



## 6.14 Safety and quality in Australian hospitals

The safety and quality of care provided to patients in Australia's hospitals is of utmost importance to all patients, and it is a key focus for Australian governments and service providers.

The definition of safety and quality can vary slightly, depending on source. Australia's National Health Performance Framework (NHPF), defines safety as 'the avoidance, or reduction to acceptable limits, of actual or potential harm from health care management or the environment in which health care is delivered' (NHISSC 2009). The Australian Commission on Safety and Quality in Health Care (the Commission) defines safety as 'reducing the risk of unnecessary harm associated with health care to an acceptable minimum' (ACSQHC 2015).

In the NHPF there is no specific 'quality' domain, as quality is described as relating to a number of domains including 'Effectiveness', 'Continuity of care', 'Accessibility' and 'Responsiveness' (see 'Chapter 7.1 Indicators of Australia's health'). The Commission defines quality as 'the degree to which health services for individuals and populations increase the likelihood of desired health outcomes, and are consistent with current professional knowledge' (ACSQHC 2015).

The Commission is Australia's key agency providing national leadership for improving health care safety and quality for both hospitals and other health care providers (see Box 6.14.1). There are also many other organisations integral to efforts to improve safety and quality at the state or territory level, or for particular components of the health sector. The efforts to improve safety and quality include public reporting of information on health care safety and quality, including that undertaken by the AIHW. These efforts are also accompanied by activities undertaken by health service providers to measure and monitor performance within their organisations to improve clinical outcomes and the appropriateness of services.

This article summarises how information on the safety and quality of care in Australia's hospitals is publicly reported. It presents information on the safety and quality measures that are routinely reported, including international comparisons. It also reports on the recent work of the Commission on variation in health care across Australia as it relates to the safety and quality of hospital care.



## Box 6.14.1: The Australian Commission on Safety and Quality in Health Care

The Commission is a national agency that leads and coordinates improvements in safety and quality in health care across Australia. The Commission engages in collaborative work in patient safety and health care quality that benefits service providers and receivers using the Australian health system including through:

- provision of strategic advice to health ministers on best practices to improve the safety and quality of health care
- developing and supporting national clinical care standards
- developing national health care safety and quality related indicators
- working to reduce unwarranted variation in practice and outcomes for individuals and populations
- coordinating national action to address health care-associated infections and antimicrobial resistance (ACSQHC 2015).

A key area of work for the Commission is the development and implementation of the first National Safety and Quality Health Service (NSQHS) Standards. The 10 NSQHS Standards provide a nationally consistent statement about the level of care consumers can expect from health services. All public and private hospitals in Australia are required to be accredited against these standards through an accreditation scheme developed by the Commission. The work of the Commission supports the implementation of these standards to drive ongoing safety and quality improvement in Australian hospitals.

The first NSQHS standard, 'Governance for safety and quality in health service organisations', requires that regular reports on safety and quality indicators and other safety and quality performance data are monitored by health service organisation leaders.

To support such local efforts to monitor and improve hospital safety and quality, the Commission develops and maintains a number of indicators, and produces tools to support their use (ACSQHC 2016). These include 'Core hospital-based outcome indicators'; 'Hospital-acquired complications'; 'Classification of hospital-acquired diagnosis'; and indicators to support the implementation of clinical care standards. The Commission is also developing 'core common questions' for patient experience surveys in hospitals and 'staff experience and organisational culture measurement'.

In addition, the Commission disseminates information relating to health care safety and quality in its annual report *The state of safety and quality in Australian health care* and in reports such as the *Australian atlas of healthcare variation* (see 'Health care variation and hospitals' later in this article).



## National reporting on hospital safety and quality

National reporting on safety and quality (across jurisdictions and over time) supports accountability and transparency in service provision and also has the potential to create incentives for improved safety and quality.

There are a number of national agreements and frameworks that support national monitoring and reporting of the safety and quality of patient care in hospitals. For example, performance indicators are included in the National Healthcare Agreement (NHA), the NHPF, and the Performance and Accountability Framework of the National Health Reform Agreement. (See 'Chapter 7.1 Indicators of Australia's health' for more information on these indicator frameworks and Table 6.14.1 in this article).

## Selected indicators of hospital safety and quality

This section presents information on national indicators of safety and quality of the care for admitted patients in Australian hospitals that are routinely nationally reported. The indicators are:

- health care-associated infections: *Staphylococcus aureus* bacteraemia (SAB) cases in public hospitals
- adverse events treated in hospital
- falls resulting in patient harm in hospitals
- unplanned hospital readmission rates
- patient satisfaction/experience.

