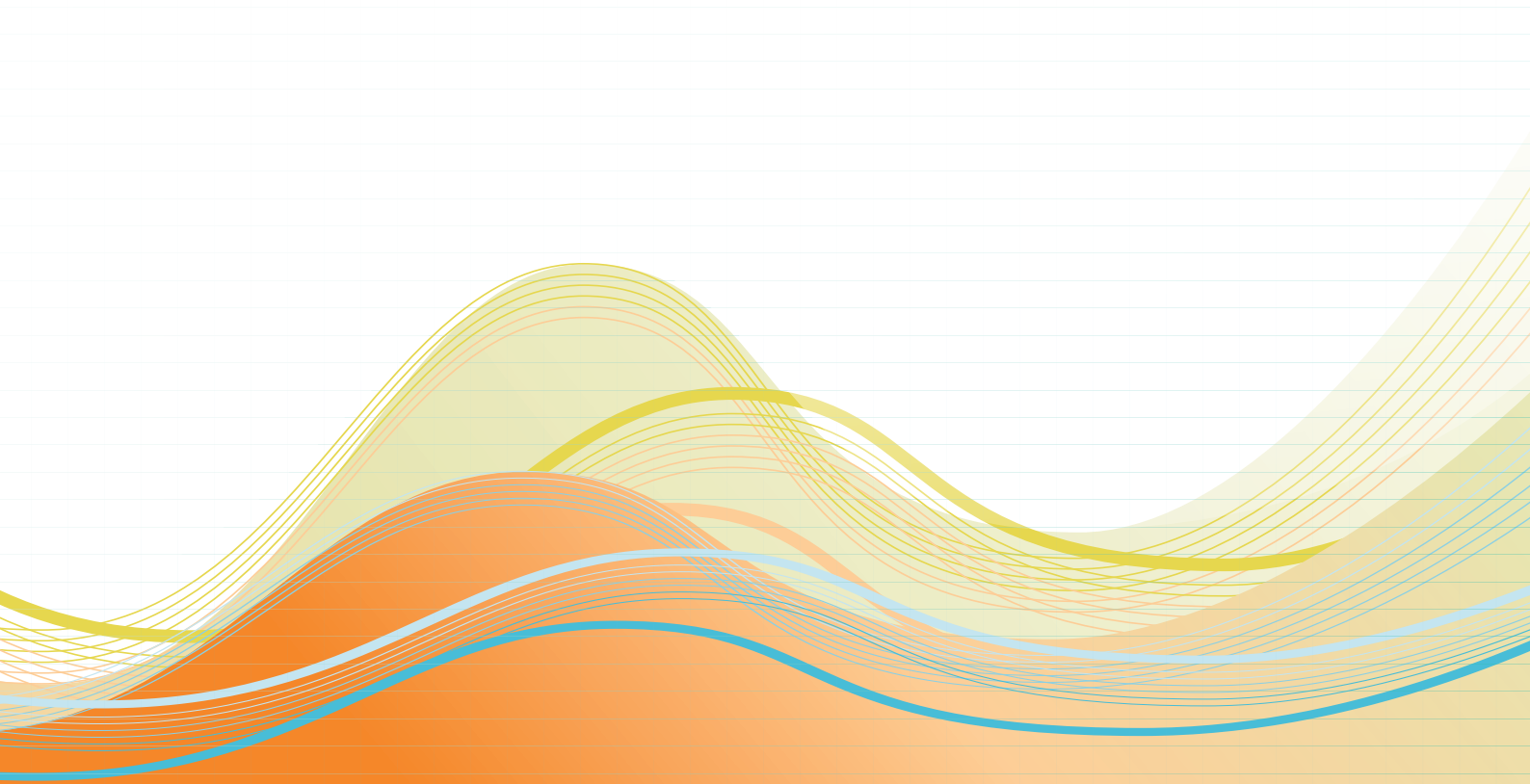


# Healthcare in Focus 2012

How well does NSW perform?  
Looking out and looking in

Annual performance report: December 2012



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## BUREAU OF HEALTH INFORMATION

PO Box 1770  
Chatswood NSW 2057  
Australia  
Telephone: +61 2 8644 2100  
[www.bhi.nsw.gov.au](http://www.bhi.nsw.gov.au)

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# Summary

Communities want healthcare systems that provide high-quality and safe care in a sustainable way

**Around the world, communities want healthcare systems that provide high-quality care in a sustainable way.**

**Determining whether high-quality care is being provided to the people of NSW requires attention to multiple aspects of healthcare, how it is delivered and the outcomes achieved.**

The *Healthcare in Focus* series places NSW healthcare performance in an international context. Previous editions found that NSW gets good value for its healthcare dollar. No comparator country included in the 2010 and 2011 reports spent less per person and had lower rates of premature mortality.

This 2012 edition provides updated information on the performance of the NSW healthcare system. It includes some 100 indicators that measure performance in terms of:

- long-term outcomes (such as mortality and potential years of life lost)
- short-term outcomes (such as patient satisfaction and readmissions)
- process measures (such as compliance with evidence-based guidelines)
- structural measures (such as availability of required infrastructure and resources).

Overall, NSW performance in areas such as mortality, cancer survival and life expectancy is good in international terms. International and national surveys show that patients in NSW consistently report receiving excellent or very good healthcare. Yet when asked their views about the country's healthcare system, a quarter of NSW adults (25%) indicated that the healthcare system requires a complete rebuild. A similar proportion (24%) said the system works pretty well; and just over half (51%) said there are some good things about the system but it needs fundamental changes to work better.

**This raises questions around whether the system is delivering consistently good performance or if there is significant variation.**

This is an area of work that, together with partner organisations, the Bureau will be focusing on in the future. *Healthcare in Focus 2012* makes a start in this area, reporting performance variation within the state for 28 measures.

This select set of indicators has been used as an initial exploration of variation. We present clinical variation information not as a definite indicator of hospital quality but to describe the scale of differences across NSW hospitals. Providing this information should encourage further investigation locally and where appropriate, prompt efforts to improve.

# So what did we find?

## Effectiveness & appropriateness

Premature mortality from cancer and circulatory disease (also called cardiovascular disease) in NSW is lower than ever before. Fewer years of life are lost in NSW than in almost any other country.

In terms of acute outcomes, 10% of people hospitalised in NSW for a heart attack died (from any cause) within 30 days of admission. This rate was lower than in other countries with comparable data, except New Zealand (9%). Within NSW, there is variation across hospitals in 30-day mortality rates (age, sex and comorbidity standardised) following hospitalisation for a heart attack, ranging from five to 26 deaths per 100 patients.

For acute outcomes in stroke, 15.5% of people hospitalised in NSW for an ischaemic (clot-based) stroke died within 30 days of admission. This is lower than in the United Kingdom (16.3%) but higher than the Netherlands (11.5%), Sweden (12.7%) and New Zealand (13.1%). Across NSW hospitals, 30-day mortality rates (age, sex and comorbidity standardised) following hospitalisation for ischaemic stroke ranged from eight to 31 deaths per 100 patients.

Haemorrhagic stroke (one caused by a bleed on the brain) is a more life threatening condition than ischaemic stroke. Among people hospitalised in NSW for a haemorrhagic stroke, 29.8% died within 30 days of admission. This was lower than in any country with comparable information, except Sweden (26.0%). Across NSW hospitals, 30-day mortality rates (age, sex and comorbidity standardised) following hospitalisation for haemorrhagic stroke ranged from 20 to 43 deaths per 100 patients.

There is a vast number of processes that shape outcomes such as mortality. Providing appropriate care means that services and treatments that are of proven value are given to those patients who will benefit from them. This year, *Healthcare in Focus* includes for the first time, data on whether recommended stroke care processes are provided to patients in NSW.

NSW is outperformed on most stroke process of care measures by the United Kingdom (the only comparator country that conducts a similar audit). More importantly, there is wide variation within NSW in terms of the care provided to stroke patients.

For diabetes, appropriate care processes and careful control of blood sugar levels, cholesterol, blood pressure and weight help prevent complications, disability and premature death. In 2009 (the latest year for which international comparisons are available) there were 23.1 hospitalisations for acute diabetic complications (such as ketoacidosis and diabetic coma) per 100,000 population - higher than in Germany (13.9 per 100,000 population), Sweden (14.9), Canada (19.1) and Norway (19.8).

Musculoskeletal disease places a relatively low burden on the people of NSW in terms of mortality - with 373 deaths attributed to it in 2010 (compared to 15,587 attributed to circulatory disease). However they still cause a significant health burden - one of disability, pain and loss of quality of life. Internationally, NSW has relatively low rates of hip replacement procedures and relatively high rates of knee replacements. The proportion of procedures that were revisions (or repeat procedures) for hip and knee replacements (10.5% and 6.3% respectively) were lower than in the rest of Australia.

For mental health, there are international data available to compare the rates of unplanned readmission to hospital within 30 days of discharge for schizophrenia and for bipolar disorder. NSW performs mid-range internationally. Supplementary data from the *NSW Mental Health Outpatient Survey* show that, in all facilities, a minority of mental health patients said they fully understood the danger signs associated with their condition to monitor after discharge.

## Access

Three-quarters of emergency department (ED) patients in NSW (76%) are seen within recommended times and six in 10 (60%) have a length of stay in the ED of four hours or less. Within NSW however, there is considerable variation across hospitals in the percentage of ED patients with a stay of four hours or less (sometimes referred to as performance against the National Emergency Access Target, or NEAT).

Median waits for elective surgery in NSW public hospitals vary across different procedures. For example the median wait for a hysterectomy is 55 days while the wait for a total knee replacement is 295 days.

In 2011, *Healthcare in Focus* highlighted the important role that cost plays in preventing people in NSW from accessing health services. This year, results from the Australian Bureau of Statistics show that one-quarter of people (26%) delayed or did not access dental care because of cost, one in 10 (14%) did not see a medical specialist, and a similar proportion (9%) did not fill a prescription for cost reasons.

## Safety

Safety data are not straightforward to interpret. Data are impacted by variation in willingness to report safety incidents and in attribution, coding and recording of safety related events.

Information from administrative databases show that in 2010–11, the NSW rate of hospitalisations for complications of medical and surgical care was 306 per 100,000 population. This was a relatively high rate in comparison to other countries. The most commonly recorded complication in NSW hospitals (public and private) was wound infections (4,564 hospitalisations).

International comparisons for records of particular serious events (such as failure to remove instruments or swabs after a procedure) and adverse events (such as pulmonary embolism and deep vein thrombosis) show NSW to be mid-range.

In 2010–11 there were 495 cases of post-operative sepsis recorded in NSW at a rate of 779 per 100,000 hospitalisations. While this was lower than the United States and New Zealand it was a higher rate than recorded in Canada and European comparator countries. Survey data show that in terms of patient-reported handwashing by NSW healthcare providers and staff, there was significant variation across hospitals.

## Person centredness

In international surveys, NSW patients consistently rate the quality of healthcare they receive highly. Within the state in 2011, 34% of overnight patients, 38% of day-only patients and 27% of ED patients rated the care they received as *excellent*. The proportion of patients that rated care as *excellent* varied considerably across the state's hospitals. For overnight patients excellent ratings ranged from 20% to 60%, for day-only patients they ranged from 20% to 65% and for ED patients they ranged from 14% to 45%.

The majority of NSW patients report *always* being treated with respect and dignity by different healthcare professionals. There was however variation across public hospitals. For patients who were admitted overnight, the percentage saying they were *always* treated with respect and dignity by hospital staff ranged from 68% to 98%, for day-only patients it ranged from 69% to 100%, and for ED patients it ranged from 64% to 91%.

Most patients want to be given information about treatment options and for clinicians to take account of their preferences. Some wish to be an active participant in decisions about their care and treatment. Patient survey data for NSW public hospitals show almost a two-fold variation in the percentage of patients indicating that they *definitely* had enough say about their treatment.

In terms of patient-professional communication, the majority of NSW patients say the healthcare professionals they saw *always* spent enough time with them, and listened carefully to them.

## Equity

Although the overall health and wellbeing of NSW people is high compared with other countries, there are considerable differences across groups within the state.

Aboriginal people in NSW have lower life expectancy and higher rates of infant mortality than non-Aboriginal people. However, the 'gap' in infant mortality between Aboriginal and non-Aboriginal babies is shrinking.

Health statistics published by the *NSW Ministry of Health* clearly demonstrate the role that socioeconomic circumstances, and rurality play in the health of the population. Generally speaking, there is a correlation between socio-economic disadvantage and poorer health and between increasing rurality and poorer health.

This year's *Healthcare in Focus* looked at equity issues in a new way. Taking the 30-day mortality data for heart attacks and strokes, we examined whether there was a relationship between socioeconomic status or rurality and the likelihood of dying from a heart attack or an ischaemic stroke within 30 days of hospitalisation. For heart attack, the data show that among those admitted to hospital for a heart attack, people from different socioeconomic groups or from different degrees of rurality, were equally likely to survive for 30 days.

For ischaemic stroke, there was a small increase in 30-day mortality with increasing deprivation and increasing rurality.

## Resources & utilisation

In 2010–11, total health expenditure in NSW was almost \$41 billion (\$28 billion publicly funded and \$13 billion privately funded).

This funds a huge amount of activity, including:

- **In the public hospital and community care sector:**
  - Almost 900,000 overnight hospital admissions
  - Over 700,000 day-only admissions
  - Around 2.5 million ED visits
  - Approximately 19 million outpatient and other non-admitted patient occasions of care.
- **In the private hospitals sector:**
  - Almost 300,000 overnight hospitalisations
  - Over 700,00 day-only hospitalisations.
- **In primary care:**
  - Approximately 43 million general practice (GP) visits.

Hospitals consumed \$15.5 billion in 2010–11 (\$12.6 billion public and \$2.9 billion private) and are the most cost intensive encounters with the healthcare system.

In 2010–11, of the 1.2 million overnight stays in public and private hospitals, the most common reasons for hospitalisation were: injury and poisoning (122,948 hospitalisations, 10.6% of total), pregnancy and childbirth (114,152 hospitalisations, 9.9%) and circulatory disease (113,500, 9.8%).

People were in hospital for a total of 6.8 million bed days with more than eight in 10 of those bed days (82%) for acute care.

In 2010–11, 764,511 people (11% of the population) were admitted to hospital for an overnight stay. There were 84,966 people (1% of the population) who were hospitalised three or more times. They accounted for 2.9 million bed days (43% of total bed days for the year).

There were 699,179 surgical procedures performed in 2010–11. Less than half (42%) were performed in public hospitals.

In 2010–11, 1.3 million people (18% of the population) visited a public hospital ED (with electronic data collection). There were 163,784 people (2% of the population) who visited the ED three or more times. They accounted for 696,408 (33%) of all ED visits.

## What's next?

*Healthcare in Focus 2012* highlights how well NSW does on the international stage. The people of NSW are living longer. Premature mortality from cancer, from heart disease and from stroke continue to fall. The majority of people describe their overall health as excellent or very good and rate their experiences of the healthcare system positively.

Within the state, the report shows that performance varies *between hospitals* in terms of outcomes, processes and experiences of care. The Bureau plans in 2013 to undertake further in-depth analysis of hospital-level variation to explore the factors that contribute to excellence – allowing the system to learn from success and to consider whether there are areas of care that need improvement.

# Setting the scene

Quality of healthcare in NSW, in an international context

*Around the world, communities want healthcare systems that provide high-quality care in a sustainable way.*

Evaluating and reporting publicly on whether the NSW healthcare system delivers high-quality care is important for three main reasons. First, it provides accountability to the taxpayers who substantially fund the system. Second, it is an essential first step in identifying opportunities to improve. Third, it acts as a call to action and a catalyst for change.

*Determining whether high-quality care is being provided to the people of NSW requires attention to multiple aspects of healthcare: how it is delivered and the outcomes achieved.*

## Building on previous reports

Previous editions of *Healthcare in Focus* found that NSW gets good value for its healthcare dollar. No comparator country included in the 2010 and 2011 reports spent less per person and had lower rates of premature mortality.<sup>1,2</sup>

International and national surveys from 2010 and 2011 show that most people in NSW report receiving excellent or very good healthcare (see page 54).<sup>1,2</sup> Yet when asked their views about the healthcare system more generally, a quarter of NSW adults (25%) indicated that the system requires a complete rebuild. A similar proportion (24%) said the system works pretty well and just over half (51%) said there are some good things about the system but it needs fundamental changes to work better.<sup>1</sup>

This raises the question: **is the system delivering consistently good performance or is there significant variation?** Clinical variation is an area of work that together with partner organisations, the Bureau will be focusing on in the future. *Healthcare in Focus 2012* makes a start reporting variation within the state for 28 indicators.

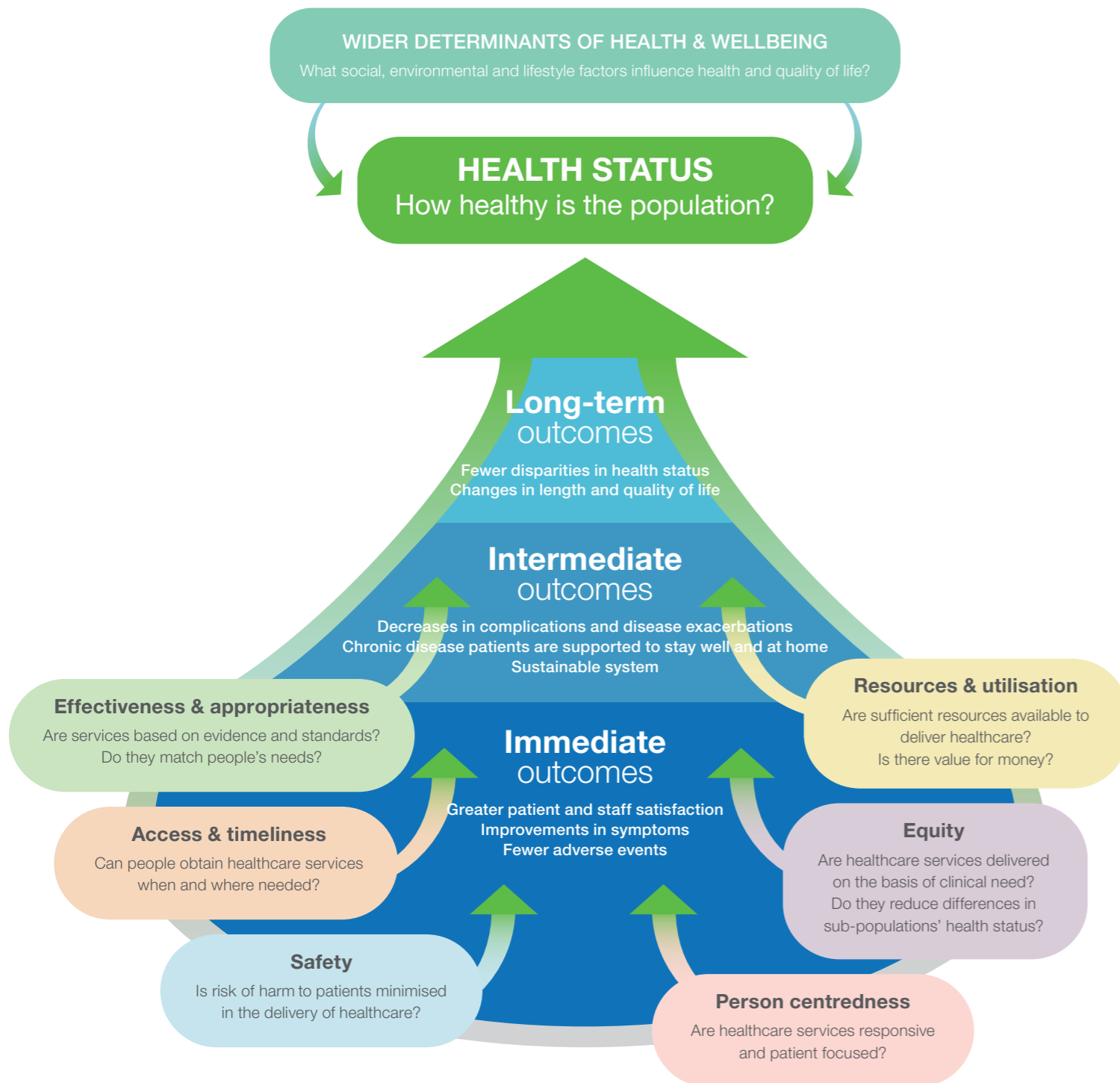
This 2012 edition of *Healthcare in Focus* provides new information on the performance of the NSW healthcare system. It includes some 100 indicators that measure performance in terms of:

- short-term outcomes (such as patient satisfaction, readmissions)
- long-term outcomes (such as mortality and potential years of life lost)
- process measures (such as compliance with evidence-based guidelines)
- structural measures (such as availability of required infrastructure and resources).

NSW results are reported alongside data for Australia and for 10 other countries (where available).

Indicators were selected on the basis of validity, relevance, comparability and data availability.

Figure 1.1: The Bureau of Health Information's performance framework: a guide for understanding and evaluating the NSW healthcare system



### The Bureau of Health Information's performance framework

The Bureau, drawing on international and national efforts to define and measure 'high performance' in healthcare, developed a conceptual framework to guide its evaluation of the NSW healthcare system.

The framework (Figure 1.1) considers the performance of the healthcare system using six key dimensions – effectiveness and appropriateness; access and timeliness; safety; person centredness; equity; and resources and utilisation.

At its core, it shows population health status, indicating that the overall goal of a healthcare system is to protect and improve health and wellbeing in the community it serves. It also acknowledges that wider determinants of health and wellbeing such as age, sex, socioeconomic circumstance and lifestyle choices impact on health. While these determinants can be influenced by public health and other community interventions, they are largely outside the control of the healthcare system.

### Data sources

*Healthcare in Focus 2012* draws on seven principal sources of data:

Organisation for Economic Co-operation and Development (OECD)

- provided mortality, hospitalisation, procedure and expenditure data for 11 countries.

Australian Bureau of Statistics (ABS)

- provided mortality and potential years of life lost for various causes, NSW and Australia. Data for 2009 are classified as 'revised data' and 2010 data are classified as 'preliminary'.
- provided survey data from the 2010–11 Patient Experience Survey for NSW and Australia.

Australian Institute for Health and Welfare (AIHW)

- provided data on healthcare expenditure in NSW and hospital waiting times.

The Stroke Foundation's National Stroke Audit

The *National Stroke Audit* is used to examine how often evidence-based recommendations are undertaken in clinical practice in Australia. Clinicians at hospitals admitting and treating patients with acute stroke completed the audit between 1 March and 30 June 2011.



### NSW Admitted Patient Data Collection

- The *Admitted Patient Data Collection*, administered by the NSW Ministry of Health, is a census of all admitted patient services provided by public and private hospitals in the state.
- For a subset of indicators, the Bureau accessed linked patient data, provided by the *Centre for Health Record Linkage* (CHeReL).

### NSW Health Patient Survey 2011

Data from the *NSW Health Patient Survey* were analysed by Bureau staff to explore state-level variation in patient experiences and views.

### Commonwealth Fund International Health Policy Survey

In order to try to place the *NSW Health Patient Survey* data in an international context, data from the *Commonwealth Fund International Health Policy Survey* are included. The 2010 survey included all adults and the 2011 survey was focused on *'sicker adults'* - people who met at least one of the following criteria:

- Described their overall health as *fair* or *poor*
- Received medical care in the previous year for a serious or chronic illness, injury or disability
- Had been hospitalised in the previous two years (for any reason other than childbirth)
- Had surgery in the previous two years.

### International Classification of Disease (ICD)

Much of the information contained in *Healthcare in Focus* relies on an international system for describing and classifying the reasons for hospital care. This system – the *International Classification of Disease (ICD)* allows for fair comparisons to be made across jurisdictions statewide, nationally and internationally. The tenth version of ICD coding (ICD-10) is currently in use throughout the Australian healthcare system.

Fuller descriptions of data sources and statistical analyses undertaken by the Bureau are available in the *Technical Supplement: Healthcare in Focus 2012* (see [www.bhi.nsw.gov.au](http://www.bhi.nsw.gov.au)).

### Interpreting this report

*Healthcare in Focus 2012* sets the performance of the NSW healthcare system alongside Australia and 10 other countries. While international benchmarks provide context to interpret NSW performance, there are a number of factors which must be considered in making international comparisons.<sup>3</sup> **Figure 1.1** outlines those factors and approaches used in this report to minimise their effect.

The report illustrates the extent of variation across the state's hospitals. Data are standardised (on the basis of age, sex and in some cases, comorbidity) in order to make fair comparisons.

Taken together, the indicators in this report provide a multifaceted view of performance in the NSW healthcare system. Individually however, indicators are not diagnostic of quality. Where there are apparent differences in performance, either at state-or hospital-level, these should act as a signal that a problem may exist and further investigation is required.

**Figure 1.1:** Limitations of international health data comparisons and the approach taken in *Healthcare in Focus 2012*

| Factors affecting international comparisons                                       | <i>Healthcare in Focus 2012</i> approach to international comparisons  |
|---|--|
| Inconsistent data definitions across countries may lead to misleading conclusions | Indicators were drawn from the OECD database and BHI analysis used data definitions published by the OECD.   |
| Differences in data collection  | Comparator countries, in general, use consistent data collection methods (e.g. mandatory death registration; administrative hospital databases).   |
| Variation in data coverage  | For measures based on hospitalisations, mortality, total expenditure and international surveys, data from the public and private sectors are included to ensure consistency with comparator countries. (Where possible, data are disaggregated into public and private sector within NSW). |
| Inconsistencies in time periods used for data collection / reporting              | Small variations, such as variability in the definition of a financial year occur in the international data. There is often a 2–3 year difference across countries in the most recent available data. Such inconsistencies are clearly labelled.   |
| Choice of comparator countries  | Consistent with previous years, this report uses as comparators, the 11 countries participating in the <i>Commonwealth Fund's International Health Policy Survey</i> . All are <i>'high income'</i> countries with well developed healthcare systems.                                      |
| Differences in age distribution   | Where appropriate, NSW data were standardised to the reference OECD population, in the same way as all other comparator countries.   |

# Health status

## Circulatory disease accounts for most deaths overall and cancer for most years of life lost prematurely

Health status measures often reflect actions, behaviours and treatments that take years, or even decades, to have a discernible impact. Health status indicators include:

- **deaths**, life expectancy and mortality rates
- **health conditions**, such as prevalence of diseases, injuries or disorders
- **function**, such as activity limitations and restrictions
- **wellbeing** including physical, mental and social wellbeing.<sup>4</sup>

Health status is affected by the healthcare system but also by wider determinants of health and wellbeing. Health behaviours play a particularly important role in influencing the risk of developing a serious illness and preserving health and wellbeing. In NSW, patterns over time show an increase in rates of obesity and overweight. More positively, there has been an increase in self-reported levels of physical activity and a decrease in smoking rates.<sup>5</sup>

In 2010–11, according to the Australian Bureau of Statistics (ABS), six in 10 people aged 15 years or over (60%) described their health as excellent or very good, and fewer than two in 10 (14%) described their overall health as fair or poor (Figure 1.2).

People are living longer and mortality rates from the most common cancers and circulatory diseases (heart and blood vessel) continue to fall.<sup>5</sup> In 2010, circulatory diseases were the most commonly recorded cause of death, followed by cancer (Figure 1.3). In terms of premature mortality however, cancer caused the most potential years of life lost before the age of 70 years (Figure 1.4).

For comprehensive information about the health of the people of NSW, visit the *Health Statistics* page on the *NSW Ministry of Health* website ([www.health.nsw.gov.au](http://www.health.nsw.gov.au)).

Figure 1.2: Self reported health status (people aged 15+ years), NSW, 2010–11<sup>B</sup>

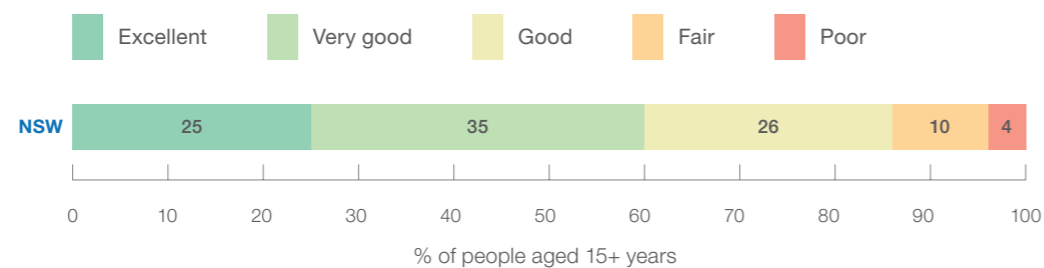


Figure 1.3: Most frequent causes of death (standardised mortality rates), NSW, 2010<sup>(T)</sup>

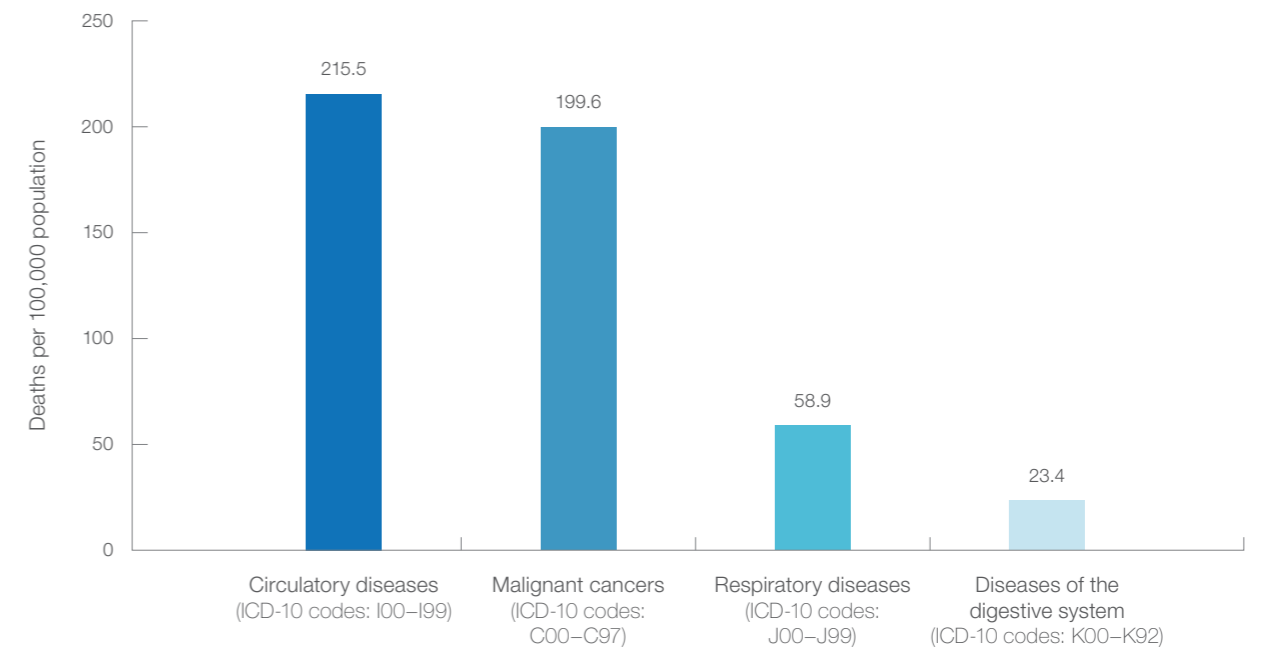
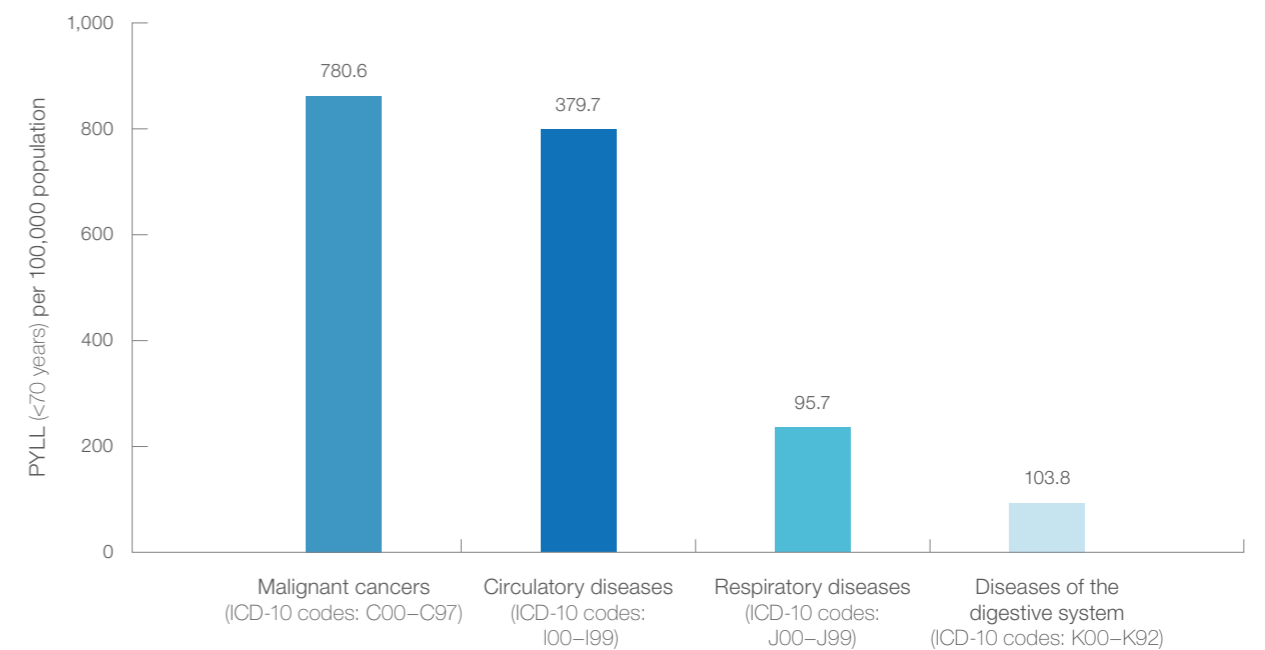


Figure 1.4: Most frequent causes of premature mortality, measured as potential years of life lost, NSW, 2010<sup>(T)</sup>



(B) Australian Bureau of Statistics, *Patient Experience Survey, 2010–11*.  
 (T) Australian Bureau of Statistics 2010 figures are subject to further revision. Data are age and sex standardised to the 2010 OECD population. Potential years of life lost is a summary measure of premature mortality, calculated by totalling differences between the age at death and any remaining years of life up to a selected age limit, which for OECD analyses is 70 years.

# Effectiveness

Gauging whether services are appropriate and based on professional standards and evidence

High performance healthcare systems provide care that is both effective and appropriate.

**Effectiveness** refers to the use of medical treatments, services and preventive care that are known to improve health. This chapter includes effectiveness indicators for high prevalence or high-impact diseases such as cancer, circulatory disease, diabetes and mental health conditions. The indicators focus on *outcomes* and *processes* of care.

**Appropriateness** indicators measure whether effective care is delivered in accordance with patients' needs. Following a groundbreaking

study<sup>1</sup> which found American patients received 55% of recommended care, researchers estimated that Australian patients received appropriate care in 57% of their encounters.<sup>2</sup>

While there are pockets of excellence, appropriate care is not uniformly provided. Appropriateness measures quantify: **Underuse** (effective care is not provided despite being medically necessary or of proven benefit to patients); **Overuse** (care is provided when it is not medically necessary); **Misuse** (care is not provided correctly or is suboptimal because of a preventable problem such as medical error, misdiagnosis or avoidable complication).

## How well does NSW perform?

| International and national comparisons  | NSW performed better than:   | NSW performed worse than:           |
|---|--|-------------------------------------|
| One in 10 people hospitalised for heart attack (AMI) died within 30 days of admission.                                | Sweden, United Kingdom and Netherlands   | New Zealand                         |
| 15.5% of people hospitalised for ischaemic (clot-based) stroke died within 30 days of admission.                      | United Kingdom   | New Zealand, Netherlands and Sweden |
| NSW recorded a standardised rate of 23 hospitalisations for short term diabetes complications per 100,000 population. | New Zealand and United Kingdom   | Germany, Sweden, Canada and Norway  |
| In 2010, NSW people lost 781 potential years of life (<70 years) per 100,00 population to cancer.                     | Canada, France, Germany, Norway, New Zealand, Netherlands, Switzerland, United States and United Kingdom | Sweden                              |

## Variation within NSW

The standardised 30-day mortality rate after heart attack across NSW public hospitals ranged from five to 26 deaths per 100 patients.

The standardised 30-day mortality rate after ischaemic (clot-based) stroke across NSW public hospitals ranged from eight to 31 deaths per 100 patients.

There is wide variation across NSW public hospitals in the delivery of important aspects of stroke care.

## Circulatory disease

### Premature deaths from circulatory disease continue to fall

The circulatory system moves blood around the body. Diseases of the circulatory system (also called cardiovascular diseases) are primarily caused by atherosclerosis (hardening of the arteries). Atherosclerosis is most serious when it disrupts the blood supply to the heart (causing angina or heart attack) or to the brain (causing stroke).

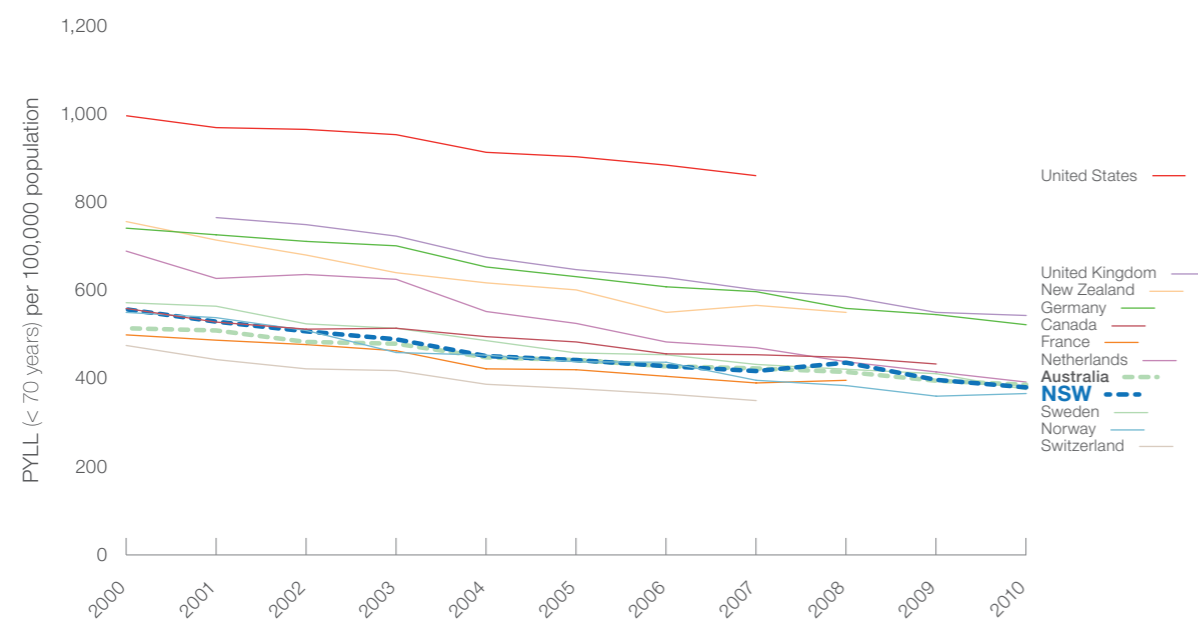
In 2010, circulatory disease accounted for 15,587 deaths in NSW (33% of all deaths), compared to 18,351 in 2000 (40% of all deaths).<sup>3</sup>

Circulatory diseases remain the most frequent cause of death among NSW people (see page 7). In terms of premature mortality, there was a 32% decrease in potential years of life lost to circulatory disease in NSW between 2000

and 2010. In international comparisons, NSW performs well. Fewer years of life were lost in NSW than in almost all other comparator countries (Figure 2.1).

In order to explore performance in more detail, the following pages focus on two important types of circulatory disease – heart attack (also called acute myocardial infarction or AMI) and stroke. Data are presented on premature mortality, deaths within 30 days of hospitalisation, and for stroke, the provision of evidence-based processes of care. Stroke data are contextualised with data from the United Kingdom which conducts a comparable stroke audit.

Figure 2.1: Potential years of life lost (<70 years), circulatory disease, 2000 – 2010<sup>e</sup>



(e) OECD, *OECD Health Data 2012*. For NSW and Australia data were extracted from HOIST (1999 – 2007) and ABS (2007 – 2010). ABS 2009 – 2010 figures are subject to further revision. Data are age-sex standardised to the 2010 OECD population. Potential years of life lost is a summary measure of premature mortality, calculated by totalling deaths at each age, multiplying that by the number of remaining years of life up to a selected age limit, which for OECD analyses is 70 years.

### Focusing within circulatory disease: Heart attack (AMI) and stroke

#### Heart attack (AMI)

A heart attack occurs when the blood supply to part of the heart is interrupted. The interruption is most commonly due to a coronary artery affected by atherosclerosis. The disruption to cardiac blood flow results in death of heart cells and if blood supply is not restored quickly, the heart muscle suffers permanent damage.

#### Stroke

A stroke, also known as a cerebrovascular accident, occurs when a blood vessel that carries oxygen and nutrients to the brain either gets blocked by a clot (an ischaemic stroke) or ruptures and bleeds (a haemorrhagic stroke). As a result, the area of the brain supplied by the blood vessel is damaged or dies. The severity and consequences of stroke vary dramatically, from a limited episode known as a transient ischaemic attack (TIA) or 'mini-stroke', with no persistent consequences, to a severe incident that causes death or disability.

Around eight in 10 strokes are ischaemic and two in 10 are haemorrhagic. Despite having the same symptoms, ischaemic and haemorrhagic strokes require very different treatment. For example, anticoagulation drugs that reduce the clotting ability of the blood, and 'clot-busting' thrombolysis treatments are often indicated in ischaemic stroke cases. However, these treatments could worsen the condition of patients with haemorrhagic strokes. Timely imaging to determine the nature of the stroke is therefore critically important in stroke care.

#### Shared risk factors

All circulatory diseases share a number of risk factors – factors that increase the likelihood of developing the conditions.<sup>4</sup> There are two types of risk factors: 'modifiable' which can be changed by altering behaviour and 'non-modifiable' which cannot be changed.

Modifiable risk factors include:

- Smoking
- High total blood cholesterol
- High blood pressure
- Poorly controlled diabetes
- Being physically inactive
- Being overweight
- Harmful use of alcohol
- Depression, social isolation and a lack of social support.

Non-modifiable risk factors include:

- Increasing age
- Being male
- Having a family history of circulatory disease.

For comprehensive information about the prevalence of risk factors in the NSW population, visit the *Health Statistics* page on the *NSW Ministry of Health* website ([www.health.nsw.gov.au](http://www.health.nsw.gov.au)).

## Deaths after heart attack: international comparison

### Ten per cent of people admitted for heart attack died within 30 days

In 2010, heart attacks accounted for 3,472 deaths in NSW (7% of all deaths), compared with 5,010 deaths in 2000 (11% of all deaths).<sup>3</sup> In terms of premature mortality, there was a 47% decrease in potential years of life lost to heart attacks in NSW between 2000 and 2010. Fewer years of life were lost in NSW than in other countries (Figure 2.2).

A different way of measuring outcomes for heart attack patients is to look at deaths within 30 days of hospitalisation. This includes deaths, for any reason, in or out of hospital. Ten per cent of people admitted to hospital with a heart attack in NSW died within 30 days of admission. NSW results are better than three of the four comparator countries that have data available (Figure 2.3).

In 2010–11 there were 14,024 hospitalisations (public and private) with a principal diagnosis of heart attack in NSW. This represented a rate of 195 hospitalisations per 100,000 population (Figure 2.4).

NSW had a larger proportion of its population hospitalised for heart attacks than both the United Kingdom and the Netherlands. However as Figure 2.3 shows, compared to those two countries, heart attack patients in NSW were less likely to die within 30 days.

Figure 2.2: Potential years of life lost (<70 years), heart attack, 2000 – 2010<sup>e</sup>

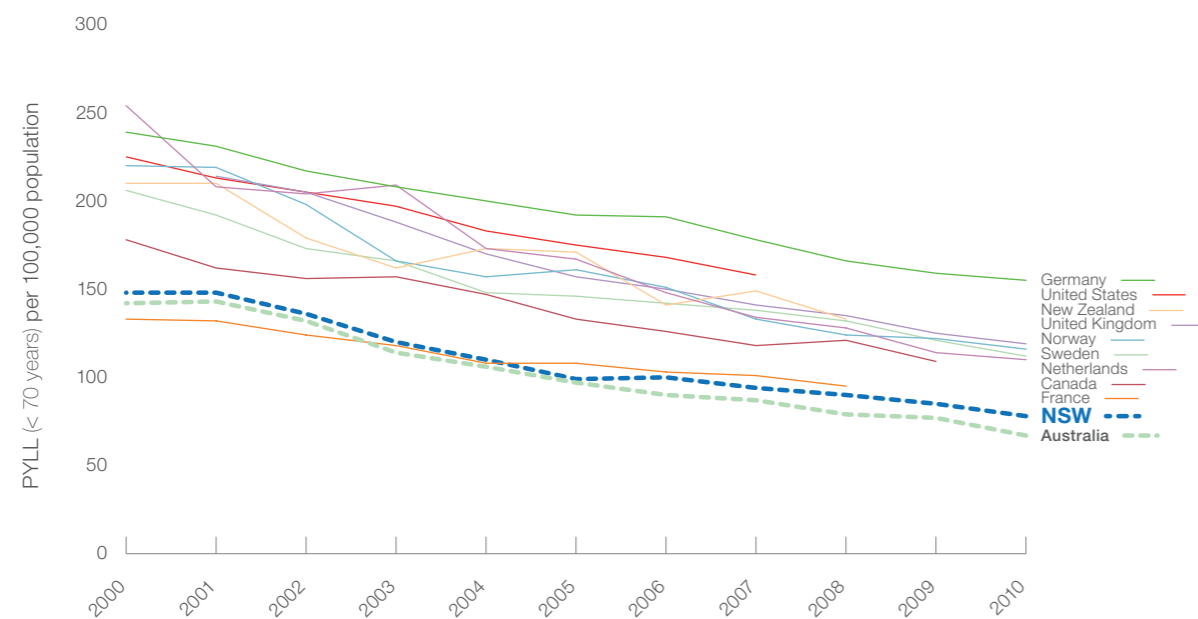


Figure 2.3: Deaths within 30 days of hospitalisation (public and private) with a heart attack (crude rates %), 2009–10 (or latest year)<sup>e †</sup>

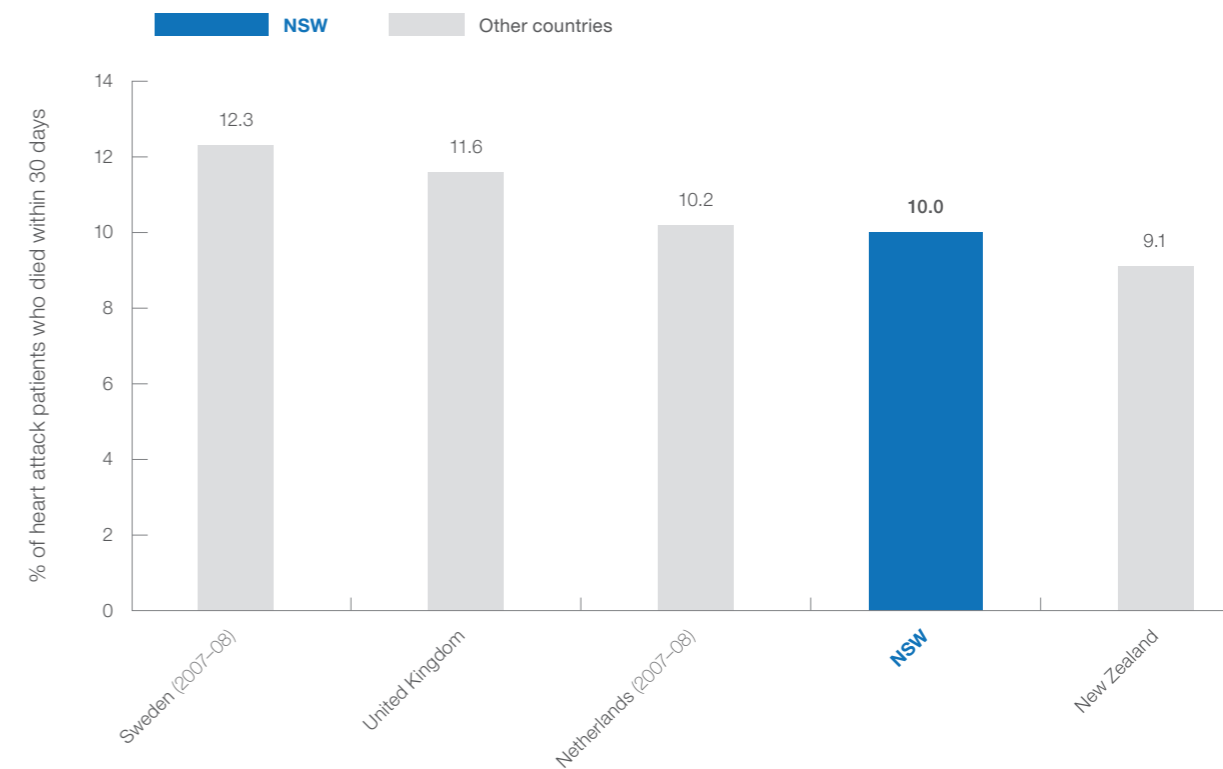


Figure 2.4: Number and rate of hospitalisations (public and private) for heart attack (AMI), 2010–11 (or latest year)<sup>e</sup>

|   | Sweden | United Kingdom | Netherlands (2009–10) | NSW    | New Zealand |
|---|--------|----------------|-----------------------|--------|-------------|
| Number of AMI hospitalisations          | 30,559 | 88,043         | 25,351                | 14,024 | 11,946      |
| Hospitalisations per 100,000 population | 326    | 142            | 153                   | 195    | 274         |

(e) OECD, *OECD Health Data 2012*. For NSW and Australia data were extracted from HOIST (1999 – 2007) and ABS (2007 – 2010). ABS 2009 – 2010 figures are subject to further revision. PYLL data are age-sex standardised to the 2010 OECD population. Potential years of life lost is a summary measure of premature mortality, calculated by totalling deaths at each age, multiplying that by the number of remaining years of life up to a selected age limit, which for OECD analyses is 70 years.  
 (†) 30-day mortality includes deaths from any cause, in or out of hospital.

