical variation

Auditing the relevant aspects of patient records is an effective way to gain insights into how and why clinical care is deviating from best practice. Ensuring that relevant staff discuss the findings as a group will draw out different perspectives on processes that affect clinical care, and can help foster a team approach to improving practice.

There are many reasons for variation in rates of care processes and in outcomes of care. Variation can be due to differences in the needs of patients, in which case it is warranted and desirable. Other reasons for clinical variation include:

- Clinical care not changing in line with updated evidence
- Differences in clinicians' knowledge of the latest evidence or skills related to new diagnostic or interventional procedures
- Clinical uncertainty about an intervention's place in therapy, and the need for better data on its benefits and harms
- Inequity of access to care
- Effects of financial incentives or disincentives
- Inadequate system supports for appropriate care
- Inadequate information sharing and discussion with consumers
- Barriers experienced by Aboriginal and Torres Strait Islander peoples in accessing appropriate, culturally safe care.

It is important to give patients clear information about options, and to provide adequate opportunity to discuss this information. The Commission has a range of resources to assist with shared decision making so patients can make properly informed choices. These resources are available on the Commission's [website](#). For some interventions there is a lack of data on benefits and risks; in this situation it is important to discuss what is known and what is unknown, and what the other options are.

Relatively low or high rates of use of an intervention may arise for reasons other than decisions made by individual clinicians. For example, low use of some interventions may signal a problem with access to clinical care for people who need certain tests, treatments or procedures. In this instance the health service organisation may need to examine whether services, and the workforce and resources to deliver them, are appropriately allocated given the needs of people within their catchment area. However, unwarranted variation in use may also indicate ongoing use of an out-dated method of treatment, and signal the need for clinical training in new procedures or treatments. Unwarranted high rates of interventions may also occur because of an oversupply of workforce or technology leading to lowering of clinical thresholds for undertaking these interventions.

Occasionally the investigation will highlight a pattern of problems with individual or team decision-making or skills. In this situation: consider what extra support is needed to deliver the best possible care; determine whether an external review is needed with the relevant manager; and follow the performance review processes in accordance with [Action 1.22](#) of Standard 1, Clinical Governance. Also, implement the incident management systems ([Action 1.11](#) of Standard 1, Clinical Governance) and open disclosure ([Action 1.12](#) of Standard 1, Clinical Governance) when relevant.

For detailed advice on auditing patient records and other methods of investigating reasons for clinical variation, see the resources listed under step 3 (page 9) which are also useful for this step.

Step 5. Act to improve care and embed changes within the health service organisation

Actions to improve appropriateness of care that are prompted by your variation findings should be incorporated into the organisation's overall approach to safety and quality improvement.

Continuous quality improvement occurs through a cyclical approach:

1. Specify the desired goal for improvement
2. Explore the reasons for current practice
3. Identify the barriers or enablers for any desired change in practice
4. Make changes to health care processes
5. Monitor progress and make further changes as necessary.

Actions to improve appropriateness of care will need to be embedded in the health service organisation for improvements to care to be sustained. The resources noted under step 3 (page 9) also provide detailed advice on quality improvement methods.

'Case for improvement' documents, which are available for some of the [clinical care standards](#), provide further useful information for quality improvement. For each quality statement in a clinical care standard, the case for improvement document asks the following questions:

- Why is it important?
- What is known about current practice?
- What could be achieved with more consistent application of the aspects of care described?

When possible, examples are provided showing how specific approaches or systems for implementing best practice have demonstrated measurable change.

Do not delay investigating patient care to check data

If you have found that practice within the health service varies substantially from other health service organisations or from evidence-based guideline recommendations or clinical care standards, the priority – and prime responsibility – is to ensure there is no problem with patient care. Do not delay investigating potentially suboptimal care in order to recheck data.

Step 6. Record and report activities to monitor clinical variation and improve appropriateness of care

The health service organisation should maintain records of reviews and actions taken as a result of examining variation and appropriateness of care. Processes should be in place to report actions and outcomes, consistent with the requirements of Action 1.9 of Standard 1, Clinical Governance (**Box 3**).

Box 3

NSQHS Standard: Clinical Governance Standard

Criteria: Measurement and quality improvement

Action 1.9: The health service organisation ensures that timely reports on safety and quality systems and performance are provided to:

- a. The governing body
- b. The workforce
- c. Consumers and the local community
- d. Other relevant health service organisations.

Clinicians have a professional responsibility to review the care they provide and to ensure that there is clinical participation in internal reviews of clinical care performance, and should encourage and provide practical support for clinical participation in relevant external clinical quality registries and audits.

Health service organisations should keep records of clinician participation in reviews of clinical variation.

Clinicians can use these records to demonstrate compliance with continuing professional development requirements, for example, the continuing professional requirements for medical practitioners (**Box 4**). This aligns with **Action 1.22**.