Information on adverse events, falls and unplanned readmissions is derived from the AIHW's National Hospital Morbidity Database (NHMD). It should be noted that the data in the NHMD are collected primarily for the purposes of recording care provided to admitted patients and that their use for purposes such as reporting adverse events has not been validated for accuracy in Australia. The results should therefore be treated with caution (AIHW 2015a).

Note too, that the available information does not provide a complete picture. For example, there is no routinely available information on some aspects of quality, such as continuity or responsiveness of hospital services.

### Health care-associated infections: *Staphylococcus aureus* bacteraemia cases in public hospitals

SAB is a type of infection often associated with health care. It occurs when *Staphylococcus aureus* bacteria ('Golden staph') cause an infection of the bloodstream (bacteraemia). When associated with health care procedures, these infections are considered to be potentially preventable.

Patients who develop SAB are more likely to suffer complications that result in longer stays in hospital, and the most serious infections can result in death.

The bacteria that cause SAB are frequently found on the skin or in the nose and are commonly spread from person to person in the community. In this form, they are usually harmless and most people are unaware that they are carrying them.



Table 6.14.1: National reporting frameworks and safety and quality indicators for hospitals

Framework	Purpose	Indicators of safety and quality in hospitals	Reported in
The National Health Performance Framework 2009 (revised)	To provide a structure for reporting on Australia's health status and the performance of the Australian health system at the national level	Adverse events treated in hospitals Falls resulting in patient harm in care setting	AIHW's <i>Australian hospital statistics</i> series annually and in <i>Australia's health</i> every two years
Performance and Accountability Framework 2011	To support a safe, high quality Australian health system, through improved transparency and accountability	<i>Staphylococcus aureus</i> bacteraemia cases in hospitals Patient experience Unplanned readmissions <sup>(a)</sup> Hospital standardised mortality ratio <sup>(a)</sup> Death in low-mortality diagnostic related groups <sup>(a)</sup> In hospital mortality rates <sup>(a)</sup> Health care-associated <i>Clostridium difficile</i> infections <sup>(a)</sup> Rate of community follow-up within the first seven days of discharge from a psychiatric admission <sup>(a)</sup>	Individual hospitals on the <i>MyHospitals</i> website (managed by AIHW from July 2016 and formerly by the National Health Performance Authority) Primary Health Networks on the <i>MyHealthyCommunities</i> website (managed by AIHW from July 2016 and formerly by the National Health Performance Authority)
The National Healthcare Agreement 2012	To clarify the roles and responsibilities that guide the Commonwealth and states and territories in delivery of services across the health sector and to define shared objectives, outcomes, and performance indicators	<i>Staphylococcus aureus</i> bacteraemia cases in hospitals Unplanned readmissions Patient experience	AIHW's <i>Australian hospital statistics</i> series The Steering Committee for the Review of Government Service Provision's <i>Review of government services</i> reports Australian Bureau of Statistics (ABS) <i>Patient experiences in Australia</i>

(a) Not yet reported.



In hospitals, transmission is most commonly via the hands of health care workers. Bacteria can gain direct entry into the patient's bloodstream if they have open wounds or when devices that pierce the skin are used, such as for giving intravenous fluids or for taking blood samples. Hospitals aim to have as few SAB cases as possible.

Patients who have a greater risk of infection than the general public are those with open wounds; invasive devices such as catheters; weakened immune systems (associated with cancer, or with transplant receipt, or with being very young or elderly); chronic disease such as diabetes or severe underlying illness; or prolonged or recurrent exposure to antibiotics (AIHW 2015b).

The rate of SAB is a performance indicator for the NHA outcome area of *Australians receive appropriate high quality and affordable hospital and hospital-related care*. A performance benchmark for public hospital-associated SAB is included for that outcome area: the rate of SAB (including methicillin-resistant *Staphylococcus aureus*, or MRSA) is no more than 2.0 per 10,000 days of patient care for acute care public hospitals in each state and territory.