# Managing heart attacks in NSW

## Death rates within 30 days of a heart attack vary across NSW

Between July 2009 and June 2011, there were 24,132 people hospitalised with a heart attack as principal diagnosis in NSW. Of these, 2,431 (10.1%) people died within 30 days of their last hospitalisation. This NSW rate of 30-day mortality after admission for a heart attack (10.1%) is relatively low internationally (see page 13).

The Bureau calculated hospital level 30-day mortality rates after heart attack, standardised for patients' age, sex and comorbidity\* using the direct standardisation method. This is a variant of the OECD methodology (see Box on this page). Across the state's public hospitals, the standardised 30-day mortality rate ranged from five to 26 deaths per 100 patients (a five-fold variation) (Figure 2.5).

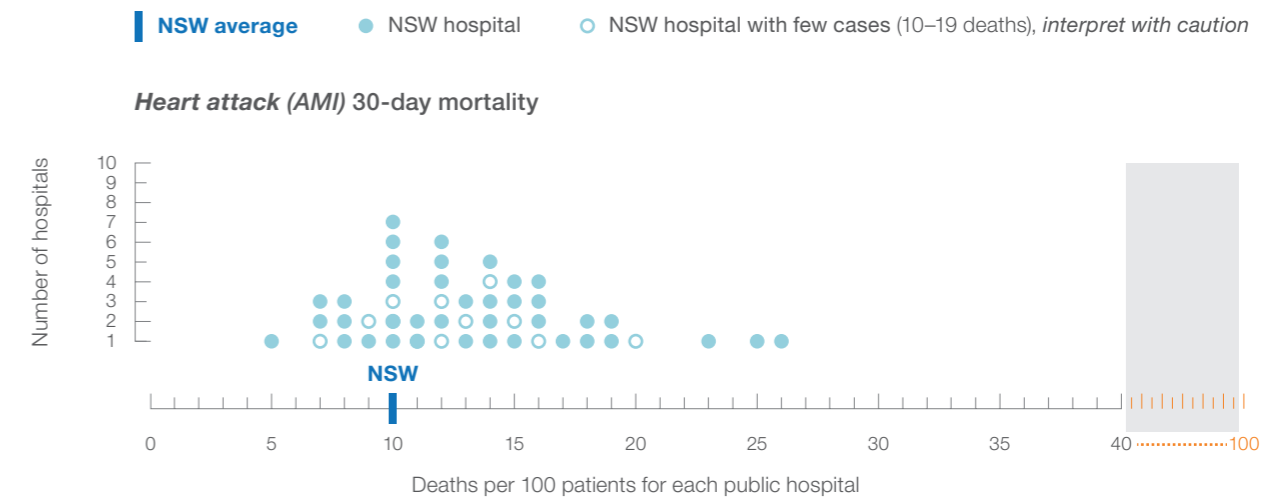
The extent of variation within NSW using age-sex-comorbidity standardised rates suggests that there may be opportunities to improve care and further investigation at a local and system level is warranted.

Currently, there is no inter-jurisdictional consensus on the most appropriate method to compare hospital performance in 30-day mortality rates. The Bureau plans in early 2013 to undertake in-depth analysis of hospital-level variation in 30-day mortality rates, comparing methods currently in use and conducting analyses of their sensitivity to a range of patient-level and hospital-level factors. This work is necessary before the Bureau can consider reporting the performance of individual hospitals.

### 30-day mortality analyses

- These analyses are based on OECD methods which differ from 30-day mortality methods published by the *Australian Commission on Safety and Quality in Health Care*.<sup>5</sup>
- The OECD attributes deaths to the last hospital in which the patient was hospitalised for heart attack prior to death. It reports crude and age and sex directly standardised 30-day mortality rates for deaths in and out of hospital where available; and *'in hospital only'* for jurisdictions without linked data.
- Some jurisdictions attribute deaths to the first hospital to which patients were admitted for a heart attack. Others exclude all transfers in 30-day mortality calculations. Sensitivity analyses indicated that adopting different attribution approaches did not alter the extent of variation across NSW hospitals.
- Data are drawn from the *NSW Admitted Patient Data Collection* and rely on the accuracy and completeness of data supplied by individual hospitals; and on diagnostic accuracy.

Figure 2.5: **NSW variation by hospital** - death within 30 days of hospitalisation with heart attack (AMI), age, sex and comorbidity standardised, July 2009 to June 2011<sup>(=)</sup>



(=) HOIST. 30-day mortality includes deaths from any cause, in or out of hospital. Hospitals with <50 hospitalisations or <10 deaths within 30 days of hospitalisation are not shown. Deaths are counted against the latest hospital in the admission (analysis by BHI).

\* Co-existing diseases as measured by the Charlson index in three categories.

# Deaths after stroke

## Variation in deaths within 30 days of stroke hospitalisation

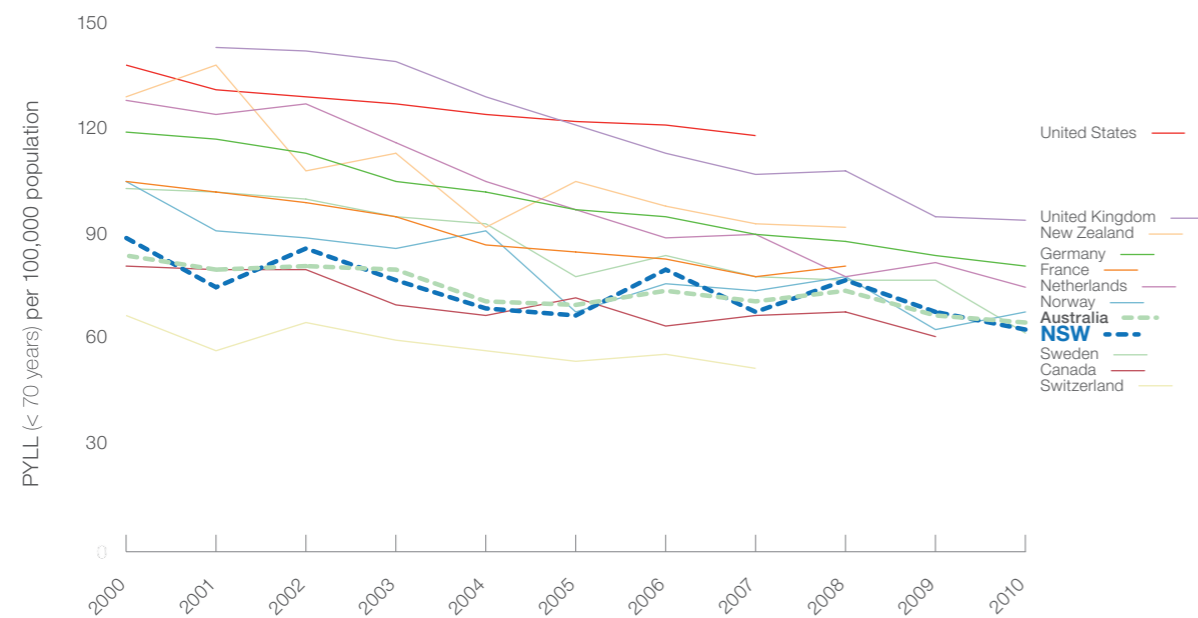
In 2010, stroke accounted for 3,997 deaths in NSW (8% of all deaths), compared with 4,713 deaths in 2000 (10% of all deaths).<sup>3</sup> In terms of premature mortality, there was a 30% decrease in potential years of life lost to stroke in NSW between 2000 and 2010. Fewer years of life were lost prematurely in NSW than in almost all other countries (Figure 2.6).

Deaths within 30 days of stroke hospitalisation include deaths for any reason, in or out of hospital. In 2009–10, 15.5% of NSW people hospitalised (public and private) for ischaemic stroke died within 30 days, a lower percentage than in the United Kingdom only. For haemorrhagic stroke, 30-day mortality in NSW (29.8%) was lower than in three countries (Figure 2.7).

The Bureau calculated hospital level 30-day mortality rates after an ischaemic stroke, standardised for patients' age, sex and comorbidity using the direct standardisation method. This is a variant of the OECD methodology (see Box on page 14). Rates ranged from eight to 31 deaths per 100 patients, a four-fold variation across NSW public hospitals (Figure 2.8).

For haemorrhagic stroke, the standardised 30-day mortality rates showed a two-fold variation across NSW public hospitals, ranging from 20 to 43 deaths per 100 patients (Figure 2.9).

Figure 2.6: Potential years of life lost (<70 years), cerebrovascular disease (stroke), 2000 – 2010<sup>e</sup>



(e) OECD, *OECD Health Data 2012*. For NSW and Australia data were extracted from HOIST (1999 – 2007) and ABS (2007 – 2010). ABS 2009 – 2010 figures are subject to further revision. PYLL data are age-sex standardised to the 2010 OECD population. Potential years of life lost is a summary measure of premature mortality, calculated by totalling deaths at each age, multiplying that by the number of remaining years of life up to a selected age limit, which for OECD analyses is 70 years.  
 (≠) HOIST. 30-day mortality includes deaths from any cause, in or out of hospital. Hospitals with <50 hospitalisations or <10 deaths within 30 days of hospitalisation are not shown. Deaths are counted against the latest hospital in the admission.

Figure 2.7: Death within 30 days of hospitalisation (public and private) with stroke (crude rates), ischaemic and haemorrhagic stroke, 2009–10 (or latest year)<sup>e,≠</sup>

|                     | NSW  | New Zealand | Netherlands (2007–08) | Sweden (2007–08) | United Kingdom |
|---------------------|------|-------------|-----------------------|------------------|----------------|
| Ischaemic stroke    | 15.5 | 13.1        | 11.5                  | 12.7             | 16.3           |
| Haemorrhagic stroke | 29.8 | 34.6        | 34.8                  | 26.0             | 33.3           |

Figure 2.8: NSW variation by hospital - death within 30 days of hospitalisation (public) with ischaemic stroke, age, sex and comorbidity standardised, July 2009 to June 2011<sup>≠</sup>

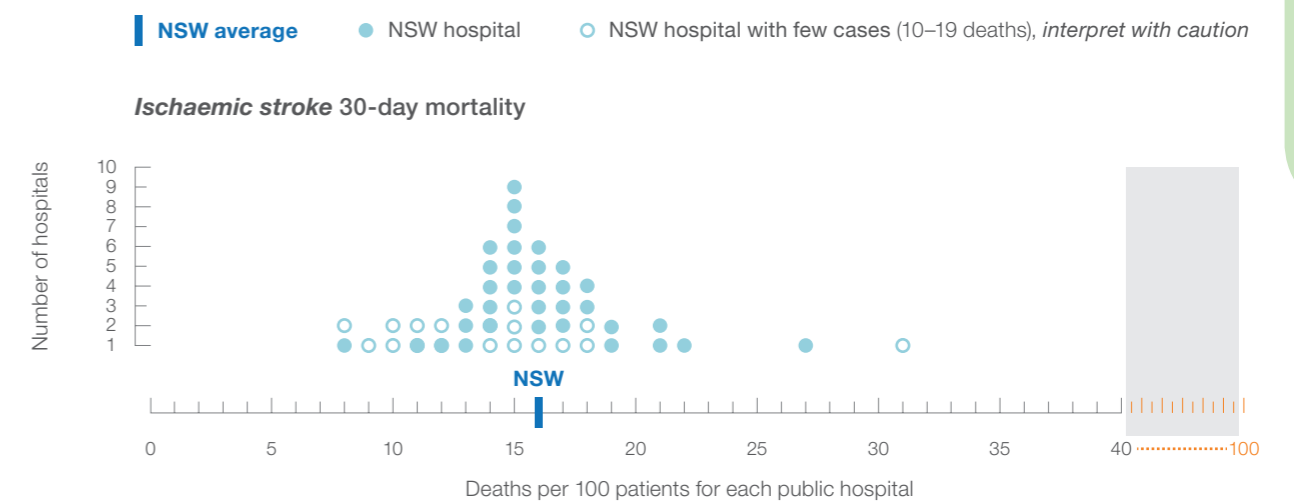
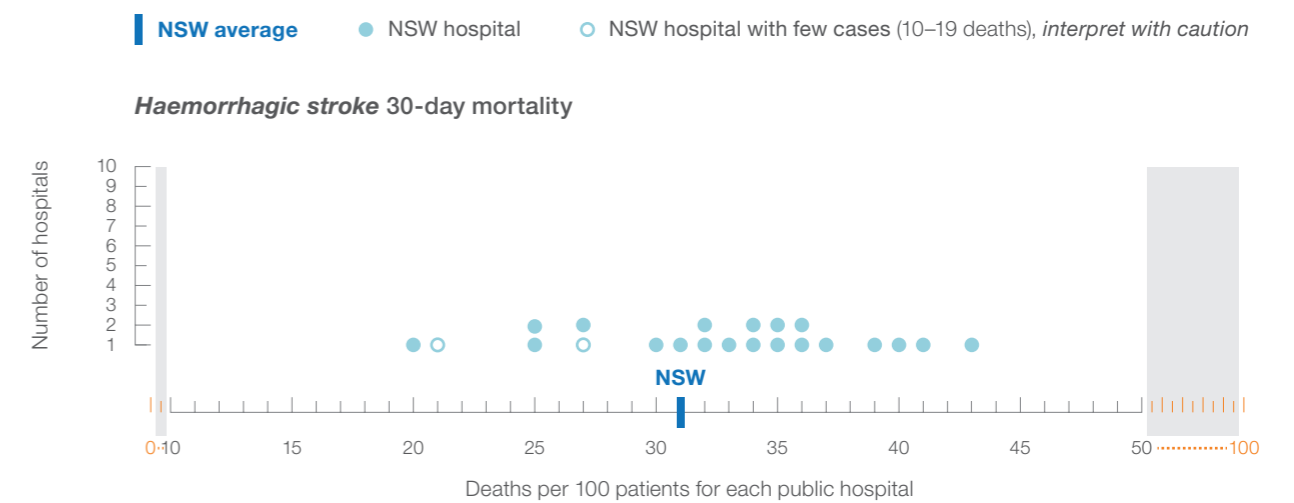


Figure 2.9: NSW variation by hospital - death within 30 days of hospitalisation (public) with haemorrhagic stroke, age, sex and comorbidity standardised, July 2009 to June 2011<sup>≠</sup>



Effectiveness & appropriateness

# Stroke audit: patient assessment processes

## Brain imaging is uniformly delivered, but other assessments vary

There are a number of evidence-based processes that should be used in the assessment of stroke patients.<sup>6</sup> These include:

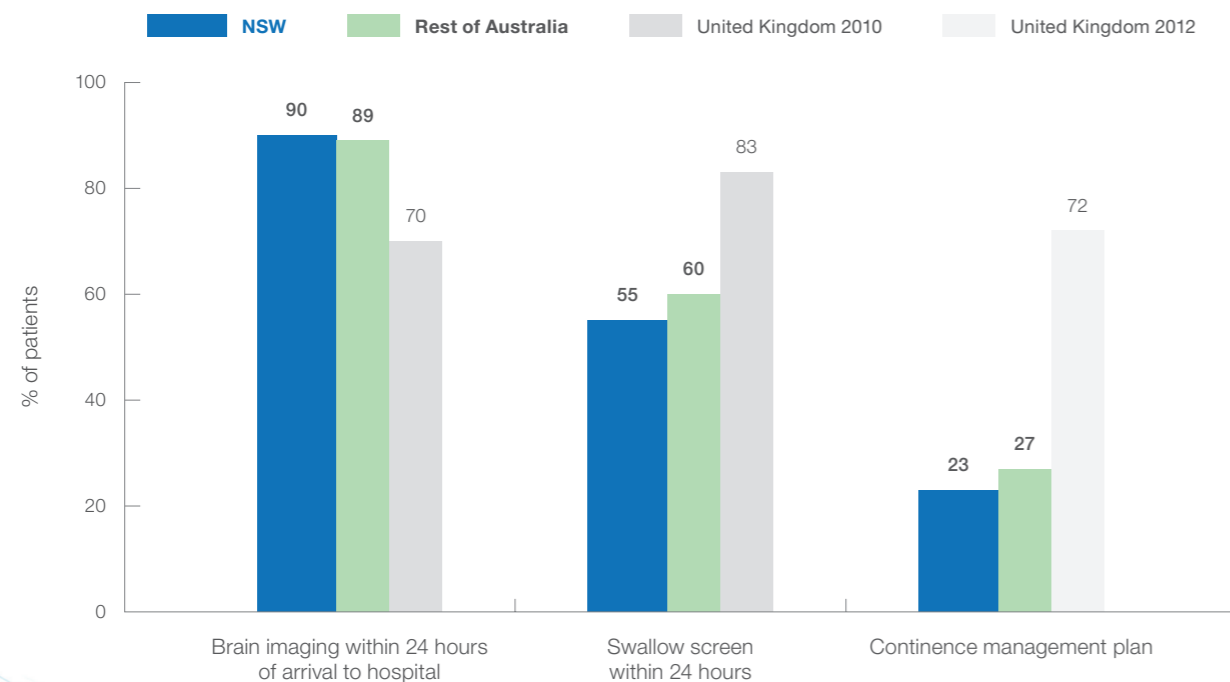
- 1) Patients with a suspected stroke should have brain imaging as soon as possible (within a maximum of 24 hours after the onset of symptoms).
- 2) On admission, people with acute stroke should have their swallowing screened by an appropriately trained healthcare professional before being given any oral food, fluid or medication. This is to minimise problems with swallowing (dysphagia), which are associated with increased risk of aspiration pneumonia, dehydration, malnutrition and poorer clinical outcomes including death, disability and longer length of stay.

- 3) Urinary incontinence is common soon after stroke and is associated with complications, such as depression and increased length of stay. Stroke survivors with continence difficulties should have a continence management plan formulated, documented, implemented and monitored.

Figure 2.10 illustrates data for these three processes, comparing NSW to the rest of Australia and providing international context where available, using data from the *United Kingdom 2010 Sentinel Stroke Audit*.\*

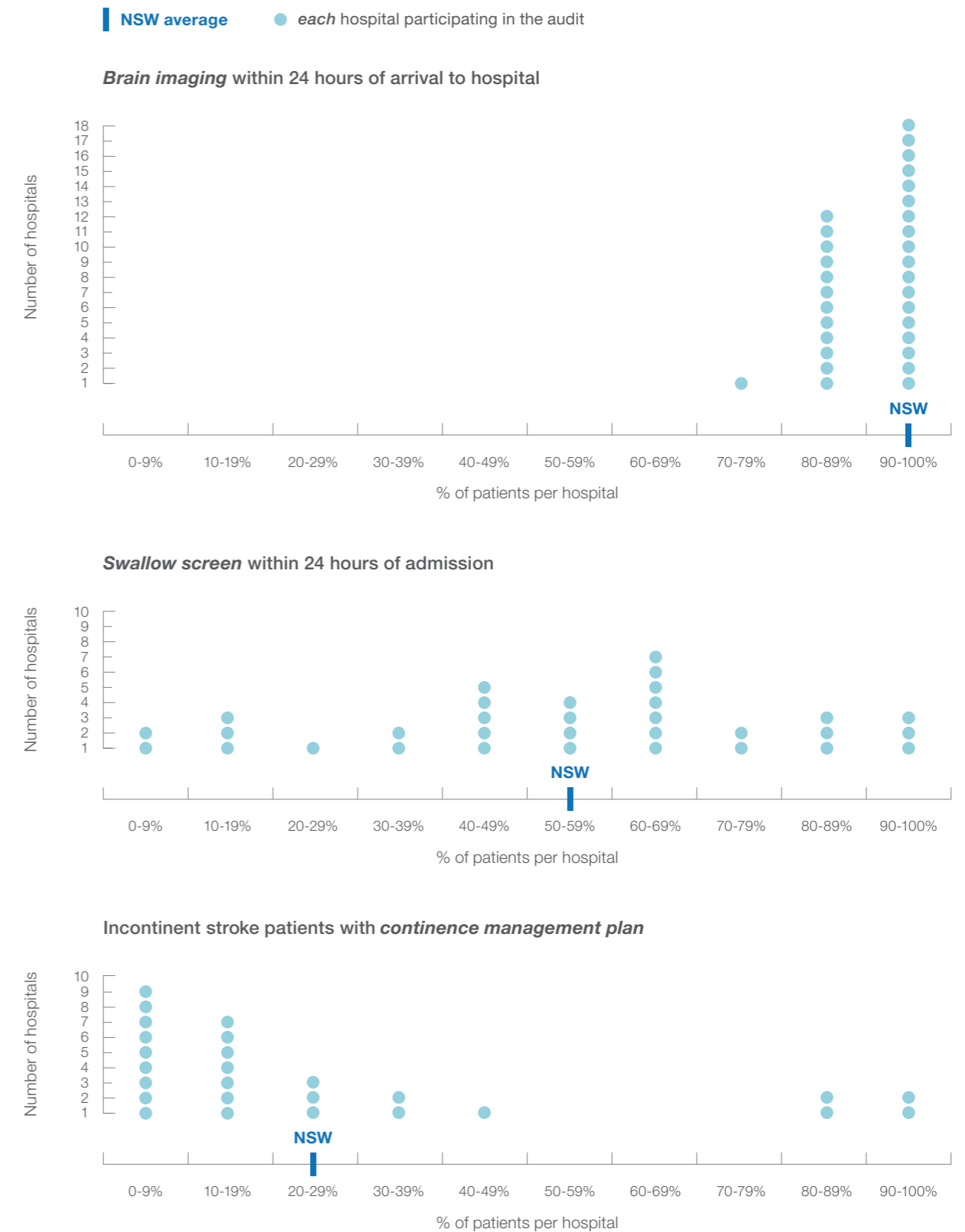
Figure 2.11 illustrates the extent of variation in delivering these processes across NSW hospitals. A substantial number of hospitals recorded swallow screening and incontinence planning for only a minority of their stroke patients.

Figure 2.10: *Stroke audit 2011 - patient assessment processes*<sup>o</sup>



\* The Australian audit is based on the United Kingdom model, and contains corresponding quality measures, allowing for comparison.

Figure 2.11: *NSW variation by hospital - stroke patient assessment processes, 2011*<sup>#</sup>



(o) The Stroke Foundation, *The Stroke Foundation National Stroke Audit 2011* and Royal College of Physicians, *United Kingdom Sentinel Stroke Audit, 2010*. United Kingdom continence data (from 2012 audit; continence plan drawn up within 72 hours).  
 (#) De-identified hospital data were provided by The Stroke Foundation. Hospitals with fewer than 10 cases are not reported.



# Stroke audit: acute care services

## Delivery of acute stroke care varies across the state's hospitals

Stroke is a medical emergency. Prompt treatment saves lives and reduces disability.<sup>6</sup>

Organising hospital services so that specialised stroke unit care is available is critically important in acute stroke management.<sup>6</sup> Stroke unit care is defined as dedicated, co-ordinated care for stroke patients in hospital under a multidisciplinary team who specialise in stroke management. It is associated with reduced levels of death and disability compared with care in general wards.<sup>6</sup>

In NSW, 67% of stroke patients spent some time in a dedicated stroke unit during their stay – a higher proportion than in the rest of Australia but lower than in the United Kingdom (Figure 2.12). However, one-third of NSW stroke patients are not receiving this important service – and variation across NSW hospitals is marked (Figure 2.13).

Aspirin within 48 hours of ischaemic (clot-based) stroke and intravenous 'clot-busting' (thrombolytic) treatment within 4.5 hours of ischaemic stroke onset are also associated with significantly improved outcomes.<sup>6</sup> NSW has room to improve on these measures (Figure 2.12). Some hospitals deliver aspirin treatment to only one-third of eligible stroke patients (Figure 2.13).

Measuring the number (and proportion) of stroke patients with a known time of onset provides information on data quality, and reflects the care with which case histories are taken. This is important because of the time-sensitivity of many of the acute phase treatments. Fewer than half of NSW patients have the time of stroke onset recorded (Figure 2.12) and this varies across the state (Figure 2.13).

Figure 2.12: Stroke audit 2011 - acute care<sup>o</sup>

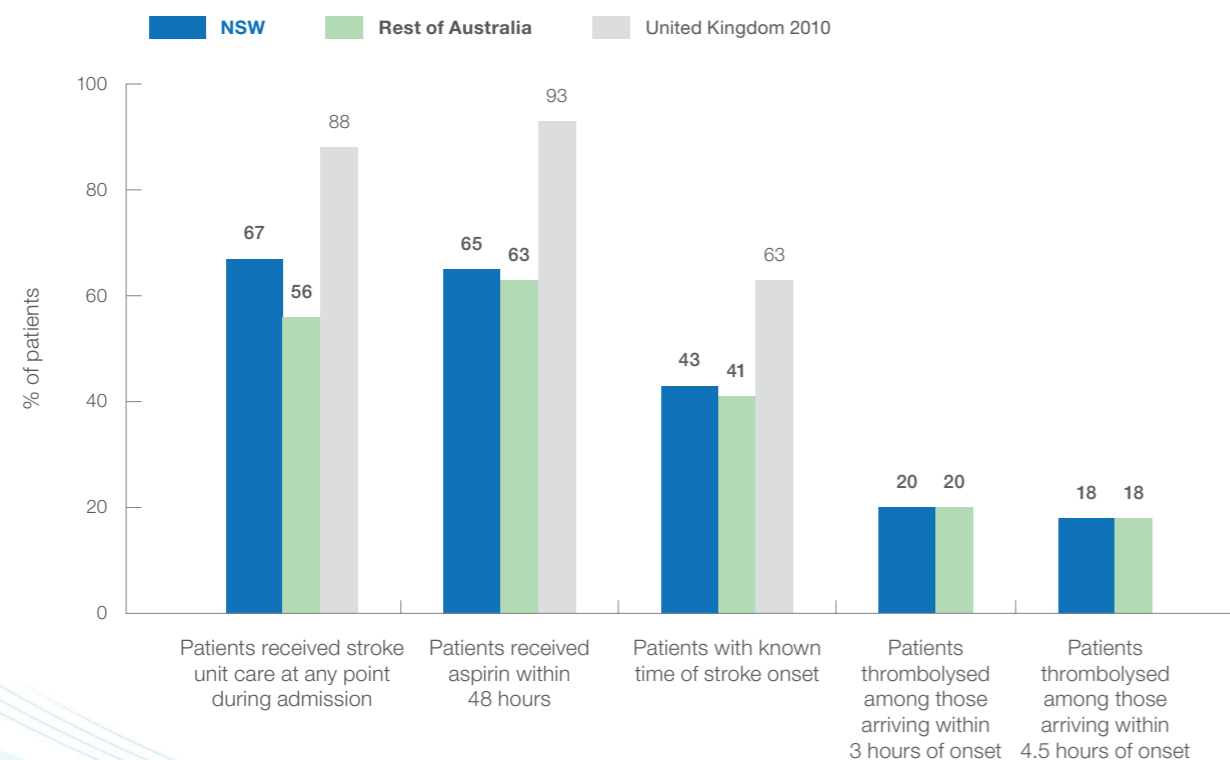
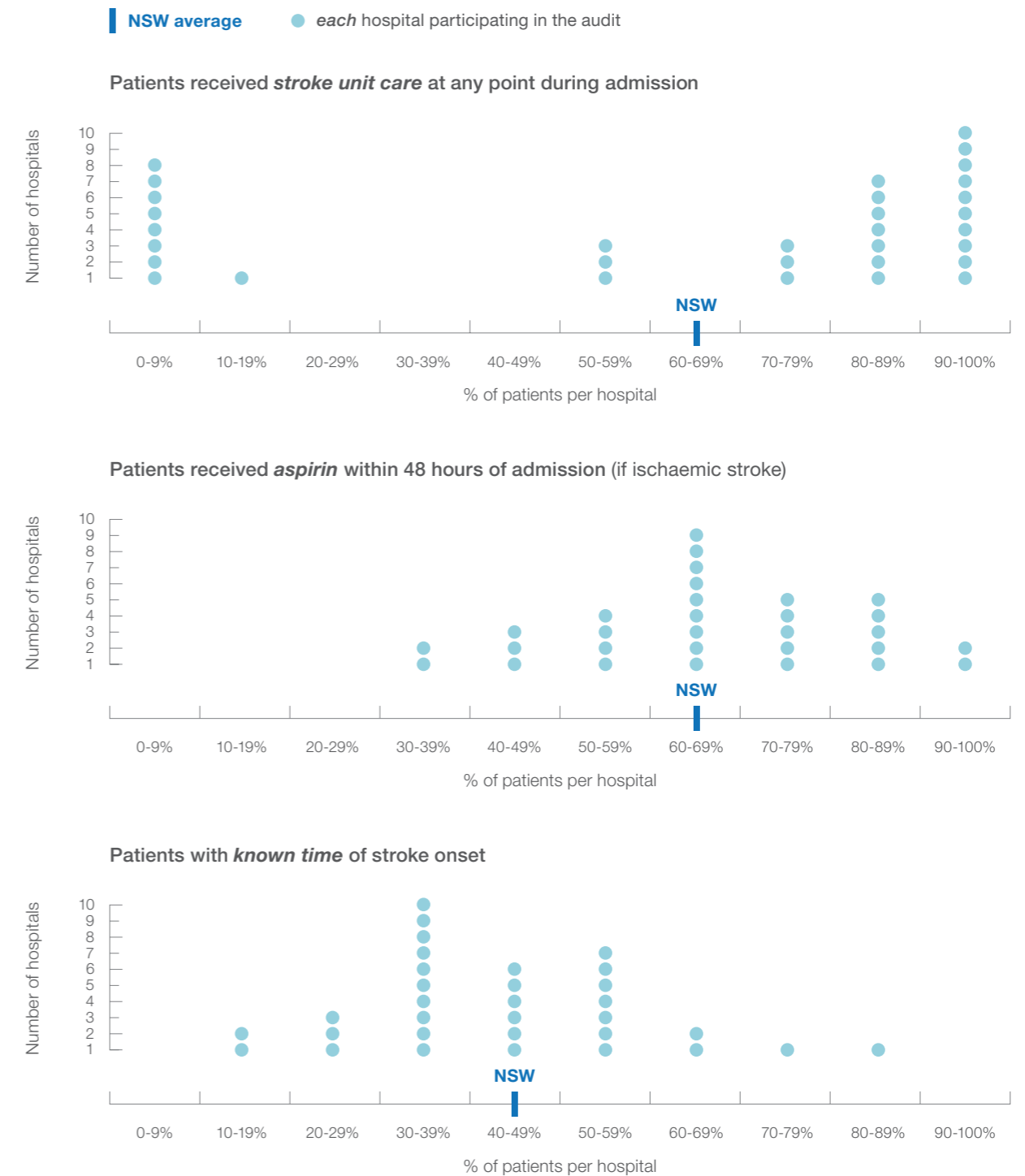


Figure 2.13: NSW variation by hospital - acute stroke care, 2011<sup>#</sup>



(o) The Stroke Foundation, The Stroke Foundation National Stroke Audit 2011 and Royal College of Physicians, United Kingdom Sentinel Stroke Audit, 2010.  
 (#) De-identified hospital data were provided by The Stroke Foundation. Hospitals with fewer than 10 cases are not reported.

Effectiveness & appropriateness

# Stroke audit: multidisciplinary care

## Room for improvement in multidisciplinary stroke care

Stroke is a condition that causes a wide range of disabilities and functional impairments. The *Clinical Guidelines for Stroke Management 2010*<sup>6</sup> recommend that all assessments should occur soon after admission and ideally within two days.

Figure 2.14 shows the proportion of stroke patients who:

- met with the multidisciplinary team to discuss assessment results, treatment plans and goals
- had physiotherapy, occupational therapy, speech therapy or dietician assessment within 48 hours of admission.

According to the stroke audit data on multidisciplinary care, NSW and the rest of Australia are outperformed by the United Kingdom across all measures shown.

In NSW, timely access to multidisciplinary stroke care is far from universal. Figure 2.15 illustrates the extent of variation in different elements of multidisciplinary stroke care across NSW hospitals. A substantial number of NSW hospitals provide timely services to only a minority of patients. Provision of occupational therapy assessment and dietician assessment within 48 hours of admission across the state's hospitals is particularly low.

Figure 2.14: *Stroke audit 2011 - multidisciplinary care*<sup>6</sup>

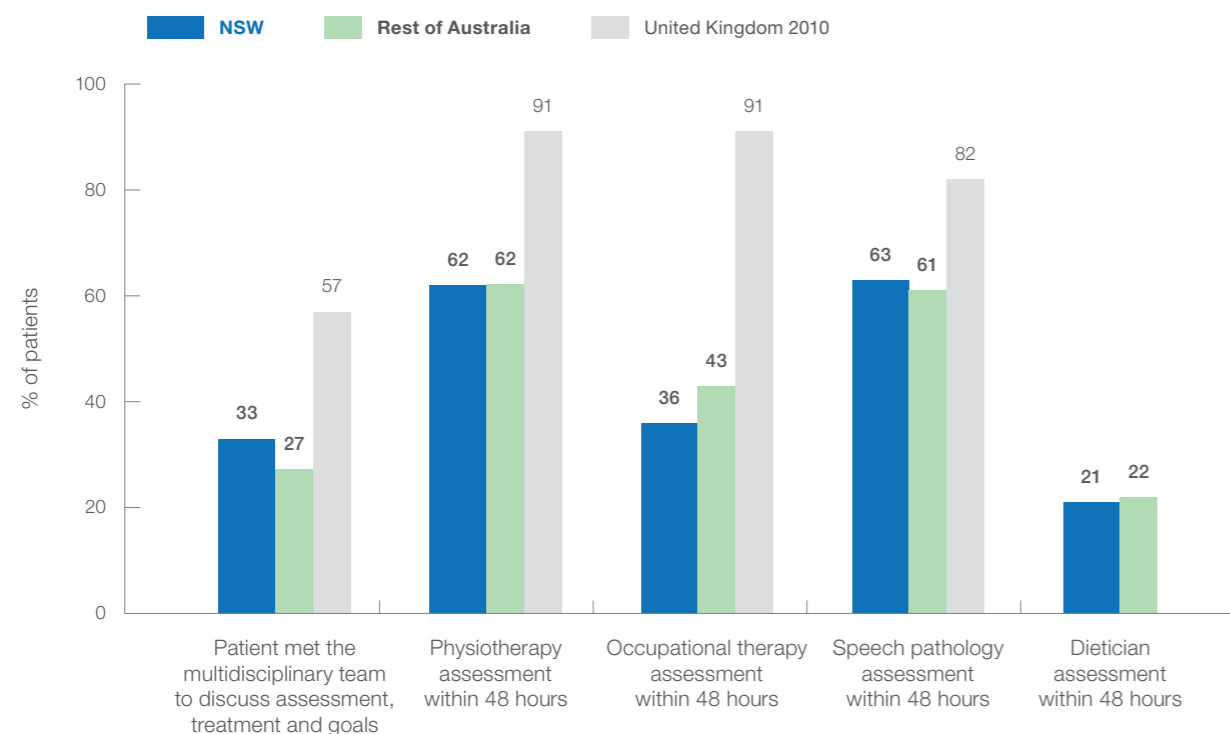
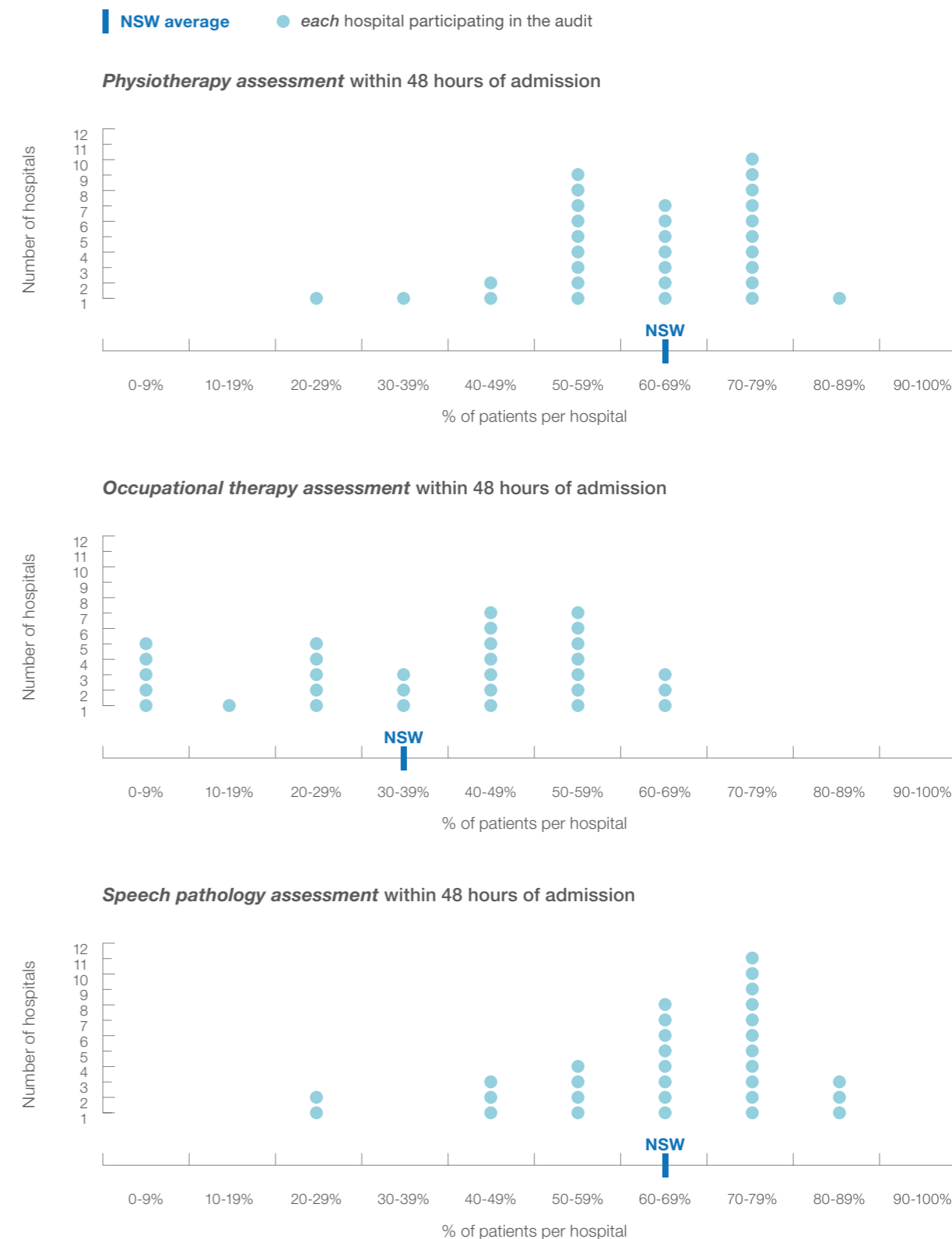


Figure 2.15: *NSW variation by hospital - multidisciplinary stroke care, 2011*<sup>#</sup>



(6) The Stroke Foundation, *The Stroke Foundation National Stroke Audit 2011* and Royal College of Physicians, *United Kingdom Sentinel Stroke Audit, 2010*.  
 (#) De-identified hospital data were provided by The Stroke Foundation. Hospitals with fewer than 10 cases are not reported.

Effectiveness & appropriateness

# Cancer in NSW

## Premature mortality continues to fall

Cancer is characterised by uncontrolled growth and spread of abnormal cells. In 2008, 36,611 NSW people (20,873 males and 15,738 females) were diagnosed with cancer.<sup>7</sup>

In 2010, there were 14,098 cancer deaths (malignant neoplasms)<sup>8</sup>, and 97,732 hospitalisations (public and private) with cancer as the principal diagnosis (see page 86).

Potential years of life lost (PYLL) to cancer in NSW fell by 17% between 2000 and 2010. Internationally, NSW performs well, with one of the lowest rates of PYLL (Figure 2.16).

Cancer is, in essence, a group of different diseases. Cancers of the prostate, bowel, breast, skin and lung are the most common in NSW. Figure 2.17 shows NSW data on PYLLs for these cancer types. Over the period 2000 – 2010, there was a decrease in the years of life lost from all of these cancers. Colorectal (bowel) cancer saw the steepest decrease (36%).

The Cancer Institute NSW collates, analyses and reports on cancer data for the state. Key statistics are shown in the 'Key facts from the Cancer Institute NSW' box on this page.

### Key facts from the Cancer Institute NSW

- About 38,872 people will be diagnosed with cancer in 2011.
- This number is expected to *increase* to 50,967 by 2021.
- Cancer still kills more than 13,500 people in NSW every year.
- If a person lives to 85 years of age there is a 50% chance that they will be diagnosed with cancer if they are male and a one in three chance if they are female.
- Cancer rates have *increased* by 11% in men over the past decade and remained steady in women.
- Cancer deaths have *fallen* by 12.9% in males and 6.4% in females over the past decade.
- The five most common cancers (prostate, bowel, breast, melanoma and lung cancer) account for 63% of all new cancer cases.
- Men are 1.5 times more likely to be diagnosed with cancer than women.

Figure 2.16: Potential years of life lost (<70 years), cancer, 2000 – 2010<sup>e</sup>

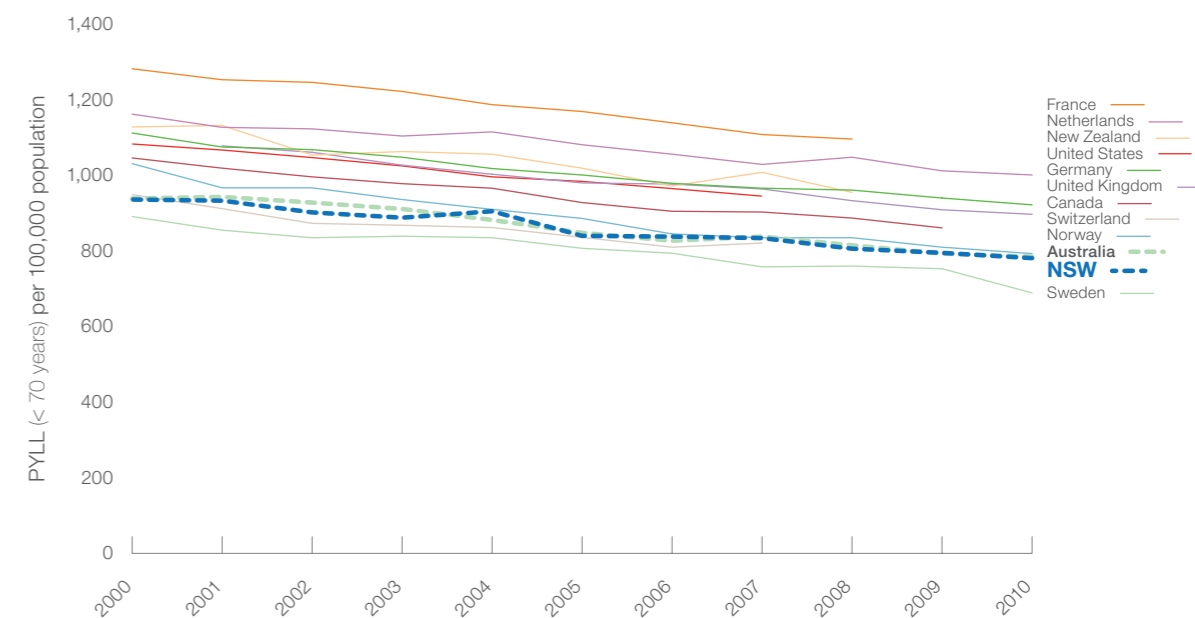
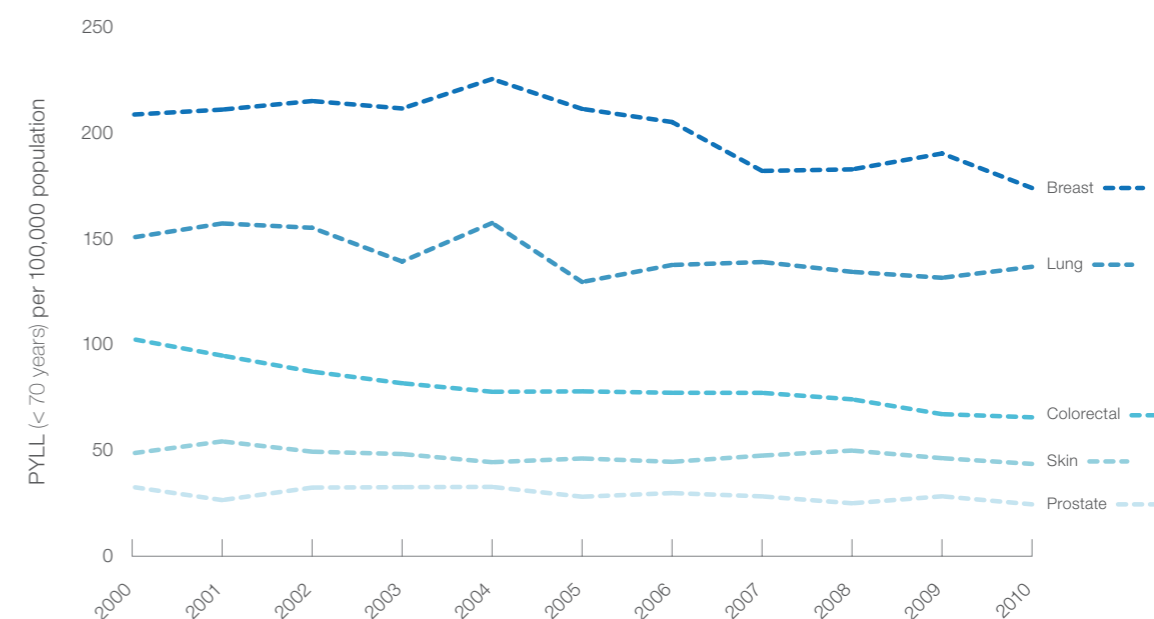


Figure 2.17: Potential years of life lost (<70 years), major cancers, NSW, 2000 – 2010<sup>e</sup>



(e) OECD, *OECD Health Data 2012*. For NSW and Australia, data were extracted from HOIST (1999 – 2007) and ABS (2007 – 2010). ABS 2009 – 2010 figures are subject to further revision. PYLL data are age-sex standardised to the 2010 OECD population. Potential years of life lost is a summary measure of premature mortality, calculated by totalling deaths at each age, multiplying that by the number of remaining years of life up to a selected age limit, which for OECD analyses is 70 years.

# Diabetes mellitus

## Short-term and long-term complications in NSW

Diabetes mellitus occurs when the pancreas does not produce enough insulin (type 1), or the body is resistant to insulin (type 2). Type 2 is the most common (90% of all cases). Prevalence of diabetes has been increasing over recent years, primarily due to an increase in Type 2 diabetes.<sup>8</sup>

Careful control of blood sugar levels, cholesterol, blood pressure and weight help prevent diabetic complications. Acute complications including ketoacidosis and diabetic coma, are an indicator of inadequate short-term diabetic control. NSW acute complication rates were higher than those recorded in Germany, Sweden, Canada and Norway (Figure 2.18).

In the longer term, poor diabetic control can result in serious ill-health, disability and premature death. Long term complications include renal, circulatory, neurological and ophthalmic disease.

In particular, diabetes is the leading cause of kidney failure requiring dialysis or transplantation (known as end-stage renal disease). Between 2000 and 2010 there was a 44% increase in end-stage renal disease prevalence in NSW although prevalence is lower than in comparator countries (Figure 2.19).