Box 4

Medical practitioners' continuing professional development

Stronger continuing professional development is one of the core features of the Medical Board of Australia's proposed new Professional Performance Framework for medical practitioners. As well as participating in educational activities to build knowledge and skills, medical practitioners will be required to review their performance and measure the outcomes of care they provide:

<http://www.medicalboard.gov.au/registration/professional-performance-framework.aspx>

The expectation that health service organisations review variation and appropriateness of clinical care is consistent with the expectation of the registering body that individual medical practitioners should regularly review their performance and outcomes.

Evidence of implementing Action 1.28

The following types of evidence can be used to show how health service organisations are implementing Action 1.28:

- Policy documents that identify the external clinical quality systems that the health service organisation contributes to and encourages its clinicians to take part in
- Reports on data analyses that are used to identify variation in clinical practice and areas of risk associated with variation in clinical practice
- Reports that compare clinical practice and outcomes with those of similar services or peer organisations
- Reports on comparative data analysis from meetings involving clinicians that identify potential reasons for any variation, further investigations that may be needed and potential areas of risk associated with variation in clinical practice
- Comparative data analysis on clinical variation and the outcomes associated with care using external sources such as the Australian Atlas of Healthcare Variation, or data provided by, or shared with, external organisations such as clinical quality registries, peer organisations, other organisations that offer services to compare data and improve care, and state and territory health departments
- Records of meetings where reports on clinical variation or appropriateness of practice were discussed, and clinicians assessed interventions and managed changes in practice
- Results from auditing clinical practice against the recommended best-practice guidelines, pathways or clinical care standards, and reports on findings that are provided to all relevant clinicians, managers and committees
- Records of clinical participation in morbidity and mortality reviews, external audits of clinical care, and external clinical registries
- Risk management system reports that include actions to manage identified risks associated with unwarranted variation
- Quality improvement system reports that includes actions to deal with identified issues
- Examples of improvement activities that have been implemented and evaluated to reduce unwarranted variation.

Appendix 1: Clinical care standards

A complete list of national clinical care standards can be accessed on the Australian Commission on Safety and Quality in Health Care's (the Commission) website at <https://www.safetyandquality.gov.au/our-work/clinical-care-standards/>

The following clinical care standards are currently available:

- Acute Coronary Syndromes Clinical Care Standard
www.safetyandquality.gov.au/our-work/clinical-care-standards/acute-coronary-syndromes-clinical-care-standard/
- Acute Stroke Clinical Care Standard
www.safetyandquality.gov.au/our-work/clinical-care-standards/acute-stroke-clinical-care-standard/
- Antimicrobial Stewardship Clinical Care Standard
www.safetyandquality.gov.au/our-work/clinical-care-standards/antimicrobial-stewardship-clinical-care-standard/
- Colonoscopy Clinical Care Standard
www.safetyandquality.gov.au/our-work/clinical-care-standards/colonoscopy-clinical-care-standard/
- Delirium Clinical Care Standard
www.safetyandquality.gov.au/our-work/clinical-care-standards/delirium-clinical-care-standard/
- Heavy Menstrual Bleeding Clinical Care Standard
www.safetyandquality.gov.au/our-work/clinical-care-standards/heavy-menstrual-bleeding/
- Hip Fracture Care Clinical Care Standard
www.safetyandquality.gov.au/our-work/clinical-care-standards/hip-fracture-care-clinical-care-standard/
- Management of Peripheral Intravenous Catheters Clinical Care Standard (for release in 2020)
<https://www.safetyandquality.gov.au/standards/clinical-care-standards/peripheral-venous-access-clinical-care-standard>
- Osteoarthritis of the Knee
www.safetyandquality.gov.au/our-work/clinical-care-standards/osteoarthritis-clinical-care-standard/
- Third and Fourth Degree Perineal Tears Clinical Care Standard
<https://www.safetyandquality.gov.au/standards/clinical-care-standards/severe-third-and-fourth-degree-perineal-tears>
- Venous Thromboembolism Prevention Clinical Care Standard
www.safetyandquality.gov.au/our-work/clinical-care-standards/venous-thromboembolism-prevention-clinical-care-standard/

Appendix 2: Case studies

1. Variation in discharge care planning after stroke at a regional hospital
2. Variation in waiting time before surgery at a major metropolitan hospital after a hip fracture
3. Variation in waiting time at a major regional hospital for colonoscopy after positive faecal occult blood test
4. Variation in prescribing secondary prevention medicines after acute coronary syndrome

Case study 1. Variation in discharge care planning after stroke at a regional hospital*