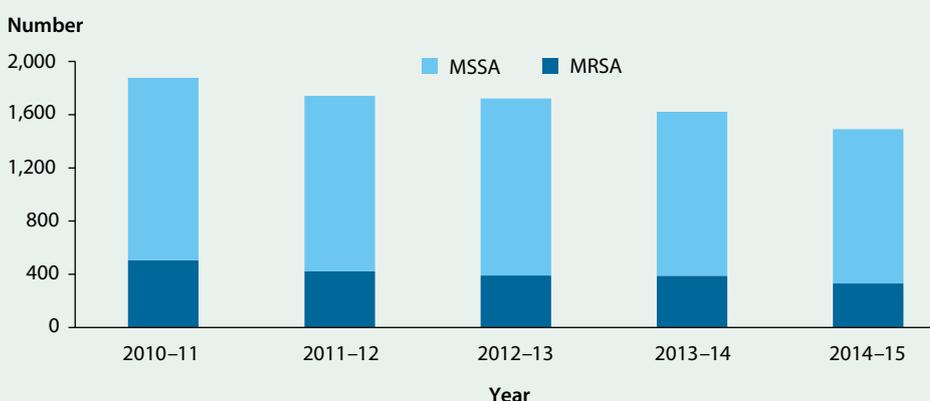
In 2014–15:

- the national rate of SAB in public hospitals was 0.8 cases per 10,000 days of patient care
- all jurisdictions had rates below the national benchmark
- most cases of SAB (78%) were treatable with commonly used antibiotics. These cases are termed methicillin-sensitive *Staphylococcus aureus* (MSSA) cases, while 22% of cases were MRSA (antibiotic resistant) cases (AIHW 2015b).

Between 2010–11 and 2014–15:

- rates of SAB decreased from 1.1 cases to 0.8 cases per 10,000 days of patient care
- the overall number of SAB cases decreased from 1,876 to 1,490. The number of MRSA cases decreased from 505 to 331 (Figure 6.14.1).

**Figure 6.14.1: Cases of *Staphylococcus aureus* bacteraemia (SAB) in public hospitals, by antibiotic sensitivity status (MSSA or MRSA), 2010–11 to 2014–15**



Source: AIHW 2015b.

Improvement in the hand hygiene of health care workers is the highest priority for reducing the risk of health care-associated infections. Between July 2009 and June 2015, hand hygiene compliance in public hospitals increased from about 64% to 82% (HHA 2015).



## Adverse events treated in hospitals

'Adverse events treated in hospitals' is an NHPF performance indicator under the dimension of 'Safety' (see 'Chapter 7.1 Indicators of Australia's health'). It is a measure of the safety and quality of the care provided to admitted patients, and encompasses a range of events, rather than focusing on one type, such as readmissions or falls.

Adverse events are defined as incidents in which harm resulted to a person receiving health care. They include adverse effects of drugs, injuries that occur during care, and conditions that occur following procedures such as infections and bleeding. Some of these adverse events may be preventable.

Adverse events such as these can lead to increased length of stay and poorer patient outcomes, along with increased costs of treatment. 'Adverse events treated in hospitals' is based on events that have been identified by the treating doctor in the clinical record, indicating that an adverse event has resulted in, or affected, hospital admission.

This indicator is limited to adverse events that can be identified by specific codes and therefore may not include all adverse events.

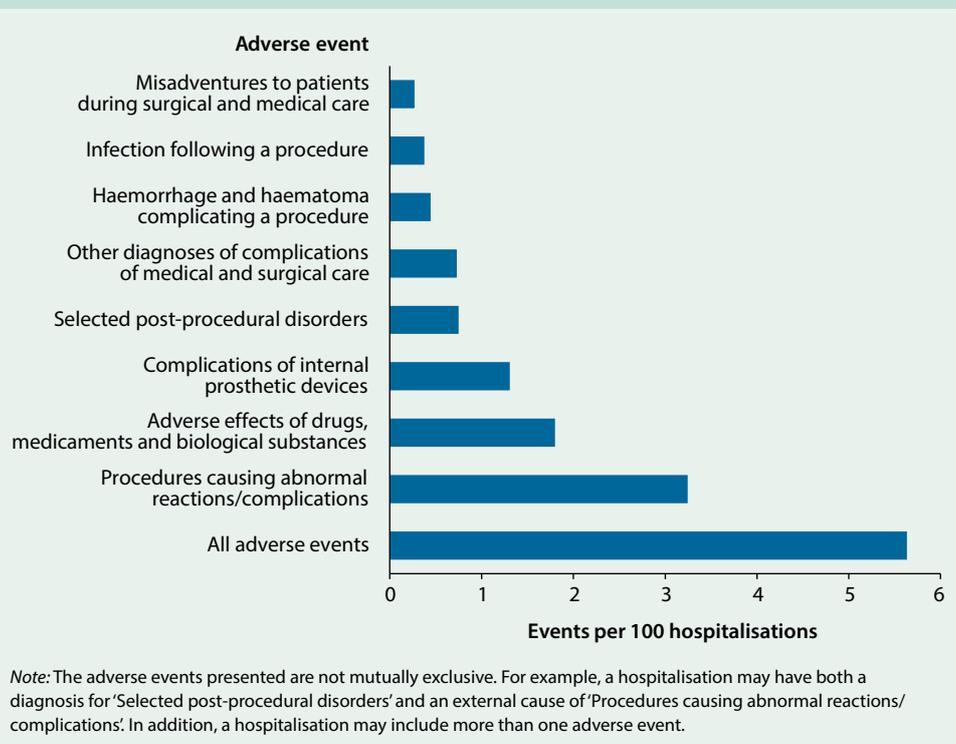
In 2013–14:

- almost 547,000 hospitalisation reports indicated that one or more adverse events had resulted in, or affected the hospitalisation. These reports accounted for about 6.7 per 100 hospitalisations in public hospitals and 4.1 per 100 hospitalisations in private hospitals (Figure 6.14.2). The data for public hospitals are not comparable with the data for private hospitals because their casemixes differ and recording practices may be different
- the most common adverse event groups reported for public hospitals were *Procedures causing abnormal reactions/complications* (52%) and *Adverse effects of drugs, medicaments and biological substances* (37%)
- the most common adverse event group reported for private hospitals was *Procedures causing abnormal reactions/complications* (70%)
- overnight hospitalisations had higher rates of adverse events (11 per 100) than same-day hospitalisations (1.7 per 100)
- hospitalisations for subacute and non-acute care had higher rates of adverse events (10.5 per 100) than acute care hospitalisations (5.4 per 100)
- emergency hospitalisations had higher rates of adverse events (9.9 per 100) than non-emergency hospitalisations (4.1 per 100).

Other ways to assess the safety and quality of care provided to admitted patients cover a wider range of issues reported as either arising (or being acquired) during the hospital episode; these measures are not recognised as performance indicators and information on them is presented in Box 6.14.2.



Figure 6.14.2: Adverse events per 100 hospitalisations, all hospitals, 2013–14



### Box 6.14.2: Other measures relating to the overall safety and quality of care in hospitals

Information presented in this box relates to other measures of the overall safety and quality of care provided to admitted patients that are not performance indicators. These measures overlap with each other and with the safety and quality performance indicators presented in this article. These measures and the performance indicators should not be added together due to the overlap.

#### Conditions that arose during the hospital stay

This measure includes all conditions which arose during the episode of admitted patient care and were not present on admission. Not all conditions that arise during a hospitalisation are classified as adverse events. Conditions that arise during a hospital stay are identified using a 'condition onset flag' (this is a means of differentiating between conditions that were present on admission, or arose during the episode of care).

These condition onset flag data are available for about 91% of hospitalisations in public hospitals and about 72% of hospitalisations in private hospitals.

(continued)



## Box 6.14.2 (continued): Other measures relating to the overall safety and quality of care in hospitals

In 2013–14:

- about 717,000 hospitalisations were affected by a condition that arose during the hospital stay. These accounted for about 10% of hospitalisations in public hospitals and 6% of hospitalisations in private hospitals
- hospitalisations for childbirth had the highest proportion recording a condition that arose during the hospital stay, in both public and private hospitals and for same-day and overnight hospitalisations. This was 58% and 54% for overnight hospitalisations in public and private hospitals respectively and 33% and 36% for same-day, public and private hospitalisations respectively
- approximately 31% of conditions that arose during the hospital stay were also classified as adverse events and 91% were classified as a hospital-acquired diagnosis.

### Hospital-acquired conditions (diagnoses)

The 'Classification of hospital-acquired diagnoses' is a classification system that allows hospitals to identify, count and monitor adverse events, as markers of patient safety. For the most part, the occurrence of a hospital-acquired condition is identified using the condition onset flag along with diagnosis information. These condition onset flag data are available for about 91% of hospitalisations in public hospitals and about 72% of hospitalisations in private hospitals.