Figure 2.18: Diabetes outcomes - hospitalisations (public and private) for acute complications, per 100,000 population (age and sex standardised), 2009<sup>Δ</sup>

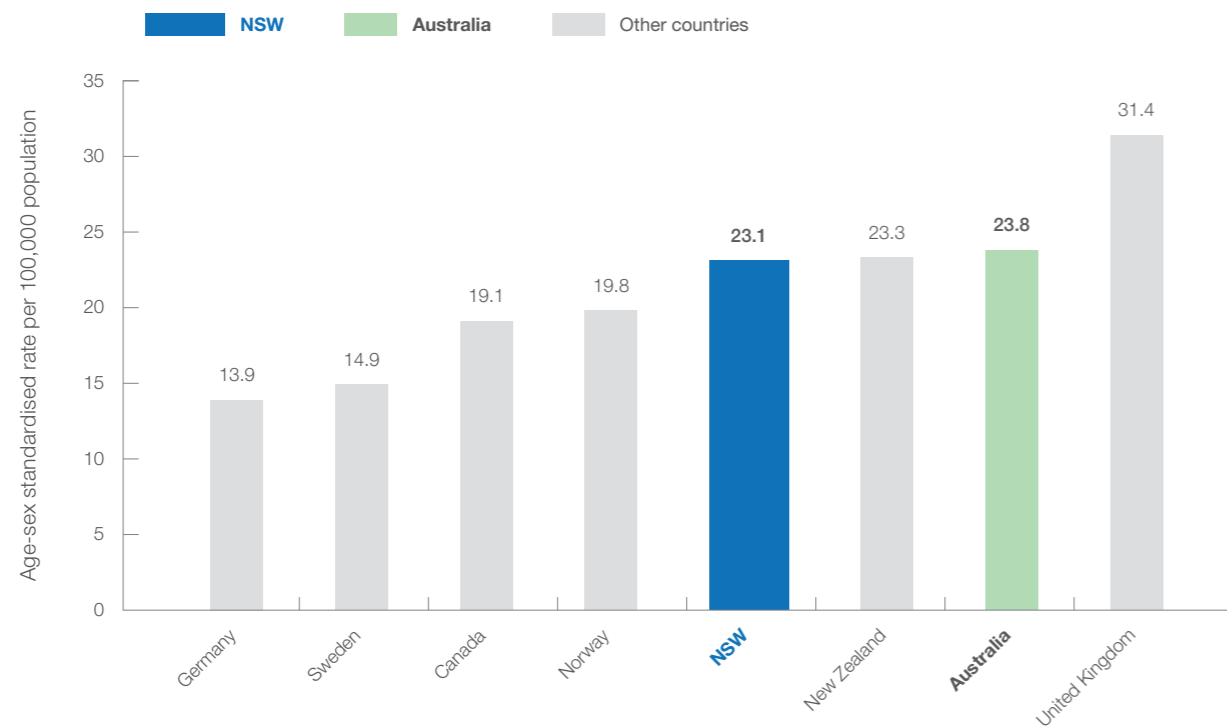
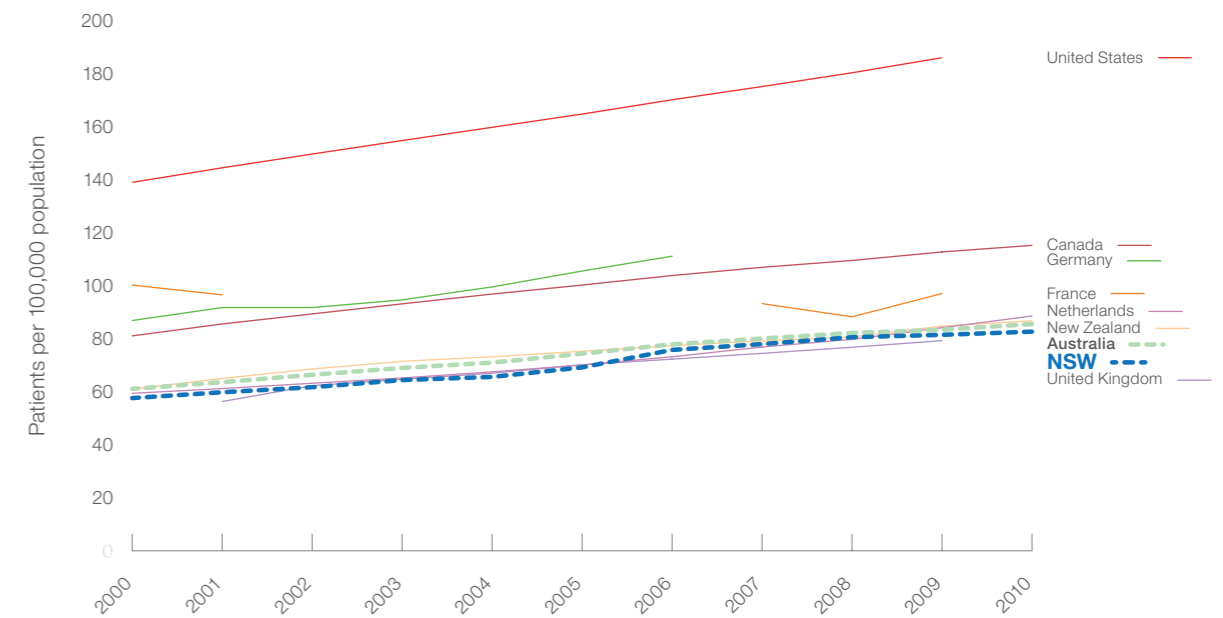


Figure 2.19: Diabetes outcomes - end-stage renal disease prevalence, 2000 – 2010<sup>⊖</sup>



(Δ) OECD, *OECD Health Data 2012* and NSW Ministry of Health, *NSW Admitted Patient Data Collection* (BHI analysis for NSW only). Age and sex standardised to the 2005 OECD population.  
 (⊖) OECD, *OECD Health Data 2012* and Australia and New Zealand Dialysis and Transplant Registry. NSW data exclude residents of the former Southern Area Health Service (services are provided in the ACT).

# Musculoskeletal diseases

## Joint replacement revision rates are lower than in the rest of Australia

In NSW, in 2010 there were 373 deaths attributed to musculoskeletal disease – far fewer than circulatory diseases (15,587 deaths), cancer (14,449) or respiratory diseases (4,226).<sup>3</sup>

Musculoskeletal diseases, while not causing many deaths, typically place a different type of health burden on the people of NSW – one of disability, pain and loss of quality of life.

This burden can be measured using rates of joint replacement surgery. The most common reason to have a joint replacement is to relieve severe pain that limits activities. Between 1994–95 and 2009–10, the number of hip replacement procedures performed in NSW increased by 75% (from 6,213 to 10,873), and the number of knee replacements by 183% (from 7,874 to 14,409).<sup>9</sup>

Figure 2.20 and 2.21 show, in an international context, rates of hip and knee replacement procedures in public and private hospitals. NSW recorded a relatively low rate of hip replacements and a high rate of knee replacements.

Figure 2.22 illustrates *revision rates* for NSW and the rest of Australia – that is the proportion of hip and knee replacement surgeries that were repeat procedures (due to prosthesis failure). In 2009–10, 10.5% of hip replacements and 6.3% of knee replacements were revisions. Revision rates in NSW were lower than in the rest of Australia.

While revision rates are a blunt measure providing no information on clinical or radiographic outcomes or patient satisfaction, they do provide some indication of the effectiveness of the primary joint replacement surgery.

Figure 2.20: Hip replacement procedures (public and private hospitals) per 100,000 population, 2010–11 (or latest year)<sup>Δ</sup>

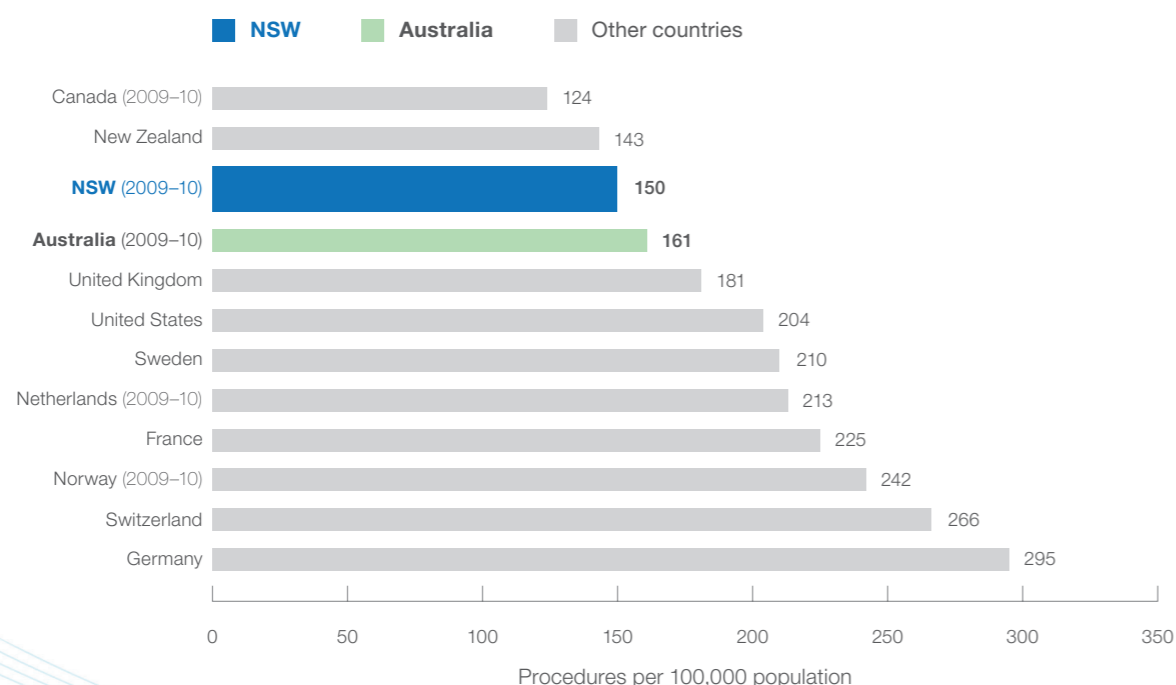


Figure 2.21: Knee replacement procedures (public and private hospitals) per 100,000 population, 2010–11 (or latest year)<sup>Δ</sup>

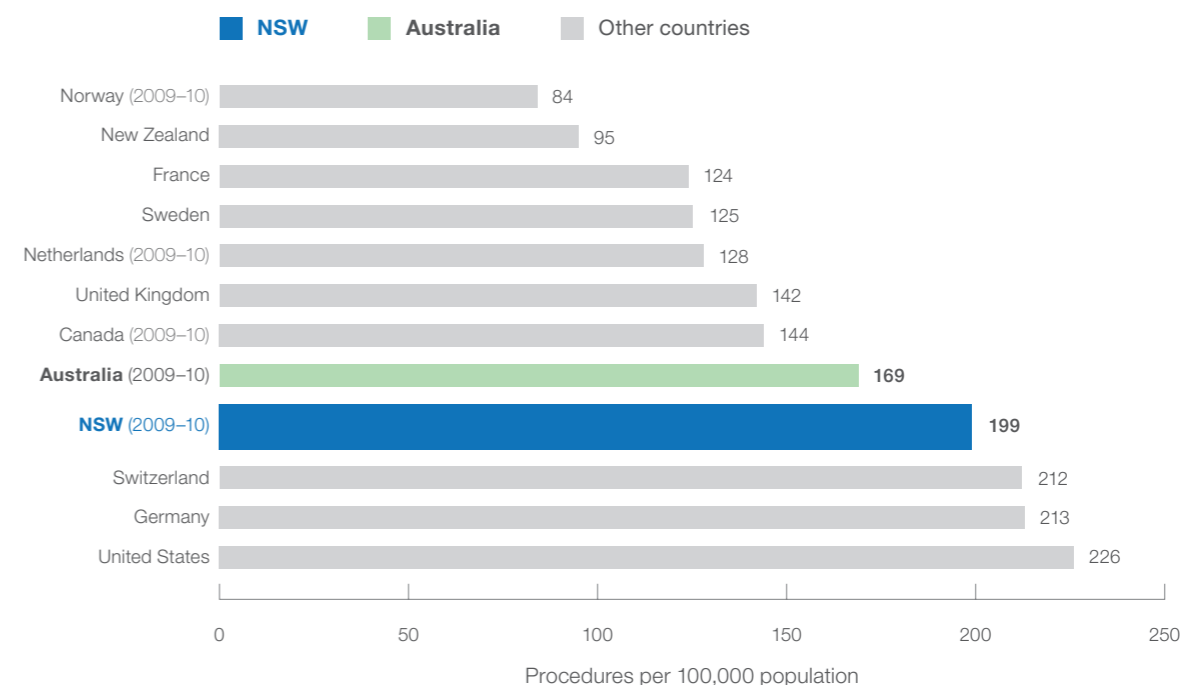
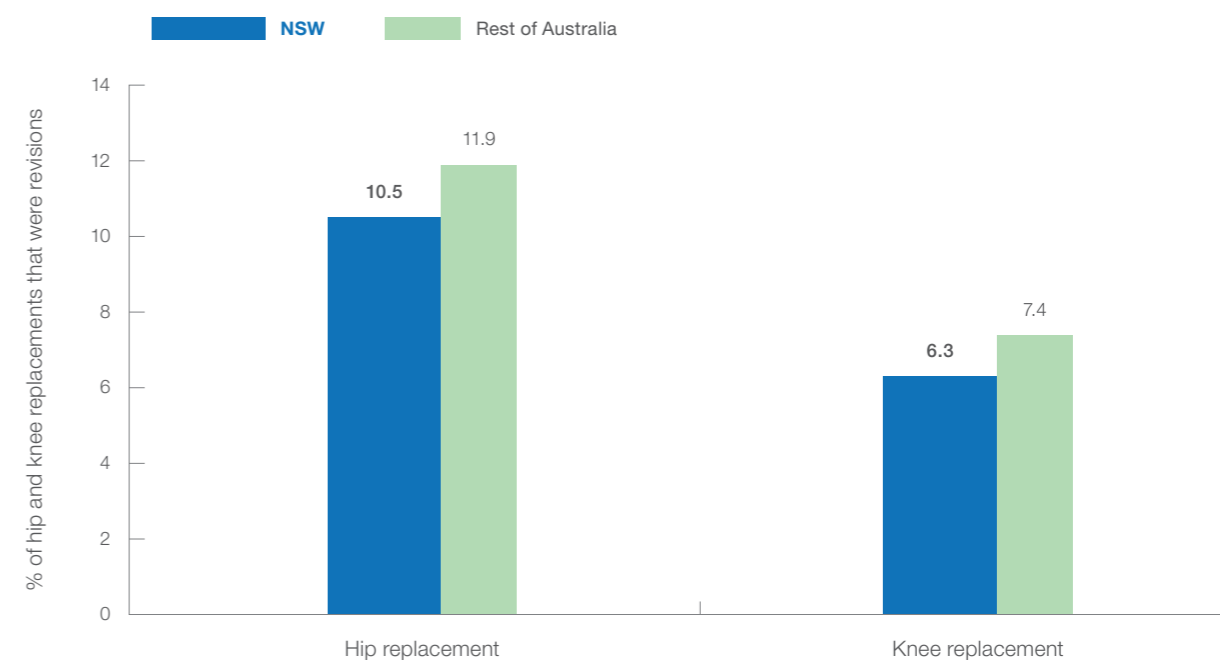


Figure 2.22: Proportion of hip and knee replacement procedures (public and private hospitals) that were revisions, 2009–10<sup>#</sup>



(Δ) OECD, *OECD Health Data 2012* and Australian Orthopaedic Association National Joint Replacement Registry.  
 (#) Australian Orthopaedic Association National Joint Replacement Registry, *National Joint Replacement Registry 2011*.

## Mental health

### About one in 5 hospitalisations for schizophrenia and bipolar are unplanned readmissions

The burden of mental illness is substantial. Severe disorders such as schizophrenia and bipolar disorder are major causes of years lost due to disability worldwide.<sup>10</sup> Patients with severe mental disorders often receive specialised care in hospital. If appropriate and co-ordinated follow-up is provided after discharge, patients are not usually readmitted to hospital within 30 days.

Figure 2.23 shows that NSW has a higher rate of unplanned readmission within 30 days of discharge for schizophrenia than the United Kingdom, Switzerland, Canada and New Zealand. For bipolar disorder, NSW has a higher rate than three comparator countries (Figure 2.24).

One contributor to unplanned readmissions may be patients' lack of awareness of their condition's 'danger signals'. Awareness of danger signals

provides an opportunity to seek timely help, primarily in a community setting, reducing unplanned return to hospital. Figure 2.25 shows data from the NSW Health Patient Survey. For mental health outpatients the percentage of patients who were *completely* told about danger signals to be looked out for ranged from 30% to 48%. Additionally, only four in 10 mental health *inpatients* (36%) responded 'yes, completely' to the question 'Did they [hospital staff] tell you what danger signals about your condition to watch for after you went home?'.

Readmissions are calculated using OECD methods to make international comparisons. The rates therefore differ from those published by the NSW Ministry of Health and AIHW.

Figure 2.23: Unplanned readmissions (public and private hospitals) within 30 days, schizophrenia, 2009–10 (or latest year)<sup>Δ</sup>

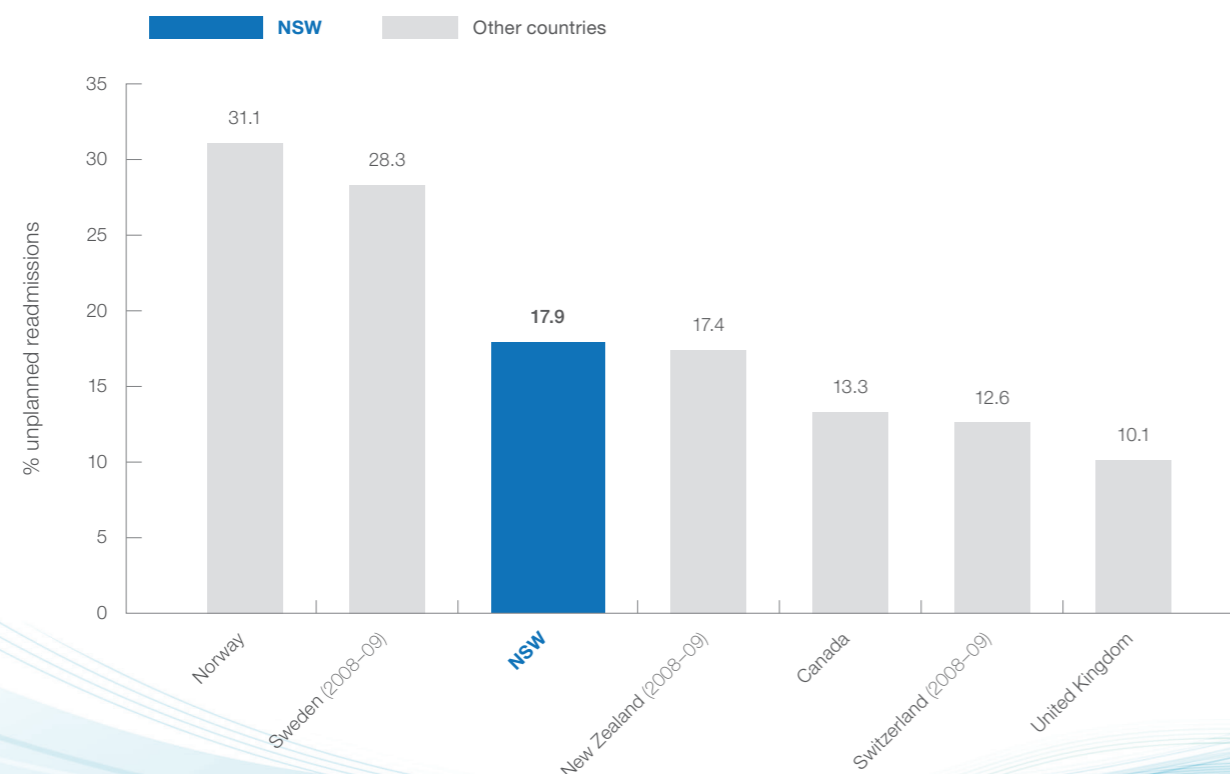


Figure 2.24: Unplanned readmissions (public and private hospitals) within 30 days, bipolar disorder, 2009–10 (or latest year)<sup>Δ</sup>

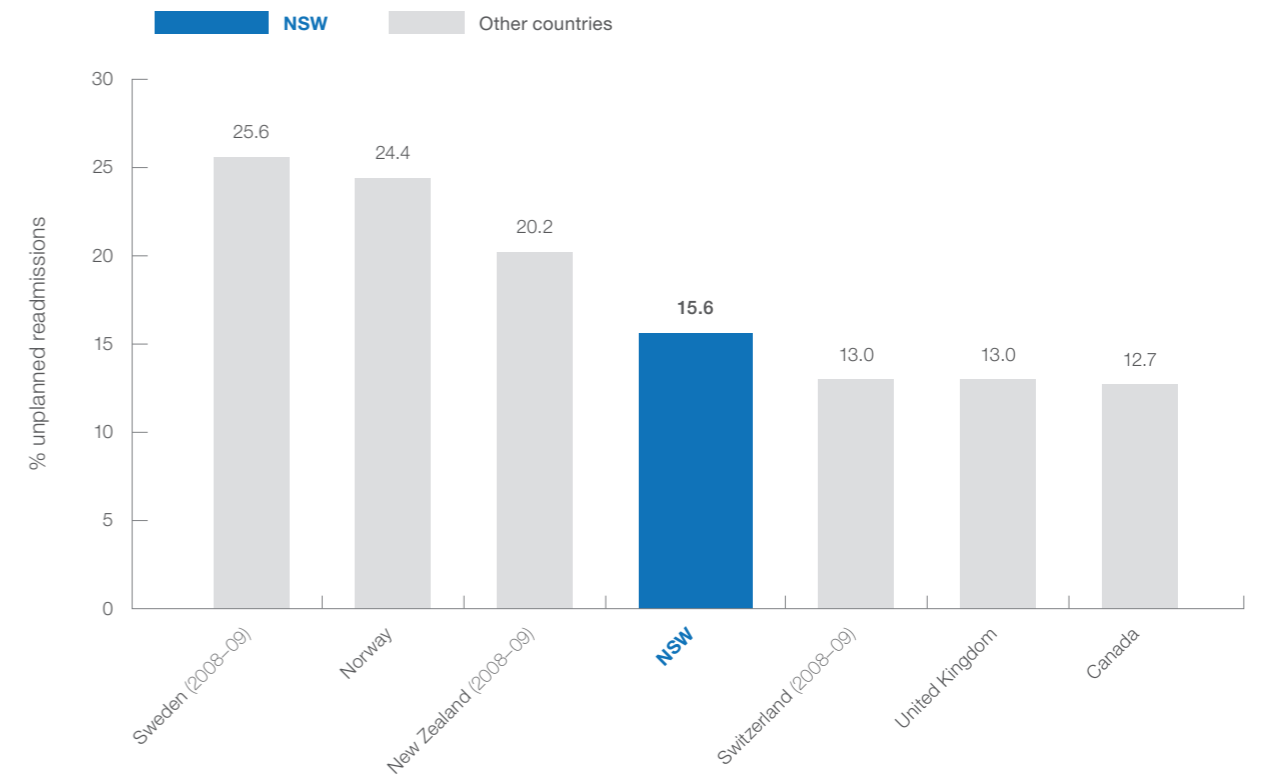
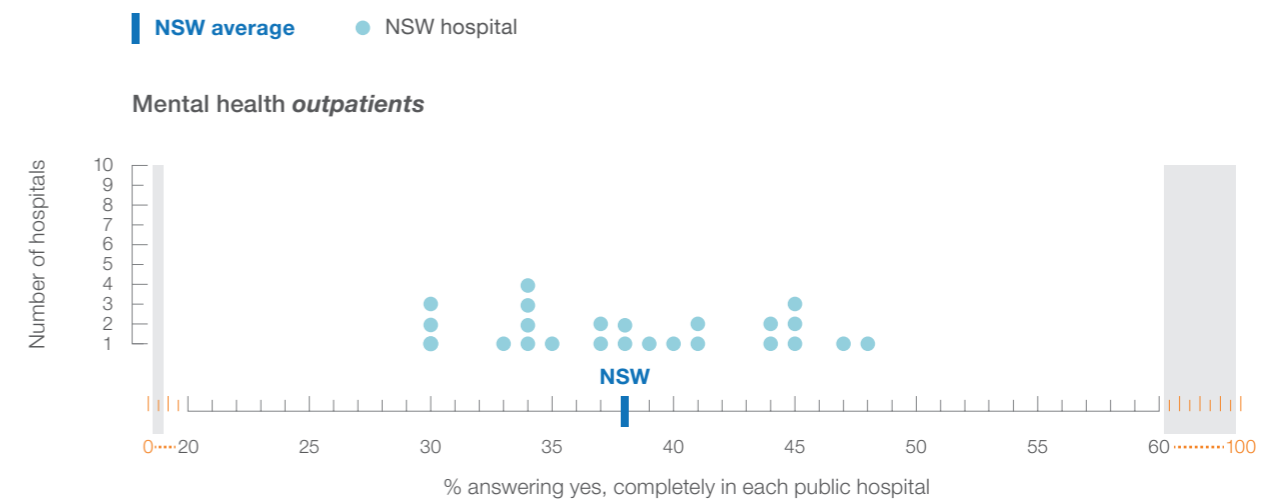


Figure 2.25: NSW Health Patient Survey 2011 Did they [hospital staff] tell you what danger signals about your condition to watch out for? (% of mental health outpatients responding 'yes, completely' in public hospitals)<sup>∇</sup>



(Δ) OECD, *OECD Health Data 2012* and NSW Ministry of Health, *NSW Admitted Data Patient Collection* (BHI analysis for NSW only). Age and sex-standardised to the 2005 OECD population. Unplanned readmissions include ICD-10 codes F10–F69 or F90–F99.  
 (∇) Ministry of Health, *NSW Health Patient Survey Program*. Facilities with <30 sample size or high standard error around estimates are not reported (BHI analysis).

# Access & timeliness

Getting services when and where needed

Ensuring people receive services when and where they need them is a central element of quality healthcare.

Access and timeliness of healthcare are important because:

- Long-term disability or risk of death from acute conditions (e.g. stroke and heart attack) are influenced by timeliness of treatment.
- Prolonged waits for certain procedures such as hip replacement and spinal surgery may reduce patients' quality of life, their productivity at work, and the likelihood of achieving good health outcomes.
- If healthcare services and diagnostic test results are not available or not delivered in a timely way, patients can experience emotional distress, physical harm and higher treatment costs.
- Waiting times can influence the way patients seek care, such as visiting a hospital emergency department (ED) rather than a general practitioner (GP).
- Availability of strong community and primary care delivers better access to specialised care when needed and achieves better health outcomes, often at a lower cost.
- People want reassurance that healthcare will be available when needed.

## How well does NSW perform?

| International and national comparisons   | NSW performed better than:  | NSW performed worse than:   |
|--|---|---|
| Three quarters of ED patients in NSW are seen within recommended times.  | All other states and territories                                      | No other states or territories  |
| Four in 10 sicker adults (42%) said they had out-of-pocket healthcare costs of more than \$1,000 (USD).*   | No countries  | United Kingdom, Sweden, France, Germany, Netherlands, New Zealand, Norway, Canada and Switzerland |
| One quarter of people (25%) who visited an emergency department in the previous 12 months said that the care could have been provided by their GP if he or she had been available. | Performance is compared to the 'Rest of Australia' which recorded 19% |   |

## Variation within NSW

Within hospitals, the proportion of ED patients leaving the ED within 4 hours (NEAT), ranged from 32% to 97%.

\* Statistical analyses indicate that NSW results were truly different from those in the countries indicated.

## Timeliness in emergency departments (ED)

### Three-quarters of ED patients seen within recommended wait times

Each year, there are more than 2 million ED attendances in NSW public hospitals.<sup>1</sup> Upon arrival, ED patients are allocated to one of five urgency (or triage) categories. Each category has a nationally defined recommended time by which the patient should receive care:

- Resuscitation / immediately life threatening (within seconds)
- Emergency / imminently life threatening (within 10 minutes)
- Urgent / potentially life threatening (within 30 minutes)
- Semi-urgent / potentially serious (within 60 minutes)
- Non-urgent (within 120 minutes).

Figure 3.1 shows the proportion of ED patients seen within the recommended timeframes in Australian states and territories in 2010–11. Overall, NSW provided the most timely care.

There is also a national target time for leaving the ED. The National Emergency Access Target (NEAT) states that by 2015, 90% of all patients presenting to a public hospital ED will physically leave the ED within four hours, regardless of whether they are admitted, transferred to another hospital or discharged. Figure 3.2 shows 2011–12 performance on this measure.

Figure 3.3 provides more recent data on performance against the NEAT within NSW and highlights the extent of variation across NSW public hospital EDs. Smaller EDs generally perform better than larger EDs on this measure.<sup>1</sup>

Figure 3.1: **Waiting for treatment** - proportion of ED patients seen within recommended times, (public hospitals), 2011–12<sup>2</sup>

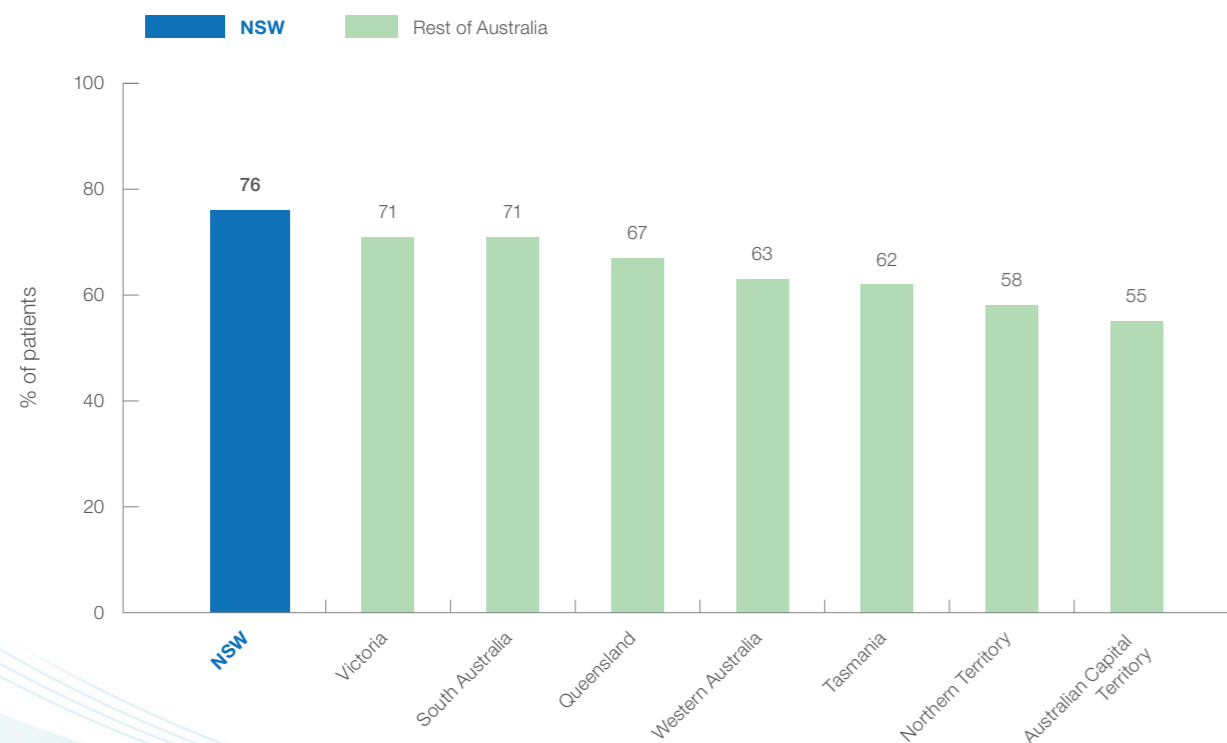


Figure 3.2: Percentage of ED patients who left the ED within four hours of presentation (public hospitals), 2011–12<sup>2</sup>

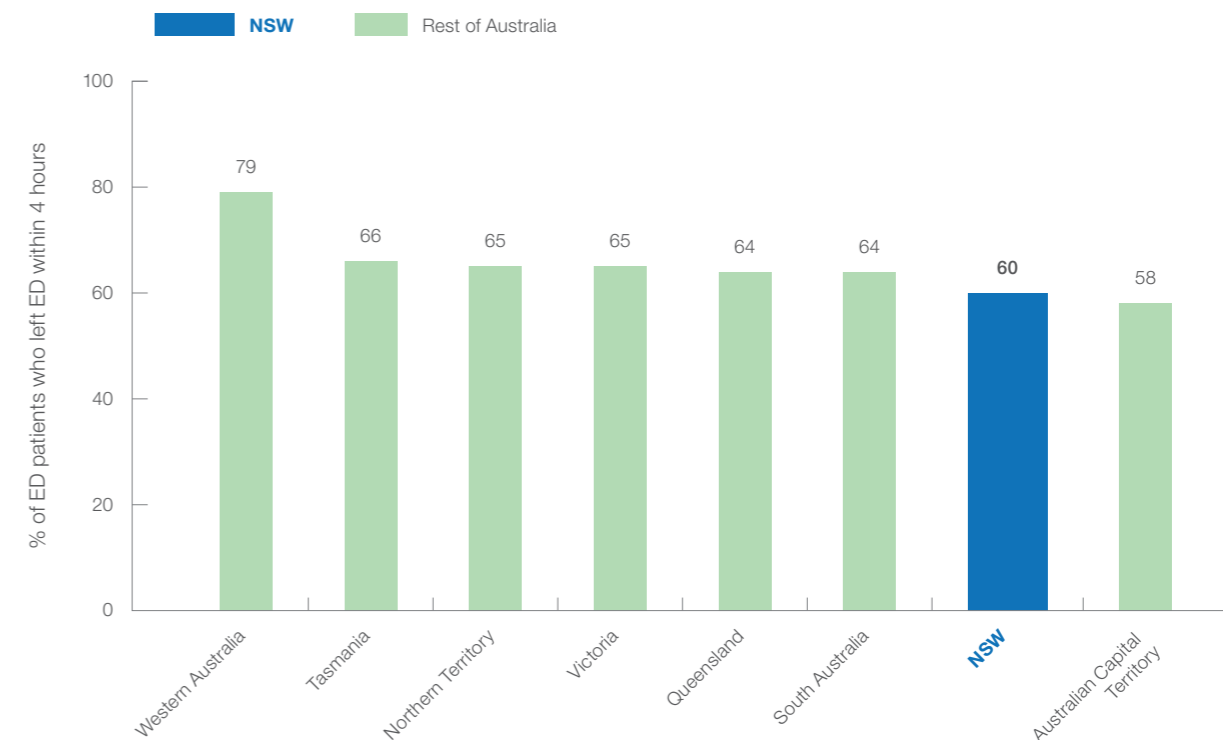
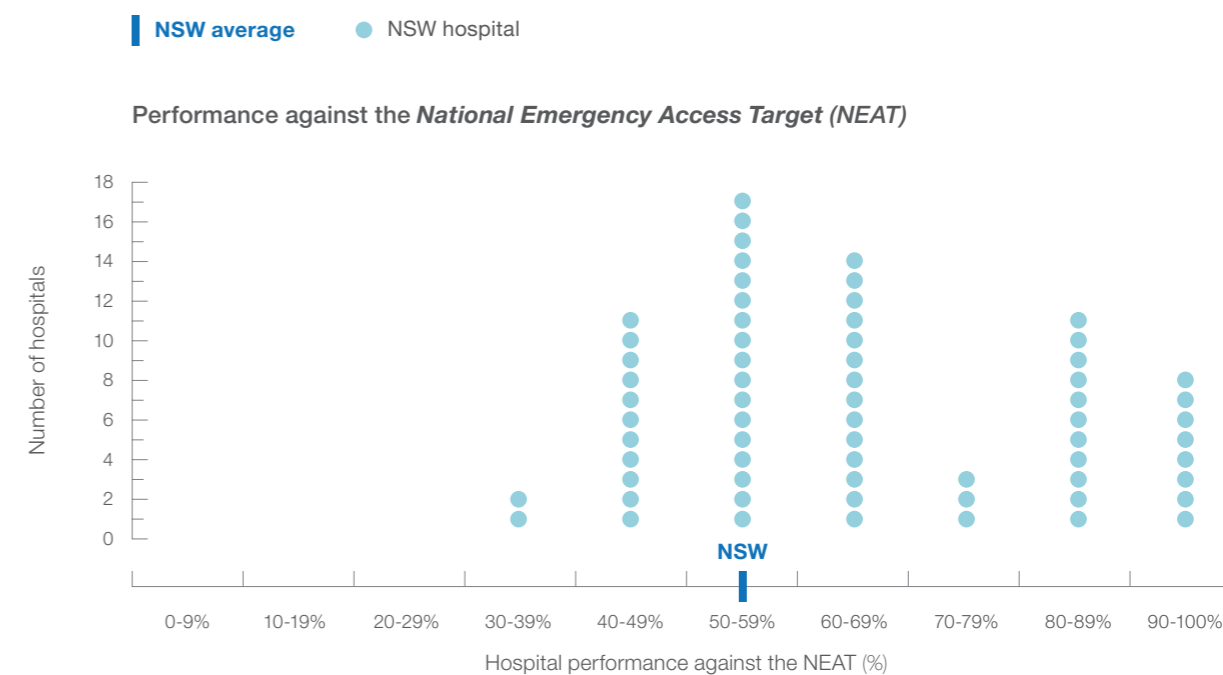


Figure 3.3: **NSW variation by hospital** - Distribution of public hospitals by percentage of ED patients who left the ED within four hours, (performance against the NEAT), April to June 2012<sup>2</sup>



(Σ) AIHW, *Australian Hospital Statistics 2011–12*. Length of stay is calculated as the length of time between presentation to the ED and physical departure. There are some variations in how services are defined and counted across states and territories.

(≈) Bureau of Health Information, *Hospital Quarterly, Performance of NSW public hospitals, April to June 2012. Emergency Departments*.



# Emergency departments and primary care

## One-quarter of ED visits due to difficulties accessing primary care

Like many other jurisdictions, there are concerns in NSW that increasing numbers of ED visits and long ED wait times are exacerbated by patients being unable to access primary or community care.

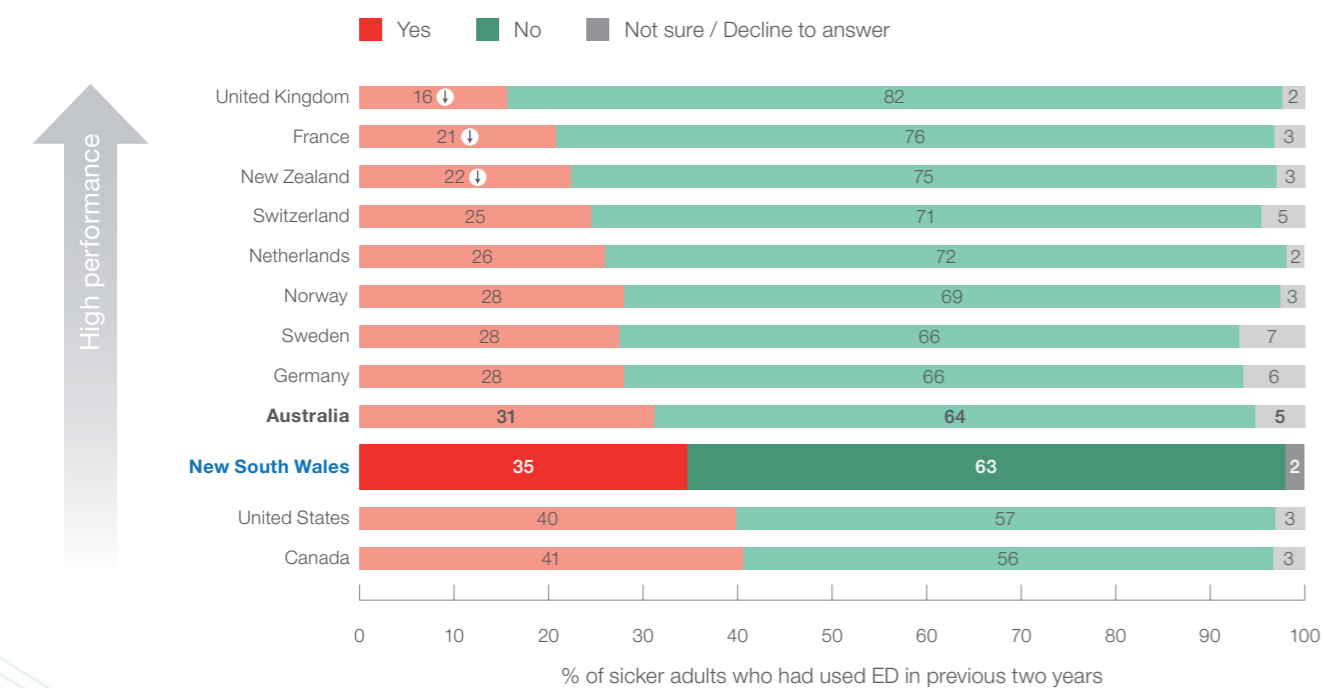
In 2011, the Bureau invested in the international Commonwealth Fund survey so that NSW performance could be placed alongside Australia and 10 other countries. The survey focused on people likely to have had significant direct experience of the healthcare system in the recent past – termed ‘sicker adults’.

More than three in 10 NSW sicker adults\* (35%) who had used an ED in the previous two years said that they could have been treated by their GP if he or she had been available (Figure 3.4).

In a separate 2010–11 survey of Australian adults, the Australian Bureau of Statistics (ABS) asked why people visited the ED instead of their GP. The reasons given included time of day or week (29% of adults who visited ED), long waiting time for GP appointment (4%), the ED was closer than the GP when needed (1%) and cost concerns or the ED was cheaper (1%). Altogether, access issues represented 35% of reasons adults visited the ED rather than the GP (Figure 3.5).

Among NSW adults, one-quarter (25%) said that their most recent ED visit could have been handled by a GP had he or she been available (Figure 3.6).

Figure 3.4: Commonwealth Fund survey 2011 The last time you went to the hospital emergency department, was it for a condition that you thought could have been treated by your regular GP if he or she had been available?<sup>Ω</sup>



(\* ) People who reported fair / poor self-rated health OR chronic condition OR hospitalised or had surgery in previous two years.

Figure 3.5: Patient Experience Survey 2010–11 What is the main reason you visited the ED instead of the GP?<sup>ⓑ</sup>

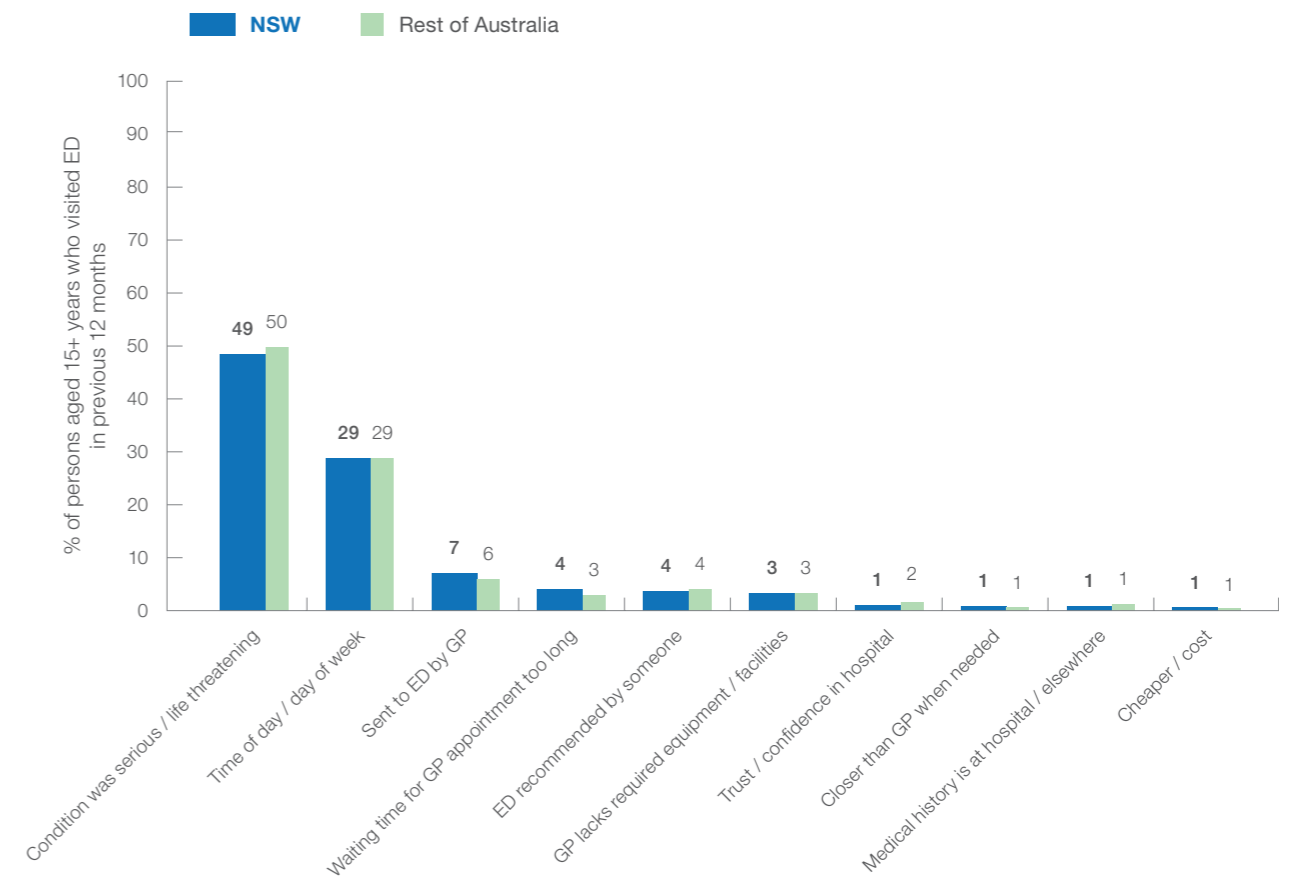
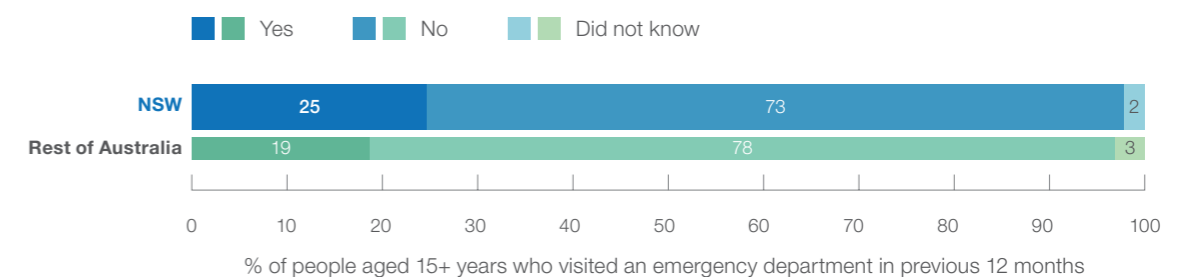


Figure 3.6: Patient Experience Survey 2010–11 Thinking about your most recent visit to the ED, could care have been provided by a GP if he or she had been available?<sup>ⓑ</sup>



(Ω) The Commonwealth Fund, *The Commonwealth Fund 2011 International Survey of Sicker Adults in Eleven Countries (fair / poor self-rated health OR chronic condition OR hospitalised or had surgery in previous two years)*. Percentages may not add up to 100 due to rounding, (ⓐ) estimate almost certainly higher than NSW; (ⓑ) estimate almost certainly lower than NSW (BHI analysis).  
 (ⓑ) Australian Bureau of Statistics, *Patient Experience Survey, 2010–11*. Main reason for ED rather than GP – multiple answers were not possible.

# Waits for elective surgery in public hospitals

## NSW patients have longer waits for knee and eye surgeries

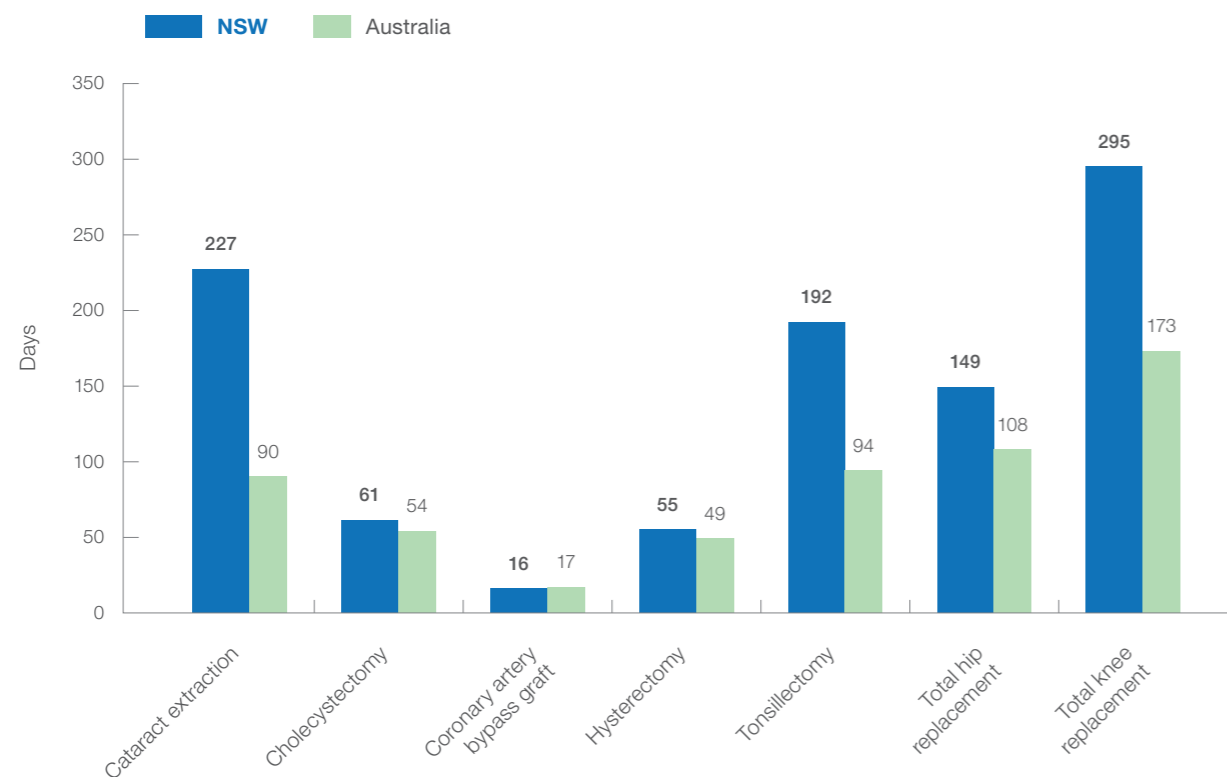
Elective surgery is surgery that a doctor or health professional believes to be clinically necessary, that can be delayed for at least 24 hours.

Access to elective surgery in public hospitals is often measured in terms of *median waits*. (the number of days that the 'middle' patient waited i.e. half of all patients had a shorter wait and half had a longer wait). According to AIHW in 2011–12, the longest median waits were in the ACT (63 days), followed by NSW (49 days), NT (39 days), Tasmania (38 days), Victoria (36 days), SA (34 days), WA (30 days) and Queensland (27 days). Notably, NSW has a

higher proportion of non-urgent patients (43%) than most other jurisdictions (e.g. Queensland 14%),<sup>2</sup> contributing to longer overall median waits. Data for specific procedures show some marked differences in median waits between NSW and Australia as a whole (Figure 3.7).

Elective surgery waits can be categorised by urgency. The *National Elective Surgery Target (NEST)* states that by 2016 all patients waiting for surgery should be seen within the clinically recommended time. Figure 3.8 shows recommended times and baseline performance against the three urgency categories in the NEST.

Figure 3.7: Median waits for selected surgical procedures (public hospitals), 2010–11<sup>Σ</sup>



(Σ) AIHW, *Australian Hospital Statistics 2011–12*. Reported procedures with longest median waits are shown.  
 (μ) Council of Australian Governments (COAG), *National Health Reform Agreement - National Partnership Agreement on Improving Public Hospital Services, 2012*.  
 Note: Statistics on wait times may be affected by variations in reporting practices across states and territories.

Figure 3.8: Baseline performance against the National Elective Surgery Target (NEST), (public hospitals), 2010<sup>μ</sup>



# Barriers to accessing healthcare

## Cost is a barrier to accessing needed healthcare in NSW

Barriers to healthcare can be caused by a range of factors, such as difficulties travelling, lack of health insurance coverage, limited availability of services, low health literacy and costs.