Process step	Example actions
<p>1. Select clinical priority areas for assessing variation</p>	<p>The head of the stroke unit selected discharge care planning as a priority for improving patient care after a patient was readmitted with a second stroke following discharge without secondary prevention medication.</p> <p>Apart from reducing the risk of another stroke, formal discharge care planning can improve the coordination of services and reduce long-term unmet needs for people who have had a stroke.¹</p> <p>Patients with stroke who are provided with care in a stroke unit and a care plan for discharge and antihypertensive medicine can achieve a 4-point greater overall quality-of-life score within 3-6 months of discharge compared to patients who do not receive this best practice care bundle.²</p> <p>Individualised care plans are also part of the <i>Acute Stroke Clinical Care Standard</i>³, so improving practice in this area would help the hospital meet Action 1.7 of Standard 1, Clinical Governance.</p> <p>The hospital already contributes to the Australian Stroke Clinical Registry (AuSCR), so no new data collection would be needed. Benchmark, national and state data are available for comparison.</p>
<p>2. Identify how variation will be assessed</p>	<p>The clinical team, including the stroke unit's head of department, the stroke clinical nurse consultant and the hospital pharmacist recommended that the Stroke Unit review the hospital's AuSCR data for the previous year, along with national and state data. They chose two of the indicators related to discharge care planning as their initial focus:</p> <ol style="list-style-type: none"> 1. Care plan provided at discharge, outlining post discharge care in the community developed in consultation with the patient 2. Discharged on an antihypertensive medicine.
<p>3. Measure clinical variation and review performance</p>	<p>The clinical nurse consultant generated a report from the online AuSCR portal. The hospital was close to average for most indicators, but performed poorly in discharge care.</p> <ol style="list-style-type: none"> 1. Only 49% of patients had a care plan on discharge after a stroke, compared to the benchmark of 95% and the national average of 59%⁴ 2. And 60% were discharged on antihypertensive medication, compared to the national average of 70%.⁴
<p>4. Explore potential reasons for observed variation</p>	<p>The clinical nurse consultant presented the results at a meeting of staff who contribute to discharge care planning for patients with stroke. The group included medical, nursing, pharmacy, allied health staff and a consumer advocate.</p> <p>The group identified several aspects of processes and practice that were contributing to inconsistent discharge care planning:</p> <ul style="list-style-type: none"> ■ Lack of awareness of appropriate prescribing of secondary prevention medication, compounded by rotation of staff ■ Lack of a system to ensure appropriate prescribing of secondary prevention medication ■ Lack of an appropriate discharge care planning template.

Process step	Example actions
<p>5. Act to improve care and embed changes within the health service organisation</p>	<p>At a follow-up meeting to discuss strategies to improve discharge care planning, the group agreed to a range of changes:</p> <ul style="list-style-type: none"> ■ Discharge care planning to be included in orientation of new staff ■ The checklist for leaving hospital in the Stroke Foundation booklet 'My stroke journey' to be used as a template for discharge care planning ■ Recommendations and evidence for secondary prevention to be added to bedside charts as a reminder ■ Senior medical, nursing and allied health staff to discuss discharge care planning for stroke patients on all ward rounds over the following two weeks, and to lead education sessions on the importance of discharge care planning in the following month ■ Pharmacy staff to alert the medical team if secondary prevention medicines are not included at discharge.
<p>6. Record and report activities to monitor clinical practice variation and improve appropriateness of care</p>	<p>Follow-up after three months showed a small improvement in both indicators, but the hospital was still below the national benchmark and even below the national average. To improve discharge care planning further, a team of medical and allied health staff was formed to review the clinical notes for all patients with stroke before discharge.</p> <p>A six-month review showed that the hospital had reached the national averages for percentage of patients with a discharge care plan and for prescription of secondary prevention medication for stroke, but had not met the benchmark. Local results for all indicators (measures) from the registry are reviewed every quarter at a multidisciplinary stroke meeting. Priorities for new quality improvement initiatives are also discussed in light of the hospital's performance in comparison to national and state data and benchmarks.</p>

* Based on a composite of real cases

Resources for monitoring and improving stroke management

- **Stroke Foundation**
National Stroke audit reports, The Clinical Guidelines for Stroke Management and other resources
<https://informme.org.au/>
- **The Australian Stroke Clinical Registry**
<http://www.auscr.com.au/>
- **Acute Stroke Clinical Care Standard**
<https://www.safetyandquality.gov.au/our-work/clinical-care-standards/acute-stroke-clinical-care-standard>
- **Acute Stroke Clinical Care Standard – the Case for Improvement**
https://www.safetyandquality.gov.au/sites/default/files/migrated/Acute-Stroke-The-case-for-improvement_May2016.pdf

Case study 2. Variation in waiting time before surgery at a major metropolitan hospital after a hip fracture*