In 2013–14:

- more than 709,000 hospitalisations reported a hospital-acquired condition. These accounted for about 9.9% of hospitalisations in public hospitals and 6.0% in private hospitals
- for public hospitals, the most common hospital-acquired conditions were *Labour, delivery and postpartum complications* and *Cardiovascular complications* (accounting for 20% and 16% of hospitalisations that included a hospital-acquired condition, respectively)
- for private hospitals, the most common hospital-acquired conditions were *Gastrointestinal complications* accounting for 18% of hospitalisations that included a hospital-acquired condition
- *Post-procedural complications* accounted for about 14% of hospital-acquired conditions in public hospitals and 16% in private hospitals
- about 31% of hospital-acquired conditions were also classified as 'Adverse events treated in hospital' and 97% were classified as 'Conditions that arose during the hospital stay'.



## Falls resulting in patient harm in hospitals

'Falls resulting in patient harm in hospitals' is a performance indicator under the NHPF domain of 'Safety' (see 'Chapter 7.1 Indicators of Australia's health'). This indicator is intended to report where a fall occurred in hospital during the episode of care, resulting in patient harm. 'Falls resulting in patient harm in hospitals' is a subset of 'Adverse events treated in hospital'.

The indicator identifies falls occurring in any health service area as it is not currently possible to identify falls as occurring specifically in hospitals. Therefore, these rates may overestimate falls in hospitals. However, patients with an injury as the primary reason for hospitalisation are excluded to minimise the inclusion of falls that occurred before admission. These rates may also be underestimated as the place of occurrence was not reported for about 26% of hospitalisations with a fall recorded.

In 2013–14, more than 30,000 hospitalisations, or 3.1 per 1,000 hospitalisations, reported a fall. More falls were reported for public hospitals (4.2 per 1,000 hospitalisations) than for private hospitals (1.6 per 1,000). The difference between the rates in public and private hospitals may reflect differences in casemix and recording practices.

These data should be treated with caution. A study by the Commission showed that the rate of recording falls in the medical records varied between hospitals, with some hospitals recording falls better in incident reporting systems (ACSQHC 2012).

## Unplanned readmissions

'Unplanned or unexpected readmissions after surgery' is an NHA performance indicator for the outcome *Australians receive appropriate high quality and affordable hospital and hospital-related care*. It is regarded as an indicator of the safety and quality of admitted patient care in hospitals.

This indicator includes hospitalisations for which an unplanned readmission to the same public hospital occurred within 28 days following surgery (for selected surgical procedures) (Figure 6.14.3), and the cause of the hospitalisation was an adverse event. The diagnosis codes used to identify adverse events for unplanned readmissions are a subset of those used in 'Adverse events treated in hospitals', and 'Unplanned readmissions' account for 0.4% of hospitalisations with 'Adverse events'.

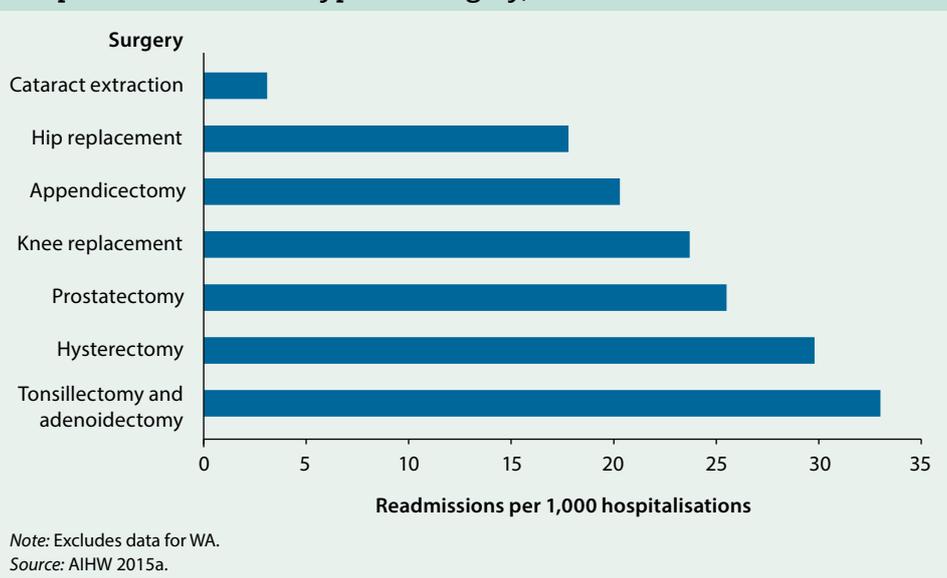
In 2013–14, rates of readmission to the same public hospital were 33 per 1,000 hospitalisations for *Tonsillectomy and adenoidectomy* and 3.1 per 1,000 for *Cataract extractions* (Figure 6.14.3). The rate for *Tonsillectomy and adenoidectomy* readmissions was higher than in 2011–12, when it was 28 per 1,000, but similar to 2012–13 (33). *Cataract extraction* readmission rates were similar for all 3 years (3.2 per 1,000 in 2011–12 and 3.4 in 2012–13) (AIHW 2013, 2014).