In Australia, out-of-pocket healthcare costs are relatively high. Out-of-pocket costs include charges for treatments and consultations not covered by Medicare or private health insurance, as well as any differences between actual charges for healthcare and the amount that Medicare or private health insurance reimburses the patient. In 2011, more than four in 10 NSW sicker adults (42%) said that they had out-of-pocket healthcare costs of more than \$1,000 (USD) in the previous 12 months - higher than reported in nine other countries (Figure 3.9).

More detailed information about cost barriers comes from a 2010–11 ABS survey which showed that one-quarter of NSW adults do not access dental care when needed because of cost. About one in 10 NSW adults said that cost prevents them accessing medical specialists (14%) and from filling prescriptions (9%) (Figure 3.10).

Cost barriers to care are complex with multiple factors. For example, only limited dental care is provided by the public system in NSW; GP visits are funded by the Commonwealth, private insurance and individuals; prescriptions are paid for by a mixture of public subsidies and private co-payments. These graphs illustrate perceived cost barriers, and do not identify how and by whom barriers should be addressed.

Figure 3.9: **Commonwealth Fund survey 2011** In the past 12 months, about how much have you and your family spent out-of-pocket for medical treatments or services that were not covered by insurance? (percent of sicker adults who spent more than \$1,000 USD)<sup>(A)</sup>

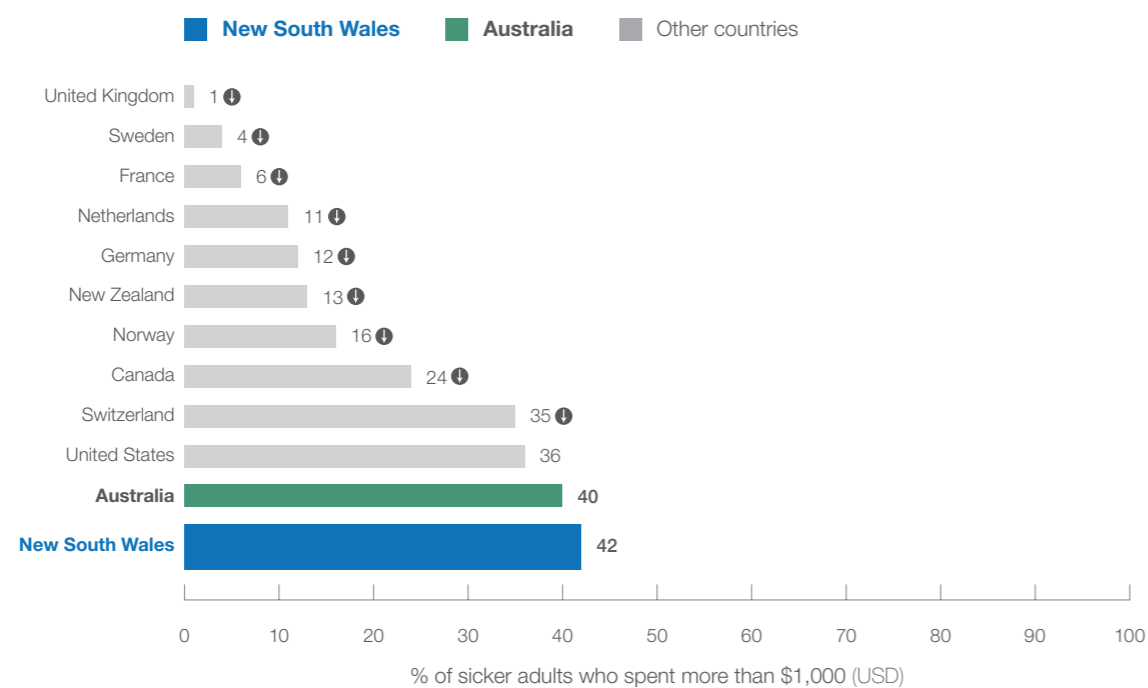
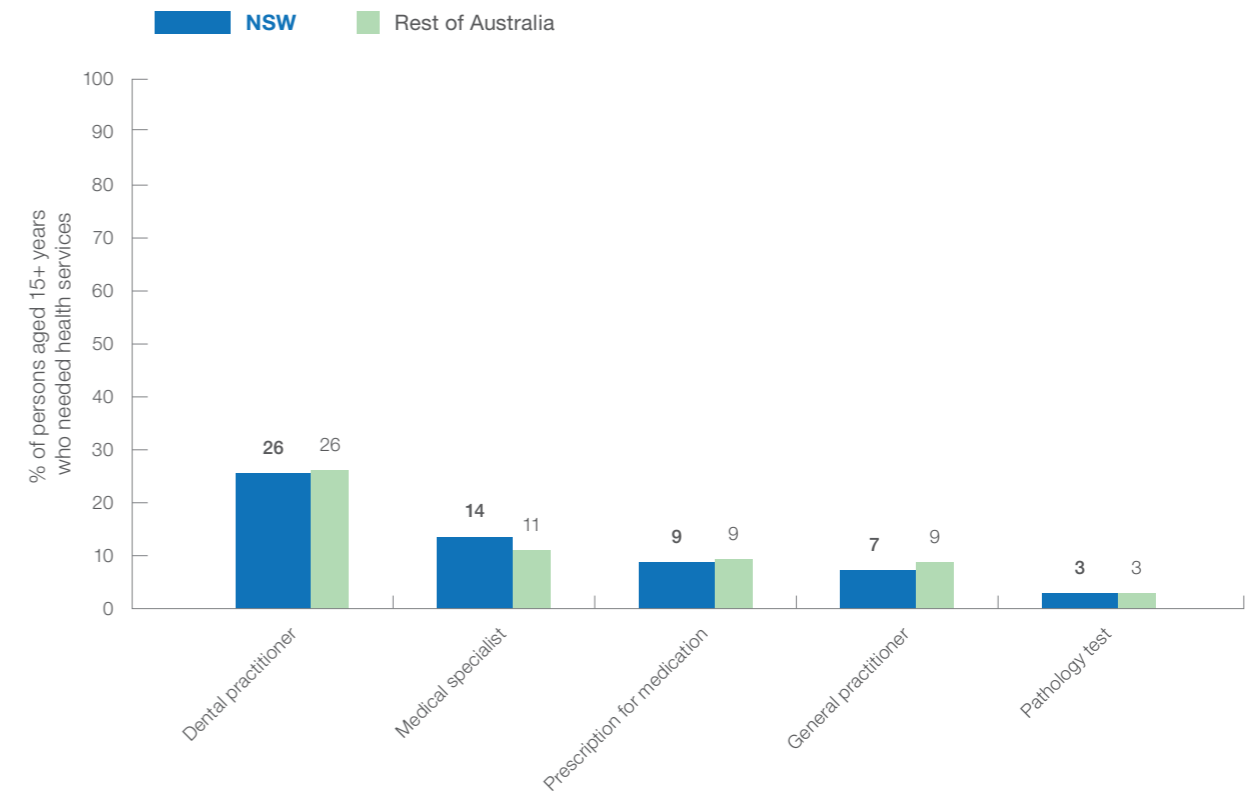


Figure 3.10: **Patient Experience Survey 2010–11** In the last 12 months did you delay or not access care because of cost (% answering yes) NSW and rest of Australia?<sup>(B)</sup>



Access & timeliness

(A) The Commonwealth Fund, *The Commonwealth Fund 2011 International Survey of Sicker Adults in Eleven Countries (fair / poor self-rated health OR chronic condition OR hospitalised OR had surgery in previous two years)*. Percentages may not add up to 100 due to rounding, (H) estimate almost certainly higher than NSW; (L) estimate almost certainly lower than NSW (BHI analysis).  
 (B) Australian Bureau of Statistics, *Patient Experience Survey, 2010–11*.

# Safety

Essential for quality and high performance

Safety is central to healthcare quality. It means avoiding medical error and eliminating unnecessary risk to patients.

In NSW, the Clinical Excellence Commission (CEC) is a board-governed statutory health corporation responsible for monitoring and supporting improvement in safety processes in public healthcare organisations. In its most recent report on clinical incidents, the CEC found that between 1 January and 30 June 2010, healthcare staff made 64,225 notifications to the Incident Management System. The most frequently notified incidents related to falls (12,670), issues associated with medications and intravenous fluids (11,171) and clinical management (9,915). The rate of serious incidents was 0.10 per 1,000 bed days – or 0.04% of all admissions.<sup>1</sup>

*Healthcare in Focus 2012* adds to the incident management data, using administrative data to quantify complications of medical and surgical care and place rates in an international context; as well as a patient-eye view of safety processes in the form of survey data.

Interpreting safety data is not straightforward. Increasing rates of reported incidents may seem to suggest deteriorating quality however, they may actually represent an improvement culture with greater transparency and willingness to report. Administrative data are subject to variation in coding, particularly across jurisdictions. Patient survey data are affected by information limitations. For example, patients may be unaware of some errors, or may assume errors in situations with poor medical outcomes, when in fact no mistake was made.

## How well does NSW perform?

| International and national comparisons   | NSW performed better than:             | NSW performed worse than:  |
|--|--|--|
| There were 306 hospitalisations for complications of surgical or medical care per 100,000 population.  | United States, Germany and Switzerland | France, Canada, Sweden, Netherlands, United Kingdom, Norway and New Zealand  |
| The standardised rate of post-operative pulmonary embolism or deep vein thrombosis was 875 per 100,000 discharges.                           | United States                          | New Zealand, United Kingdom, France, Sweden, Germany, Canada and Switzerland |
| One in 20 sicker adults (5%) report being given the wrong medicine or wrong dose at a pharmacy or while hospitalised in the past two years.* | No countries                           | United Kingdom and Switzerland   |

## Variation within NSW

There was a 25 percentage point range across NSW public hospitals in the proportion of day-only patients who said healthcare providers / staff *always* washed or cleaned their hands before providing care for them.

\* Statistical analyses indicate that NSW results were truly different from those in the countries indicated.

# Complications of surgical and medical care

## Wound infections are the most common complications in NSW

Complications of surgical and medical care can follow hospital, general practitioner (GP) or community care. Rates can serve as indicators of quality of care – low rates may reflect the use of effective prevention and monitoring systems in patient care. However, not all complications are avoidable and rates should be interpreted with caution. In 2010, there were 92 deaths in NSW attributed to complications of surgical or medical care.<sup>2</sup>

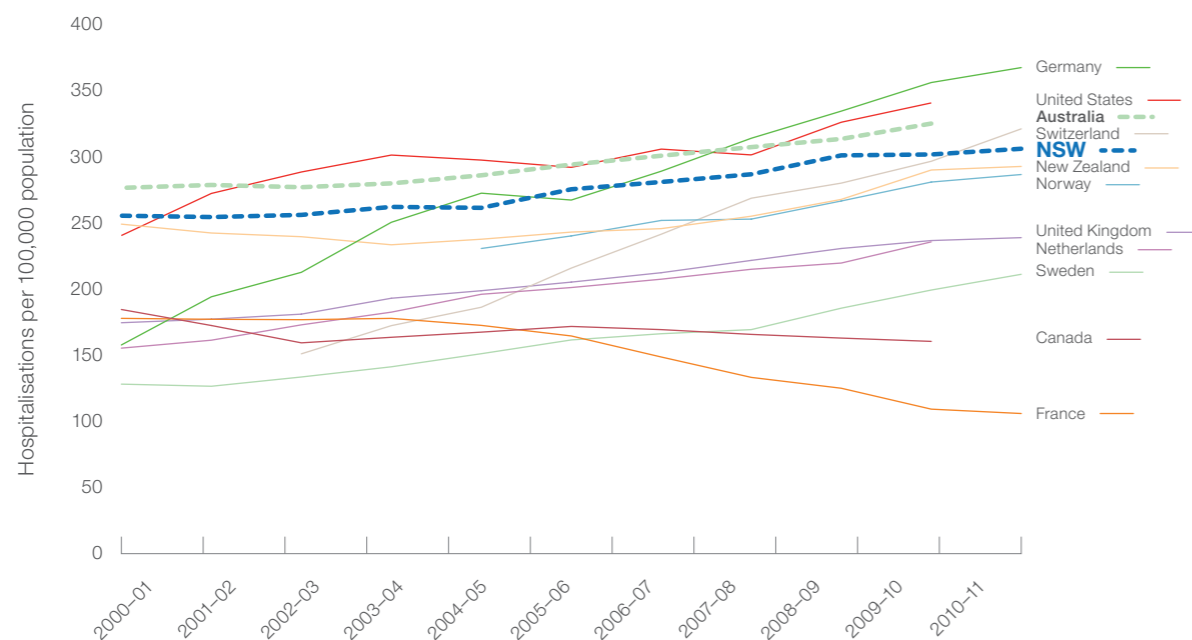
Between 2000–01 and 2010–11, NSW saw a 20% increase in rates of hospitalisations for complications from 255 to 306 per 100,000 population. Over that period, NSW had a higher rate of hospitalisations for complications than most comparator countries (Figure 4.1).

The average length of stay for hospitalisations due to complications was 7.1 days in 2010–11. This was mid-range internationally (Figure 4.2).

Across the state in 2010–11, the most commonly recorded complications (by principal diagnosis), were wound infections (4,564 hospitalisations), haemorrhage or haematoma complicating a procedure (2,919), and mechanical complication of internal joint prosthesis (1,570) (Figure 4.3).

International estimates show that at least 20% of healthcare associated infections come from surgical wounds.<sup>3</sup> The consequences of wound infections range in severity. One severe consequence is sepsis and data are presented on post-operative sepsis rates on page 48.

Figure 4.1: Hospitalisations (public and private) for complications of surgical or medical care (principal diagnosis), 2000–01 to 2010–11 <sup>(Δ)</sup> <sup>(¶)</sup> <sup>(€)</sup>



(Δ) OECD, *OECD Health Data 2012*.  
 (¶) Ministry of Health, *NSW Admitted Data Patient Collection* (BHI analysis).  
 (€) Day-only hospitalisations are excluded. ICD-10 codes T80–T88. Coding practices may vary across and within jurisdictions.

Figure 4.2: Average length of stay for overnight hospitalisations (public and private) for complications of surgical or medical care (principal diagnosis), 2010–11 (or latest year) <sup>(Δ)</sup> <sup>(¶)</sup> <sup>(€)</sup>

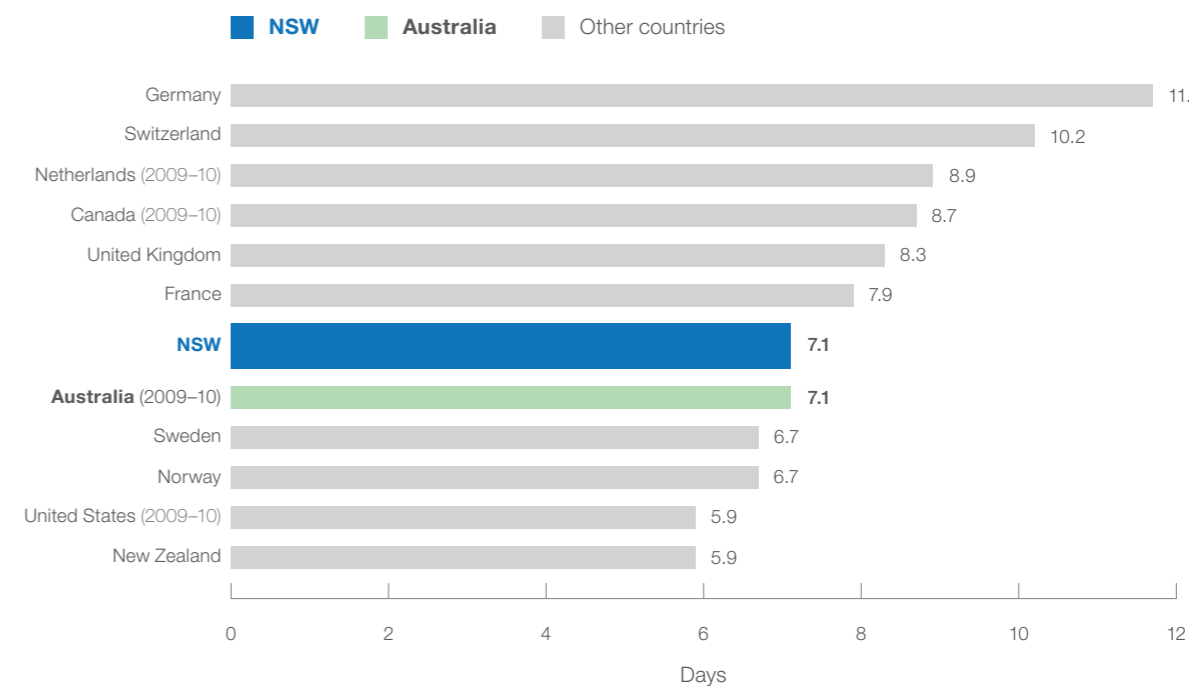
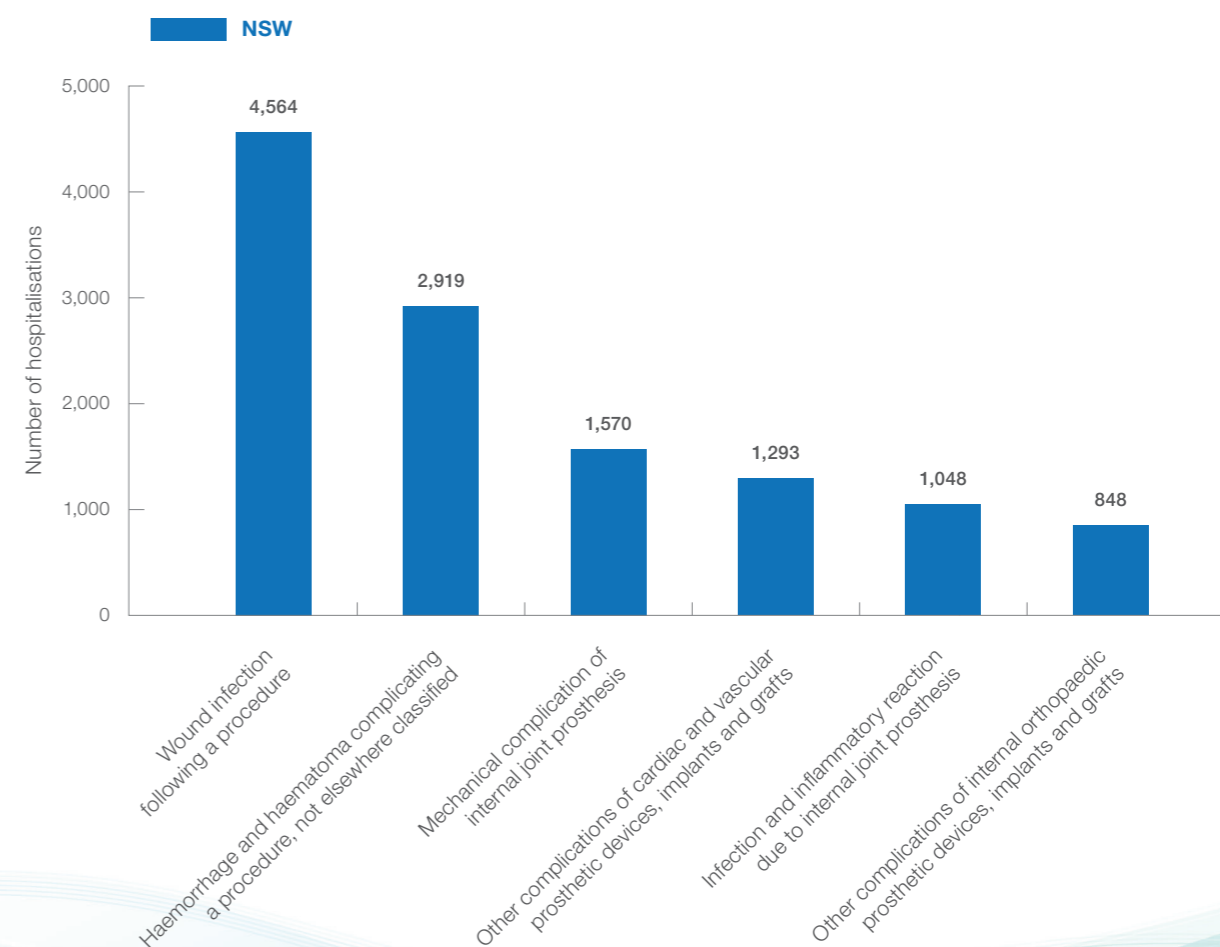


Figure 4.3: Most commonly recorded complications of surgical and medical care (principal diagnosis), public and private hospitals, NSW, 2010–11 <sup>(¶)</sup> <sup>(€)</sup>



Safety

# Sentinel events and adverse events

## NSW rates are mid-range internationally

**Sentinel events** are rare but dramatic medical errors. Sometimes referred to as *'never events'*, they are indicative of patient safety system failures.<sup>4</sup>

One such sentinel event is the failure to remove *'foreign bodies'* (such as surgical instruments, gauze swabs or needles) at the end of a surgical or medical procedure. In 2009–10, there were 64 cases of foreign bodies recorded in NSW – a standardised rate of 8.2 per 100,000 surgical and medical discharges – a rate similar to most other countries (Figure 4.4).

**Adverse events** are unintended incidents caused by healthcare that sometimes can lead to patient harm. Unlike sentinel events, adverse events can never be fully avoided, given the high-risk nature of some interventions and underlying health problems of patients.

Accidental puncture or laceration during a surgical procedure is a recognised risk, and increased rates may indicate system problems, such as inadequate training or fatigued health staff. In 2009–10, there were 1,539 accidental punctures or lacerations recorded in NSW, with a standardised rate of 202 per 100,000 surgical or medical discharges (Figure 4.5).

Similarly, the incidence of post-operative pulmonary embolism (PE) and deep vein thrombosis (DVT) can be reduced through the use of appropriate preventive measures (such as use of anticoagulants). In 2009–10, there were 2,292 PEs / DVTs recorded in NSW, a standardised rate of 875 per 100,000 surgical discharges (Figure 4.6).

Figure 4.4: Foreign body left in during procedure per 100,000 discharges (age-sex standardised), public and private hospitals, 2009–10 (or latest year) <sup>Δ</sup><sup>Θ</sup>

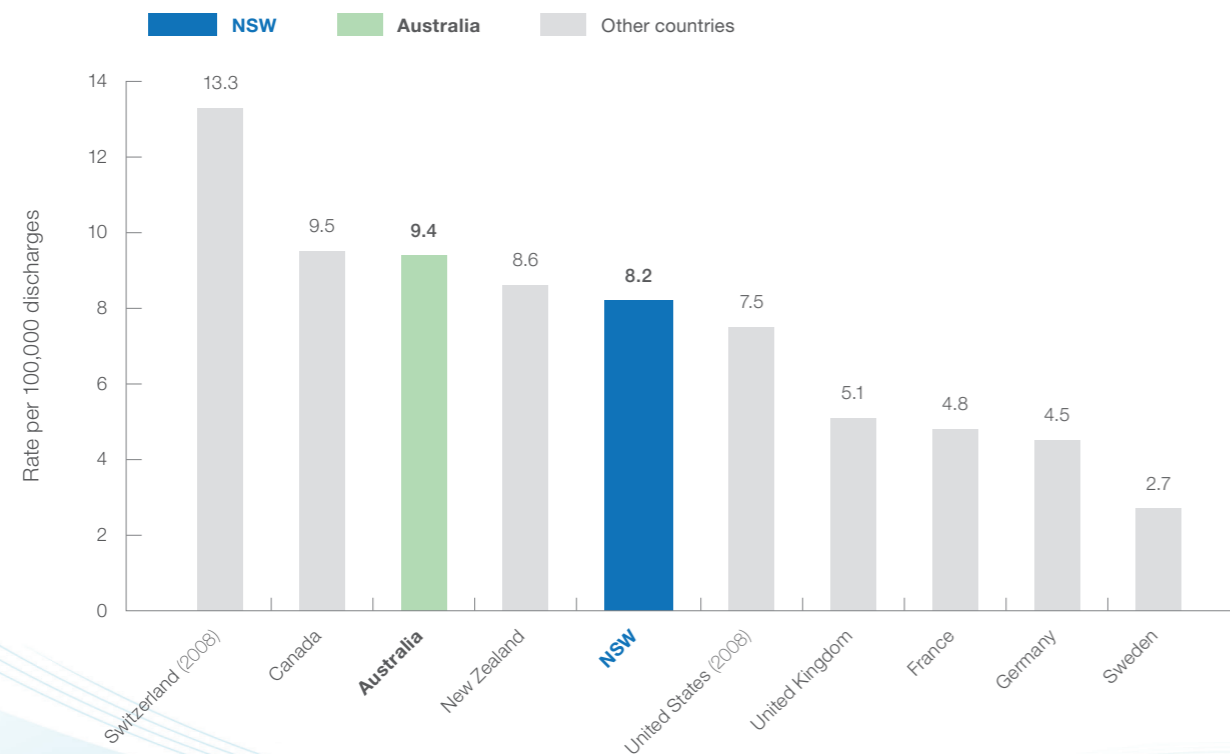


Figure 4.5: Accidental puncture or laceration, per 100,000 discharges (age-sex standardised), public and private hospitals, 2009–10 (or latest year) <sup>Δ</sup><sup>Θ</sup>

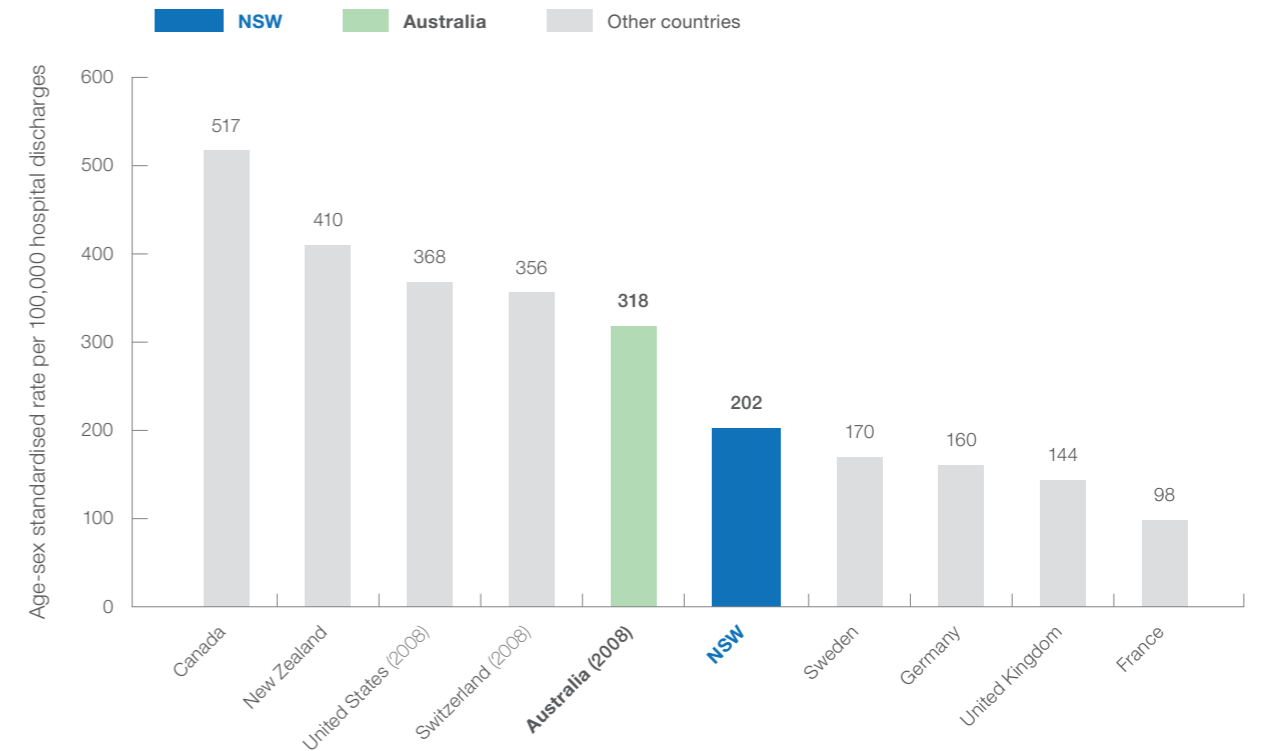
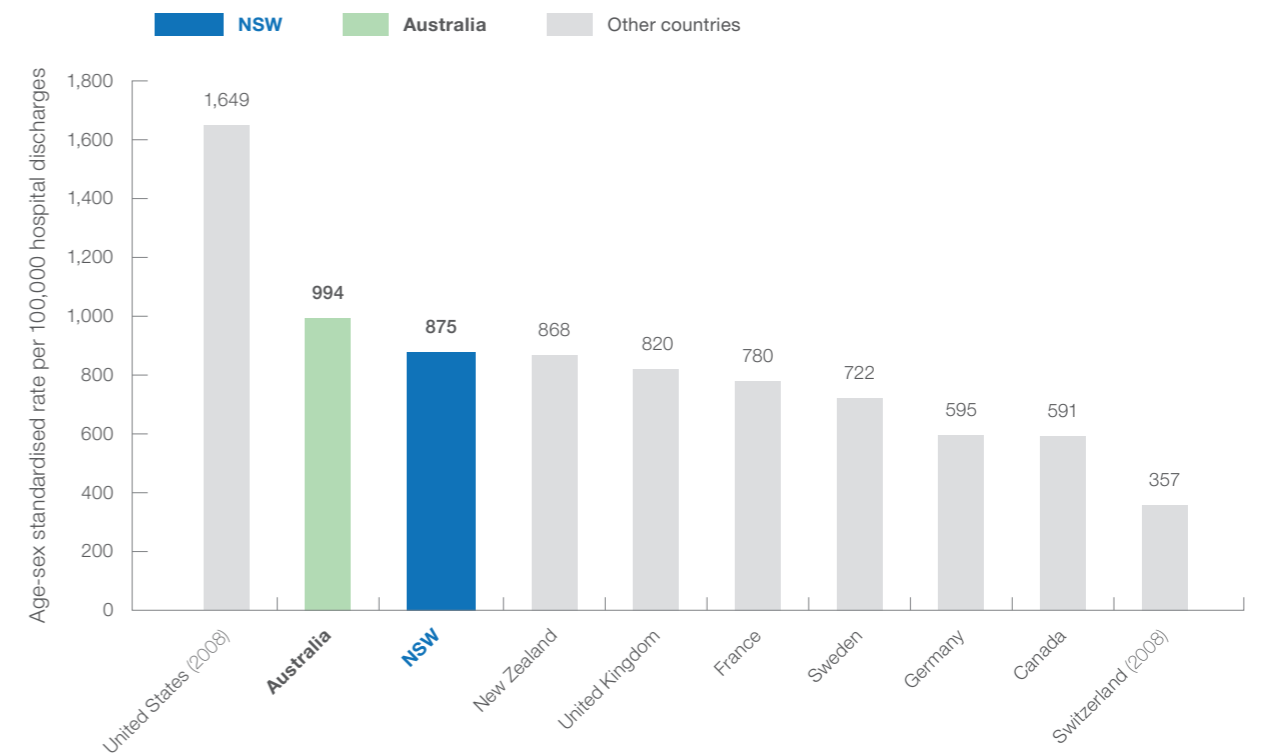


Figure 4.6: Post-operative pulmonary embolism or deep vein thrombosis, per 100,000 surgical discharges (age-sex standardised), public and private hospitals, 2009–10 (or latest year) <sup>Δ</sup><sup>Θ</sup>



(Δ) OECD, *OECD Health Data 2012* and NSW Ministry of Health, *NSW Admitted Data Patient Collection* (BHI analysis for NSW only).  
 (Θ) Age-sex standardised to the 2005 OECD population. Differences in procedural or post-operative patient safety indicators may reflect differences in recording and reporting practices rather than safety of care.

# Infections in healthcare settings

## Post-operative infection rates are falling

Sepsis after elective surgery is a severe complication that can lead to multiple organ dysfunction and death. It usually results from less severe, localised infections which should be avoided or treated promptly. Many cases of post-operative sepsis can be prevented through the appropriate use of prophylactic antibiotics, sterile surgical techniques and good post-operative care.

In 2009–10, there were 495 cases of post-operative sepsis recorded in NSW at a rate of 779 per 100,000 surgical discharges. This rate was lower than the United States and New Zealand but higher than Canada and European comparators (Figure 4.7). Between 2006–07 and 2010–11, there was a 16% drop in the post-operative sepsis rate in NSW (data not shown).

Minimising healthcare associated infections relies upon appropriate hand-washing practices. In NSW, the CEC coordinates state participation in the national hand washing audit program. In June 2010, the audit reported that the hand hygiene compliance rate *before* patient contact was 63.3%. Overall, nurses had higher rates of hand hygiene compliance than doctors.<sup>1</sup>

Survey data give a patient-eye view of safety incidents and processes in place to prevent them. Information from the *NSW Health Patient Survey* shows marked hospital-level variation within the state in the extent to which patients said their healthcare providers *always* washed or cleaned their hands before providing care for them (Figure 4.8).

Figure 4.7: Post-operative sepsis rate, per 100,000 surgical discharges, public and private hospitals, 2009–10 (or latest year)<sup>Δ</sup>

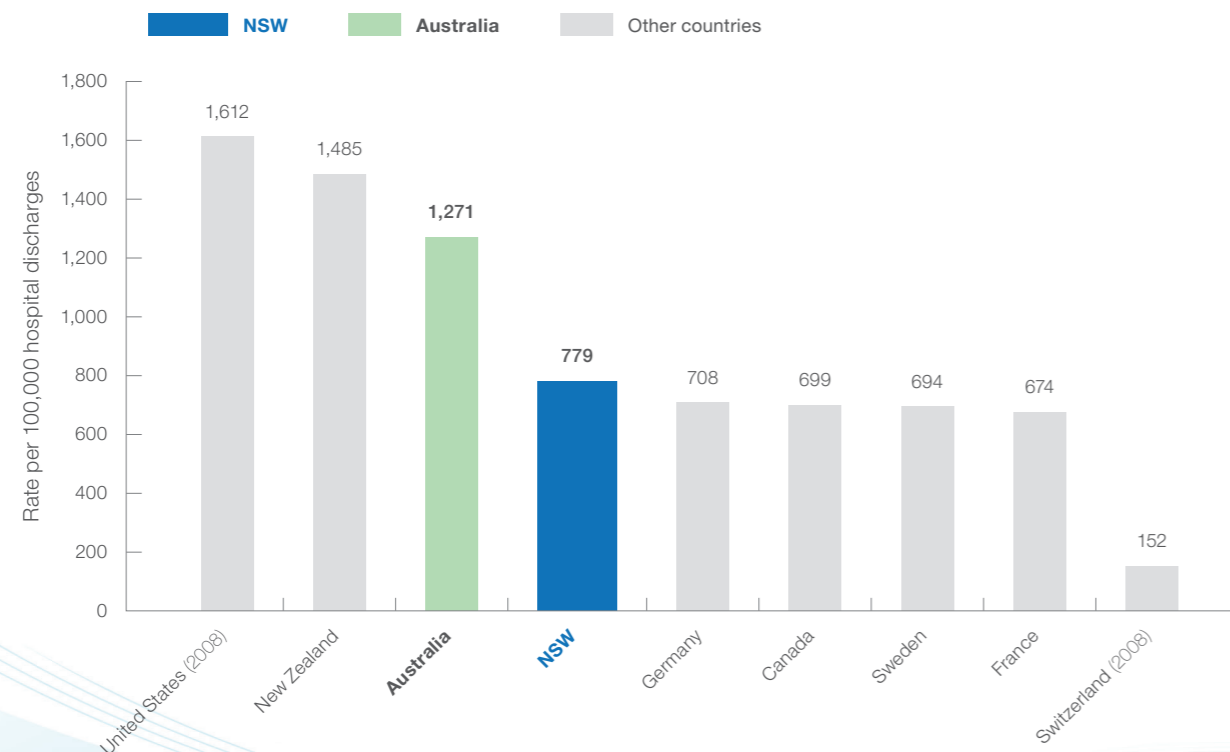
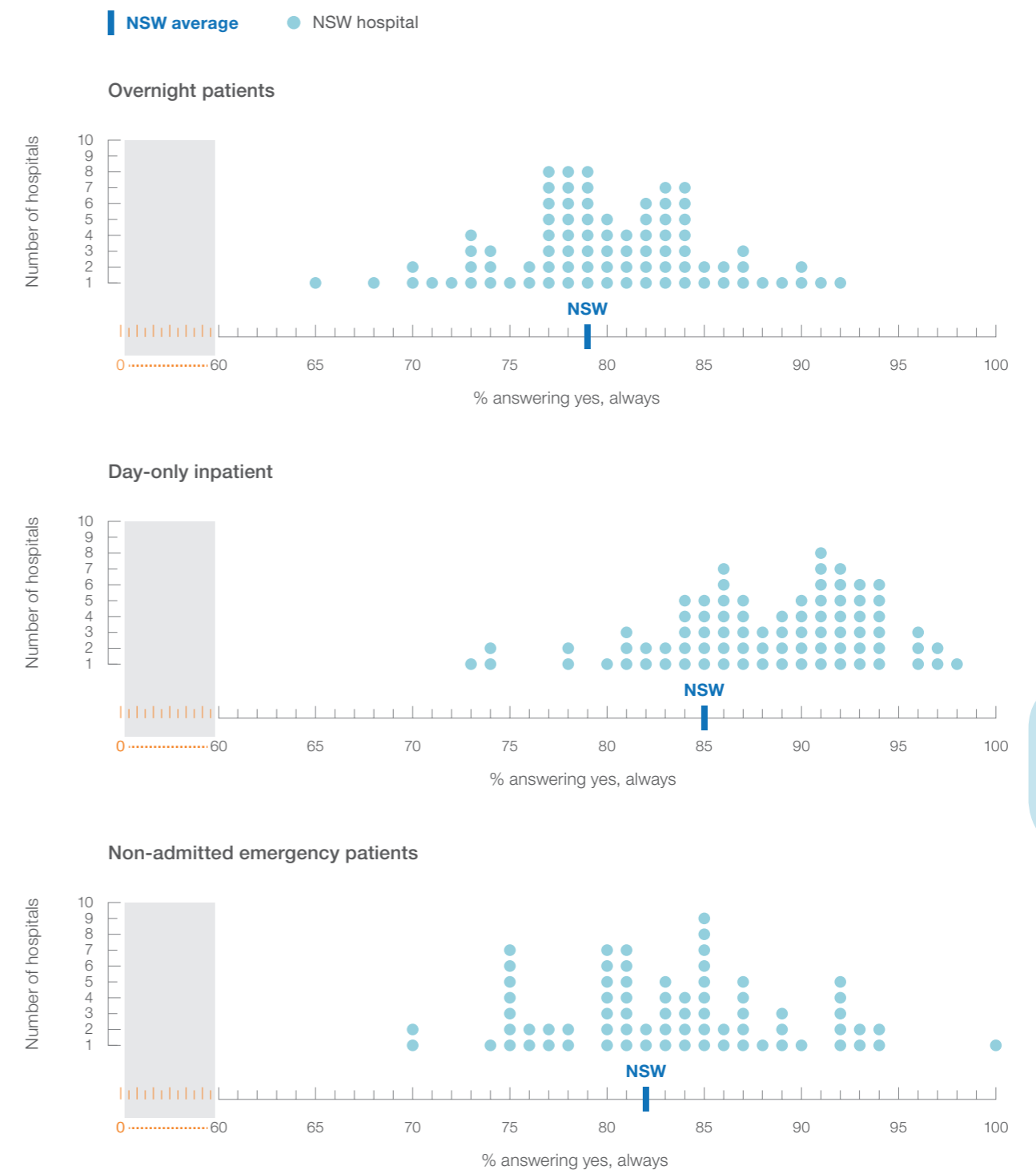


Figure 4.8: *NSW Health Patient Survey 2011* Did your healthcare providers / staff wash or clean their hands before providing care for you? (% of patients answering 'yes, always' in each public hospital)<sup>∇</sup>



(Δ) OECD, *OECD Health Data 2012* and NSW Ministry of Health, *NSW Admitted Data Patient Collection* (BHI analysis for NSW only).  
 (∇) NSW Ministry of Health, *NSW Health Patient Survey, 2011*. Only peer groups A-C are shown. Results for hospitals with sample size <30 or high standard error around estimates are not reported (BHI analysis).

# Medication safety

## Most NSW patients receive clear information about medications

Medicines are the most commonly provided healthcare treatment and are associated with a higher incidence of errors and adverse events than other interventions.<sup>5</sup> Many of these events are potentially avoidable and some can be costly.

In 2011, the Bureau invested in the international Commonwealth Fund survey so that NSW performance could be placed alongside Australia and 10 other countries. The survey focused on people likely to have had significant direct experience of the healthcare system in the recent past – termed ‘sicker adults’.

One in 20 NSW sicker adults (5%), said they had been given the wrong medicine or wrong dose at a pharmacy or while hospitalised in the previous two years (Figure 4.9).

Most NSW sicker adults (75%) reported taking one or more prescription medications. Almost one in 10 (8%) of this group said that in the previous two years they had a negative reaction to a medicine that resulted in them going to hospital (data not shown).<sup>6</sup>

To minimise adverse medication events, patients taking prescription medicine should always be provided with information about appropriate use and potential side effects.

Figure 4.10 illustrates the variation in the proportion of overnight, day-only and emergency department (ED) patients in NSW public hospitals who said that staff explained the purpose of medicines in a way they could **completely** understand. Across the state, more than two in 10 overnight, day-only and ED patients said staff did not explain medications in a way they could completely understand.

Figure 4.9: Commonwealth Fund survey 2011 In the past two years, have you been given the wrong medicine or wrong dose at a pharmacy or while hospitalised? <sup>Ω</sup>

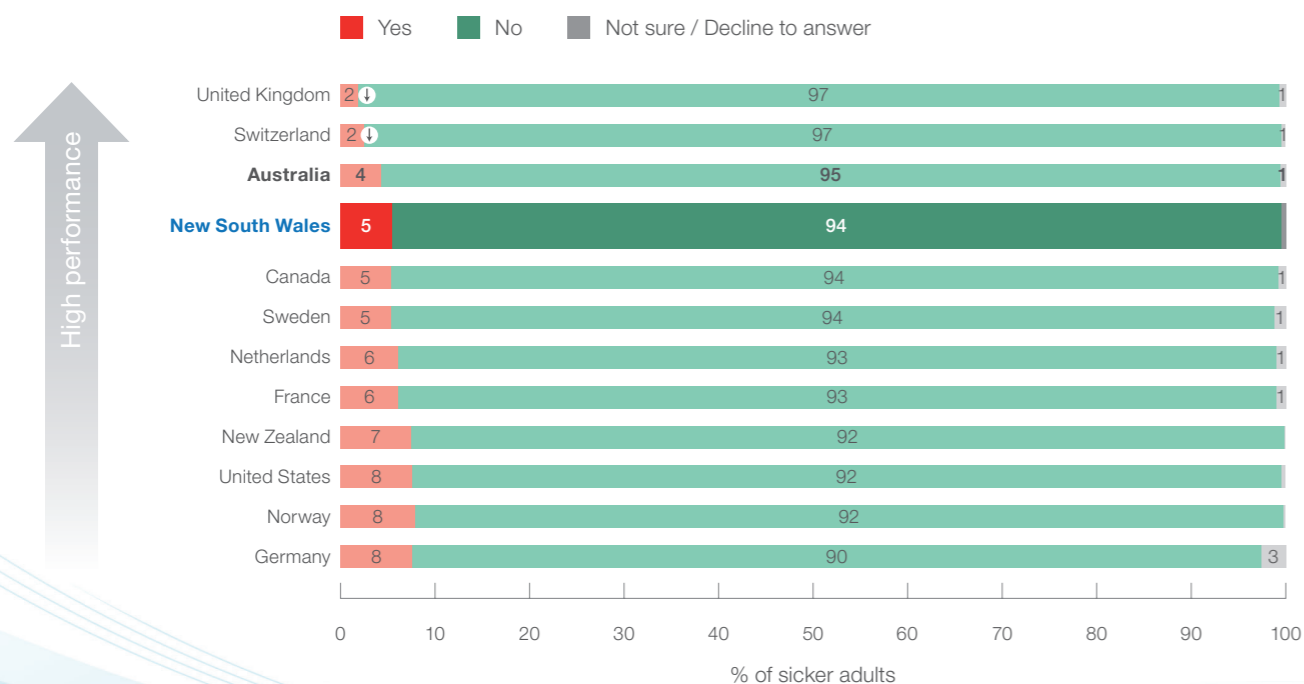
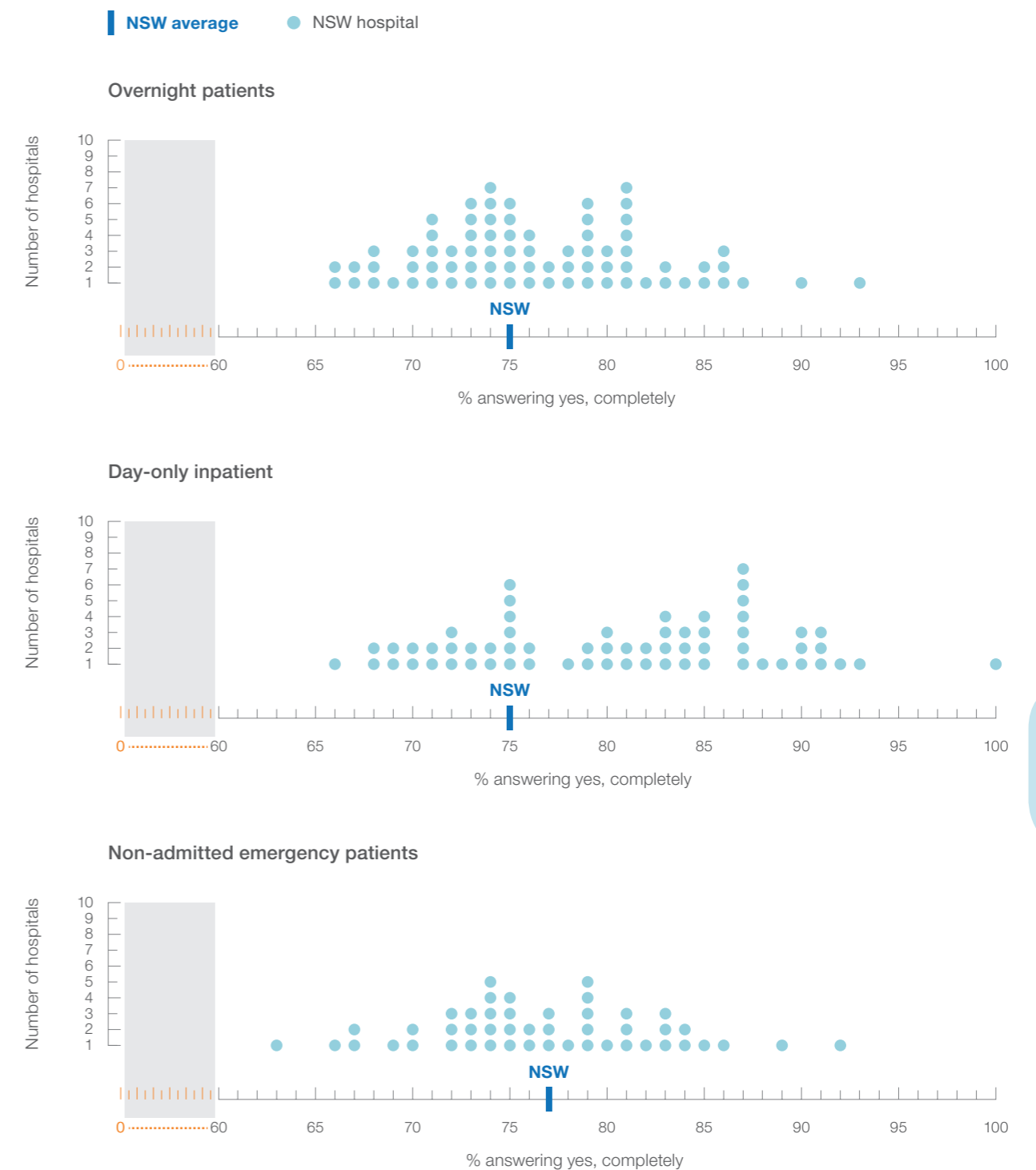


Figure 4.10: NSW Health Patient Survey 2011 Did hospital staff explain the purpose of medicines you were to take at home in a way you could understand? (% of patients answering ‘yes, completely’ in each public hospitals) <sup>Ÿ</sup>



(Ω) The Commonwealth Fund, *The Commonwealth Fund 2011 International Survey of Sicker Adults in Eleven Countries (fair / poor self-rated health OR chronic condition OR hospitalised or had surgery in previous two years)*. Percentages may not add up to 100 due to rounding, ⊕ estimate almost certainly higher than NSW; ⊖ estimate almost certainly lower than NSW (BHI analysis).  
 (Ÿ) NSW Ministry of Health, *NSW Health Patient Survey, 2011*. Only peer groups A-C are shown. Results for hospitals with sample size <30 or high standard error around estimates are not reported. Question for ED patients had slightly different wording: *Did someone explain the purpose of new medicines in a way you could understand?* (BHI analysis).



# Person centredness

Responsiveness, respect and reliability – putting patients, carers and the community at the heart of healthcare

Person centredness means that patients, families, carers and the community participate with healthcare providers in achieving a high-performing healthcare system.

At a day-to-day level, person centredness places patients at the heart of medical decisions and treatment and is about effective relationships between patients, their families and healthcare professionals.

These relationships are *“grounded in strong communication and trust, highlighted by clinicians and patients engaging in a two-way dialogue, sharing information, exploring patients’ values and preferences, and helping patients and families make clinical decisions.”*<sup>1</sup>

At a planning level, it means positively involving people in efforts to improve the healthcare system’s performance. For example, patients can offer their views on the system and help set priorities to make sure healthcare policy, management and practice respond to the needs, concerns and expectations of the community.

Person centredness therefore encompasses care which is respectful, provides emotional support, physical comfort, continuity, information and communication. It is also accessible, coordinated and involves family and carers.