Process step	Example actions
1. Select clinical priority areas for assessing variation	<p>The head of the orthopaedic surgery department chose to investigate variation in management of hip fracture because it makes up a large part of the department's activity, and it is a high-risk condition. Providing surgery within 48 hours of presentation – if no clinical contraindication exists and if the patient prefers surgery – was identified as the first priority for attention, as it improves clinical outcomes⁵, and it is part of the clinical care standard for hip fracture.⁶</p> <p>Addressing this issue also meets Action 1.7 of Standard 1, Clinical Governance because it involves following a clinical care standard.</p>
2. Identify how variation will be assessed	<p>The department already contributes data to the Australian and New Zealand Hip Fracture Registry (ANZHFR), which monitors practice according to the <i>Hip Fracture Care Clinical Care Standard</i>. The Registry online portal includes a dashboard showing the hospital's results in seven aspects of care specified in the clinical care standard, and the annual report of the ANZHFR shows each contributing hospital's performance, as well as the state/territory and national averages.⁷</p> <p>As a starting point, the head of department asked the orthopaedic registrar to present the hospital's Registry results, and the state and national averages from the latest annual report, at the monthly department meeting.</p>
3. Measure clinical variation and review performance	<p>Review of three month's data showed that only 50% of the hospital's patients with hip fracture underwent surgery within 48 hours, compared to the national average of 77%, and the ideal rate of 100% of eligible patients.⁷ The department felt this poor result needed to be addressed urgently, and a team made up of orthopaedic surgeons, nurses, and geriatricians was created to investigate the issue and find potential solutions.</p> <p>The department also noted that their total length of stay was well above average, and it was possible that the delays to theatre were contributing to the overall increase in total length of stay.</p>
4. Explore potential reasons for observed variation	<p>The team met to discuss the possible reasons for the delays in surgery. A comparison of the reasons for delay in the hospital, compared with national averages in the registry annual report, showed that:</p> <ul style="list-style-type: none"> ■ The proportion of delays due to patients being medically unfit for surgery, or lack of surgeon availability, were similar to those in other hospitals ■ Length of stay in the emergency department was also similar ■ A lack of theatre availability was substantially higher than the national average. <p>A discussion about theatre access highlighted a number of areas for improvement. Patients presenting on Fridays or the weekends had the greatest delays because no theatre time was allocated on Saturdays or Sundays for hip fracture surgery. The group also noted that patients with hip fracture often had their surgery cancelled when cases seen as more urgent were brought into the hospital. This contributed to delays, and also led to prolonged and unnecessary fasting for patients.</p>

Process step	Example actions
5. Act to improve care and embed changes within the health service organisation	<p>The group made a case to the hospital manager for introducing a Sunday morning theatre list dedicated to hip fracture surgery. They presented the hospital's performance compared with the national average, and against the clinical care standard quality statements.</p> <p>The hospital manager determined that reducing delays in surgery for hip fracture was a priority for improving patient care, and introduced the additional, dedicated theatre time.</p>
6. Record and report activities to monitor clinical practice variation and improve appropriateness of care	<p>Follow-up monitoring showed a reduction in delays to surgery, and the hospital became close to the national average. Reports generated from the hip fracture registry portal are discussed at a quarterly meeting between the orthopaedic surgery and geriatric departments, and are included in the hospital's regular safety and quality reports to the board.</p> <p>The department continues to check that delays to surgery are minimised, and is now focusing on the quality indicators for pain management in the hip fracture clinical care standard as well as patient outcomes.</p>

* Based on a composite of real cases

Resources to monitor and improve hip fracture care

- **Hip Fracture Care Clinical Care Standard**
<https://www.safetyandquality.gov.au/our-work/clinical-care-standards/hip-fracture-care-clinical-care-standard>
- **Australian and New Zealand Hip Fracture Registry**
<https://anzhfr.org/guidelines-and-standards/>
- **The Australian and New Zealand Guideline for Hip Fracture Care**
<https://anzhfr.org/guidelines-and-standards/>
- **Hip Fracture Care Clinical Care Standard – the Case for Improvement**
<https://www.safetyandquality.gov.au/sites/default/files/migrated/Hip-Fracture-Care-Case-for-Improvement.pdf>

Case study 3. Variation in waiting time at a major regional hospital for colonoscopy after positive faecal occult blood test*