## Patient experience

'Patient experience' is an NHA performance indicator in the outcome area of 'Australians have positive health and aged care experiences which take account of individual circumstances and care needs'. A patient experience survey is one tool that health services can use to assess whether they are meeting the needs of the patient.



Figure 6.14.3: Readmissions within 28 days to the same public hospital after selected types of surgery, 2013–14



The ABS Patient Experience Survey included about 19,000 people aged 15 and over in 2014–15. Of these, more than 2,500 people (14%) had attended a hospital in the past 12 months, either as an admitted patient or as an emergency department patient.

The survey asked patients whether doctors or nurses:

- listened carefully to them
- showed respect to them
- spent enough time with them.

The survey found that at least 86% of patients responded 'always' or 'often' to each of these questions for both doctors and nurses. More than 90% of patients responded 'always' or 'often' to the questions about whether the doctors or nurses showed respect to them (ABS 2015).

## Health care variation and hospitals

In 2015 the Commission published the *Australian atlas of healthcare variation* (ACSQHC and NHPA 2015). Understanding variation across geographic areas is important to improving the appropriateness of health care, including hospital care, and increasing the value obtained from resources allocated to health.

The *Australian atlas of healthcare variation* reported substantial variation in health care use in six clinical areas, including prescribing and diagnostic, medical and surgical interventions. Some of these differences would reflect variation in the provision of hospital care, although many would also reflect variation in the provision of non-hospital care. Some variation in health care use is expected if associated with differences in patients' health, or personal preferences. However, the Commission found that much of the variation was likely to be unwarranted. This may mean that some people are receiving inappropriate or unnecessary care, while others may be missing out on care that might be beneficial.

Hospital-related examples from the *Australian atlas of healthcare variation* include *Knee arthroscopy* and *Hysterectomy and endometrial ablation*.



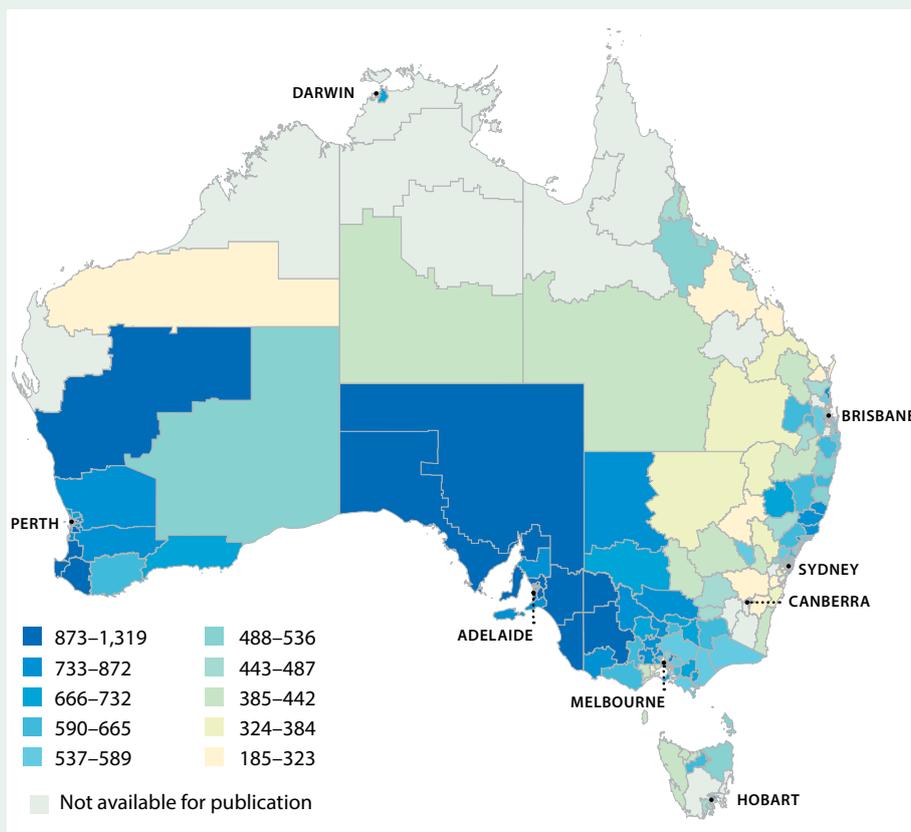
## Variation in knee arthroscopy rates

In 2012–13, more than 33,000 knee arthroscopy operations were performed for patients aged 55 and over. This was the case despite evidence that knee arthroscopy is of limited value for people with osteoarthritis and may cause harm.