Evidence shows that person centredness enhances care experiences and improves outcomes, safety, costs and appropriateness of care.<sup>2</sup>

## How well does NSW perform?

| International and national comparisons   | NSW performed better than:                           | NSW performed worse than: |
|--|--|---------------------------|
| Three in 10 sicker adults (30%) rated the quality of healthcare they received as excellent.*                                     | Sweden, Switzerland, France, Netherlands and Germany | New Zealand               |
| Six in 10 sicker adults (64%) said they were <i>always</i> involved as much as they wanted to be in decisions about their care.* | Germany, Sweden, France and Norway                   | New Zealand               |

## Variation within NSW

There was a 40 percentage point range across NSW hospitals in the proportion of overnight patients in NSW public hospitals rating their care as *excellent*.

There was a 27 percentage point range across hospitals in the proportion of emergency department (ED) patients saying they were *always* treated with respect and dignity.

There was a 35 percentage point range across NSW hospitals in the proportion of day-only patients saying they were *definitely* involved in decisions about their care as much as they wanted to be.

\* Statistical analyses indicate that NSW results were truly different from those in the countries indicated.

# Patient views on quality of healthcare

## Most patients in NSW rate their care positively

Regular monitoring of public perceptions and patient experiences is an important way to measure healthcare quality. Patient views provide insight into relative performance and guide efforts to improve responsiveness of care.

In 2011, the Bureau invested in the international Commonwealth Fund survey so that NSW performance could be placed alongside Australia and 10 other countries. The survey focused on people likely to have had significant direct experience of the healthcare system in the recent past – termed ‘sicker adults’.

Most NSW sicker adults (68%) rated the quality of medical care received as excellent (30%) or very good (38%). A small proportion rated their care as poor (3%). NSW had a higher proportion of excellent ratings than many comparator countries (Figure 5.1).

Examining complementary data from the statewide patient survey reveals that there is variation across hospitals in overall ratings – both in terms of hospital admission types and across hospitals. Figure 5.2 shows for each public hospital in NSW the proportion of patients who rated their overall care as excellent.

Figure 5.1: Commonwealth Fund survey 2011 Overall, how do you rate the quality of medical care that you have received in the past 12 months?<sup>Ω</sup>

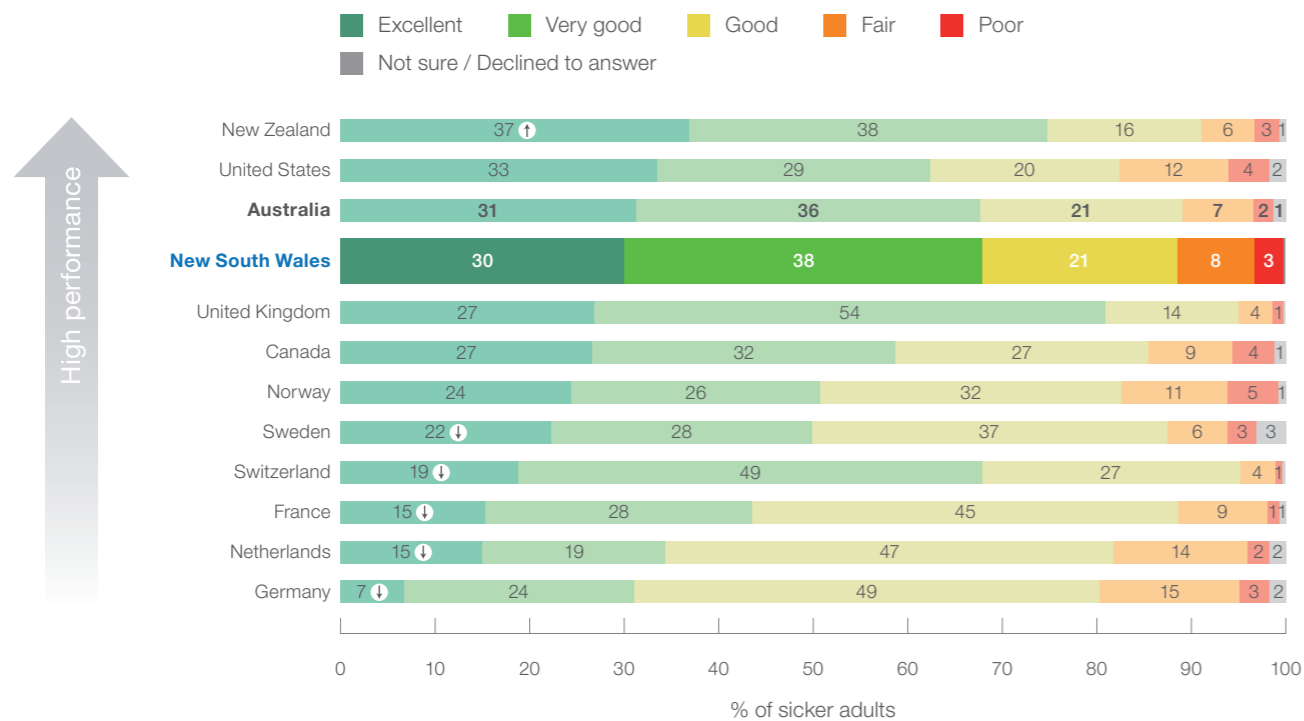
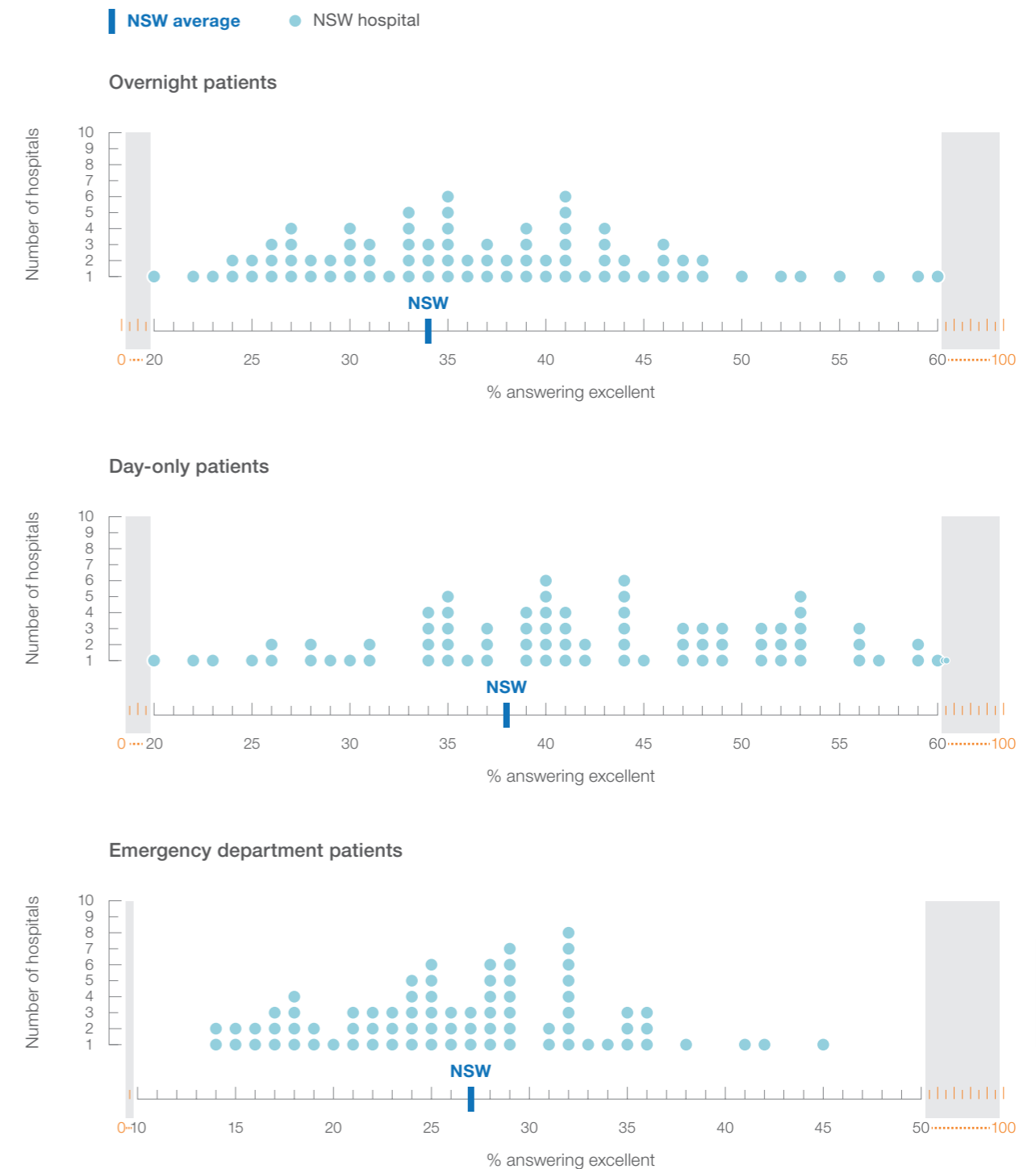


Figure 5.2: NSW Health Patient Survey 2011 Overall, how would you rate the care you received? (% of patients answering ‘excellent’ in each public hospital)<sup>Ÿ</sup>



(Ω) The Commonwealth Fund, *The Commonwealth Fund 2011 International Survey of Sicker Adults in Eleven Countries (fair / poor self-rated health OR chronic condition OR hospitalised or had surgery in previous two years)*. Percentages may not add up to 100 due to rounding, Ⓢ estimate almost certainly higher than NSW; Ⓣ estimate almost certainly lower than NSW (BHI analysis).  
 (Ÿ) NSW Ministry of Health, *NSW Health Patient Survey, 2011*. Only peer groups A-C are shown. Results for hospitals with sample size <30 or high standard error around estimates are not reported (BHI analysis).

# Respect and dignity

## Most patients report always being treated with respect and dignity

Respect, dignity and privacy are all critically important to patients and should be integral to the varied interactions in any healthcare journey. These values encompass:

- Making patients and carers feel welcome
- Frequent and clear communication
- Protecting patient privacy
- Responding to the special needs of dying patients, the critically ill and their carers
- Respecting cultures and beliefs.<sup>2</sup>

Patient surveys often include questions about the extent to which patients feel they were treated with respect and dignity. Figure 5.3 shows data from an Australian Bureau of Statistics (ABS) survey, placing NSW results alongside those for the rest of Australia.

Complementary data from the *NSW Health Patient Survey* provides information on hospital level variation within NSW (Figure 5.4). For example, in 2011 the proportion of overnight patients who said they were *always* treated with respect and dignity ranged from 68% to 98%.

Figure 5.3: *Patient Experience Survey 2010–11* Thinking about the healthcare professionals you have seen in the last 12 months, how often did they show respect for what you had to say?<sup>(B)</sup>

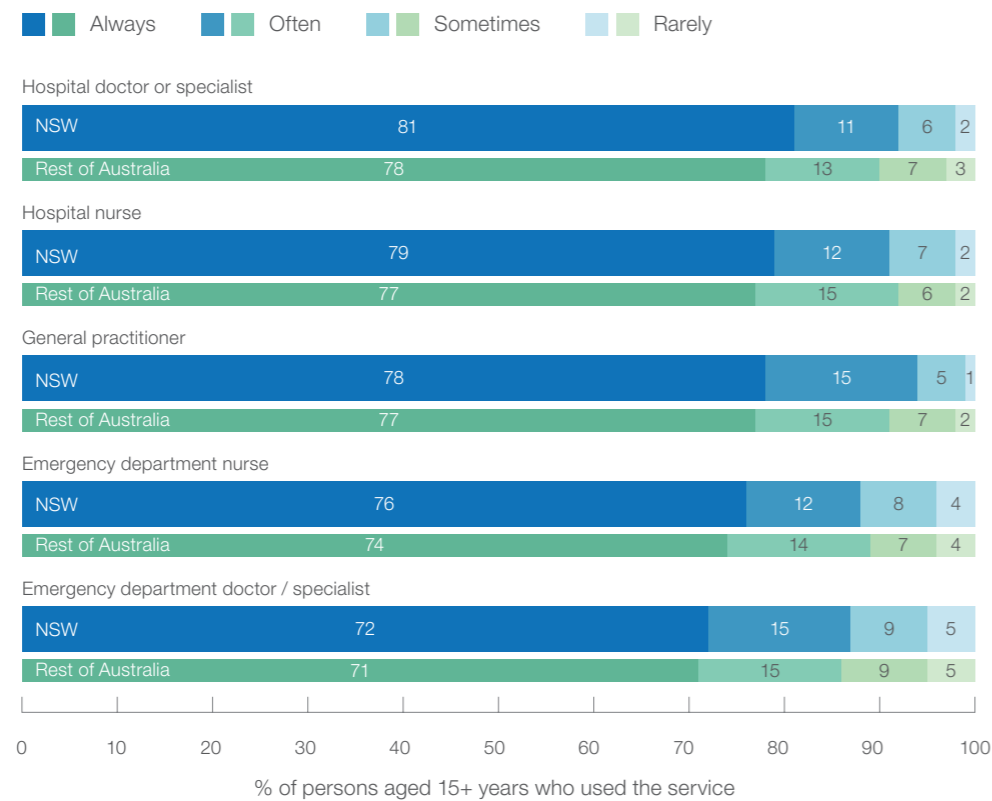
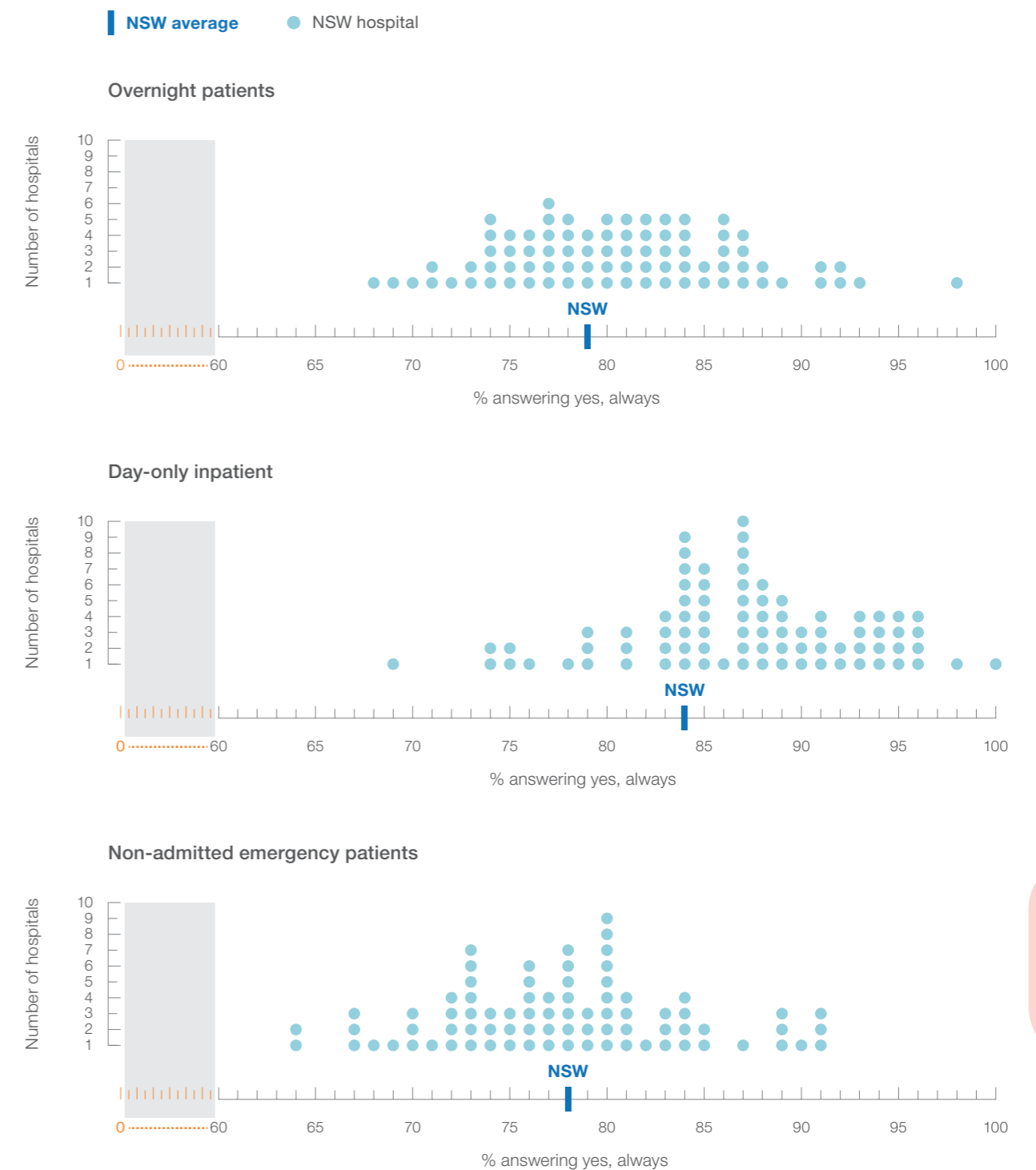


Figure 5.4: *NSW Health Patient Survey 2011* Did you feel like you were treated with respect and dignity while you were in the hospital? (% of patients responding 'always' in each public hospital)<sup>(Y)</sup>



(B) Australian Bureau of Statistics, *Patient Experience Survey, 2010–11*.  
 (Y) NSW Ministry of Health, *NSW Health Patient Survey, 2011*. Only peer groups A-C are shown. Results for hospitals with sample size <30 or high standard error around estimates are not reported (BHI analysis).

Person centredness

# Patient engagement

## Patients not always given enough say about their treatment

Most patients want to be given information about treatment options, and for clinicians to take account of their preferences. Some wish to be an active participant in the decision-making process.

In 2011, the Commonwealth Fund survey asked 'sicker adults' about the extent to which they participated, with specialists and consultants, in decisions about their care and treatment.

Six in 10 NSW sicker adults (64%) reported that they were always involved as much as they wanted to be, in decisions about treatment and care. New Zealand was the only country with a significantly higher percentage (Figure 5.5).

The NSW Health Patient Survey asked a similar question in 2011. The results revealed considerable variation across the state's hospitals. The proportion of overnight patients reporting that they *definitely* had enough say about their treatment ranged from 37% to 75%. For day-only patients, it ranged from 46% to 81%, and for emergency department (ED) patients it ranged from 41% to 75% (Figure 5.6).

Overall, six in 10 day-only patients (63%) said they *definitely* had enough say about their treatment. A similar proportion (58%) of ED patients said they definitely had enough say, and five in 10 overnight patients (53%) said the same.

Figure 5.5: Commonwealth Fund survey 2011 When you have received care or treatment from specialists or consultants, did they involve you as much as you wanted in decisions about your treatment or care? <sup>Ω</sup>

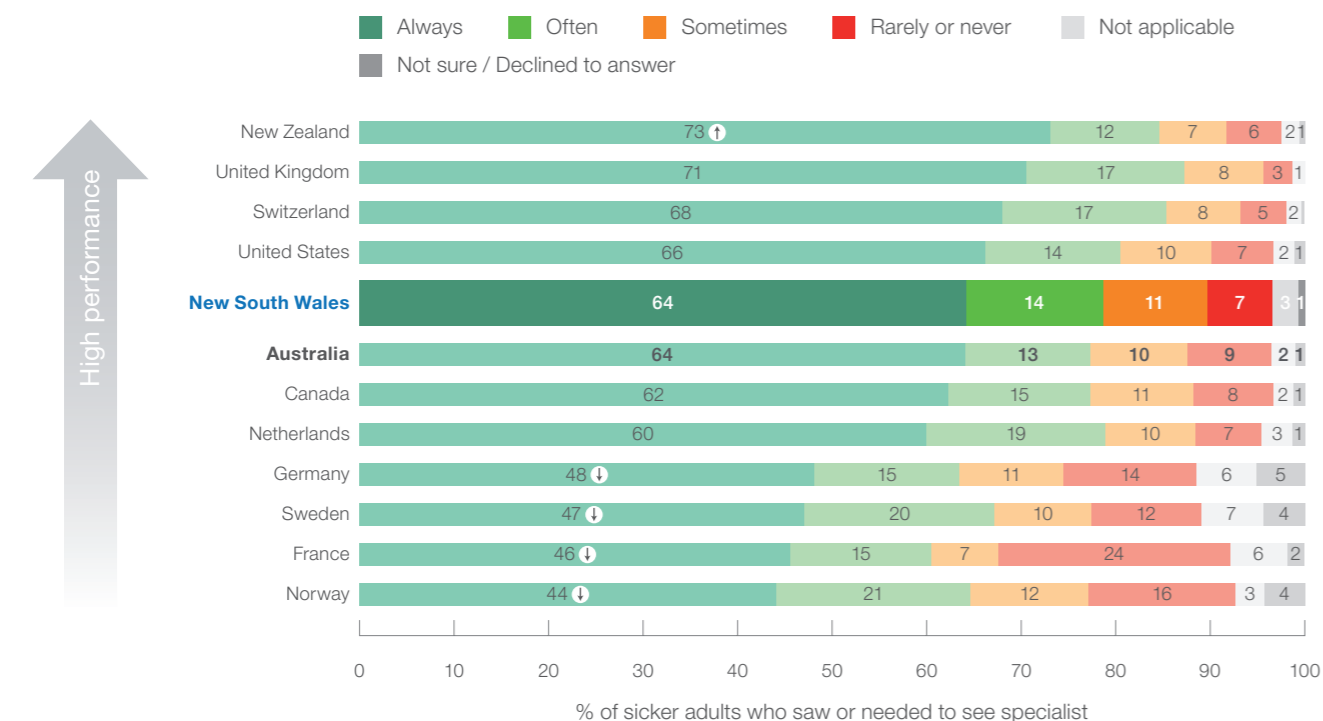
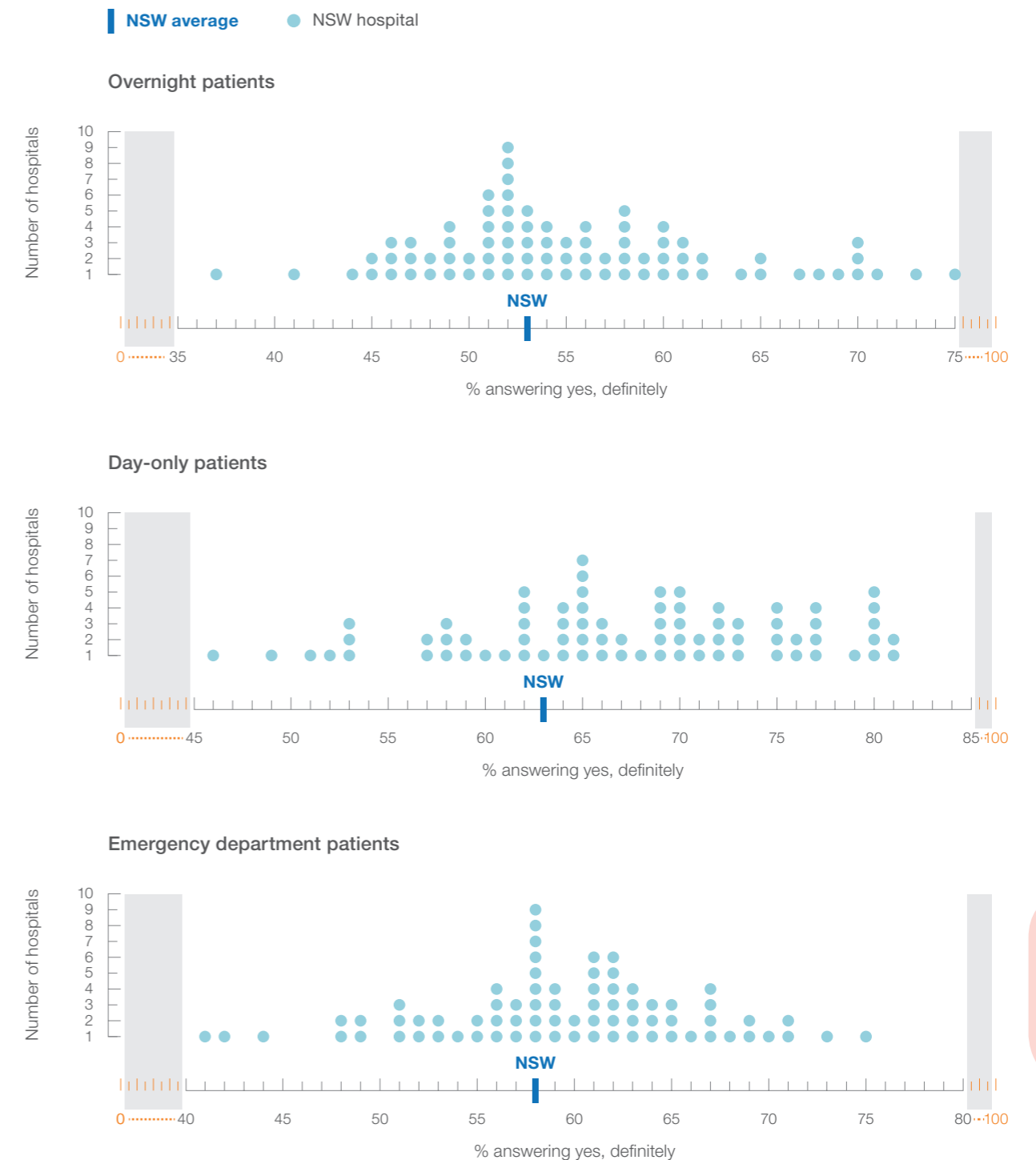


Figure 5.6: NSW Health Patient Survey 2011 Did you have enough say about your treatment? (% of patients responding 'yes, definitely' in each public hospital) <sup>Ÿ</sup>



(<sup>Ω</sup>) The Commonwealth Fund, *The Commonwealth Fund 2011 International Survey of Sicker Adults in Eleven Countries (fair / poor self-rated health OR chronic condition OR hospitalised or had surgery in previous two years)*. Percentages may not add up to 100 due to rounding, (↑) estimate almost certainly higher than NSW; (↓) estimate almost certainly lower than NSW (BHI analysis).  
 (<sup>Ÿ</sup>) NSW Ministry of Health, *NSW Health Patient Survey, 2011*. Only peer groups A-C are shown. Results for hospitals with sample size <30 or high standard error around estimates are not reported. Question for day-only patients had slightly different wording: *Were you involved in decisions about your care as much as you wanted?* (BHI analysis).

# Patient-professional communication

## Patients in NSW report that health professionals listen carefully

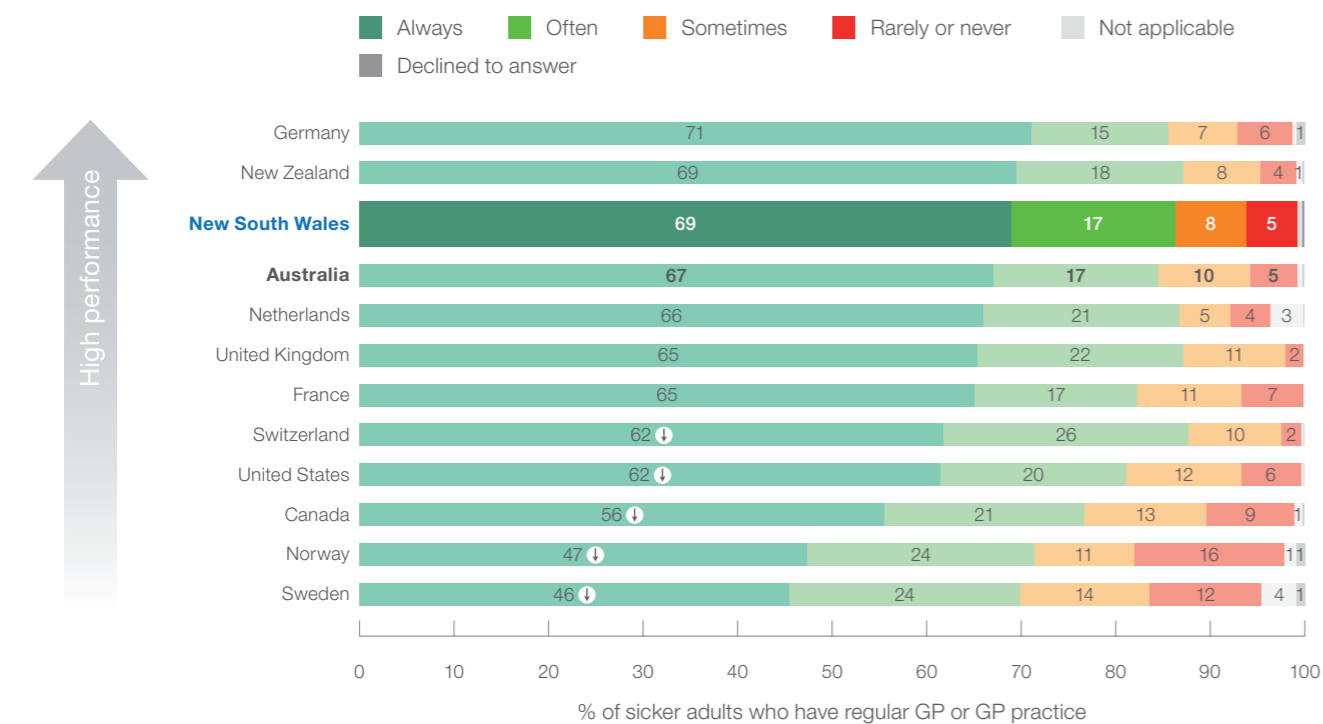
Most patients want healthcare workers to listen carefully to what they have to say and to give them enough time and attention so that they feel their health concerns are properly understood and dealt with.

The 2011 *International Commonwealth Fund Survey* of sicker adults found that seven in 10 NSW patients (69%) said that their GP *always* spends enough time with them – a higher proportion than in Switzerland, United States, Canada, Norway and Sweden (Figure 5.7).

Complementary data from the 2010–11 *Australian Bureau of Statistics (ABS) Patient Experience Survey* asked the same question about a range of healthcare professionals. NSW adults were most likely to say that hospital nurses *always* spend enough time with them (Figure 5.8).

The ABS survey also asked whether various healthcare professionals listened carefully when interacting with patients. NSW patients were most likely to say that hospital doctors or specialists *always* listened carefully (Figure 5.9).

Figure 5.7: *Commonwealth Fund survey 2011* When you receive care or treatment, does your GP or someone in the GP's practice spend enough time with you? <sup>(A)</sup>



(A) The Commonwealth Fund, *The Commonwealth Fund 2011 International Survey of Sicker Adults in Eleven Countries (fair / poor self-rated health OR chronic condition OR hospitalised or had surgery in previous two years)*. Percentages may not add up to 100 due to rounding, ↑ estimate almost certainly higher than NSW; ↓ estimate almost certainly lower than NSW (BHI analysis).  
 (B) Australian Bureau of Statistics, *Patient Experience Survey, 2010–11*.

Figure 5.8: *Patient Experience Survey 2010–11* Thinking about all the healthcare professionals you have seen in the last 12 months, how often did they spend enough time with you? <sup>(B)</sup>

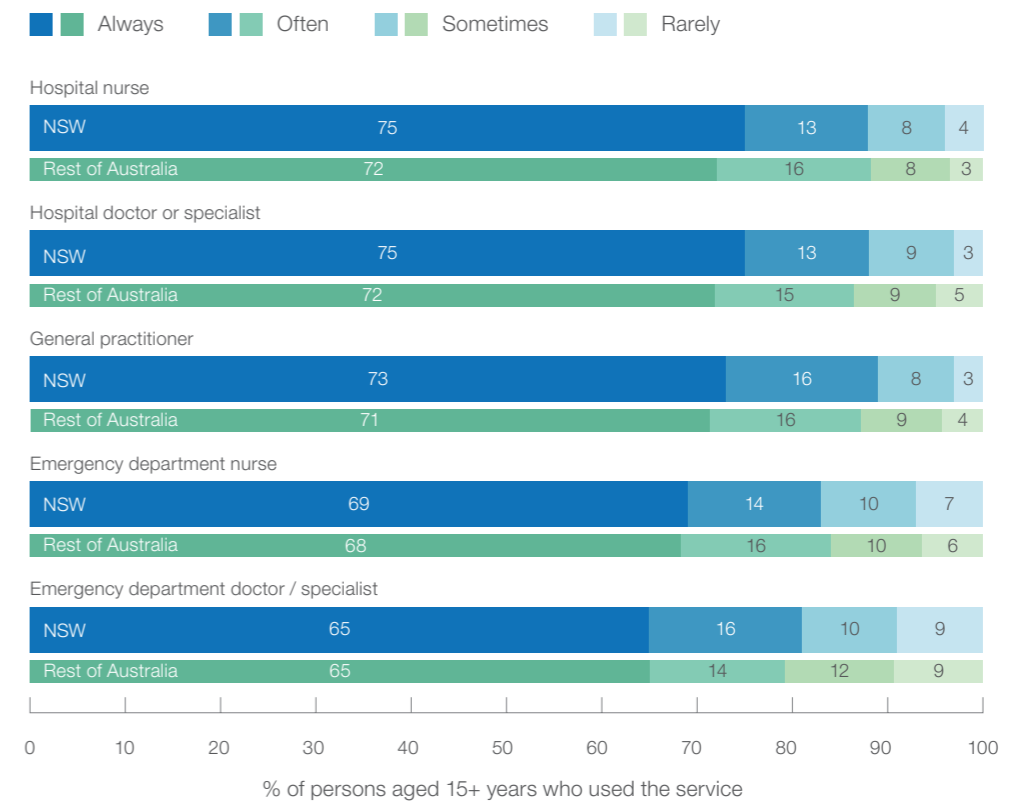
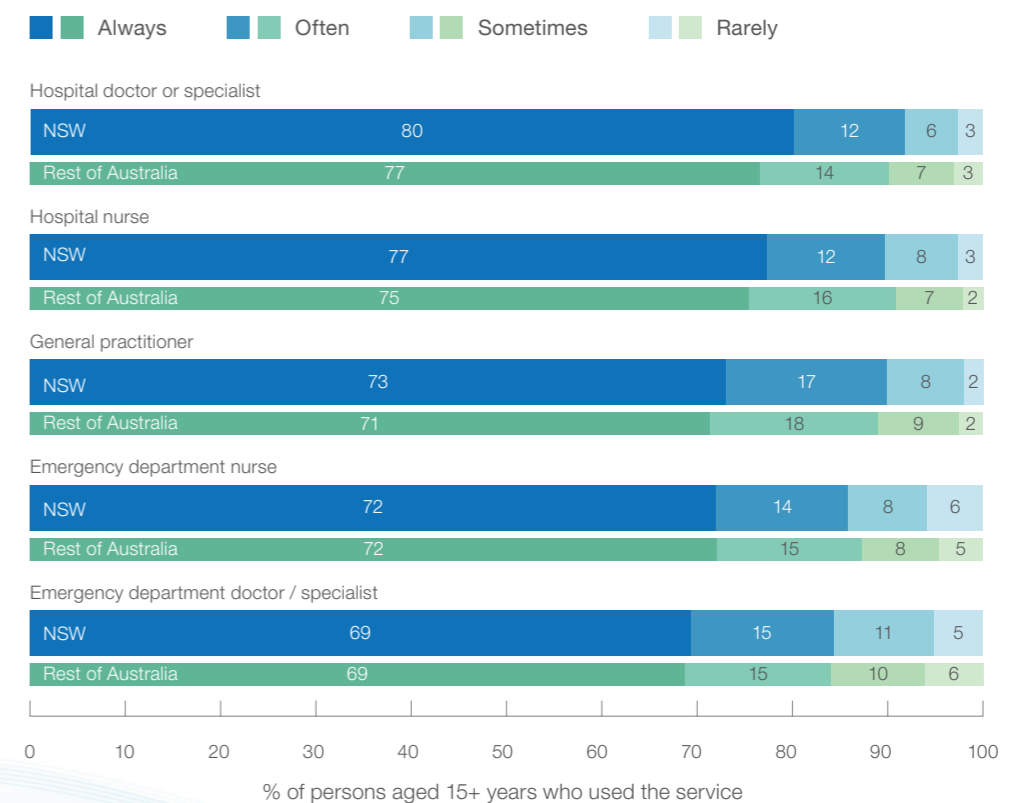


Figure 5.9: *Patient Experience Survey 2010–11* Thinking about all the healthcare professionals you have seen in the last 12 months, how often did they listen carefully to you? <sup>(B)</sup>



Person centredness

# Equity

Healthcare for all – regardless of circumstances

Equity means that healthcare should be provided:

- On the basis of clinical need, regardless of personal characteristics such as age, gender, race, ethnicity, income, socioeconomic status (SES) or geographical location
- To reduce differences or disparities in health status across various sections of the population.

Equity in healthcare has been described as:

*“. . . grounded in the principle of distributive justice. [It] reflects a concern to reduce unequal opportunities to be healthy associated with membership in less privileged social groups, such as poor people; disenfranchised racial, ethnic or religious groups; women and rural residents.”<sup>1</sup>*

Treating patients equitably - on the basis of clinical need, in a culturally sensitive way - remains a fundamental goal of the NSW public healthcare system.

This chapter covers:

- Information on Aboriginal health in NSW
- Exploration of differences in outcomes from heart disease and stroke in terms of age, socioeconomic status and rurality.

We have used the term *Aboriginal people*, rather than *Aboriginal and Torres Strait Islander people*, in line with NSW Health usage, which recognises that Aboriginal people are the original inhabitants of NSW. Where we have drawn data from national sources (AIHW), we have retained the terminology of the source material.

For comprehensive information about the health of the Aboriginal people of NSW, see *The Health of Aboriginal People of NSW: Report of the Chief Health Officer 2012* (available at [www.health.nsw.gov.au](http://www.health.nsw.gov.au)).

## How well does NSW perform?

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Aboriginal people in NSW continue to have shorter life expectancy than non-Aboriginal people.

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The gap between Aboriginal infant mortality and non-Aboriginal infant mortality is closing.

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While people living in areas with lower socioeconomic status are more likely to be hospitalised for heart attack or stroke, they are similarly likely to die within 30 days.

---

Among patients who are hospitalised for an ischaemic (clot based) stroke, those who live in rural areas are more likely to die within 30 days.

---

# Aboriginal people and health disparities

## Marked gap in life expectancy, infant mortality rates improving

A range of data show that Aboriginal people are significantly disadvantaged compared with non-Aboriginal people in terms of health status, health risk factors including socioeconomic status, and access to culturally appropriate health services (See for example [NSW Health Statistics; AIHW](#)).

An Aboriginal boy born in NSW 2005–07 can expect to live for 69.9 years – almost nine years less than a non-Aboriginal boy. An Aboriginal girl can expect to live for 75.0 years – 7.5 years less than a non-Aboriginal girl (Figure 6.1).

The infant mortality rate for babies born to Aboriginal mothers in NSW was 5.2 per 1,000 births in years 2008 to 2010, compared to 4.1 per 1,000 births for babies born to non-Aboriginal mothers. This ‘gap’ has been shrinking in recent years. In 1998–2000 the gap for males was

7.1 deaths per 1,000 live births, falling to 1.3 deaths per 1,000 live births in 2008–2010. For females, the gap in 1998–2000 was 7.8 deaths per 1,000 live births, falling to 0.9 deaths per 1,000 live births in 2008–2010 (Figure 6.2).

Renal dialysis accounts for the largest number of hospitalisations in Aboriginal people. Aboriginal people are 1.9 times more likely to be receiving dialysis for end stage renal disease than non-Aboriginal people. In the past 10 years, there has been a significant increase in the rate of Aboriginal people receiving dialysis. However, there has been no significant change in the gap between Aboriginal and non-Aboriginal people over this time (Figure 6.3).<sup>2</sup>

Figure 6.1: Life expectancy at birth, by Aboriginality and sex, 2005 – 2007<sup>6</sup>

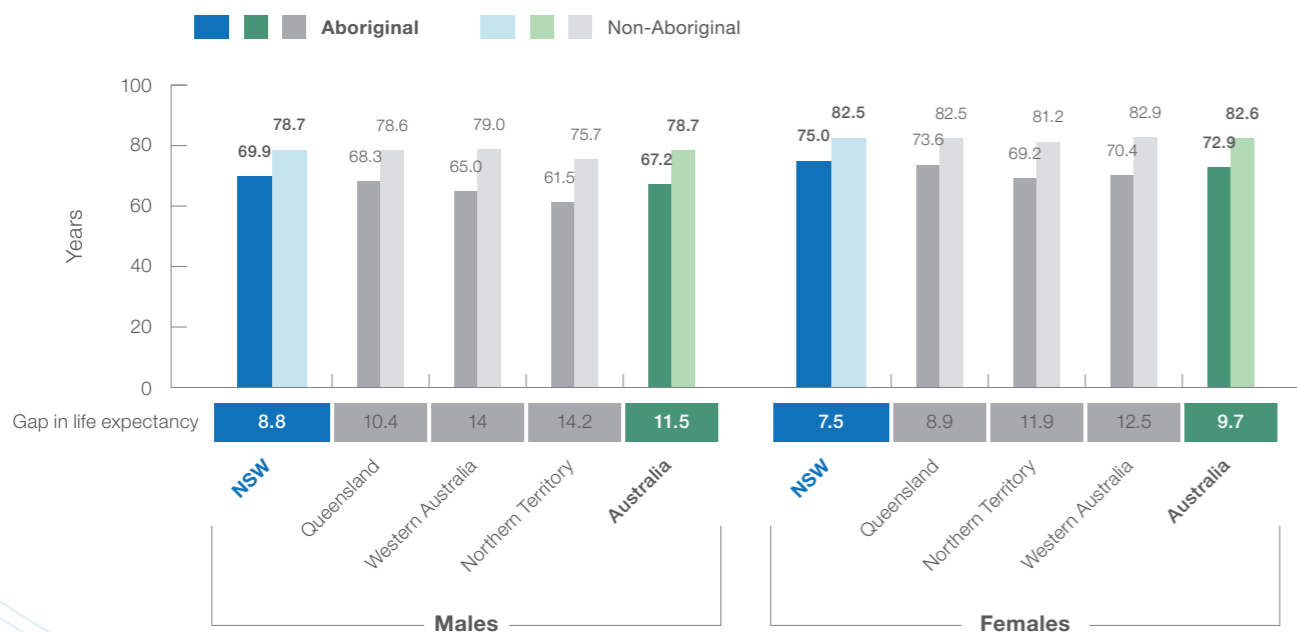


Figure 6.2: Infant mortality by Aboriginality (three-year rolling average), NSW, 1998 – 2000 to 2008–10<sup>7</sup>

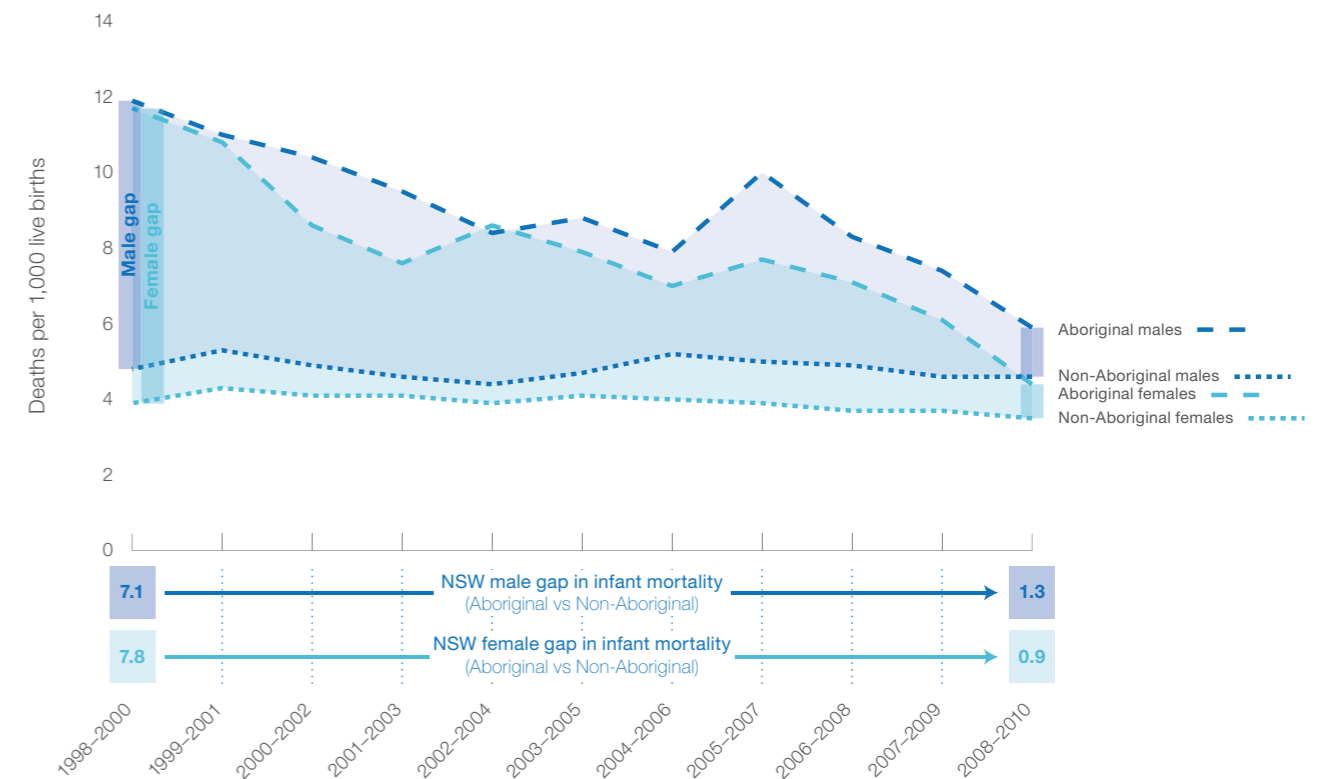
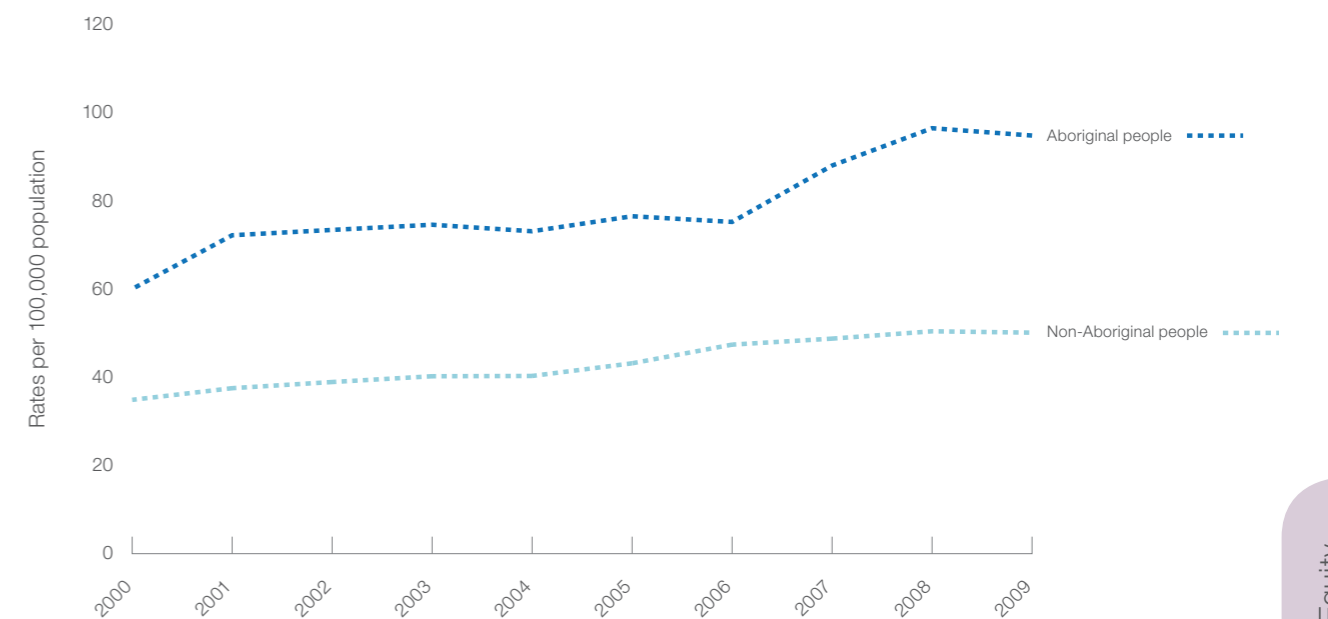


Figure 6.3: Prevalence of end stage renal disease, Aboriginal and non-Aboriginal people, 2000 – 2009<sup>8</sup>



(6) Australian Bureau of Statistics, *Life Tables for Aboriginal and Torres Strait Islander Australians*. ABS report state-level data for NSW, Queensland, Western Australia, Northern Territory only. Australia figure includes all jurisdictions.  
 (7) NSW Ministry of Health, *Health Statistics NSW*.  
 (8) Australia and New Zealand Dialysis and Transplant Registry.

# Hospitalisations and outcomes after heart attack

## The impact of socio-demographic factors

People hospitalised for heart attacks in NSW in 2010–11 were most likely to be aged between 75 and 84 years. The likelihood of dying within 30 days of being hospitalised for heart attack increased markedly with age (Figure 6.4).

For people hospitalised for heart attacks, there is a clear gradient of decreasing incidence with increasing affluence. However, the likelihood of death within 30 days of hospitalisation was similar across all socioeconomic groups (Figure 6.5).

People living in remote / very remote areas accounted for 452 hospitalisations (2% of heart attack patients hospitalised in NSW). Hospitalisation rates were much higher in more remote areas (1,508 per 100,000 population) than metropolitan (341 per 100,000 population). For those hospitalised, the 30-day mortality rate increased modestly with rurality (Figure 6.6).

These data provide information on equity in terms of 30-day mortality outcomes, once a patient is admitted to hospital for a heart attack. They do not however capture cases where equity issues may impact access to care, such as people who died from a heart attack but were not admitted to hospital at all. In the two years, 2009 and 2010, 6,979 people in NSW died from a heart attack<sup>3</sup>; while 2,431 people died from any cause within 30 days of hospitalisation for a heart attack between July 2009 and June 2011. Cause of death unit record data has not been released by ABS and so it is not possible to determine the socio-demographic profiles of those who died without hospitalisation.