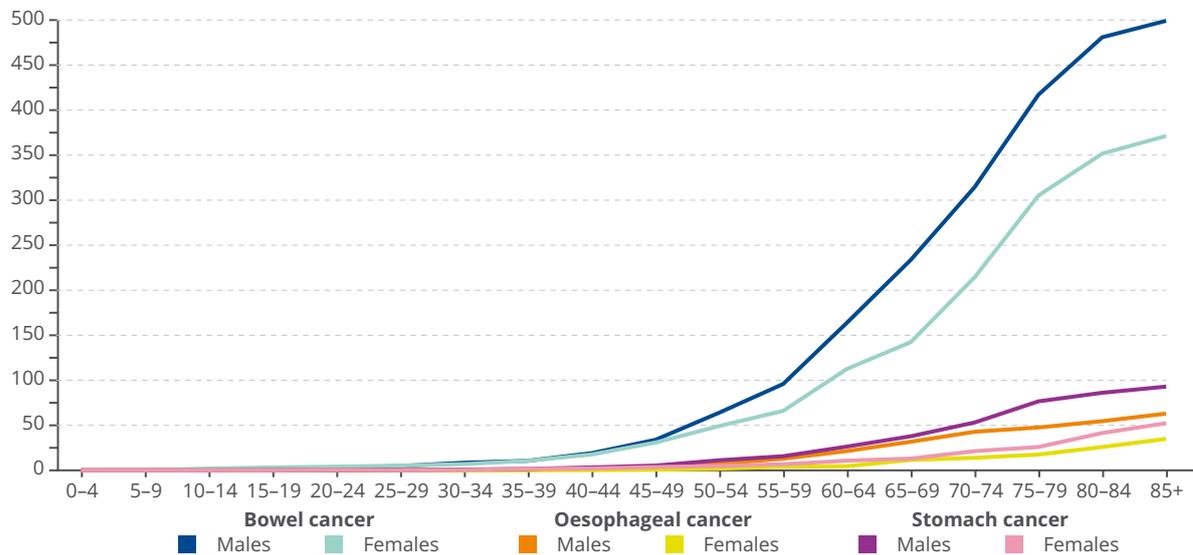
Process step	Example actions
1. Select clinical priority areas for assessing variation	<p>Senior clinicians within the hospital identified the issue of long waiting times for colonoscopy for patients who have had a positive faecal occult blood test (FOBT) as one of the top priorities for improvement due to cases being of high-risk and of high-volume, and that:</p> <ul style="list-style-type: none"> ■ Almost 5,000 colonoscopies are performed in the health service each year ■ Gastroenterology and surgical clinical staff raised concerns about delays for colonoscopy services after the introduction of the National Bowel Cancer Screening Program (NBCSP) increased demand ■ Root cause analysis of a patient death identified the long waiting time between positive FOBT and colonoscopy as an important contributing factor ■ Feedback from colorectal cancer patients invited by cancer services to talk about their experiences raised the problem of delays between referral and treatment ■ A group medical student project on waiting lists for surveillance colonoscopy, presented at a surgical and medical meeting, found variation in waiting times. <p>The clinicians suspected that the variation was largely unwarranted.</p>
2. Identify how variation will be assessed	<p>A clinical nurse consultant (project manager), two gastroenterologists, and two surgeons worked together to determine their target waiting time. They found that the national median time between a positive screening test and diagnostic assessment was 54 days, according to the NBCSP monitoring reports.⁸ No relevant clinical quality registries or audits were identified.</p> <p>The project team decided to aim for a maximum of 30 days between referral and colonoscopy after reviewing national recommendations for waiting time between a positive FOBT and colonoscopy.</p> <p>The NBCSP performance framework recommends a maximum of 30 days.⁹</p> <p>Cancer Council Australia guidelines state that colonoscopy should be performed as promptly as possible after a positive FOBT to minimise psychological harm, although there is no evidence that prognosis is worsened within 120 days if cancer is present.¹⁰</p>
3. Measure clinical variation and review performance	<p>The team decided to monitor waiting time for colonoscopy regularly, and compare it with the national median (54 days), and the benchmark of 30 days.</p> <p>The project manager reviewed records for all patients referred for colonoscopy due to a positive FOBT over a one-month period. The median waiting time was 82 days, and the range was 28–435 days. The project manager presented the findings to staff at a department meeting.</p> <p>The long median waiting time showed substantial variation from the benchmark of a maximum of 30 days, and the wide range showed large variation within the service. The team decided the risk to patients was high, and warranted immediate action.</p>

Process step	Example actions
<p>4. Explore potential reasons for observed variation</p>	<p>The project team identified the key relevant staff, including the endoscopists, cancer services, facility managers, bookings administrators, and information technology experts. The team met with these groups to discuss the causes of the long waiting times, as well as challenges and potential improvements. The discussions identified two major reasons for delays:</p> <ul style="list-style-type: none"> ■ Waiting for appointments at the gastroenterology outpatient clinic for screening for suitability for colonoscopy, which could be done by phone ■ Referrals to individual clinicians for colonoscopy rather than allocating the next available list vacancy in the service. <p>Surveillance colonoscopies accounted for a large proportion of procedures, and after review of records, the team found that many patients underwent surveillance more frequently than guidelines recommend.¹⁰</p> <p>The team also noticed a high proportion of patients were having both gastroscopy and colonoscopy. They accessed gastroscopy data for local areas (SA3s) within their local hospital network in the Interactive Australian Atlas of Healthcare Variation¹¹ which showed markedly higher rates than the national average. They also reviewed the relative rates of upper and lower gastrointestinal cancer in Australia (Figure 1). A review of outcomes of gastroscopies in the hospital in the past year on patients without evidence-based indications showed no cases of serious pathology were found.</p>
<p>5. Act to improve care and embed changes within the health service organisation</p>	<p>Redesigning the referral and booking system was agreed as the best way to reduce delays. The health service executive allocated a position to set up a direct access colonoscopy model.</p> <p>A process for rapid access with phone screening was developed, in which suitable patients proceeded to colonoscopy and bypassed outpatient clinics and complex patients were assessed in outpatient clinics. The allocation to colonoscopy lists was based on patient factors, colonoscopy waiting list size.</p> <p>A HealthPathway for colorectal and positive FOBT referrals was developed, including a standardised referral form and a central referral point for all patients. Education sessions were delivered to referring general practitioners on FOBT screening and the new referral system.</p> <p>The team also established referral criteria for gastroscopy to reduce unnecessary procedures and to free up theatre time for colonoscopies for people with positive FOBTs. They also implemented systems to alert clinicians to the recommended follow up intervals for surveillance colonoscopy.</p>