The rates of knee arthroscopy varied across states and territories, from 264 per 100,000 people aged 55 and over in the Australian Capital Territory, to 980 in South Australia. Hospitalisations for patients aged 55 and over were seven times as high in some local areas than other areas, ranging from 1,319 hospitalisations per 100,000 population to 185 per 100,000 (Figure 6.14.4). After excluding the highest and lowest results, the knee arthroscopy hospitalisation rates were up to 4.2 times higher in some areas compared with others.

Hospitalisation rates for knee arthroscopy tended to be higher in *Inner* and *Outer regional* areas than in *Major cities* (ACSQHC and NHPA 2015).

**Figure 6.14.4: Age-standardised rate of knee arthroscopy hospitalisations per 100,000 people aged 55 and over, by local area, 2012–13**



Note: For this item, 'local area' refers to an ABS standard geographic region known as a **Statistical Area Level 3 (SA3)**.

Source: ACSQHC and NHPA 2015.

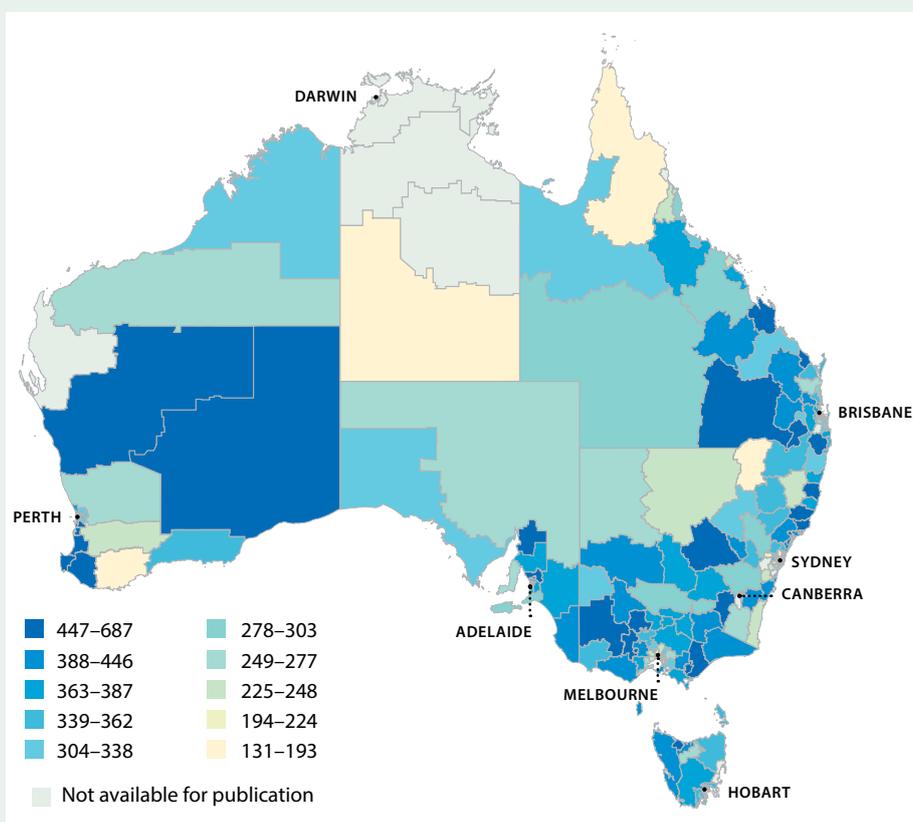


## Variation in hysterectomy and endometrial ablation rates

The average number of hospitalisations for hysterectomy and endometrial ablation varied across states and territories, from 225 per 100,000 women in the Northern Territory, to 349 in Western Australia. The number of hospitalisations ranged from 131 per 100,000 women in a local area to 687 (Figure 6.14.5). After excluding the highest and lowest results, the hysterectomy and endometrial ablation hospitalisation rates were up to 3.3 times higher in some areas compared with others.