Figure 6.4: Number and rate of people hospitalised (public and private) for heart attack (AMI), and proportion who died within 30 days, by **age**, July 2009 to June 2011 <sup>(1)</sup>

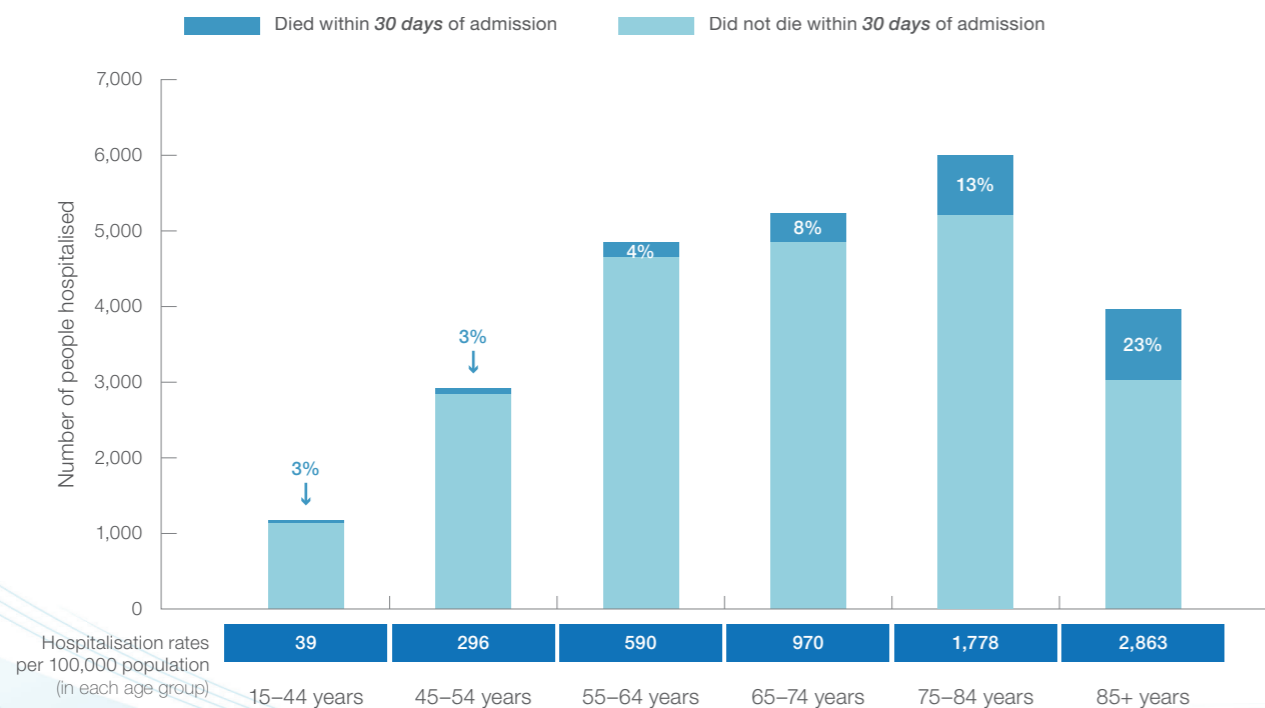


Figure 6.5: Number and rate of people hospitalised (public and private) for heart attack (AMI), and proportion who died within 30 days, by **SES**, July 2009 to June 2011 <sup>(1)</sup>

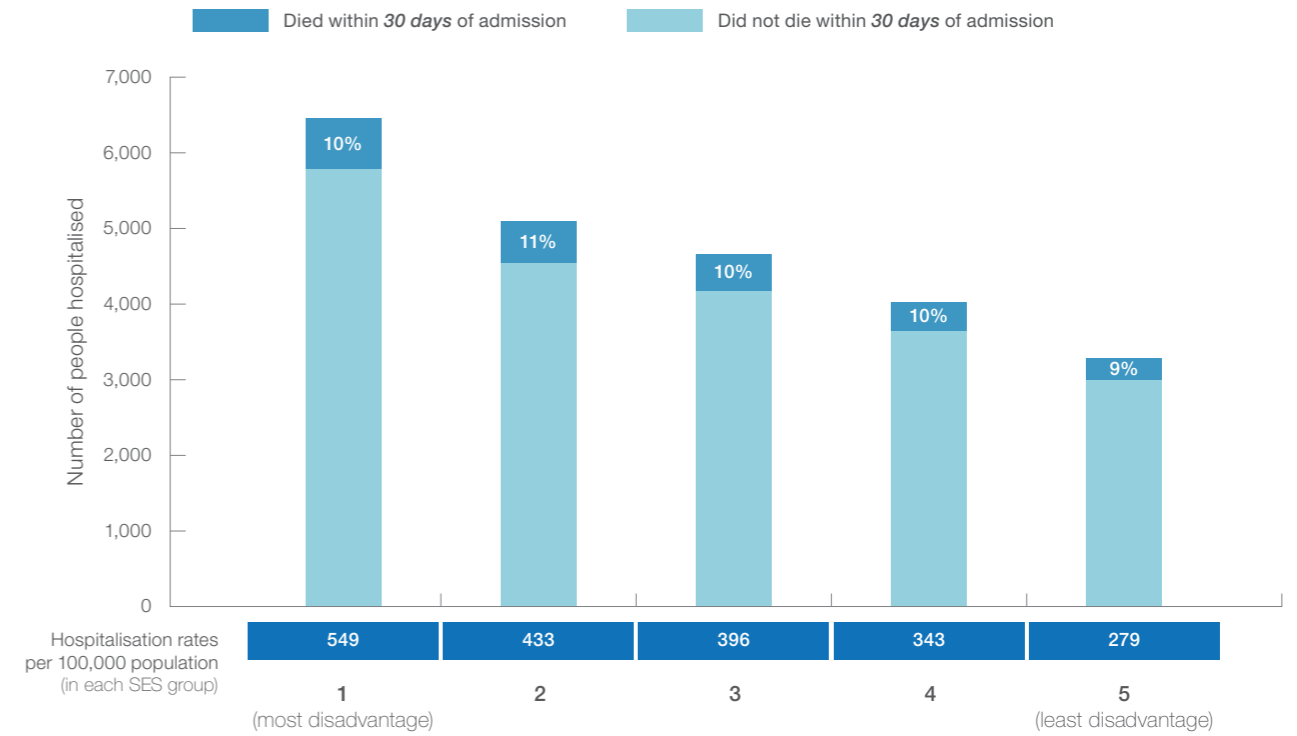
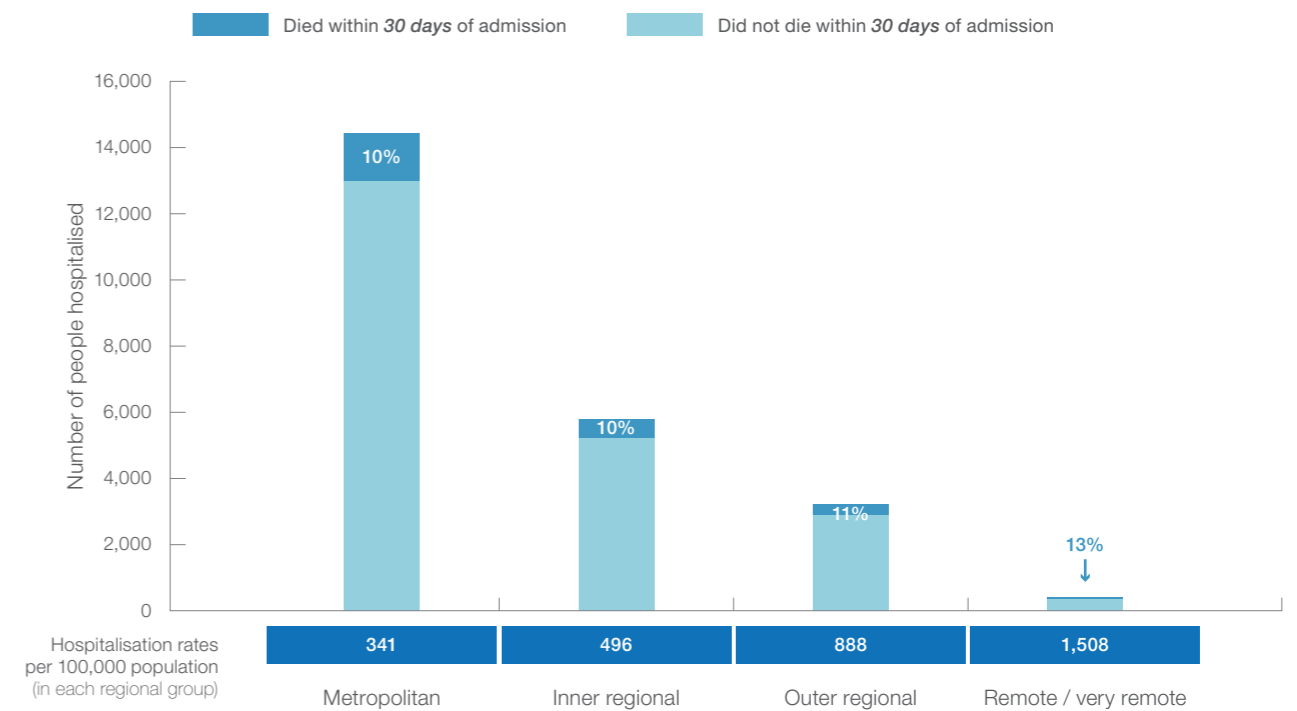


Figure 6.6: Number and rate of people hospitalised (public and private) for heart attack (AMI), and proportion who died within 30 days, by **rurality**, July 2009 to June 2011 <sup>(1)</sup>



(1) NSW Ministry of Health, NSW Admitted Patient Data Collection (BHI analysis).  
 (2) Age, rurality, SES (using Index of Relative Disadvantage for postcode of residence) at admission (ABS population data 2010, 15+ years).



# Hospitalisations and outcomes in stroke patients

## The role of socio-demographic factors

People hospitalised for ischaemic (clot-based) stroke in NSW in 2010–11 were most likely to be aged between 75 and 84 years. The likelihood of dying within 30 days of being hospitalised for stroke increased markedly with age (Figure 6.7).

For people hospitalised for ischaemic stroke, there is a clear gradient of decreasing incidence with increasing affluence. The likelihood of dying within 30 days of being hospitalised for a stroke also showed a slight gradient across socioeconomic groups (Figure 6.8).

People living in remoter areas accounted for 231 hospitalisations (2% of ischaemic stroke patients hospitalised in NSW). Hospitalisation rates were higher in more remote areas (770 per 100,000 population) than metropolitan (195 per 100,000). For those hospitalised, the 30-day mortality rate increased with rurality (Figure 6.9).

These data provide information on equity in terms of 30-day mortality outcomes, once a patient is admitted to hospital for a stroke. They do not however capture cases where equity issues may impact access to care, such as people who died from a stroke but were not admitted to hospital at all. In the two years, 2009 and 2010, 8,142 people in NSW died from a stroke<sup>3</sup>; while 3,715 people died from any cause within 30 days of hospitalisation for a stroke between July 2009 and June 2011. Cause of death unit record data has not been released by ABS and so it is not possible to determine the socio-demographic profiles of those who died without hospitalisation.

Figure 6.7: Number and rate of people hospitalised (public and private) for ischaemic stroke, and proportion who died within 30 days, by age, July 2009 to June 2011 <sup>(1)</sup>

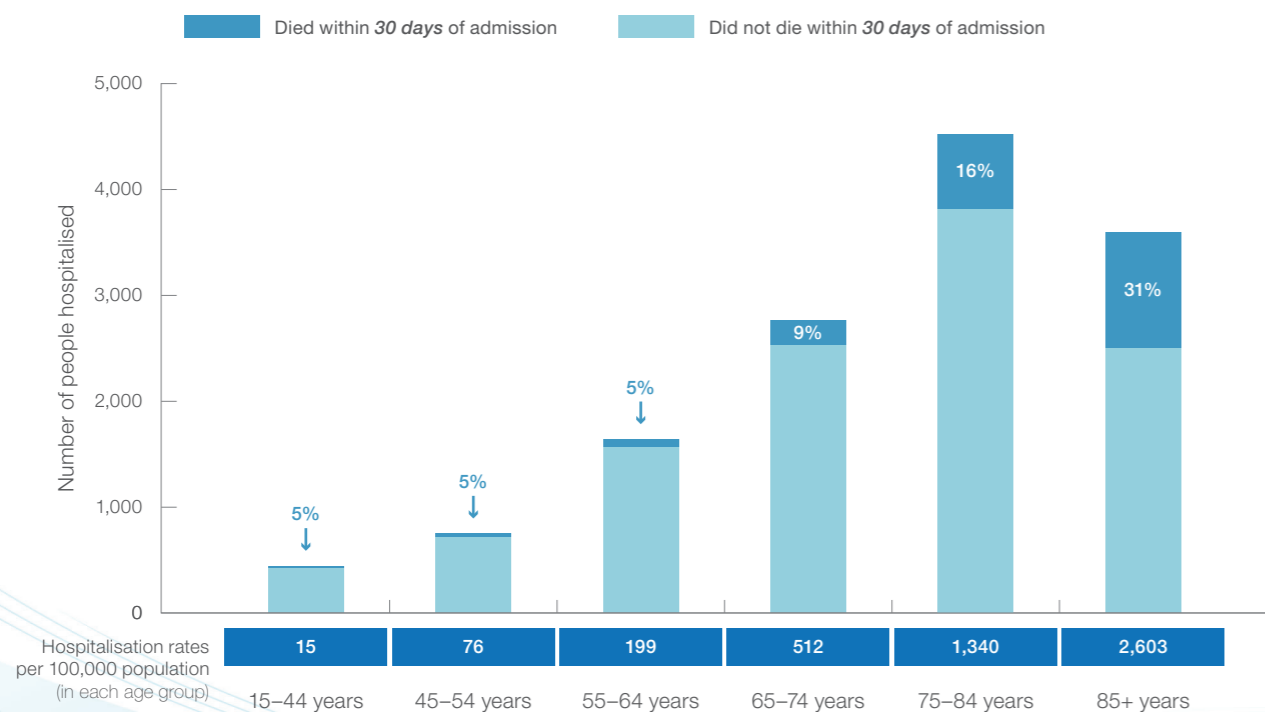


Figure 6.8: Number and rate of people hospitalised (public and private) for ischaemic stroke, and proportion who died within 30 days, by SES, July 2009 to June 2011 <sup>(1)</sup>

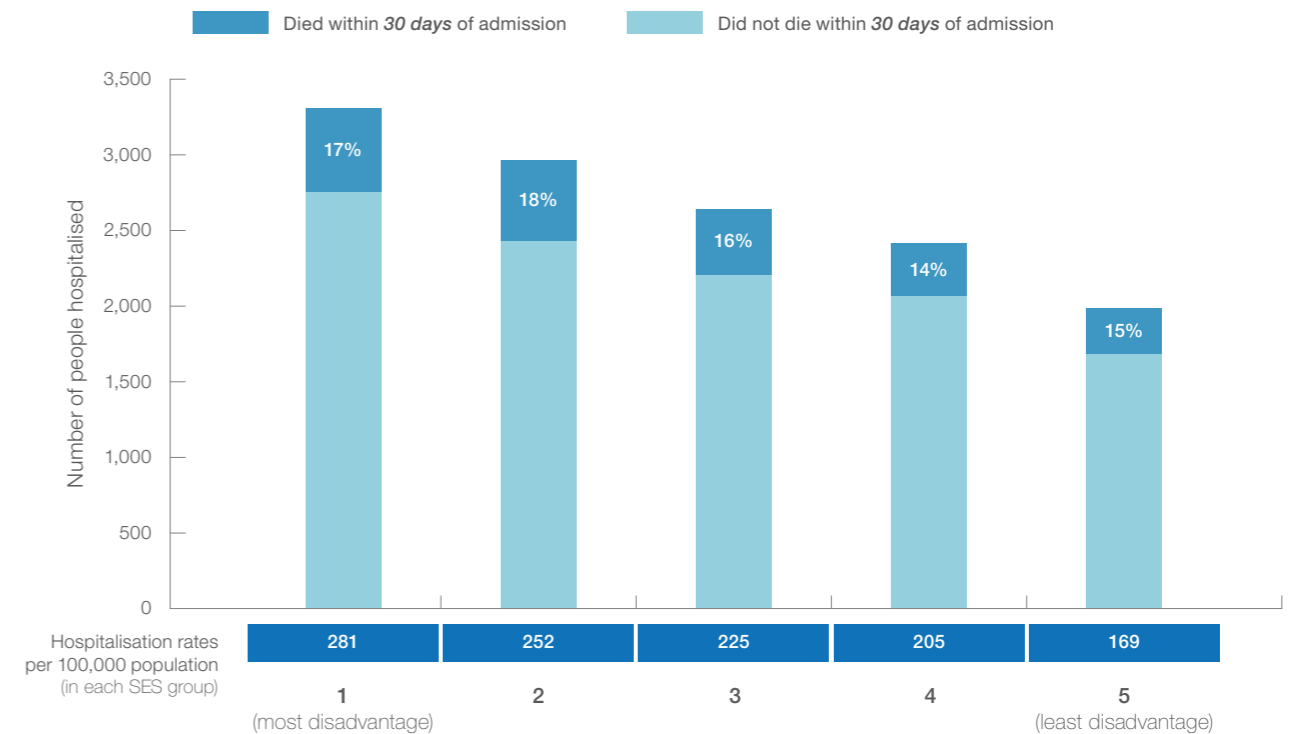
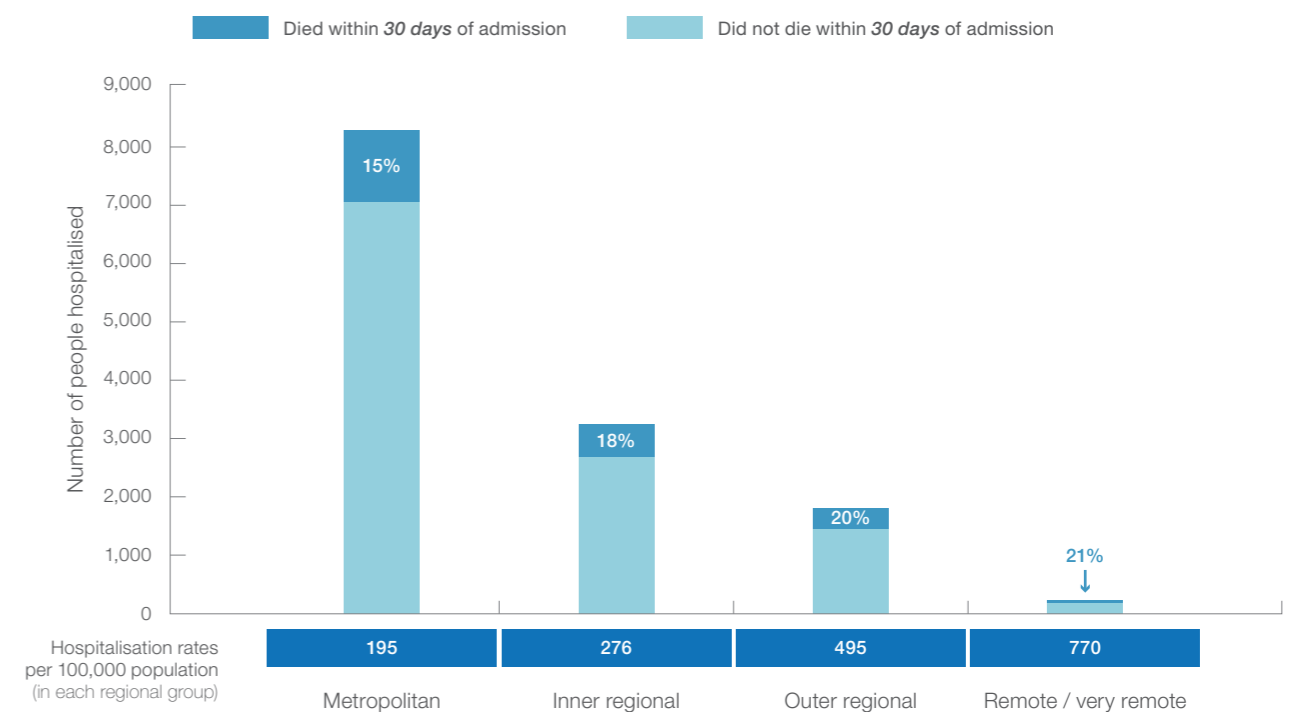


Figure 6.9: Number and rate of people hospitalised (public and private) for ischaemic stroke, and proportion who died within 30 days, by rurality, July 2009 to June 2011 <sup>(1)</sup>



(1) NSW Ministry of Health, NSW Admitted Patient Data Collection (BHI analysis).  
 (2) Age, rurality, SES (using Index of Relative Disadvantage for postcode of residence) at admission (ABS population data 2010, 15+ years).

# Resources & utilisation

## Powering the healthcare system

A significant proportion of the state's resources are spent on healthcare. In 2010–11, total public and private health expenditure in NSW was \$41 billion. This equates to \$5,594 per person statewide.<sup>1</sup>

The people of NSW expect their healthcare system to have sufficient resources to provide high-quality, safe care to people who need it. They also expect value for money and efficient use of resources to ensure the system is affordable and sustainable.

From an economic perspective, the healthcare system can be viewed as having a *'production function'* – where inputs (such as staff, capital, medicines) are used to perform activities or processes of care (such as surgical procedures or diagnostic tests) with the aim of influencing outcomes, such as improved health and length of life. All of this occurs within a framework of needing to be sustainable into the future.

Previous chapters have examined health system outcomes in terms of health status, mortality and patient experience. The focus of this chapter is:

- What resources are used in health?
- What activities do those resources produce?

### Notes about this chapter

It is difficult to interpret appropriate levels of resources across healthcare systems. While under-resourcing can impede the delivery of quality healthcare, higher levels of resourcing do not necessarily correspond to higher performance and may suggest waste. Therefore, in the text and comparison table, we note relative numbers, counts and volumes only.

### How does NSW perform?

---

In 2010–11, NSW spent \$41 billion on healthcare (public and private).

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Hospitals are the most resource intensive component of the healthcare system.

---

Public hospitals consumed \$12.6 billion of resources. Public hospitals provided 871,568 overnight hospitalisations, 707,931 day-only hospitalisations, around 19 million outpatient occasions of service and 2.5 million emergency department (ED) visits.

---

The most frequent reason for acute hospitalisations were for a principal diagnosis of injury, poisoning or other external causes.

---

More acute hospital bed days were for mental and behavioural disorders than for any other major group of health problems.

---

In 2010–11, 764,511 people (11% of the population) were admitted to hospital (public or private) for an overnight stay. There were 84,966 people (1% of the population) who were hospitalised three or more times. This group accounted for 2.9 million bed days (43% of total bed days for the year).

---

In 2010–11, 1.3 million people (18% of the population) visited a public hospital ED (with electronic data collection). There were 163,784 people (2% of the population) who visited the ED three or more times, accounting for 696,408 visits (33% of all ED visits).

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# Expenditure and outputs

## Total health expenditure of \$41 billion in NSW

In 2010–11, total health expenditure in NSW was almost \$41 billion (\$28 billion public, \$13 billion private). Within the public expenditure total, \$18.4 billion was funded by the Commonwealth and \$9.5 billion (34%) was funded by the state or locally.<sup>1</sup>

Total recurrent expenditure was \$39 billion (\$27 billion public and \$12 billion private).<sup>1</sup>

Expenditure is dedicated to a range of areas across both public and private sectors. Government or public sources are the majority funders for hospitals (80%), medical services (such as GPs) (78%), community health (90%), research (92%) and public health (94%) (Figure 7.1).

Non-government sources (e.g. private insurance, out of pocket) are the major funders for medication (52%), dental services (67%), and aids and appliances (76%).

Hospitals are the most resource intensive elements of the NSW healthcare system. In 2010–11, hospitals (public and private) consumed a total of \$15.5 billion or 40% of recurrent expenditure. Within this total, public hospitals comprised \$12.6 billion (81%).

The \$39 billion of recurrent health expenditure in 2010–11 funded a huge volume of services across the state (see Box and Figure 7.2).

### Outputs produced by the NSW healthcare system

#### 1) In the public health sector:

- 871,568 overnight hospital admissions
- 707,931 day-only hospital admissions
- 2,486,026 ED visits
- 6,022,466 outpatient visits
- 12,827,589 other non-admitted patient services.

#### 2) In the private hospital sector:

- 284,296 overnight hospital admissions
- 719,046 day-only admissions.

#### 3) In primary care:

- Approximately 43 million GP visits.

Figure 7.1: Total expenditure on health, NSW, public vs private, 2010–11<sup>1</sup>

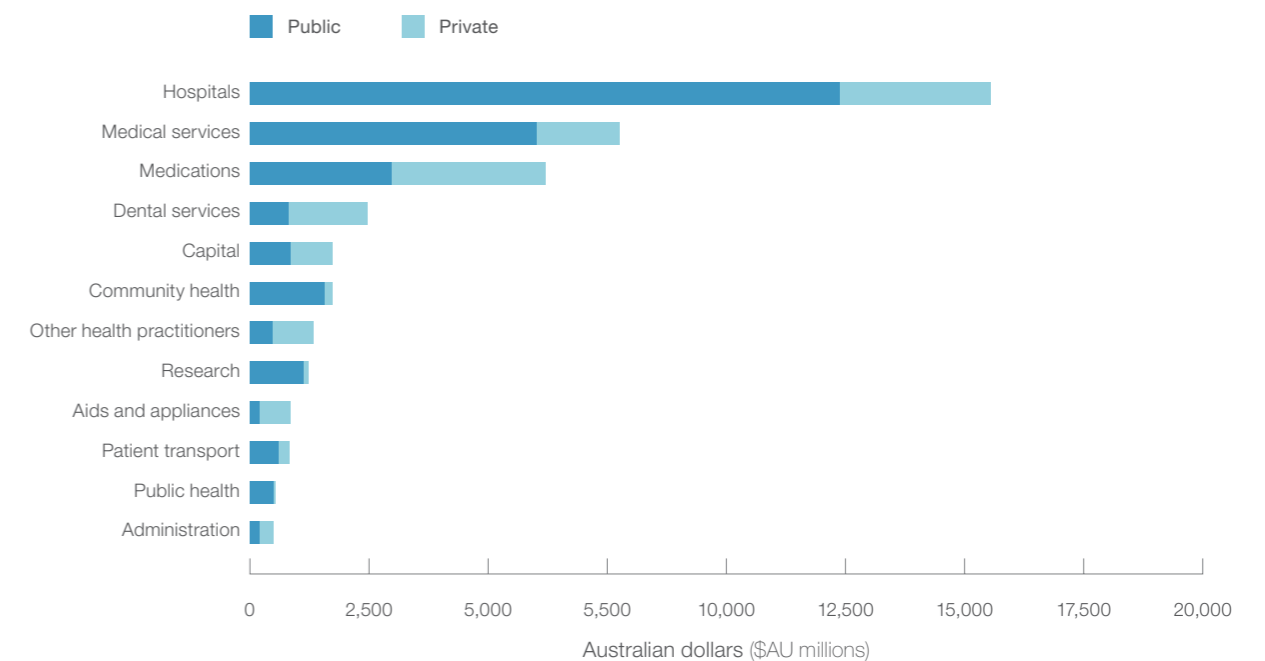
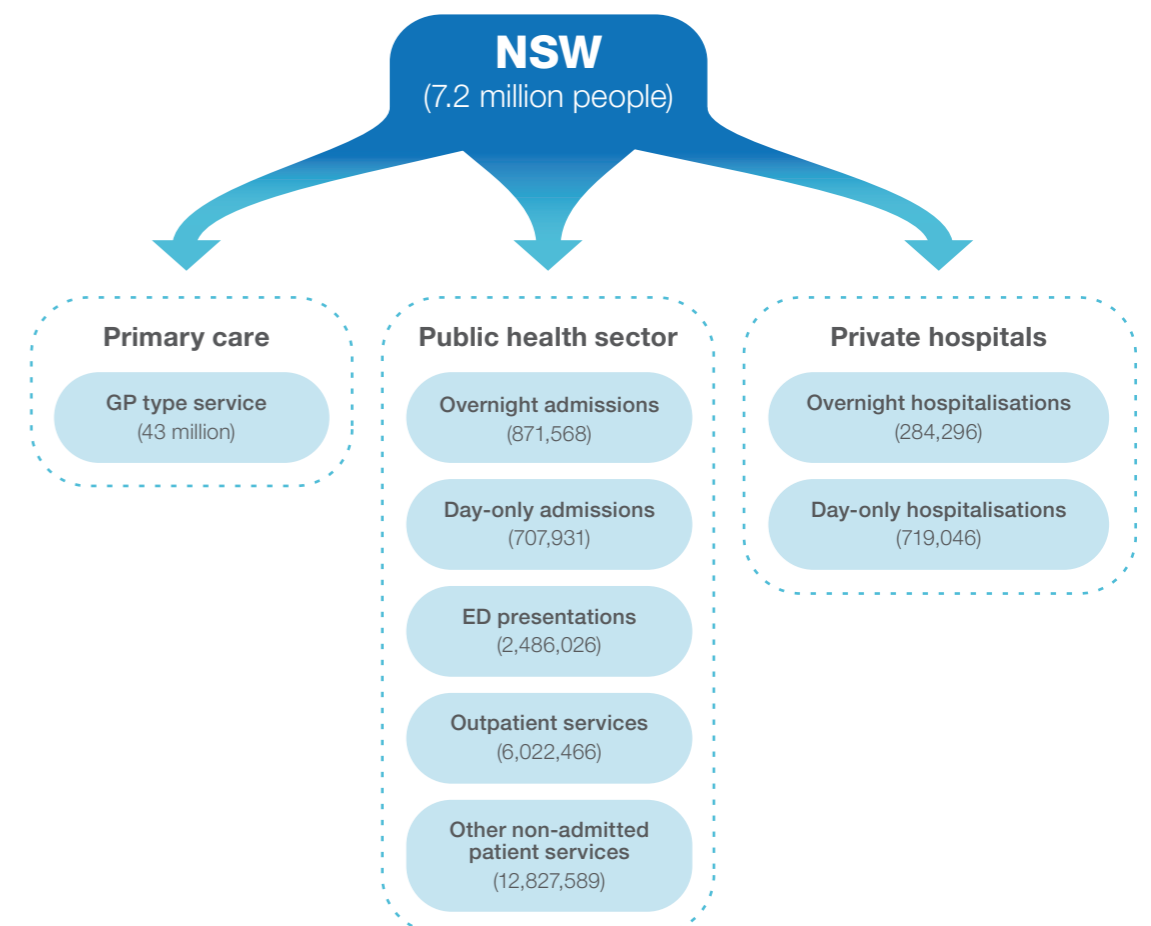


Figure 7.2: Overview of outputs in the NSW healthcare system, 2010–11<sup>2,3</sup>



(1) AIHW, AIHW Health Expenditure Database.

(2) AIHW, Australian Hospital Statistics 2010–11.

(3) NSW Ministry of Health, NSW Admitted Patient Data Collection (BHI analysis).

# Inputs to the healthcare system

## NSW is mid-range in beds, doctors and nurses per capita

Across healthcare systems internationally, the number of hospital beds per capita has been declining for decades. This is largely due to medical advances, shorter hospital stays, shifts to more day surgery, and the growth of 'care in the community' for older people and those with mental illness. In 2010, NSW had 3.6 beds per 1,000 population, placing it in mid-range among comparator countries (Figure 7.3).

The workforce of a healthcare system is one of its most valuable resources. In NSW, the healthcare system depends on the commitment and skills of some 200,000 people who work within it.<sup>2</sup>

International comparisons show that in 2010, NSW had more professionally active doctors (3.3 per 1,000 population) than Canada, the United States, New Zealand, Netherlands or France (Figure 7.4).

In 2009, NSW had 11.1 nurses working in healthcare (public and private sectors) for every 1,000 people, placing it mid-range internationally. Per capita nursing levels were similar across most comparator countries (Figure 7.5).

Figure 7.3: Hospital beds (public and private), per 1,000 population, 2010 (or latest year)<sup>Δa</sup>

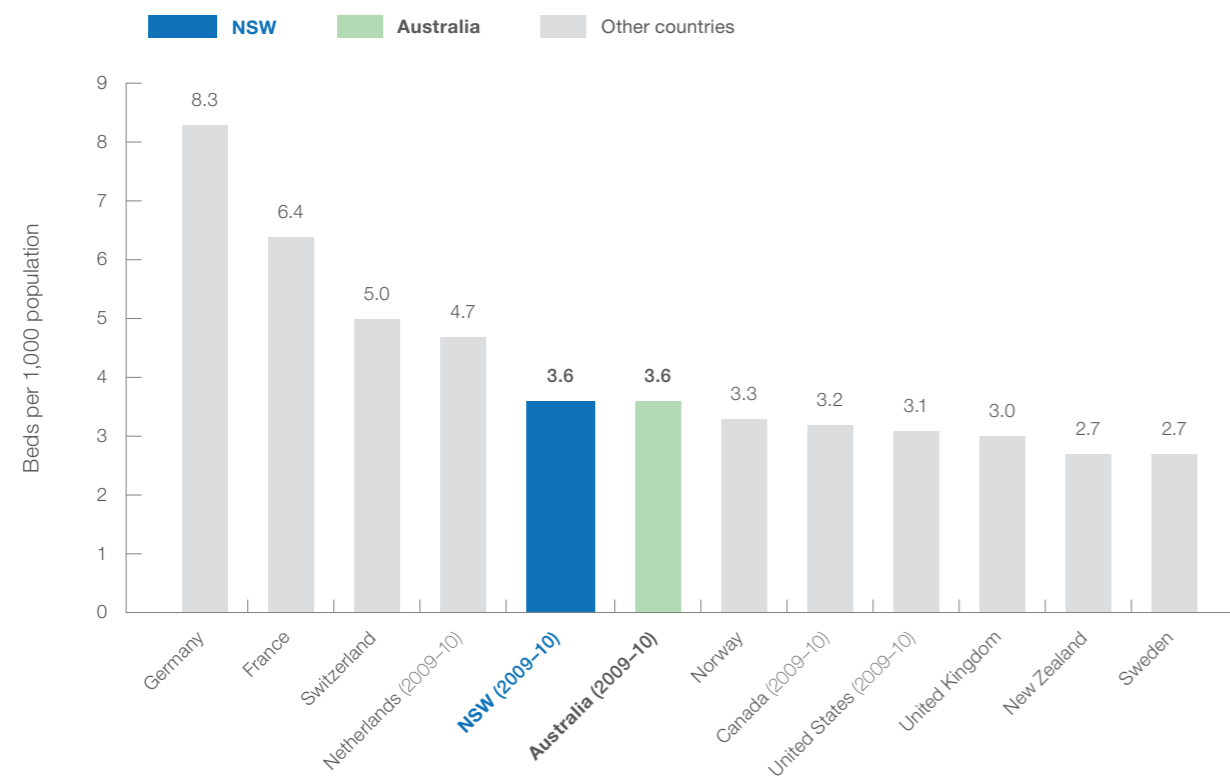


Figure 7.4: Employed medical practitioners, per 1,000 population, 2010 (or latest year)<sup>Δ§</sup>

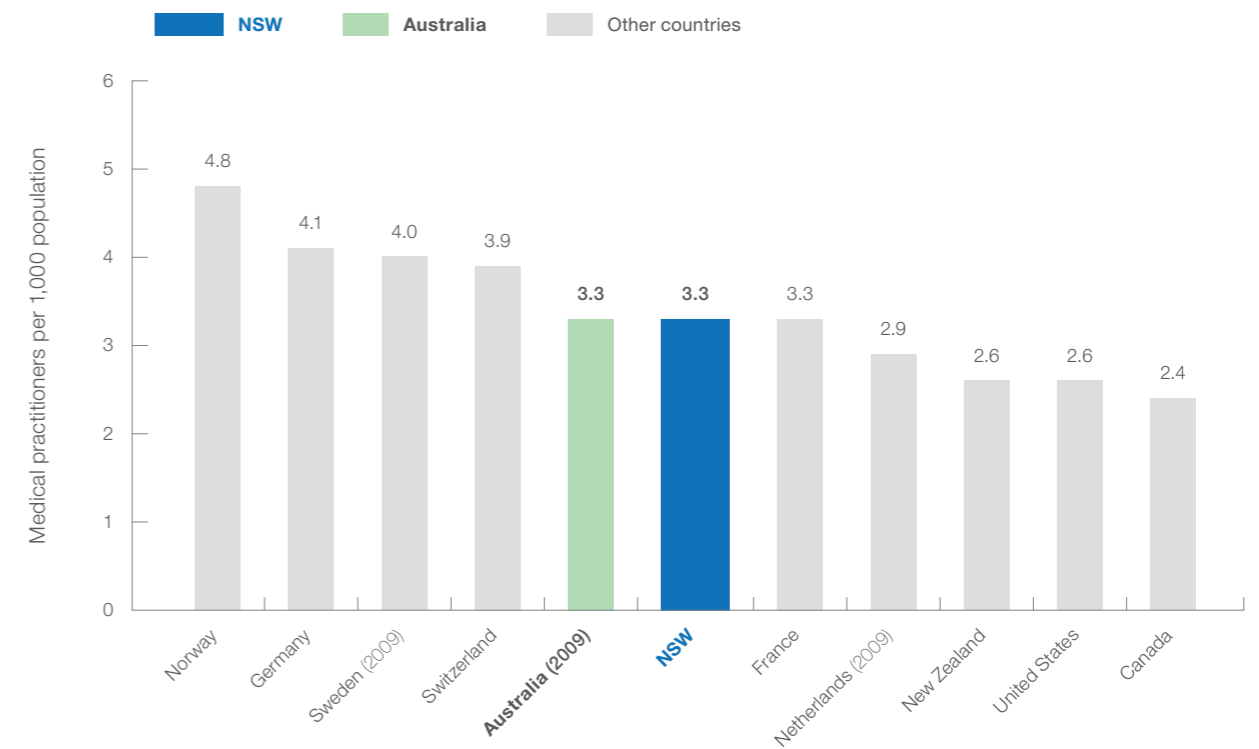
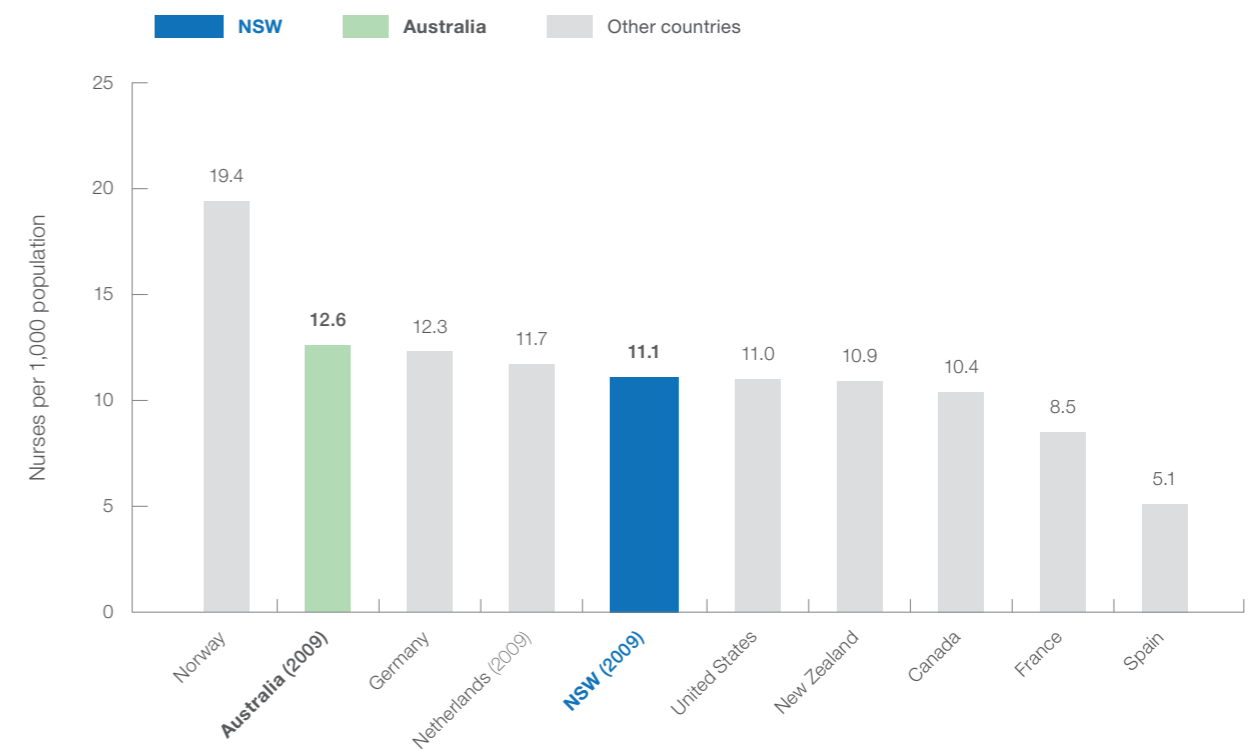


Figure 7.5: Employed registered and enrolled nurses, per 1,000 population, 2010 (or latest year)<sup>Δk</sup>



(Δ) OECD, *OECD Health Data 2012*. Data for NSW were extracted from AIHW. Data are for headcounts only.  
 (a) Excludes private free standing day hospital facilities.  
 (§) Defined as 'employed in medicine' by AIHW.  
 (k) Defined as 'professionally active' by AIHW.

# Why were people hospitalised?

External causes, pregnancy, and circulatory diseases account for a third of all hospitalisations

In 2010–11, there were almost 1.2 million overnight hospitalisations in NSW. The most common reason for hospitalisation was injury, poisoning and other external reasons (122,948 hospitalisations, 10.6% of total), followed by pregnancy and childbirth (114,152; 9.9%) and circulatory disease (113,500; 9.8%) (Figure 7.6).

Reasons for hospitalisation are categorised using ICD–10 chapters. Those chapters with more than 12,000 hospitalisations are shown in Figure 7.6. Within ICD–10 chapters, the main cause (principal diagnosis) for the hospitalisation is shown if there were more than 5,000 hospitalisations in the year.

The most common principal diagnoses were childbirth (44,987 spontaneous and 23,793 caesarean section deliveries), rehabilitation (42,588 hospitalisations), pain in throat and chest (21,901), pneumonia (19,289), and chronic obstructive pulmonary disease (18,197).

Further information on utilisation of hospital services in NSW is provided on page 78 where hospitalisation counts in public and private hospitals are compared, and on page 80 where utilisation is quantified in terms of bed days.

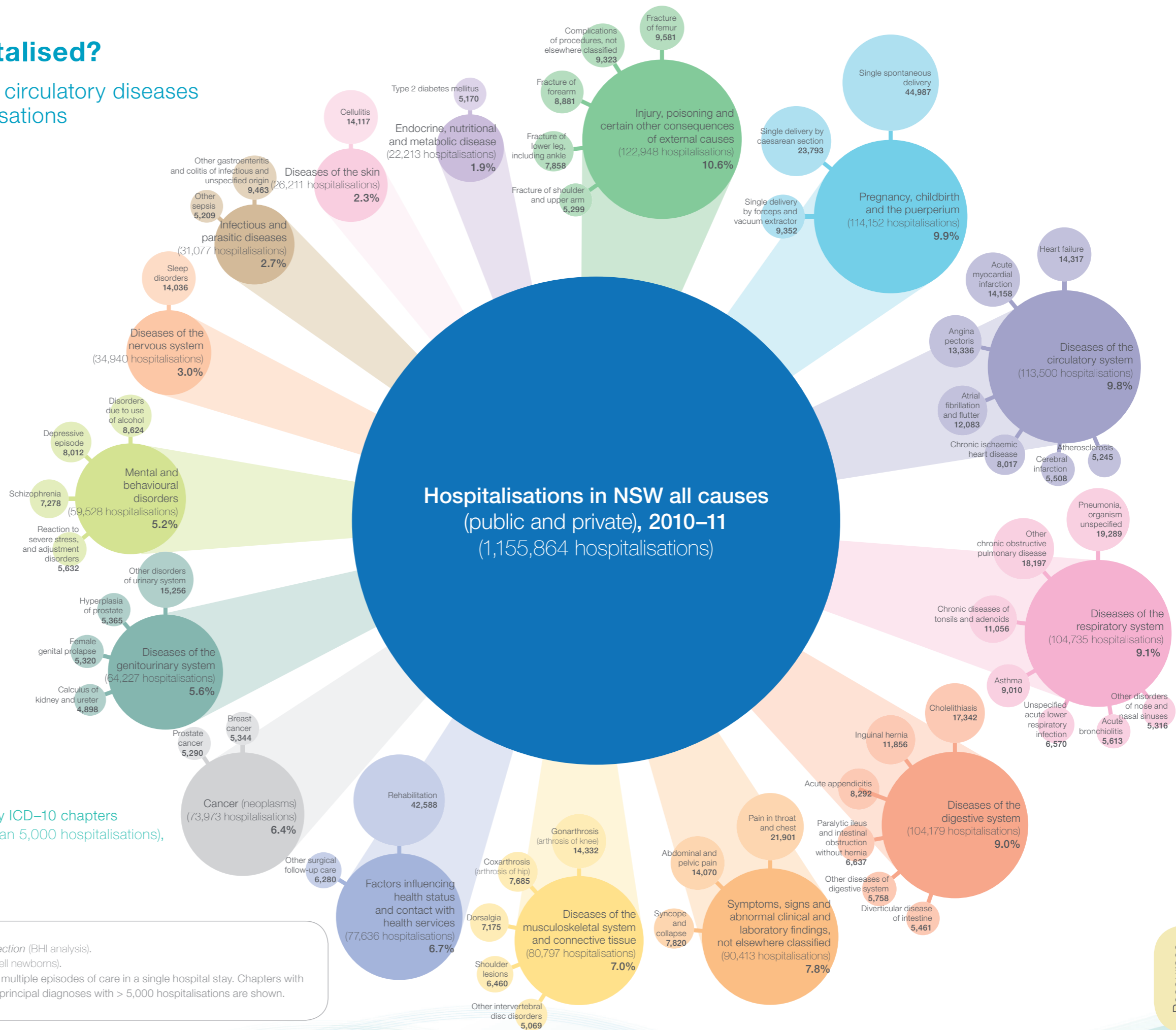


Figure 7.6: Hospitalisations (public and private) by ICD–10 chapters (showing specific causes with more than 5,000 hospitalisations), 2010–11<sup>1,2</sup>

(1) NSW Ministry of Health, NSW Admitted Patient Data Collection (BHI analysis).

(2) Data exclude newborns 'without qualification days' (i.e. well newborns).

Note: Hospitalisations refer to episodes of care. There can be multiple episodes of care in a single hospital stay. Chapters with fewer than 15,000 hospitalisations are not shown. Only principal diagnoses with > 5,000 hospitalisations are shown.

# Public or private hospital?

## Eight in 10 hospitalisations were in public hospitals

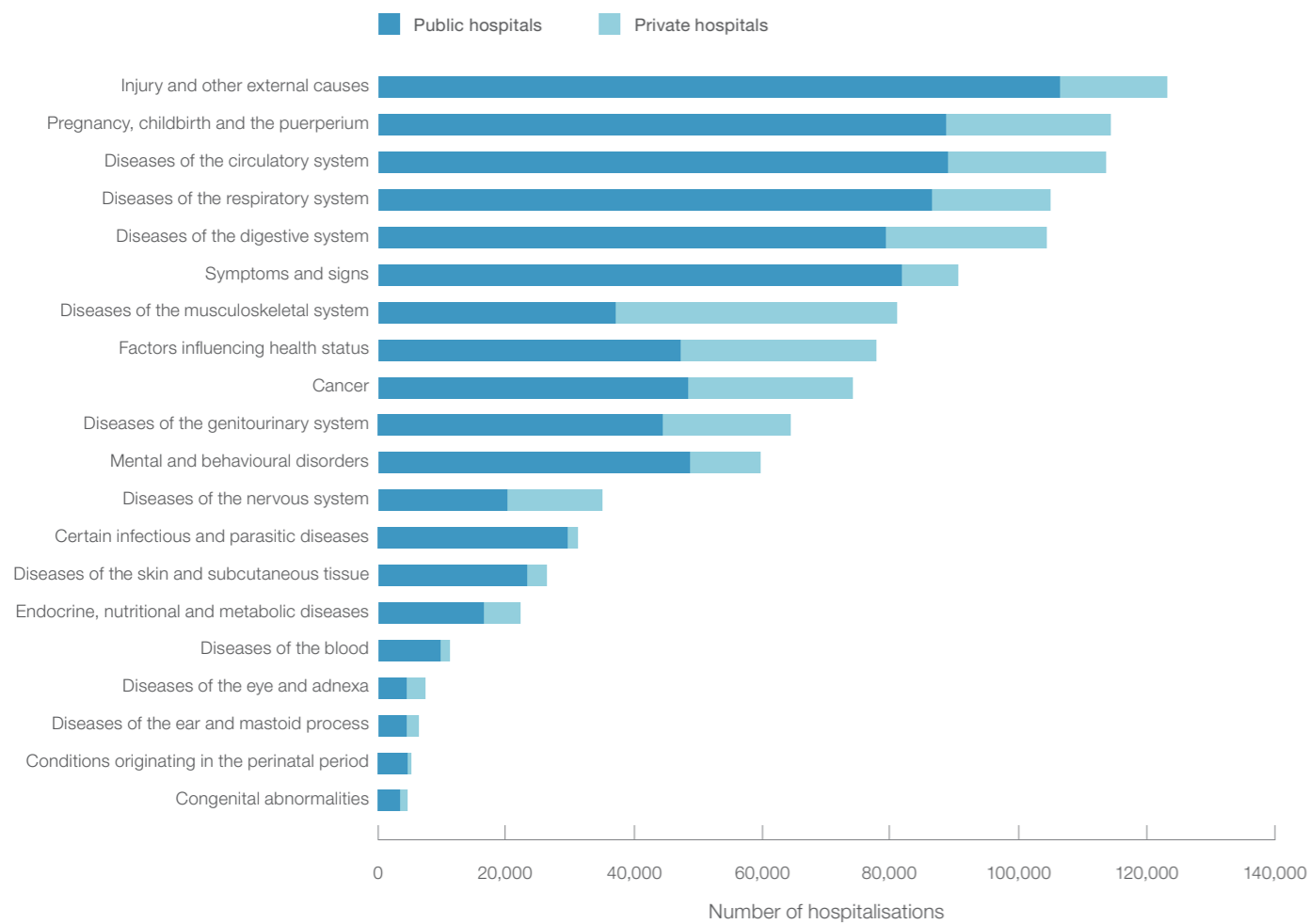
In 2010–11, there were 1,155,864 overnight hospitalisations in NSW. Of these, almost eight in 10 (871,568; 75%) were in public hospitals.