Process step	Example actions
6. Record and report activities to monitor clinical practice variation and improve appropriateness of care	<p>A review of the six-month pilot of the rapid access colonoscopy model showed that the median waiting time was reduced by 38 days (46%) compared with the previous data, and the range narrowed to 11–188 days.</p> <p>The service is continuing to monitor waiting time each quarter to check whether the improvements are sustained, and reports the results to the hospital board. The service is also trialling further system changes, with the aim of achieving a maximum 30-day waiting time. The changes and corresponding data are reported back to clinicians and the board regularly.</p>

* Based on a real case

Figure 1. Incidence of bowel cancer, oesophageal cancer and stomach cancer per 100,000 people, by age group and sex, in Australia, 2014



Sources: Australian Cancer Incidence and Mortality (ACIM) books: colorectal cancer, stomach cancer, oesophageal cancer. Canberra: AIHW.

Case study 4. Variation in prescribing secondary prevention medicines after acute coronary syndrome*

Process step	Example actions
1. Select clinical priority areas for assessing variation	The head of the cardiology department of Hospital X chose to investigate the prescribing of secondary preventive medicines for patients with acute coronary syndrome. This aspect of care was chosen because it is relevant to a large proportion of patients and it is important for reducing the risk of further cardiac events.
2. Identify how variation will be assessed	The department head knew of the Acute Coronary Syndromes Clinical Care Standard ¹² , and the cardiac registrar found a published audit of Australian hospitals that included rates of prescribing secondary preventive medicines. ¹³ The same patient inclusion and exclusion criteria from the audit were used for the hospital's variation project so the data could be directly compared.
3. Measure clinical variation and review performance	<p>The resident medical officer extracted the data from the electronic records for all patients who met the criteria for each of the previous three months. The percentage of patients who were prescribed secondary preventive medicines was 60%, 70% and 65% for each of the three months. This gave an average of 65% in this snapshot period.</p> <p>The published audit found an average rate of 71% across Australian hospitals, which showed the department that they were performing below average on this aspect of care.</p> <p>The team also compared practice with the <i>Acute Coronary Syndromes Clinical Care Standard</i>, which includes this statement:</p> <p><i>Quality statement 6 – Individualised care plan: Before a patient with an acute coronary syndrome leaves the hospital, they are involved in the development of an individualised care plan. This plan identifies the lifestyle modifications and medicines needed to manage their risk factors.</i></p> <p>The data were presented to the cardiology department teams, who could see they were not meeting this aspect of the standard for up to 35% of their patients over the past three months.</p> <p>The department decided that this gap in care was unacceptable and required urgent action. The Australian average rate of 71% in the published audit was noted to be alarmingly low by the study authors.¹³ The department decided to aim to at least achieve this average rate as their initial goal, and to aim for a higher benchmark in the long term.</p>
4. Explore potential reasons for observed variation	Medical, nursing, pharmacy and allied health staff met to discuss possible reasons for the poor performance in prescribing secondary prevention medicines. A lack of a standardised process and lack of awareness of the effectiveness of secondary prevention were thought to be the main contributors.