Hospitalisation rates for hysterectomy and endometrial ablation were markedly higher in *Inner* and *Outer regional* areas than in *Major cities* or in *Remote* areas. There was no clear link between rates and high or low socioeconomic areas (ACSQHC & NHPA 2015).

**Figure 6.14.5: Age-standardised rate of hysterectomy and endometrial ablation hospitalisations per 100,000 women, by local area, 2012–13**



Note: For this item, 'local area' refers to an ABS standard geographic region known as a Statistical Area Level 3 (SA3).

Source: ACSQHC and NHPA 2015.

## International comparisons

Australia also monitors the safety and quality of Australia's health services through participation in the Organisation for Economic Co-operation and Development (OECD) Health Care Quality Indicators (HCQI) project. The HCQI project defines a common set of indicators for use across OECD member countries, which are reported at the national level and enable international comparison. The OECD publishes selected data in the OECD's *Health at a glance* series (OECD 2015).



The OECD acknowledges the challenge in collating data of this type in a comparable manner, and suggests that some caution should be taken in interpreting the results. Differences in hospital admission practices/criteria, data coding practices, and sources of data (for example, whether based on hospital administrative data or registry-based data) can result in large variations in rates reported.

Table 6.14.2 lists the patient safety-related indicators that were reported to the most recent OECD collection, and indicates how Australia compares against the OECD averages.

In Australia the *Post-operative wound dehiscence* rate per 100,000 (75) was lower than the OECD average (220), as was the rate for *Post-operative pulmonary embolism* (363 per 100,000 compared with 531). Other patient safety indicator rates were higher than the OECD average.

**Table 6.14.2: OECD HCQI patient safety indicators, Australia (2012–13) and OECD average (2013)**

HCQI indicator	Australia	OECD average
<b>Rate per 100,000 hospitalisations</b>		
Foreign body left in during procedure	8.6	5.7
Post-operative deep vein thrombosis	787	336
Post-operative pulmonary embolism	363	531
Post-operative sepsis	1,445	967
Post-operative wound dehiscence (wound rupture)	75	220
<b>Rate per 100 vaginal deliveries</b>		
Obstetric trauma—vaginal delivery with instrument	7.3	6.0
Obstetric trauma—vaginal delivery without instrument	2.4	1.6

*Notes*

1. Caution should be taken in interpreting these findings due to differences in data capture and reporting that may influence the reported rates.
2. OECD rate is for 2013 (or nearest year).

Source: AIHW 2016.

In addition to variation in recording practices, *Health at a glance 2015* notes that in 'some cases, higher adverse event rates may signal more developed patient safety monitoring systems and a stronger patient safety culture rather than worse care' (OECD 2015:144). A number of features of Australian patient safety monitoring would support the claim that Australia is one of those countries that has a more developed patient safety monitoring system (AIHW forthcoming).

## What is the AIHW doing?

The AIHW is currently undertaking work to improve the NHA unplanned hospital readmission rates performance indicator.

The AIHW's work involves the refinement of the list of principal diagnoses that can be used to indicate an unplanned readmission as specifically relevant to each of the seven types of surgical procedures. The work is also incorporating different lengths of time (between 7 and 60 days) for a principal diagnosis to signal an unplanned readmission for each type of surgery. Work is also being undertaken towards identification of readmissions to hospitals other than the one in which the surgery was performed.



## What is missing from the picture?

Current public reporting on safety and quality using admitted patient care data is only a small component of what could potentially be reported. There is ongoing effort to enhance the information value of this data collection through the improvement of consistent data collection across states and territories and through the development of indicators and other data analysis methods.

Routine national data linkage to inform safety and quality improvement is also an area for future work. The ability to link data across hospitals or across different health services would enhance our understanding of the patient's journey through the health system and outcomes of care.

Although most jurisdictions and many hospitals already collect and analyse patient experience information, there is a lack of consistency in the information collected that prevents meaningful comparisons between jurisdictions. However, work is being conducted by the Commission to develop standard patient experience measures. These will comprise two short sets of core common questions to assess patients' experiences of overnight hospital care and same-day care. Unlike in the existing ABS Patient Experience Survey, which is population-based, the questions will be administered to recently discharged patients. The resulting information will be a resource for use by public and private services across Australia to pinpoint areas for local service improvement, as well as offering the opportunity for national-level comparisons.

## Where do I go for more information?

More information is available at the Commission's website [Australian Commission in Safety and Quality in Health Care](#).

Selected safety and quality information for individual hospitals is available at [MyHospitals.gov.au](#).

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