The distribution of admissions between public and private hospitals is not uniform across health conditions (Figure 7.7). Private hospitals accounted for a substantial proportion of hospitalisations for diseases of

the musculoskeletal system (54% - this includes admissions for hip and knee replacements); diseases of the nervous system (43%) and diseases of the eye (41%).

The main reasons for hospitalisation differ markedly between public and private hospitals. Figures 7.8 and 7.9 show the main reasons for hospitalisations across the two sectors.

Figure 7.7: Number of hospitalisations by principal diagnosis (ICD-10 chapter), public vs private hospitals, 2010–11 <sup>(1)</sup> <sup>(2)</sup> <sup>(3)</sup>



(1) NSW Ministry of Health, NSW Admitted Patient Data Collection (BHI analysis).  
 (2) Hospitalisations refer to episodes of care. There can be multiple episodes of care in a single hospital stay.  
 (3) Data exclude newborns 'without qualification days' (i.e. well newborns).

Figure 7.8: Number and proportion of overnight hospitalisations (871,568 total public hospitalisations), public hospitals, by principal diagnosis (ICD-10 chapter), 2010–11 <sup>(1)</sup> <sup>(2)</sup> <sup>(3)</sup>

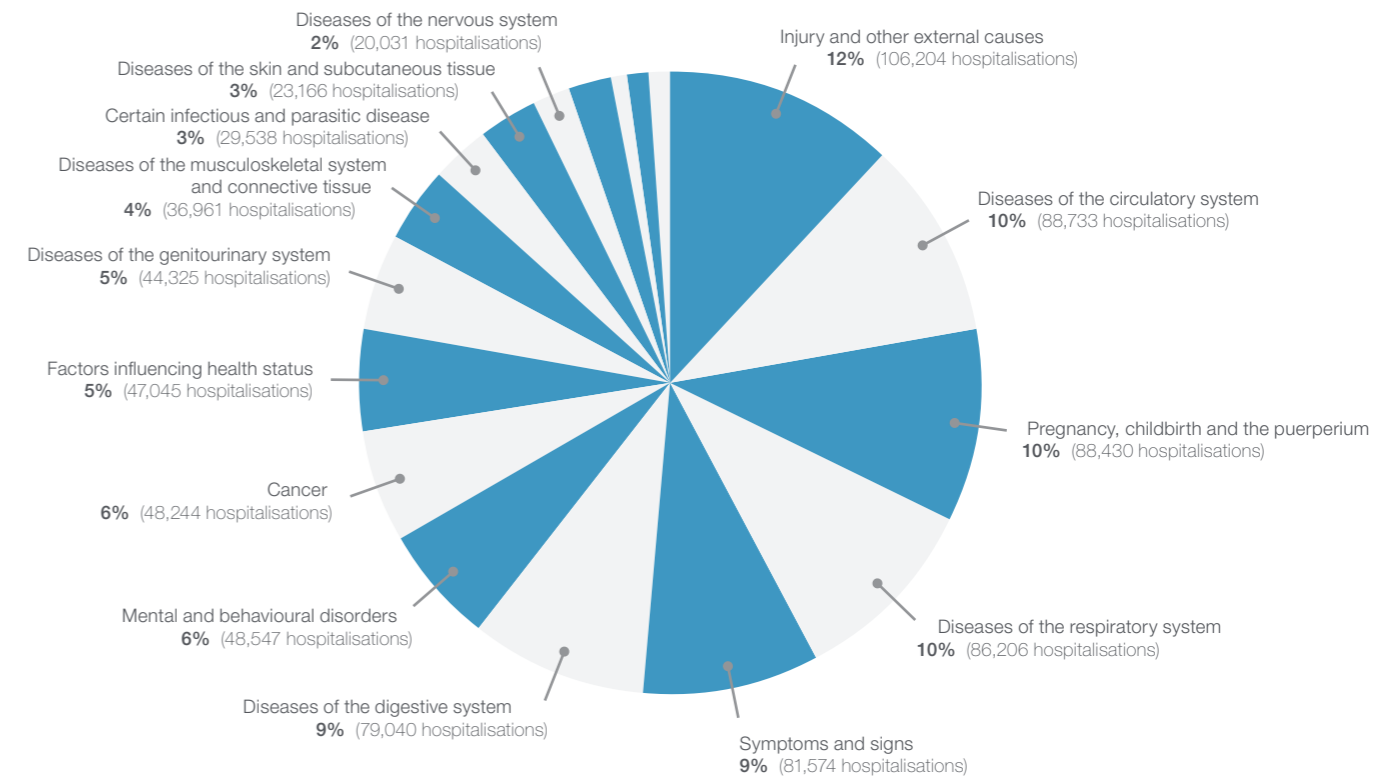
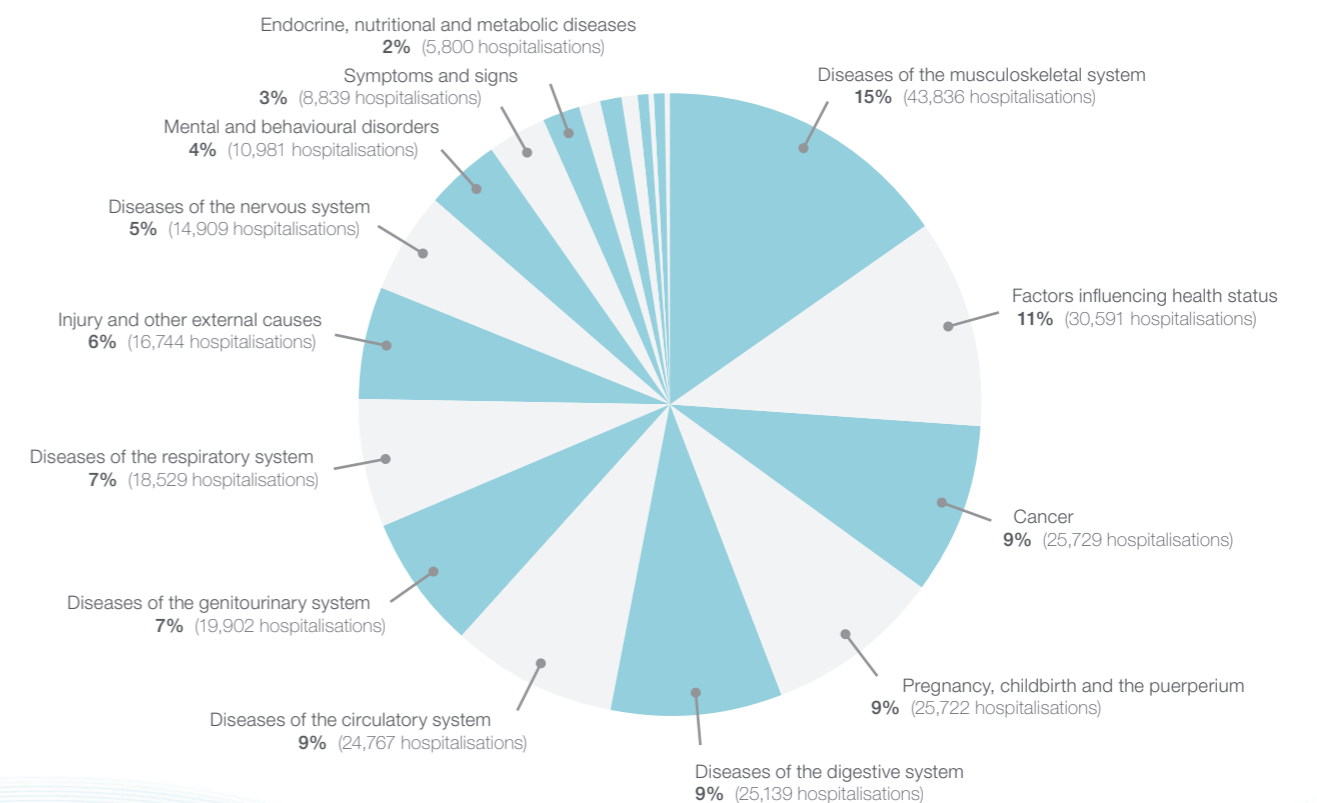


Figure 7.9: Number and proportion of overnight hospitalisations (284,296 total private hospitalisations), private hospitals, by principal diagnosis (ICD-10 chapter), 2010–11 <sup>(1)</sup> <sup>(2)</sup> <sup>(3)</sup>



# How long did people spend in hospital?

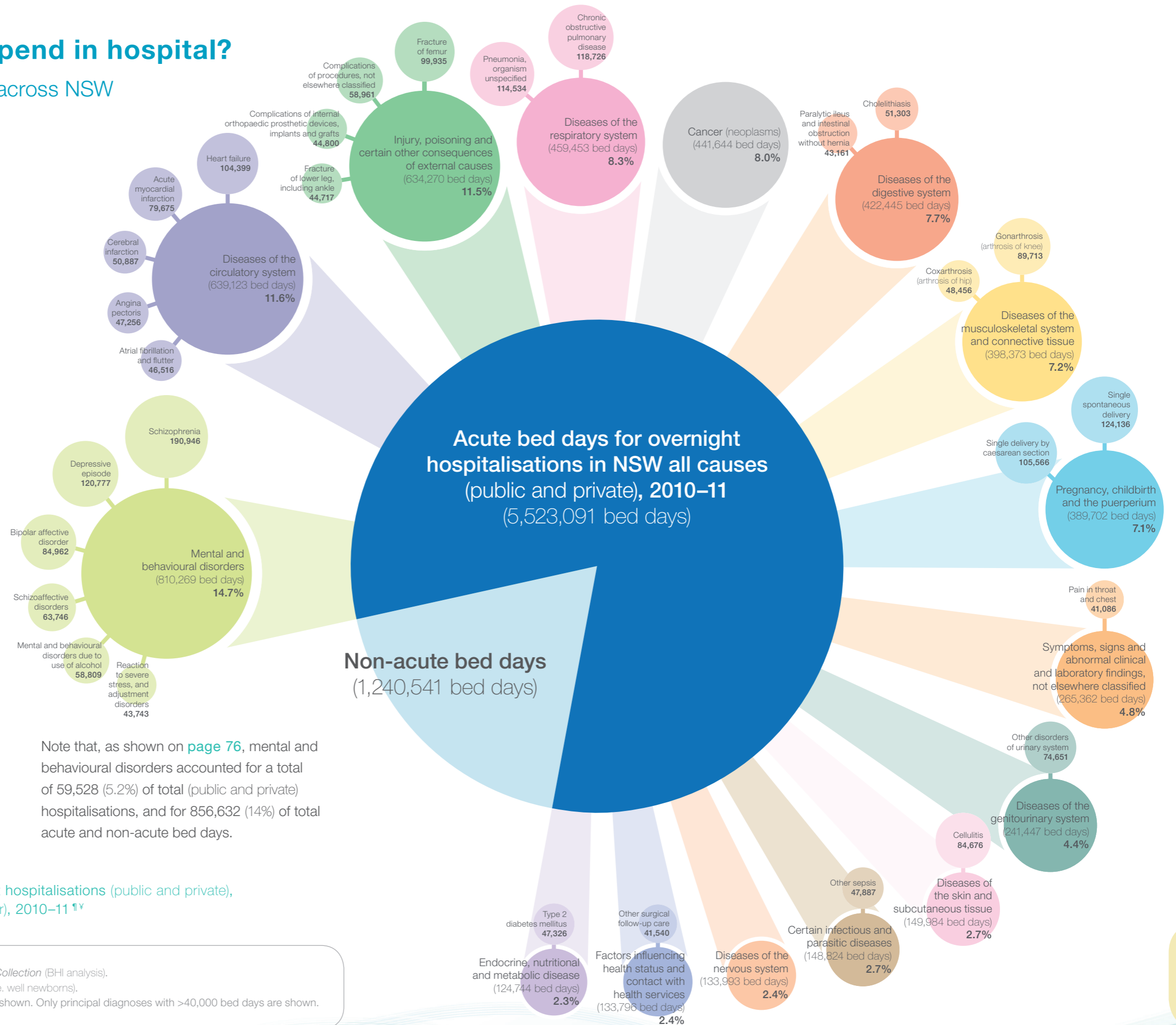
## Over 5.5 million acute bed days across NSW

In 2010–11, people were in hospital for a total of 6.8 million bed days. Of these, 5.5 million (82%) were for acute care (Figure 7.10). An episode of acute care is one for which the principal clinical intent is to do one or more of the following: manage labour, cure illness or provide definitive treatment of injury, perform surgery, relieve symptoms of illness or injury.

Non-acute care includes rehabilitation, palliative care, geriatric evaluation and management, and maintenance care. Rehabilitation is the most commonly provided care type. Of the 1.2 million bed days for non-acute care (18% of total bed days), the majority were for a category known as ‘factors influencing health status and contact with health services’. This is a miscellaneous category which includes care for rehabilitation procedures, convalescence and follow-up care.

The 5.5 million bed days for acute care are due to an exhaustive list of conditions. Figure 7.11 shows the principal reasons for acute hospital bed days in the year, grouped into ICD–10 chapter headings (For details about ICD–10, see Chapter 1: Setting the Scene, page 4).

Most acute bed days were attributed to mental and behavioural disorders (810,269 bed days; 14.7% of total acute bed days), diseases of the circulatory system (639,123; 11.6%), and injury, poisoning and other external causes (634,270; 11.5%).



Note that, as shown on page 76, mental and behavioural disorders accounted for a total of 59,528 (5.2%) of total (public and private) hospitalisations, and for 856,632 (14%) of total acute and non-acute bed days.

Figure 7.11: Total bed days for acute overnight hospitalisations (public and private), by principal diagnosis (ICD chapter), 2010–11 <sup>(1)</sup> <sup>(2)</sup>

(1) NSW Ministry of Health, NSW Admitted Patient Data Collection (BHI analysis).

(2) Data exclude newborns ‘without qualification days’ (i.e. well newborns).

Note: Chapters with fewer than 100,000 bed days are not shown. Only principal diagnoses with >40,000 bed days are shown.

# Surgical procedures

## The majority of surgical procedures are performed in private hospitals

In 2010–11, there were 699,179 procedures performed in NSW hospitals. Public hospitals performed fewer procedures (295,461; 42% of all procedures) than private hospitals (403,718; 58% of all procedures) (Figure 7.12).

Overall in 2010–11, the most frequently performed procedure in the state was cataract surgery (64,571, 9% of total), followed by caesarean sections (28,149, 4% of total), curettage of the uterus (20,991, 3% of total) and fertility treatments (20,312, 3% of total).

The most frequently performed procedures in *public hospitals* were cataract surgery (major lens procedures accounting for 7% of all procedures in public hospitals), and caesarean sections (6% of all procedures in public hospitals) (Figure 7.13).

In *private hospitals*, the most common procedures were cataract surgery (11% of all procedures in private hospitals), and fertility treatments (artificial reproductive technologies, accounting for 5% of procedures in private hospitals) (Figure 7.14).

Figure 7.12: Frequently performed surgical procedures, public vs private hospitals, NSW, 2010–11 <sup>(1)</sup>

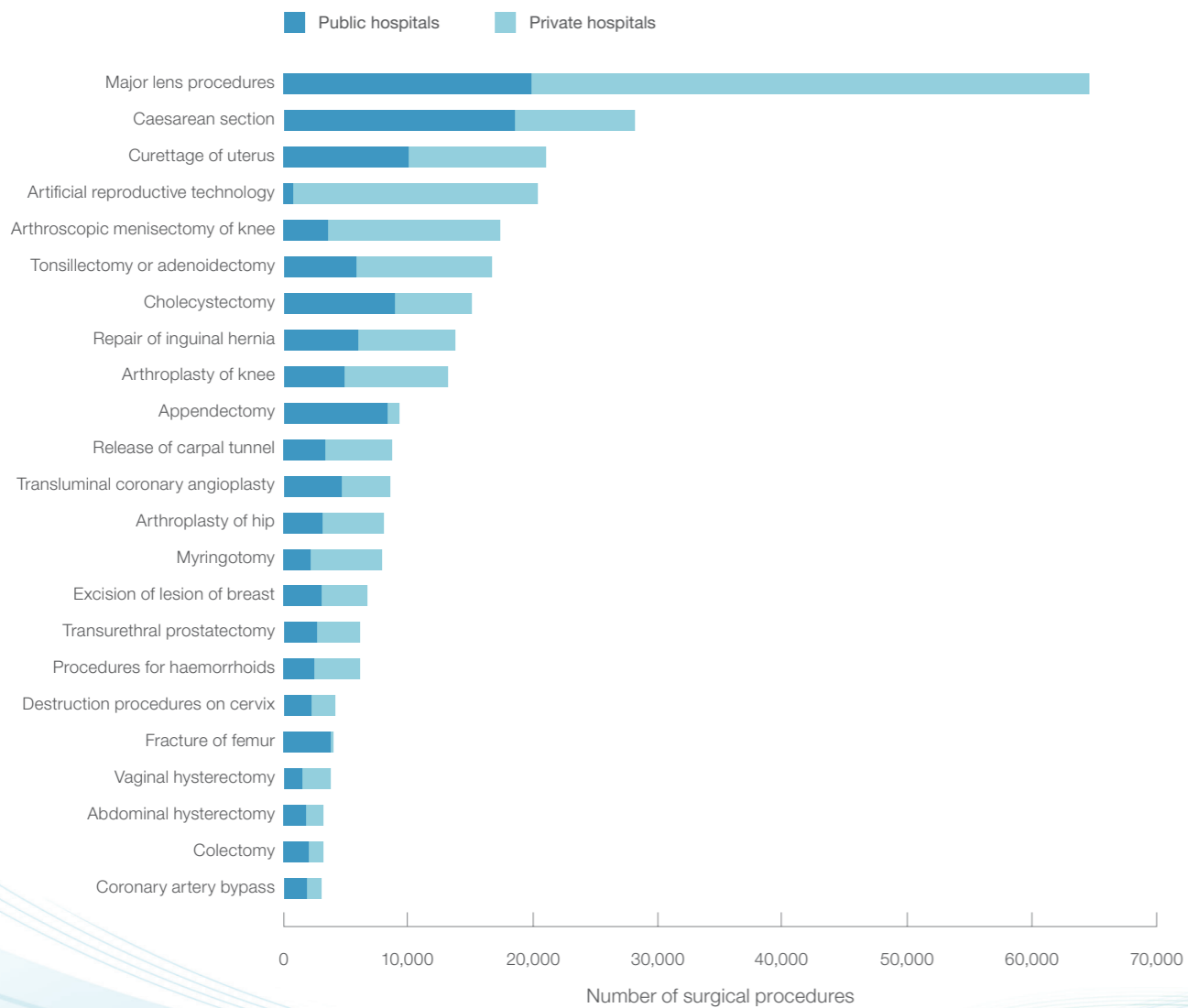


Figure 7.13: Public hospitals, most frequently performed surgical procedures, NSW, 2010–11 <sup>(1)</sup>

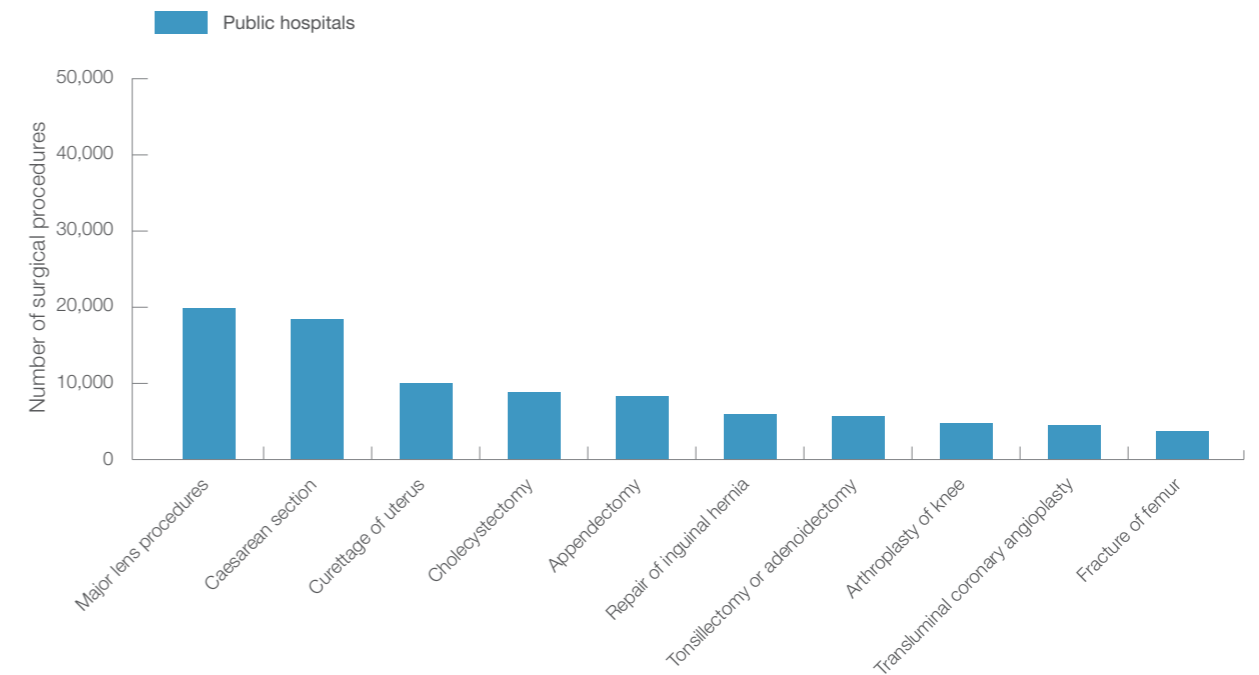
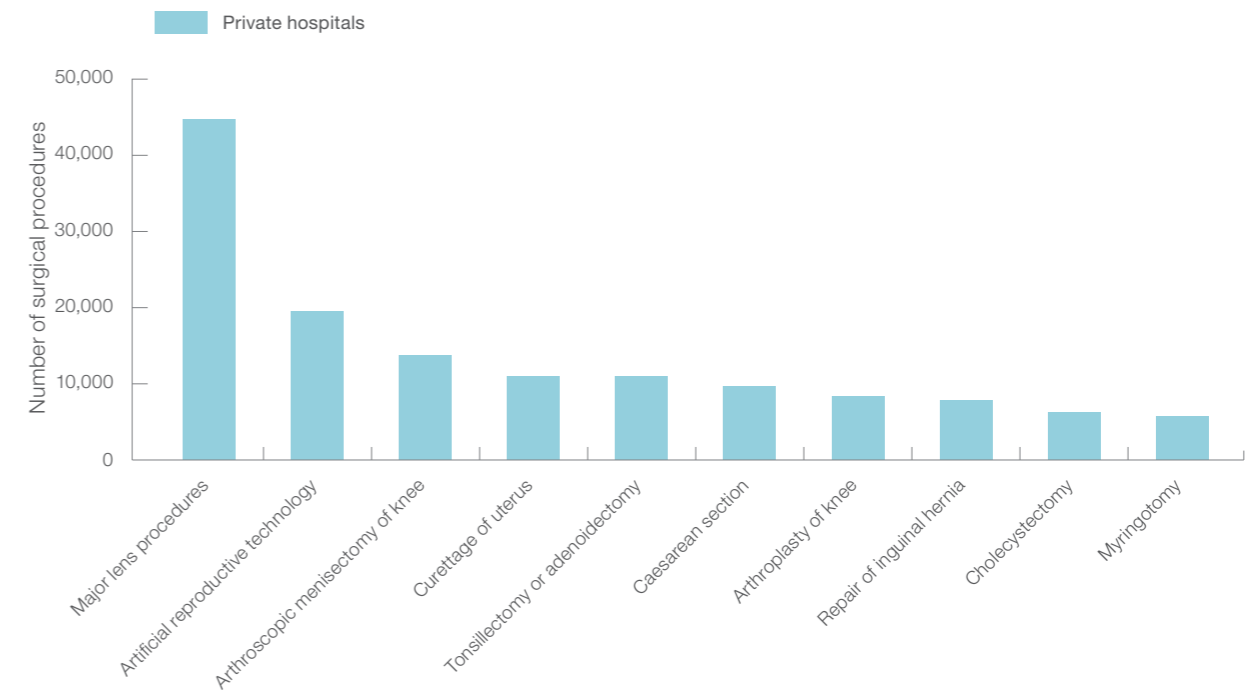


Figure 7.14: Private hospitals, most frequently performed surgical procedures, NSW, 2010–11 <sup>(1)</sup>



(1) NSW Ministry of Health, NSW Admitted Patient Data Collection (BHI analysis).



# Emergency department visits

## Two per cent of the NSW population accounts for a third of all ED visits

In 2010–11, there was a total of 2,486,026 emergency department (ED) visits across NSW. Of these, 2,082,382 (84%) were visits to EDs with electronic data collection. The Bureau has analysed the electronic data to examine patterns of ED visits for the NSW population.

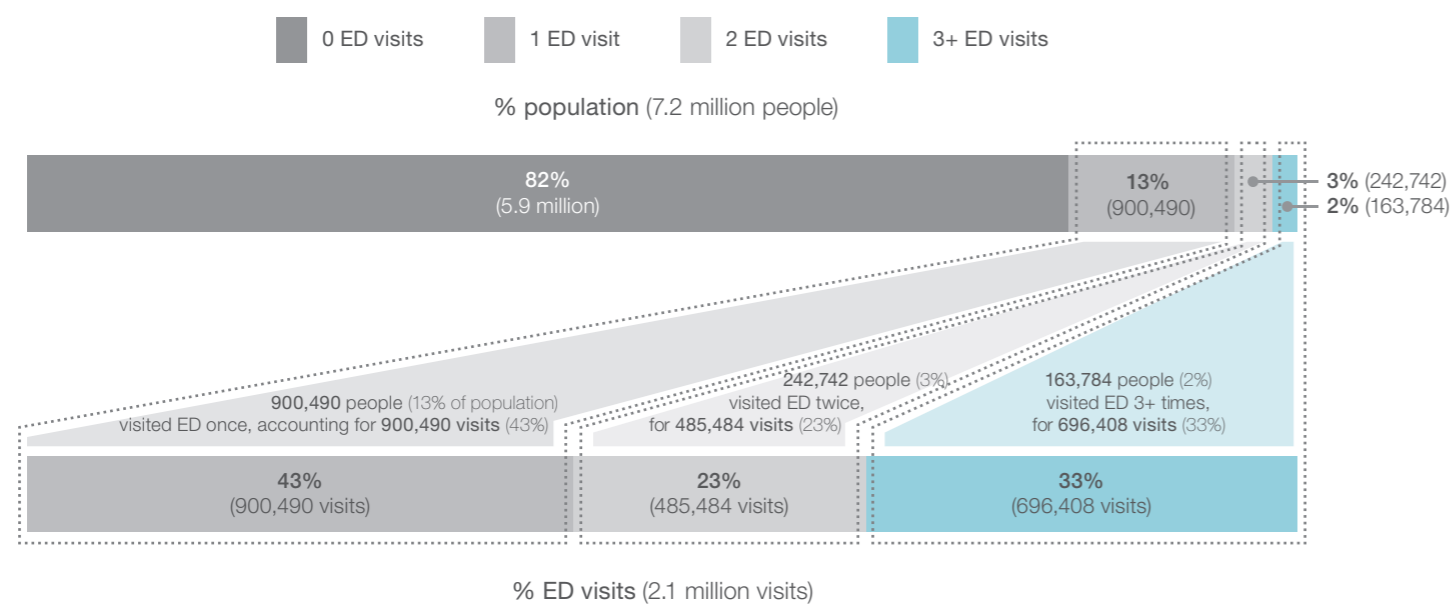
During the year, 900,490 people (13% of the population) visited an ED with electronic data collection once, 242,742 (3%) visited twice, and 163,784 (2%) visited three or more times. There is a marked concentration of ED visits among a relatively small number of NSW people.

The 2% of the population who visited three or more times accounted for 696,408 visits (33% of all ED visits) (Figure 7.15). Almost all ED visits (2,016,082 visits, 97% of total) were for emergencies.

Figure 7.16 profiles emergency visits, showing triage categories, mode of arrival and departure. For more than seven in 10 ED visits (72%), patients arrived by private car, with two in 10 arriving by ambulance (24%). The most urgent triage category 1 (resuscitation / life threatening) accounted for 1% of ED visits (12,159 visits), triage category 2 (emergency / imminently life threatening) accounted for 9% of ED visits (172,813). Six in 10 visits (1.2 million) ended with patients leaving the ED after being treated; two in 10 (421,683) ended with admission to a ward (not critical care) and 2% (44,369) ended in admission to critical care.

ED visits that are followed by an unplanned re-presentation to ED within 48 hours may indicate sub-optimal care. Of unplanned ED visits during 2010–11, one in 20 (97,262 visits, 5% of emergency ED visits) had been preceded by an emergency ED visit in the previous 48 hours (Figure 7.17).

Figure 7.15: People in NSW and frequency of ED visits, NSW, 2010–11 <sup>1</sup>



(1) NSW Ministry of Health, NSW Linked Admitted Patient Data Collection (BHI analysis).  
 Note: Data are for EDs with electronic data only and thus available for data linkage.

Figure 7.16: Profiling emergency ED visits, NSW public hospitals, 2010–11 <sup>1</sup>

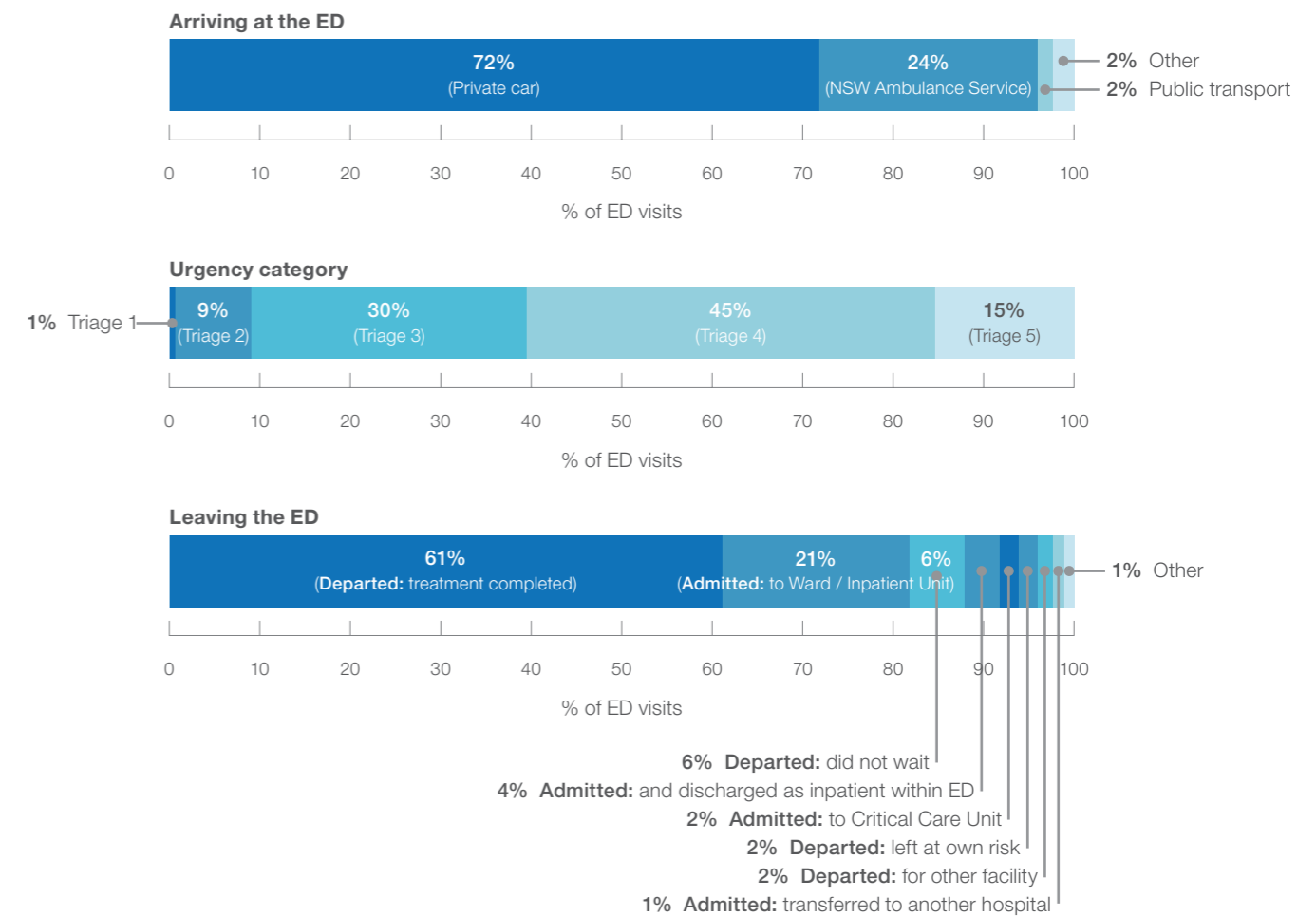
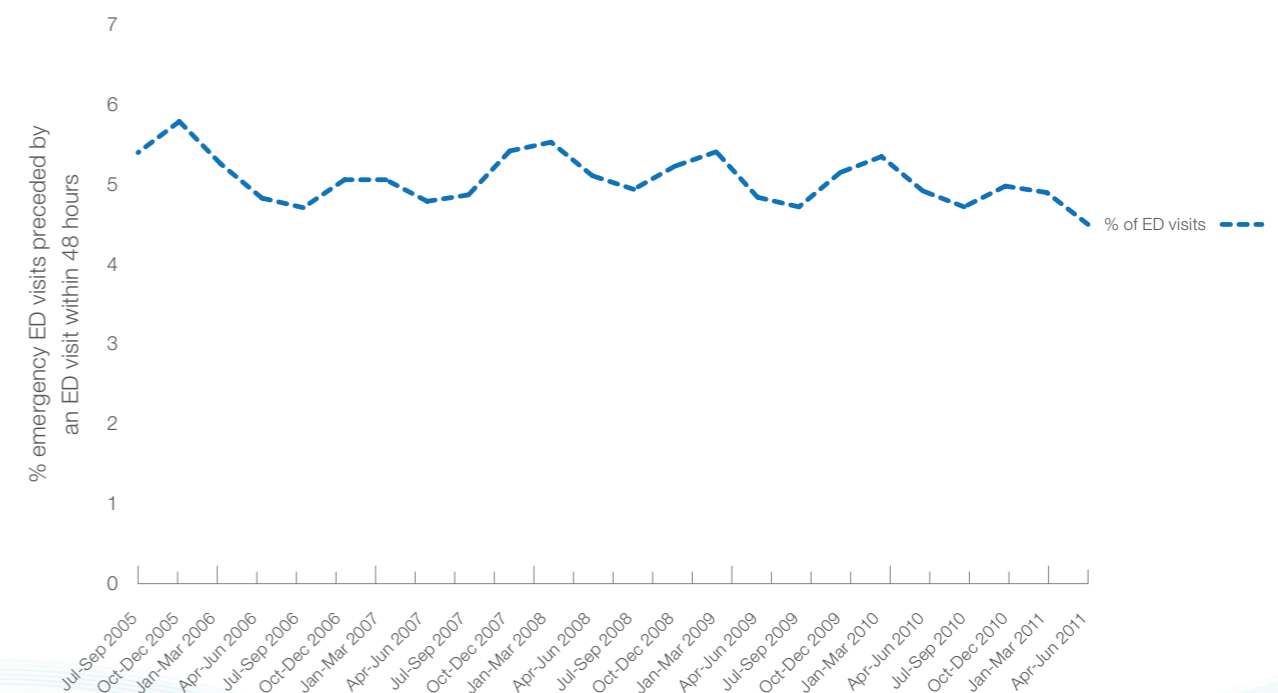


Figure 7.17: Emergency presentations that were re-presentations within 48 hours (NSW public hospitals), July 2005 to June 2011 <sup>1</sup>



# Cancer hospitalisations

## Cancer hospitalisation rates are falling

As a result of lifestyle choices and an ageing population, the number of cancer cases is increasing in NSW (see page 24).

In 2010–11, there were 73,973 overnight hospitalisations (public and private) for cancer in NSW, compared with 70,195 overnight hospitalisations in 2000–01. This represented a 5% increase in cancer hospitalisations between 2000–01 and 2010–11.

NSW cancer hospitalisation rates are lower than those in most European countries; and higher than those in the United States, Canada, New Zealand and the United Kingdom (Figure 7.18).

In NSW, cancer hospitalisation rates per 100,000 population fell by 4% between 2000–01 and 2010–11, reflecting changes to the way healthcare is delivered to cancer patients, moving from overnight hospitalisation towards outpatient and community care.

In 2010–11, the average length of stay for cancer hospitalisations in NSW was 7.5 days, shorter than Switzerland, Germany, Canada, New Zealand, United Kingdom and France (Figure 7.19).

Overall in NSW there were 538,500 bed days in public and private hospitals attributed to cancer during 2010–11. Figure 7.20 shows the total bed days attributed to various cancers in NSW in 2010–11. The types of cancer that accounted for most bed days were: secondary malignancies of unspecified sites (47,790 bed days, 9% of all cancer bed days), lung cancer (42,180 bed days, 8% of all cancer bed days) and colon cancer (37,222 bed days, 7% of cancer bed days).

Refer to the *Cancer Institute NSW* for comprehensive data on incidence and mortality ([www.cancerinstitute.org.au](http://www.cancerinstitute.org.au))

Figure 7.18: Hospitalisations (public and private) for cancer, per 100,000 population, 2000–01 to 2010–11<sup>e</sup>

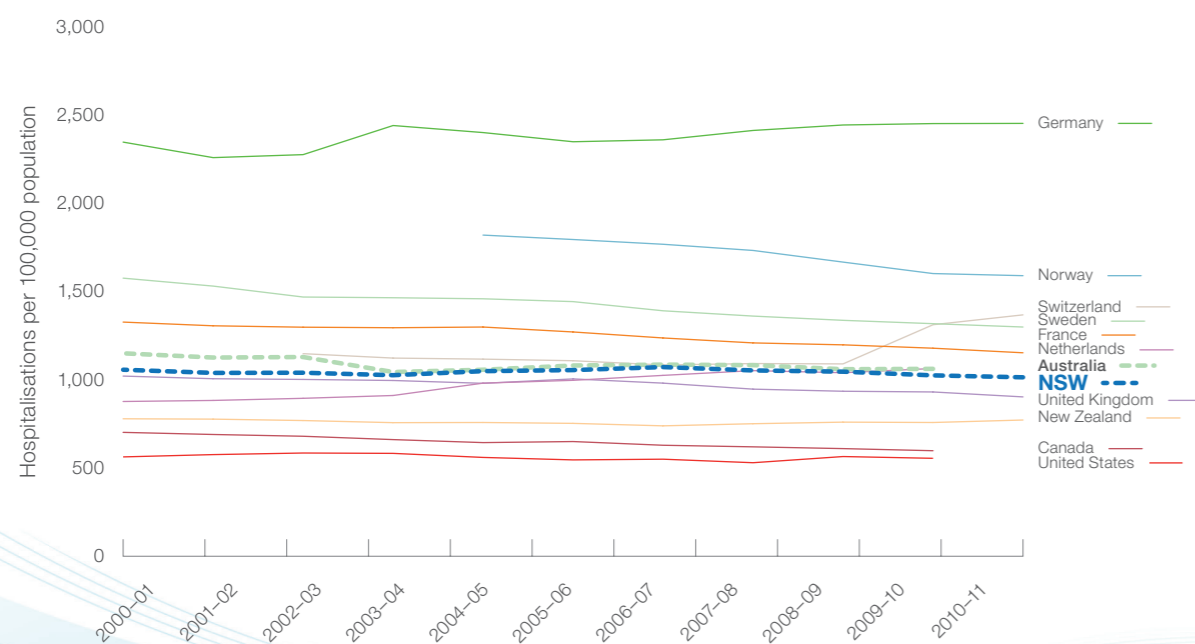


Figure 7.19: Average length of stay, overnight hospitalisations (public and private) for cancer, 2010–11 (or latest year)<sup>e</sup>

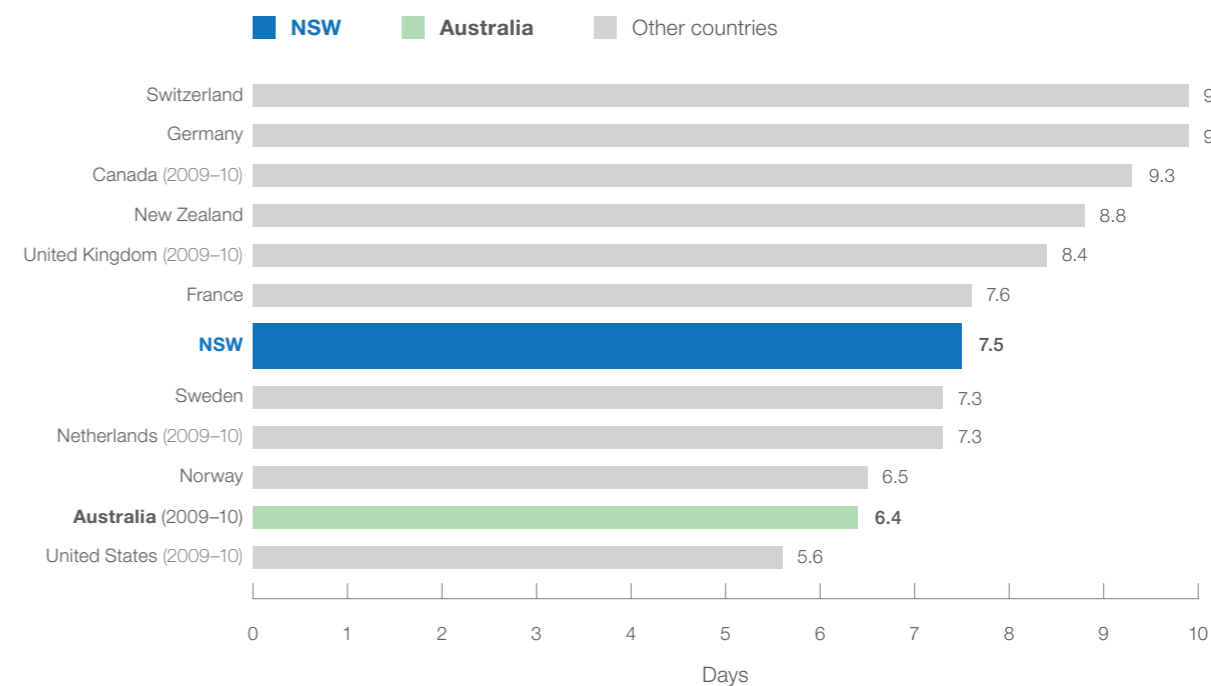
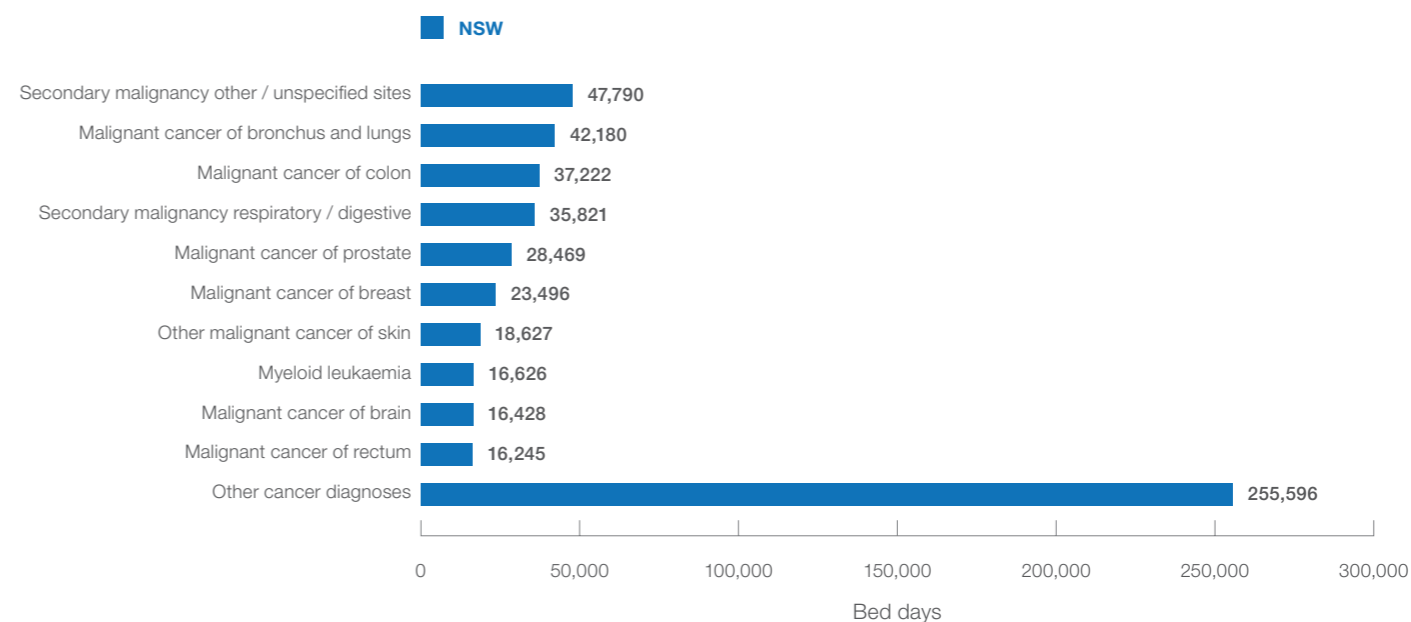


Figure 7.20: Total bed days (public and private hospitals) for different cancers (principal diagnosis), NSW, 2010–11<sup>f</sup>



(e) OECD, *OECD Health Data 2012*. Data for NSW were extracted from HOIST. Excludes same day separations (BHI analysis for NSW only). Principal diagnosis codes C00–D48 (Neoplasms).  
 (f) NSW Ministry of Health, *NSW Admitted Patient Data Collection* (BHI analysis).

## Circulatory disease hospitalisations

### Hospitalisation rates and length of stay are relatively low in NSW

Despite significant improvements in premature death rates in recent decades, circulatory disease continues to impose a heavy burden on the NSW population (see, for example, page 7). In economic terms, national data show that direct expenditure for circulatory disease exceeds that for any other disease group.<sup>3</sup>

In 2010–11, there were 113,500 overnight hospitalisations (public and private) for circulatory disease in NSW, compared with 112,429 overnight hospitalisations in 2000–01. This represented a 1% increase in circulatory disease hospitalisations between 2000–01 and 2010–11.

In NSW, circulatory disease hospitalisation rates per 100,000 population fell by 8% between 2000–01 and 2010–11. NSW rates are lower than those in most European countries and higher than those in Canada, the United Kingdom and New Zealand (Figure 7.21).

In 2010–11, the average length of stay for circulatory disease hospitalisations in NSW was 6.1 days. This was longer than Norway and the United States but shorter than all other comparator countries (Figure 7.22).

Overall in NSW there were 659,000 bed days in public and private hospitals attributed to circulatory disease during 2010–11. Figure 7.23 shows the total bed days attributed to the various circulatory diseases in NSW in 2010–11. The diseases that accounted for most bed days were: heart failure (110,474 bed days, 17% of all circulatory disease bed days), heart attack (80,558 bed days, 12% of all circulatory disease bed days) and ischaemic (clot-based) stroke (53,741 bed days, 8% of circulatory disease bed days).