Process step	Example actions
5. Act to improve care and embed changes within the health service organisation	Education sessions on recommended secondary prevention medicines were held at the regular department meetings and a discharge checklist that included prescribing secondary prevention medicines was introduced. The hospital pharmacist also provided one-on-one education sessions with medical staff.
6. Record and report activities to monitor clinical practice variation and improve appropriateness of care	<p>The department used the relevant indicators in the Acute Coronary Syndromes Clinical Care Standard to monitor performance going forward. The department head also collaborated with several other similar hospitals to compare data every quarter and exchange lessons learned.</p> <p>Acute Coronary Syndromes Clinical Care Standard Indicators: https://meteor.aihw.gov.au/content/index.phtml/itemId/612027</p>

* Hypothetical example

Appendix 3: Possible clinical topics for investigation and sources of evidence-based recommendations

Topic	Example sources of evidence-based recommendations
Venous thromboembolism prevention	Venous Thromboembolism Prevention Clinical Care Standard https://www.safetyandquality.gov.au/our-work/clinical-care-standards/venous-thromboembolism-prevention-clinical-care-standard
Antimicrobial stewardship	Antimicrobial Stewardship Clinical Care Standard https://www.safetyandquality.gov.au/our-work/clinical-care-standards/antimicrobial-stewardship-clinical-care-standard/
Acute coronary syndrome management	Acute Coronary Syndromes Clinical Care Standard https://www.safetyandquality.gov.au/our-work/clinical-care-standards/acute-coronary-syndromes-clinical-care-standard/
Stroke management	Acute Stroke Clinical Care Standard https://www.safetyandquality.gov.au/our-work/clinical-care-standards/acute-stroke-clinical-care-standard/
Delirium management	Delirium Clinical Care standard https://www.safetyandquality.gov.au/our-work/clinical-care-standards/delirium-clinical-care-standard/
Colonoscopy*	Colonoscopy Clinical Care Standard https://www.safetyandquality.gov.au/our-work/clinical-care-standards/colonoscopy-clinical-care-standard/
Cataract surgery*	Cataract Clinical Care Standard https://www.safetyandquality.gov.au/our-work/clinical-care-standards/cataract-clinical-care-standard/
Hip fracture management	Hip Fracture Clinical Care Standard https://www.safetyandquality.gov.au/our-work/clinical-care-standards/hip-fracture-care-clinical-care-standard/
Knee arthroscopy*	Osteoarthritis of the Knee Clinical Care Standard https://www.safetyandquality.gov.au/our-work/clinical-care-standards/osteoarthritis-clinical-care-standard/

Topic	Example sources of evidence-based recommendations
Hysterectomy*	<p>Heavy Menstrual Bleeding Clinical Care Standard https://www.safetyandquality.gov.au/our-work/clinical-care-standards/heavy-menstrual-bleeding/</p>
Use of opioid medicines	<p>Choosing Wisely recommendations Faculty of Pain Medicine, Australian and New Zealand College of Anaesthetists http://www.choosingwisely.org.au/recommendations/fpm</p>
Wound management	<p>Ulcer and Wound Management, Therapeutic Guidelines https://tgldcdp.tg.org.au/topicTeaser?guidelinePage=Ulcer+and+Wound+Management&etgAccess=true</p>
Quality use of medicines	<p>National Quality Use of Medicines Indicators for Australian Hospitals https://www.safetyandquality.gov.au/our-work/medication-safety/quality-use-of-medicines-in-hospitals/</p>
Tonsillectomy*	<p>Clinical Practice Guideline: Tonsillectomy in Children (Update), American Academy of Otolaryngology–Head and Neck Surgery https://www.entnet.org/content/clinical-practice-guideline-tonsillectomy-children-update</p>
Use of seclusion and/or physical restraint	<p>Relevant state or territory guidelines</p> <p>National Principles to Support the Goal of Eliminating Mechanical and Physical Restraint in Mental Health Services, Restrictive Practice Working Group, Australian Health Ministers’ Advisory Council https://www.mentalhealthcommission.gov.au/media/192035/National%20Principles%20to%20Support%20the%20Goal%20of%20Eliminating%20Mechanical%20and%20Ph....pdf</p>
Caesarean section* and gestational age at planned birth*	<p>Caesarean section clinical guideline National Institute for Health and Care Excellence, UK https://www.nice.org.uk/guidance/cg132</p> <p>Cesarean Delivery on Maternal Request American College of Obstetricians and Gynecologists Committee Opinion https://pubmed.ncbi.nlm.nih.gov/30575678/</p> <p>Timing of elective caesarean section at term The Royal Australian and New Zealand College of Obstetricians and Gynaecologists https://www.ranzcog.edu.au/RANZCOG_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Statement%20and%20guidelines/Clinical-Obstetrics/Timing-of-elective-caesarean-section-(C-Obs-23)-March18.pdf?ext=.pdf</p>

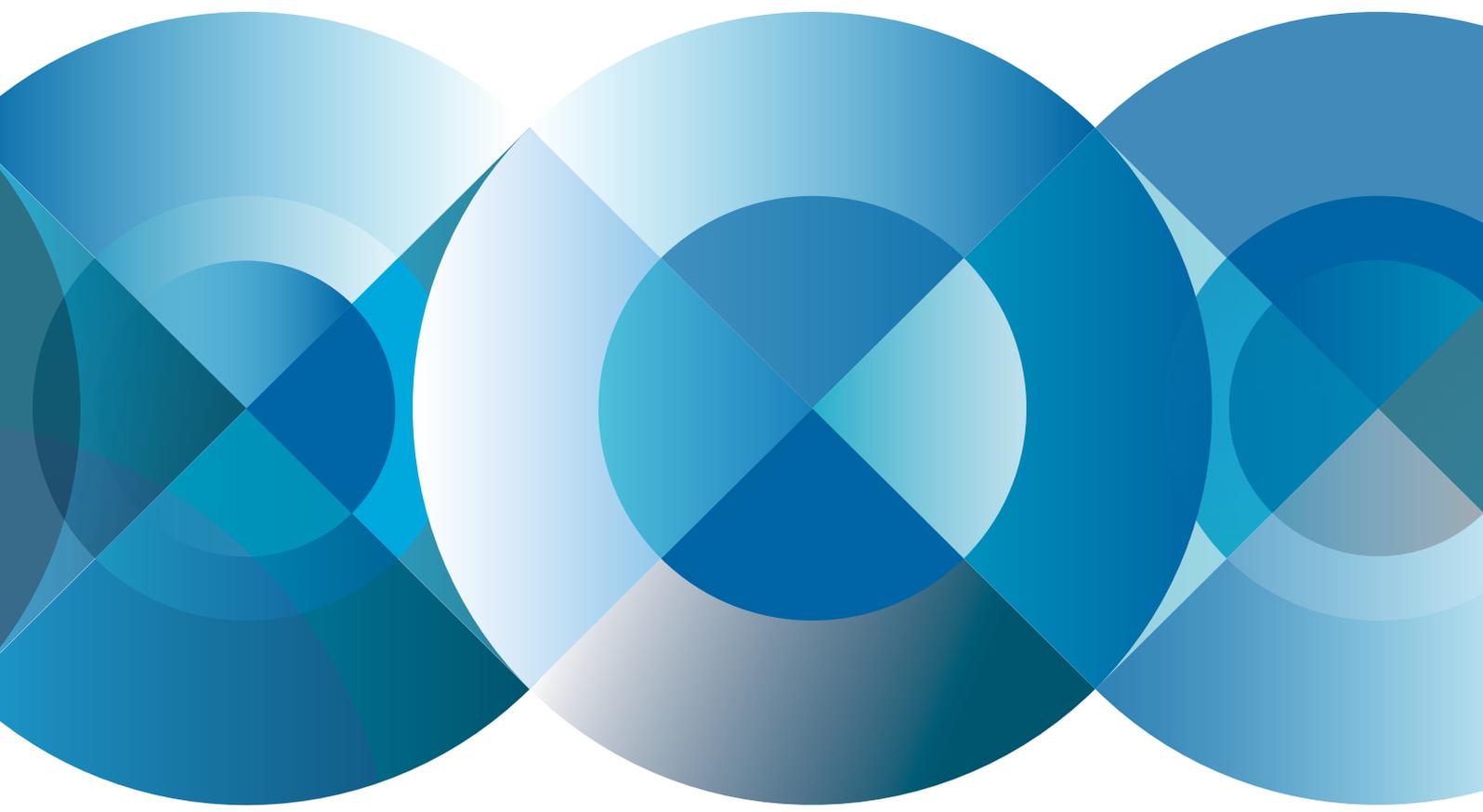
Topic	Example sources of evidence-based recommendations
Use of antipsychotic medicines* in people with dementia or delirium	<p>Delirium Clinical Care Standard https://www.safetyandquality.gov.au/our-work/clinical-care-standards/delirium-clinical-care-standard/</p> <p>Clinical Practice Guidelines and Principles of Care for People with Dementia NHMRC Partnership Centre for Dealing with Cognitive and Related Functional Decline in Older People http://sydney.edu.au/medicine/cdpc/documents/resources/Dementia-Guideline-Recommendations-WEB-version.pdf</p> <p>Antipsychotic medications as a treatment of behavioural and psychological symptoms of dementia Royal Australian and New Zealand College of Psychiatrists Professional Practice Guideline 10 https://www.ranzcp.org/files/resources/college_statements/practice_guidelines/pg10-pdf.aspx</p>
Spinal fusion*	<p>Choosing Wisely recommendations Faculty of Pain Medicine, Australian and New Zealand College of Anaesthetists http://www.choosingwisely.org.au/recommendations/fpm</p> <p>Management of People with Acute Low Back Pain: Model of Care NSW Agency for Clinical Innovation https://www.aci.health.nsw.gov.au/_data/assets/pdf_file/0007/336688/acute-low-back-pain-moc.pdf</p> <p>Low back pain and sciatica in over 16s: assessment and management National Institute for Health and Care Excellence, UK https://www.nice.org.uk/guidance/ng59</p>
Blood Management	<p>National Blood Authority Australia https://www.blood.gov.au/</p>

*[Australian Atlas of Healthcare Variation data](#) available for these topics

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