Figure 7.21: Hospitalisations (public and private) for circulatory disease, per 100,000 population, 2000–01 to 2010–11<sup>e</sup>

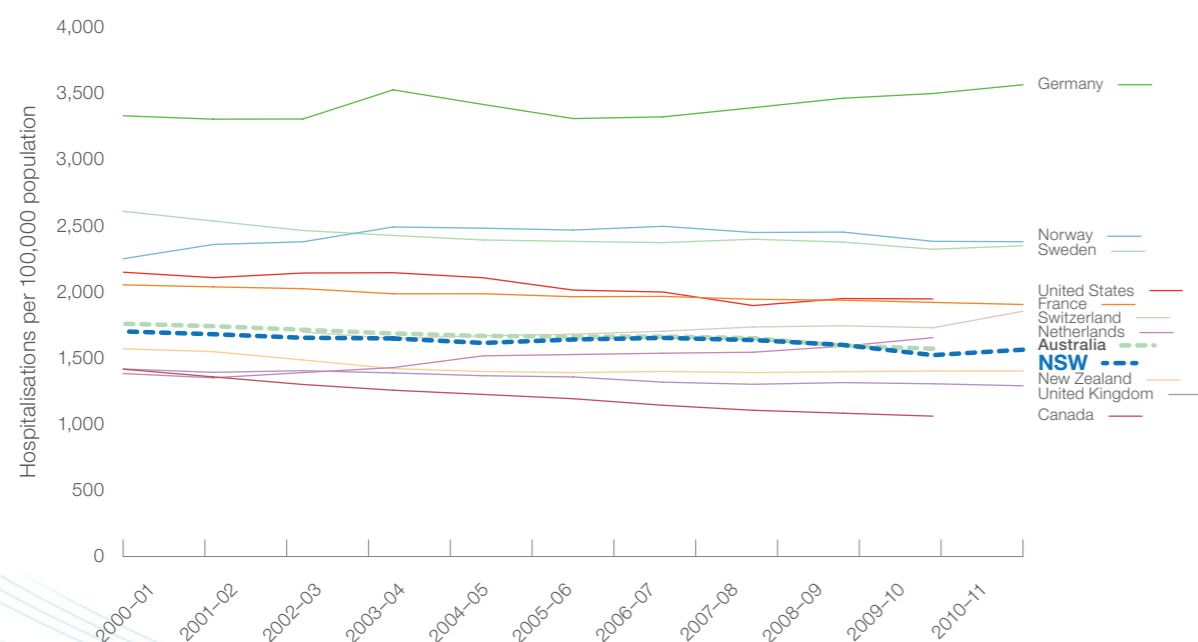


Figure 7.22: Average length of stay, overnight hospitalisations (public and private) for circulatory disease, 2010–11 (or latest year)<sup>e</sup>

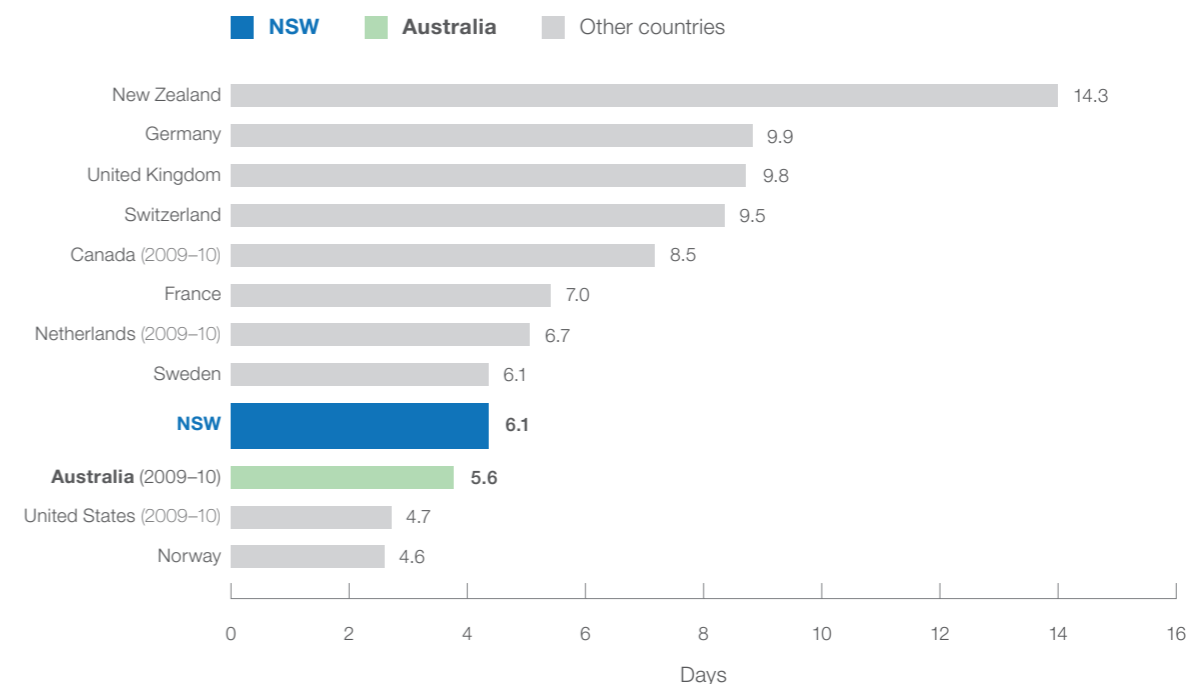
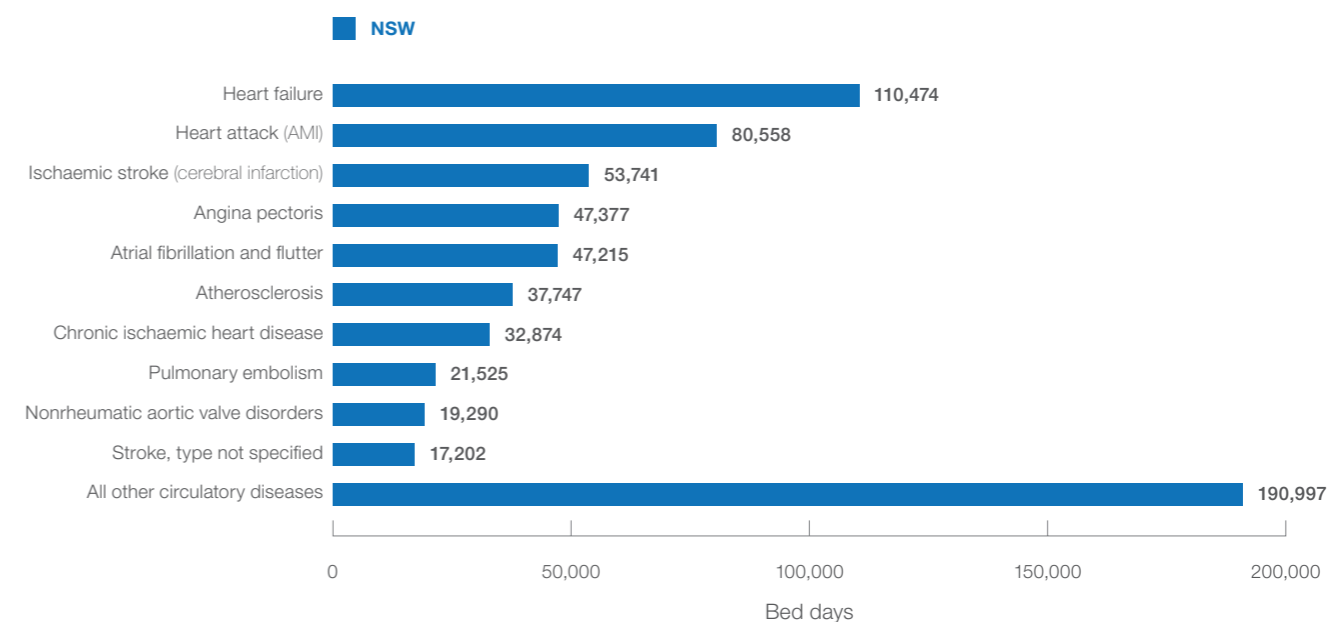


Figure 7.23: Total bed days (public and private hospitals) for different circulatory diseases (principal diagnosis), NSW, 2010–11<sup>(1)</sup>



(e) OECD, *OECD Health Data 2012*. Data for NSW were extracted from HOIST. Excludes same day separations (BHI analysis for NSW only). Principal diagnosis codes I00 – I99 (Diseases of the circulatory system).  
 (1) NSW Ministry of Health, *NSW Admitted Patient Data Collection* (BHI analysis).

# Respiratory disease hospitalisations

## Hospitalisations for respiratory disease are relatively high in NSW

Compared to other OECD countries, Australia has a relatively high incidence of respiratory disease.<sup>4</sup>

In 2010–11, there were 104,735 overnight hospitalisations (public and private) for respiratory disease in NSW, compared with 95,846 overnight hospitalisations in 2000–01. This represented a 9% increase in respiratory disease hospitalisations between 2000–01 and 2010–11.

In NSW, respiratory disease hospitalisation rates per 100,000 population were similar in 2010–11 compared with a decade earlier although there were fluctuations in the intervening years. NSW rates were consistently higher than those in almost all comparator countries (Figure 7.24).

In 2010–11, the average length of stay for respiratory disease hospitalisations in NSW was 4.7 days. This was shorter than most comparator countries (Figure 7.25).

Overall in NSW there were 472,583 bed days in public and private hospitals attributed to respiratory disease during 2010–11. Figure 7.26 shows the total bed days attributed to the various respiratory diseases in NSW in 2010–11. The diseases that accounted for most bed days were: chronic obstructive pulmonary disease (COPD) (124,211 bed days, 26% of all respiratory disease bed days), pneumonia, organism unspecified (117,572 bed days, 24% of all respiratory disease bed days) and acute lower respiratory infection (30,629 bed days, 6% of respiratory disease bed days).

Figure 7.24: Hospitalisations (public and private) for respiratory disease, per 100,000 population, 2000–01 to 2010–11<sup>e,†</sup>

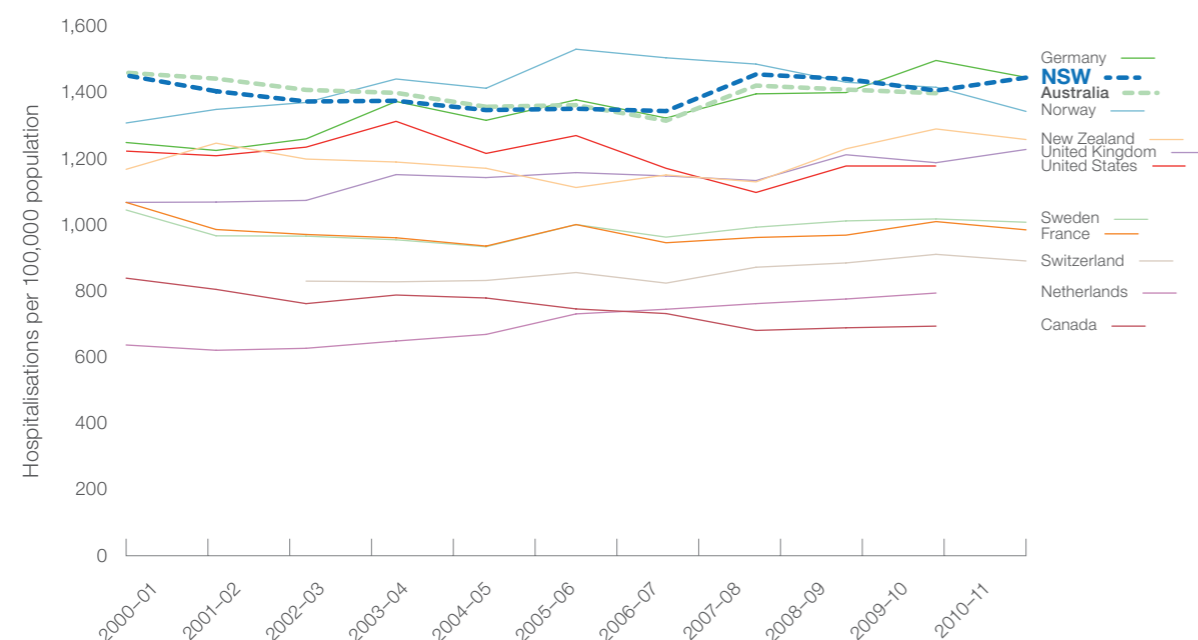


Figure 7.25: Average length of stay, overnight hospitalisations (public and private) for respiratory disease, 2010–11 (or latest year)<sup>e,†</sup>

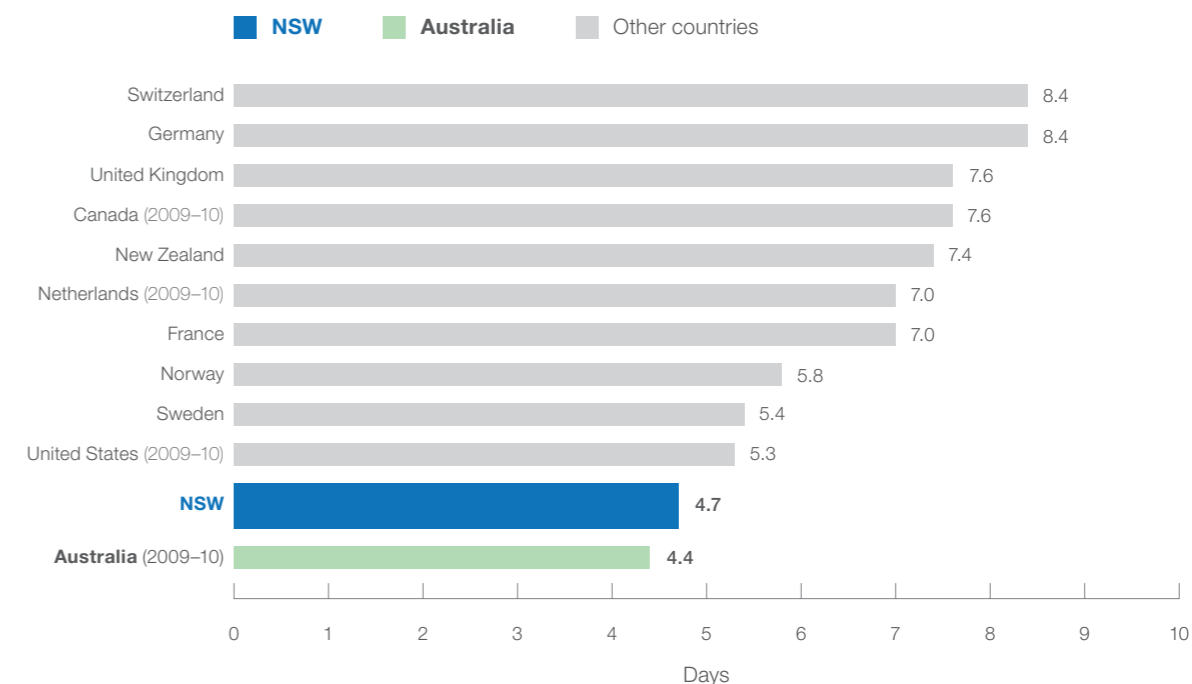
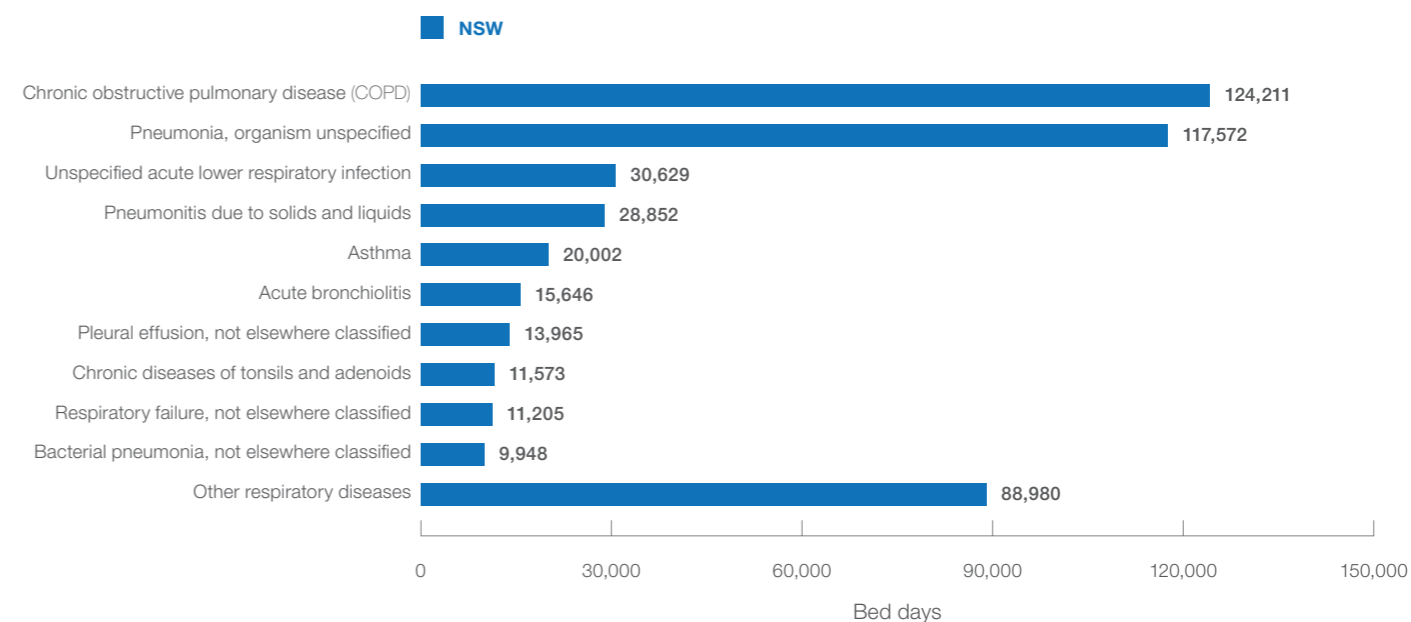


Figure 7.26: Total bed days (public and private hospitals) for different respiratory diseases (principal diagnosis), NSW, 2010–11<sup>†</sup>



(e) OECD, *OECD Health Data 2012*. Data for NSW were extracted from HOIST. Excludes same day separations (BHI analysis for NSW only). Principal diagnosis codes J00 – J99 (Diseases of the respiratory system).  
 (†) NSW Ministry of Health, *NSW Admitted Patient Data Collection* (BHI analysis).

# Hospitalisations for mental health

## Hospitalisations for mental health are increasing in NSW

According to a 2007 survey, two in 10 people aged between 16 and 85 years reported having a mental disorder in the previous twelve months.<sup>5</sup> Mental disorders constitute the leading cause of disability burden in Australia, accounting for an estimated 24% of the total years lost due to disability.<sup>6</sup>

In 2010–11, there were 59,528 overnight hospitalisations (public and private) for mental and behavioural disorders in NSW, compared with 48,579 overnight hospitalisations in 2000–01. This represented a 23% increase in mental and behavioural disorder hospitalisations between 2000–01 and 2010–11.

In NSW, mental and behavioural disorder hospitalisation rates per 100,000 population increased by 12% between 2000–01 and 2010–11. NSW rates are lower than those in Germany, Switzerland and Sweden (Figure 7.27).

In 2010–11, the average length of stay for mental and behavioural disorder hospitalisations in NSW was 17.1 days. This was shorter than the United Kingdom, New Zealand, Switzerland and Germany, Netherlands and Canada (Figure 7.28).

Overall in NSW there were 856,632 bed days in public and private hospitals attributed to mental and behavioural disorders during 2010–11. Figure 7.29 shows the total bed days attributed to the various mental and behavioural disorders in NSW in 2010–11. The diseases that accounted for most bed days were: schizophrenia (197,929 bed days, 23% of all mental and behavioural disorder bed days), depression (125,651 bed days, 15% of all mental and behavioural disorder bed days) and bipolar disorder (87,601 bed days, 10% of mental and behavioural disorder bed days).

Figure 7.27: Hospitalisations (public and private) for mental and behavioural disorders, per 100,000 population, 2000–01 to 2010–11<sup>e</sup> ¶

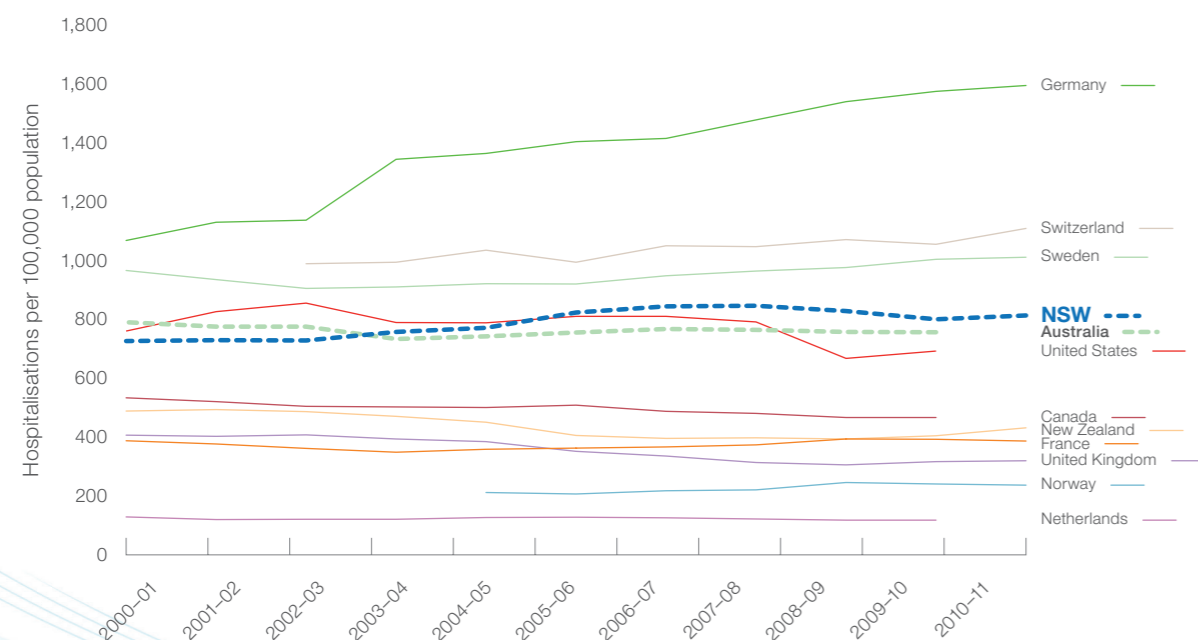


Figure 7.28: Average length of stay, overnight hospitalisations (public and private) for mental and behavioural disorders, 2010–11 (or latest year)<sup>e</sup> ¶

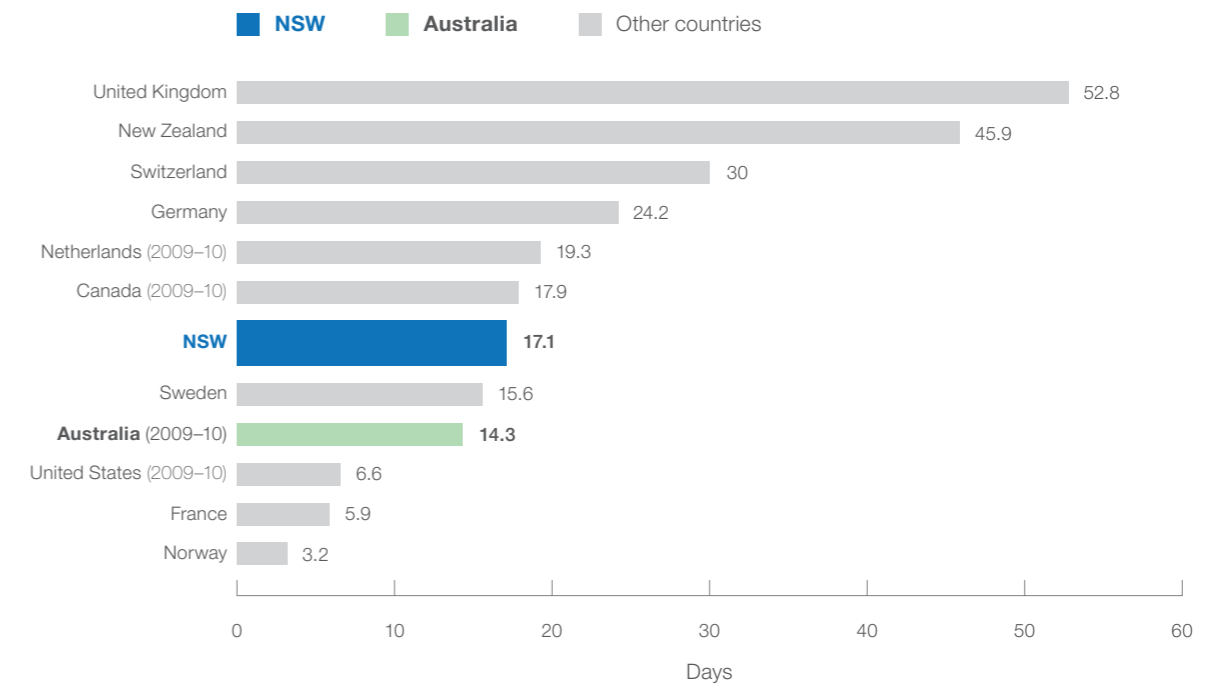
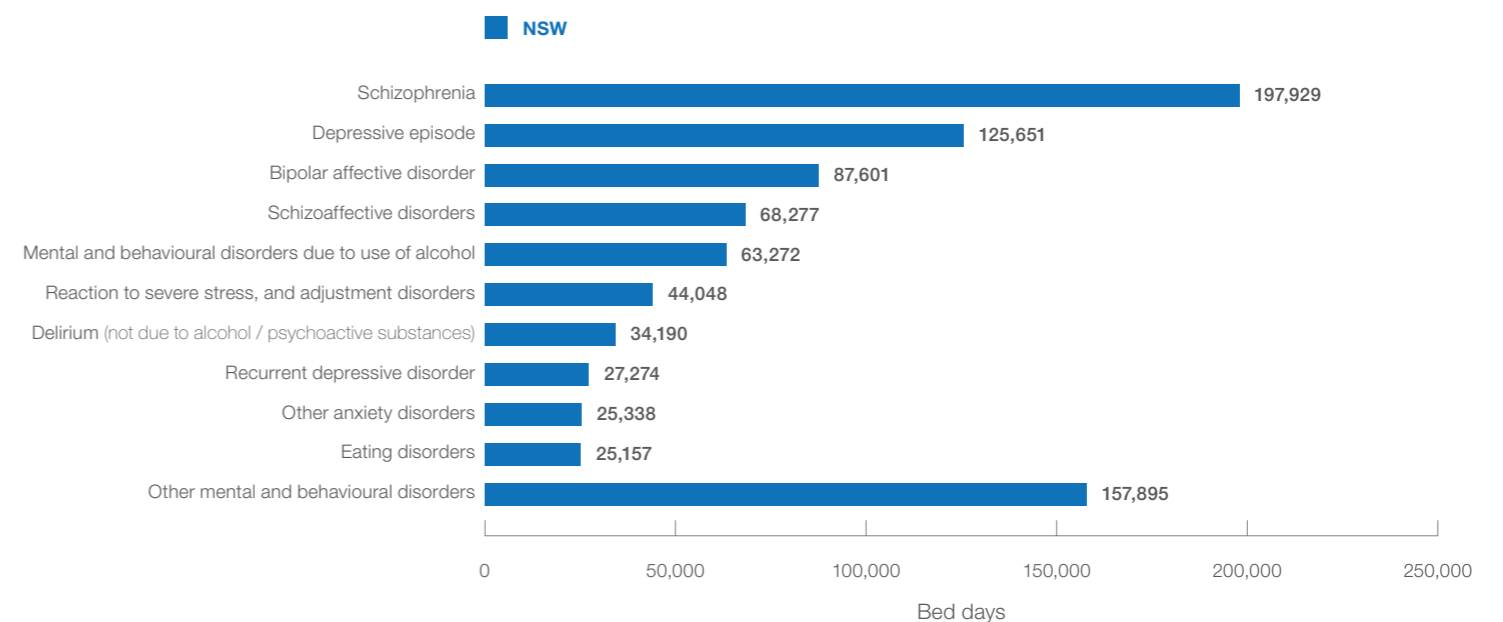


Figure 7.29: Total bed days (public and private hospitals) for different mental and behavioural disorders (principal diagnosis), NSW, 2010–11<sup>¶</sup>



(e) OECD, *OECD Health Data 2012*. Data for NSW were extracted from HOIST. Excludes same day separations (BHI analysis for NSW only). Principal diagnosis codes F00 – F99 (mental and behavioural disorders).  
 (¶) NSW Ministry of Health, *NSW Admitted Patient Data Collection* (BHI analysis).

# Frequently hospitalised people

## One per cent of NSW people use 43% of hospital bed days

In 2010–11, most people in NSW (89%) were not admitted overnight to hospital. Around half a million (555,838 people, 8% of the population) were hospitalised once; 123,707 (2% of the population) were hospitalised twice; and 84,966 (1% of the population) were hospitalised three or more times. The 1% of the population (84,966 people) who were admitted three or more times accounted for 43% of hospital bed days (2.9 million) in the year (Figure 7.30).

The 84,966 people who were hospitalised three or more times were, in total, admitted overnight to a public or private hospital on 352,604 occasions during the year.

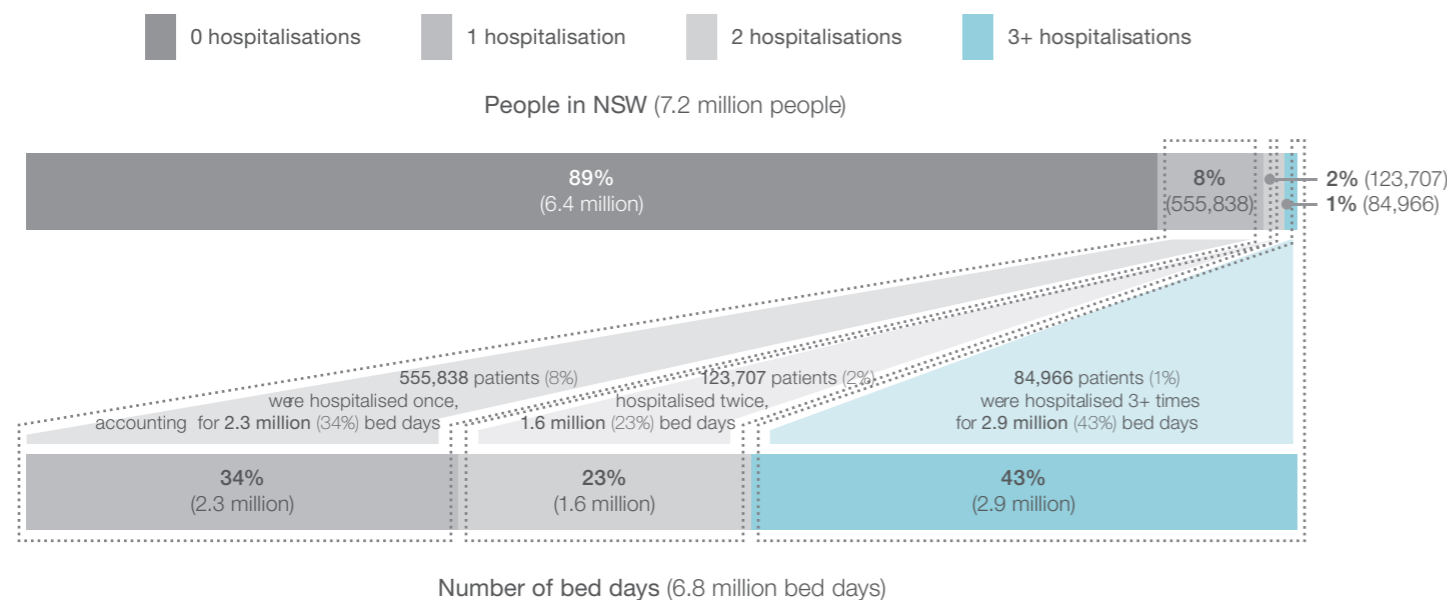
The reasons for these hospitalisations were varied (Figure 7.31). The most common reason for admission was circulatory disease (44,696 hospitalisations), followed by *‘factors influencing*

*health status’* (a non-specific miscellaneous category which includes care for rehabilitation procedures, convalescence and follow-up care) which accounted for 42,808 hospitalisations.

More specifically, the top three principal diagnoses were rehabilitation (25,862 hospitalisations), chronic obstructive pulmonary disease (COPD) (10,369 hospitalisations), and heart failure (8,598) (data not shown).

Of the 2.9 million bed days occupied by people with three or more admissions, most were attributed to hospitalisations for factors influencing health status (631,061 bed days, 22% of the total bed days used by those with three or more hospitalisations), followed by mental and behavioural disorders (353,449 bed days, 12% of the total bed days used by those with three or more hospitalisations) (Figure 7.32).

Figure 7.30: Hospitalisation frequency and bed day use (public and private hospitals), 2010–11 <sup>1</sup>



(1) NSW Ministry of Health, NSW Linked Admitted Patient Data Collection (BHI analysis).

Figure 7.31: People in NSW with 3+ hospitalisations (84,966 people): hospitalisations (public and private), by principal diagnosis (ICD–10 chapter), 2010–11 <sup>1</sup>

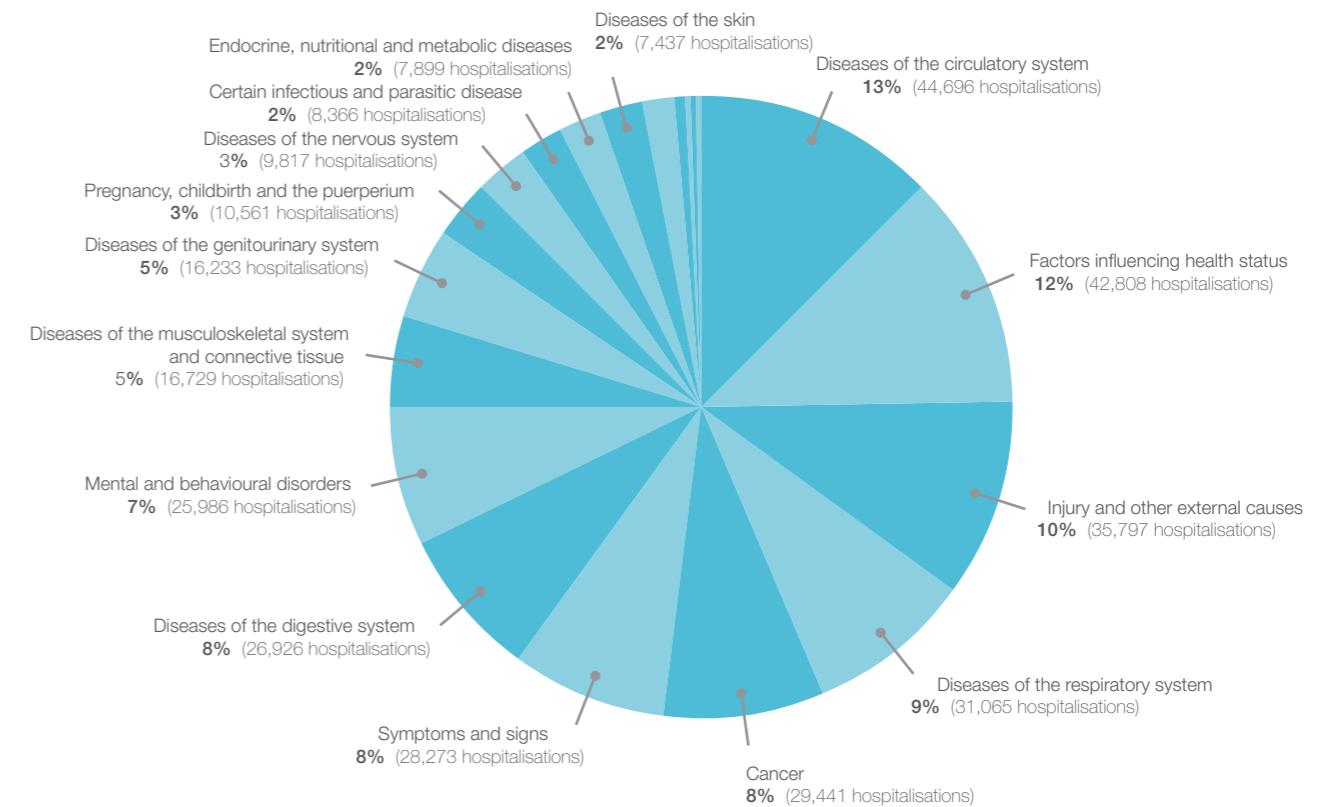
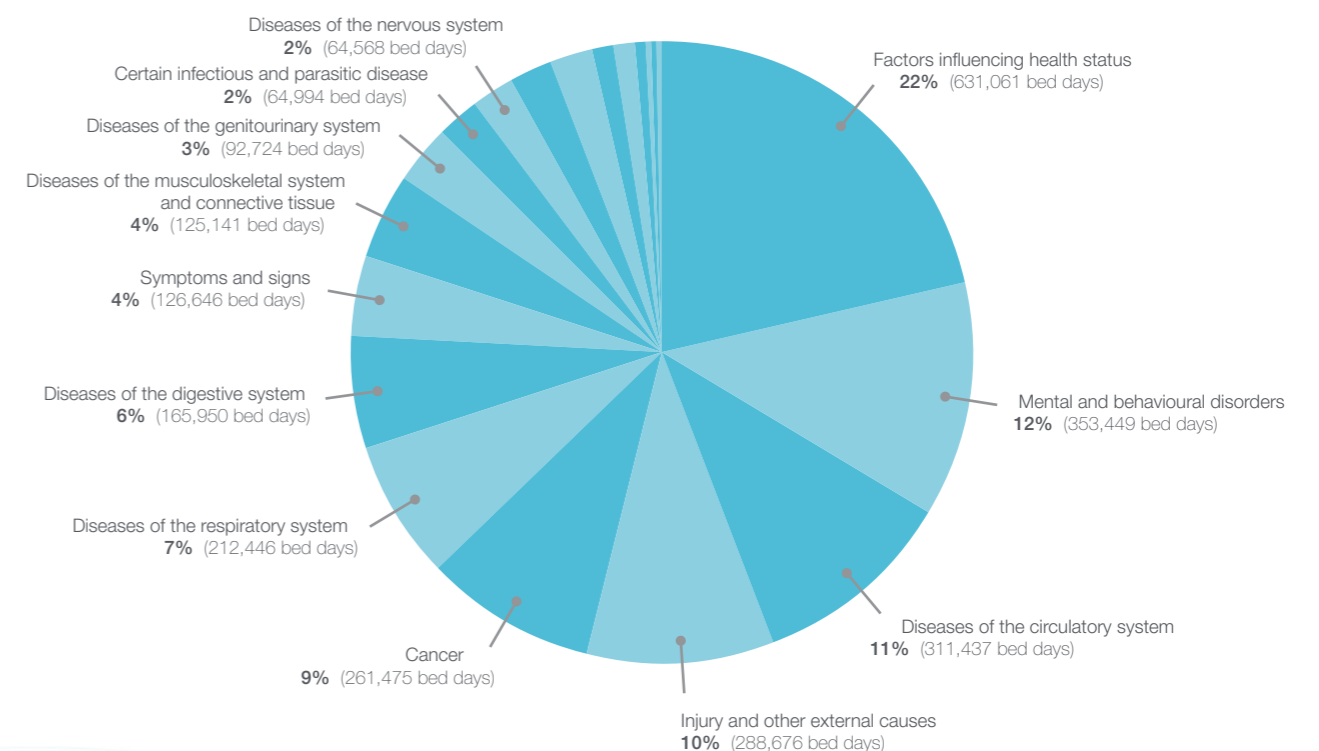


Figure 7.32: People in NSW with 3+ hospitalisations (84,966 people): total bed days (public and private hospitals), by principal diagnosis (ICD–10 chapter), 2010–11 <sup>1</sup>



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# Glossary

**ABS** – Australian Bureau of Statistics.

**Acute bronchiolitis** – is an acute viral infection of the small air passages of the lungs called the bronchioles.

**Acute myocardial infarction (AMI)** – Commonly known as a heart attack, an AMI is an interruption of blood supply to a part of the heart, which causes heart cells to die.

**AIHW** – Australian Institute of Health and Welfare.

**Angina** – Chest pain due to an inadequate supply of oxygen to the heart muscle.

**Appropriateness** – In performance measurement terms, the extent to which effective care was delivered in accordance with patients' needs.

**Asthma** – An inflammatory disease of the air passages, making them prone to narrowing and increased mucus production. It becomes difficult to move air in and out of the lungs. Symptoms include wheeze, shortness of breath, chest tightness and cough.

**Atherosclerosis** – Hardening of the arteries which occurs when fat, cholesterol, and other substances build up in the walls of arteries and form hard structures called plaques. Over time, these plaques can block the arteries and cause problems throughout the body.

**Atrial fibrillation and flutter** – A type of abnormal heartbeat in which the heart rhythm is fast and irregular.

**Bed days** – A bed day is a day during which a person occupies a hospital bed and in which the patient stays overnight in the hospital. Day-only cases are excluded.

**Bipolar** – Disorder is a condition in which people go back and forth between very good and irritable moods or depression. The *'mood swings'* between mania and depression can be very rapid.

**BMI (body mass index)** – Calculated from height and weight information, using the formula weight (kg) divided by the square of height (m). BMI values are grouped according to the table.

Body Mass Index (ADULT)

|              |                        |
|--------------|------------------------|
| Underweight  | Less than 18.5         |
| Normal range | 18.5 to less than 25.0 |
| Overweight   | 25.0 to less than 30.0 |
| Obese        | 30.0 and greater       |

Note: ABS definitions

Separate BMI classifications were produced for children. BMI scores were created taking into account the age and sex of the child.

**Cancer** – A group of diseases characterised by the uncontrolled growth and spread of abnormal cells.

**Cellulitis** – A spreading bacterial infection just below the skin surface.

**Cerebral infarction** – Ischaemic (clot-based) stroke.

**Charlson index** – A measure of comorbidity. Comorbidity is defined as the presence of diseases or disorders in addition to a primary disease. The Charlson index assigns a score to different conditions, according to an estimated generalised impact of the condition on prognosis and outcomes. Used for risk adjustment in statistical analyses.

**Cholelithiasis** – Gallstone disease.

**Cholesterol** – Cholesterol is a fatty substance found in the blood. Produced primarily in the liver, cholesterol is essential for the production of hormones, vitamin D and bile and is important for protecting nerves and in cell structure. Cholesterol is carried from the liver to the rest of the body in low density lipoproteins (LDL, or *'bad'* cholesterol) and back to the liver in high density lipoproteins (HDL, or *'good'* cholesterol). High levels of LDL cholesterol are associated with a higher risk of cardiovascular disease.

**Chronic ischaemic heart disease** – A disease characterised by ischaemia (reduced blood supply) of the heart muscle, usually as a result of coronary artery disease or hardening (atherosclerosis) of the coronary arteries.

**Circulatory disease** – Disorders that affect the heart and blood vessels (including stroke and heart attack).

**COAG** – Council of Australian Governments.

**COPD** – Chronic Obstructive Pulmonary Disease. COPD refers to chronic bronchitis and emphysema, which are co-existing diseases of the lungs in which the airways become narrowed. This narrowing leads to a limitation of the flow of air to and from the lungs causing shortness of breath. In clinical practice, COPD is defined by its characteristically low airflow on lung function tests. In contrast to asthma, this limitation is poorly reversible and usually gets progressively worse over time.

**Coxarthrosis (arthrosis of hip)** – Disorder of the hip joint.

**Diverticular disease of intestine** – A disease characterised by outpocketings of the colonic lining through weaknesses of muscle layers in the intestinal wall.

**Dorsalgia** – Back pain.

**ED** – Emergency department.

**Effectiveness** – In performance measurement terms, the use of medical treatments, services and preventive actions that are known to improve health.

**Elective surgery** – Any form of surgery that a patient's doctor believes to be necessary but which can be delayed by at least 24 hours.

**End-stage renal disease (ESRD)** – A condition characterised by the complete, or almost complete, failure of the kidneys to function. The main role of the kidneys is to remove waste and excess water from the body. Patients with ESRD require dialysis or a kidney transplant to replace lost kidney function. The most common underlying causes are diabetes and high blood pressure.

**Female genital prolapse** – A portion of the vaginal canal protruding (prolapsing) from the opening of the vagina. The condition usually occurs when the pelvic floor collapses as a result of childbirth.

**Fracture of femur** – Fracture of the thigh bone.

**Gonarthrosis (arthrosis of knee)** – Disorder of the knee joint.

**GP** – General practitioner.

**HbA1c** – Also known as glycated or glycosylated haemoglobin, HbA1c levels reflect blood glucose (sugar) concentration over the preceding two to three months. Measuring HbA1c in diabetic patients shows how well the blood glucose level has been controlled in the recent past.

**HOIST (Health Outcomes Information and Statistical Toolkit)** – The HOIST system refers to a data access, analysis and reporting facility established and operated by the Centre For Epidemiology and Evidence, Public Health Division, NSW Ministry of Health.

**Hospitalisation** – The act of placing a person into the care of a hospital. In this report, the number of hospitalisations is defined by the number of *'separations'* (see separations).

**Hyperplasia of prostate** – An abnormal increase in the number of normal cells in normal arrangement in the prostate, which increases its volume.

**Hypertension** – Also called high blood pressure, a chronic condition in which the systemic arterial blood pressure is elevated.

**Hysterectomy** – The surgical removal of the womb (uterus), with or without the removal of the ovaries.

**Incidence** – The number of new cases of a condition, symptom, death, or injury that develop during a specific time period, such as a year. The number is often expressed as a percentage of a population.

**Inguinal hernia** – A hernia is a sac formed by the lining of the abdominal cavity (peritoneum). The sac comes through a hole or weak area in the strong layer of the abdominal wall that surrounds the muscle. An inguinal hernia appears as a bulge in the groin.

**Life expectancy** – The average number of years that a person can be expected to live.

**Malignant neoplasm of breast** – Breast cancer.

**Malignant neoplasm of prostate** – Prostate cancer.

**Mortality** – A measure of deaths in the population. For Australia, the ABS publishes cause of death data 15 months after the reference period. These data are categorised as *'preliminary'*. There is a subsequent process of revisions at 12 months (categorised as *'revised'*) and 24 months (categorised as *'final'*).

**NHA** – National Healthcare Agreement. A bilateral five-year agreement between the Australian Government and each state and territory.

**OECD** – Organisation for Economic Cooperation and Development. An international organisation focused on social and economic issues.

**Other intervertebral disc disorders** – A condition that involves deterioration, herniation, or other dysfunction of a spinal disc.

**Outcome measure** – An indicator which gauges whether there have been improvements in health status or determinants of health. Outcome measures can be immediate, intermediate or long-term in their time horizon.

**Out-of-hours** – Outside of normal office working hours (i.e. 8:00am to 6:00pm, Monday to Friday).

**Paralytic ileus and intestinal obstruction without hernia** – Obstruction of the intestine due to paralysis of the intestinal muscles.

**Potentially preventable hospitalisations (PPH)** – Admissions to hospital which could have been avoided with access to quality primary care and preventive care. Include a range of: vaccine-preventable (e.g. tetanus); acute (e.g. dehydration); and chronic (e.g. asthma) conditions.

**Prevalence** – The number of cases of a specific disease present in a given population at a certain time.

**Process measure** – An indicator which gauges whether healthcare delivered to patients is consistent with standards or clinical guidelines, or evidence has shown to be associated with improved health.

**PYLL** – Potential Years of Life Lost. A summary measure of premature mortality calculated by totalling deaths occurring at each age and multiplying this figure by the number of remaining years of life up to a selected age limit.

**Rehabilitation** – Restoration of skills to a person who has had an illness or injury so as to regain maximum self-sufficiency and function.

**Relative survival** – The percentage of patients with a disease that are alive five years after diagnosis divided by the percentage of the general population of corresponding sex and age that are alive after five years.

**Renal dialysis** – An artificial replacement for lost kidney function in people with renal failure. It involves a process of diffusing blood across a semipermeable membrane to remove substances that a normal kidney would eliminate, including poisons, drugs, urea, uric acid, and creatinine. For chronic kidney disease, renal dialysis is required at regular intervals.

**Respiratory disease** – The respiratory system supplies the blood with oxygen for delivery to all parts of the body. It includes the airways and the lungs. Respiratory disease comprises both acute (e.g. influenza and pneumonia) and chronic (e.g. chronic obstructive pulmonary disease and asthma) conditions.

**Schizophrenia** – A mental disorder characterised by a breakdown of thought processes and by poor emotional responsiveness.

**Separation** – The process by which an admitted patient completes an episode of care either by being discharged, dying, transferring to another hospital or changing the type of care (for example, changing from being recorded as an acute patient to a rehabilitation patient). As a person can have multiple '*separations*' within the same hospitalisation period, separations are not the same as '*admissions*'.

**Sicker adults** – A term used to describe a group of patients who are likely to have had significant direct experience of the healthcare system in the recent past. It includes patients who met at least one of the following criteria:

- Described their overall health as fair or poor
- Received medical care in the previous year for a serious or chronic illness, injury or disability
- Hospitalised in the previous two years (for any reason other than childbirth)
- Had surgery in the previous two years.

**Standardisation** – A method of adjusting data to correct for differences in population structures, such as age or socioeconomic status, when comparing disease and mortality rates for different periods of time, different geographic areas and / or different population sub-groups.

**Stroke (or cerebrovascular accident)** – The sudden death of part of the brain, caused by disruption to blood flow and brain cells being deprived of oxygen.

**Syncope and collapse** – Temporary loss of consciousness caused by a fall in blood pressure.

**Type 2 diabetes mellitus** – A metabolic disorder where the body is unable to regulate the amount of glucose in the blood. It develops when the body does not properly respond to the natural hormone insulin.

**Vaccination** – Injection or ingestion of an agent that resembles a disease-causing microorganism, often made from weakened or killed forms of the microbe or its toxins. The agent stimulates the body's immune system to recognise the agent as foreign, destroy it, and '*remember*' it, so that the immune system can more easily recognise and destroy any of these microorganisms that it later encounters.

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## About the Bureau

The Bureau of Health Information provides the community, healthcare professionals and the NSW Parliament with timely, accurate and comparable information on the performance of the NSW public health system in ways that enhance the system's accountability and inform efforts to increase its beneficial impact on the health and wellbeing of the people of NSW.

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### To contact the Bureau of Health Information

Telephone: +61 2 8644 2100

Fax: +61 2 8644 2119

Email: [enquiries@bhi.nsw.gov.au](mailto:enquiries@bhi.nsw.gov.au)

Postal address:

PO Box 1770, Chatswood

New South Wales 2057, Australia

Web: [www.bhi.nsw.gov.au](http://www.bhi.nsw.gov.au)

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# How long did people spend in hospital?

## Over 5.5 million acute bed days across NSW

In 2010–11, people were in hospital for a total of 6.8 million bed days. Of these, 5.5 million (82%) were for acute care (Figure 7.10).

An episode of acute care is one for which the principal clinical intent is to do one or more of the following: manage labour, cure illness or provide definitive treatment of injury, perform surgery, relieve symptoms of illness or injury.

Non-acute care includes rehabilitation, palliative care, geriatric evaluation and management, and maintenance care. Rehabilitation is the most commonly provided care type. Of the 1.2 million bed days for non-acute care (18% of total bed days), the majority were for a category known as ‘factors influencing health status and contact with health services’. This is a miscellaneous category which includes care for rehabilitation procedures, convalescence and follow-up care.

The 5.5 million bed days for acute care are due to an exhaustive list of conditions. Figure 7.11 shows the principal reasons for acute hospital bed days in the year, grouped into ICD-10 chapter headings (For details about ICD-10, see Chapter 1: Setting the Scene, page 4).

Most acute bed days were attributed to mental and behavioural disorders (810,269 bed days; 14.7% of total), diseases of the circulatory system (639,123; 11.6%), and injury, poisoning and other external causes (634,270; 11.5%).

Note that, as shown on page 76, mental and behavioural disorders accounted for a total of 59,528 (5.2%) of total (public and private) hospitalisations, and for 856,632 (14%) of total acute and non-acute bed days.

Figure 7.10: Total bed days for overnight hospitalisations (public and private), acute vs non-acute, 2010–11<sup>⓪</sup>¥

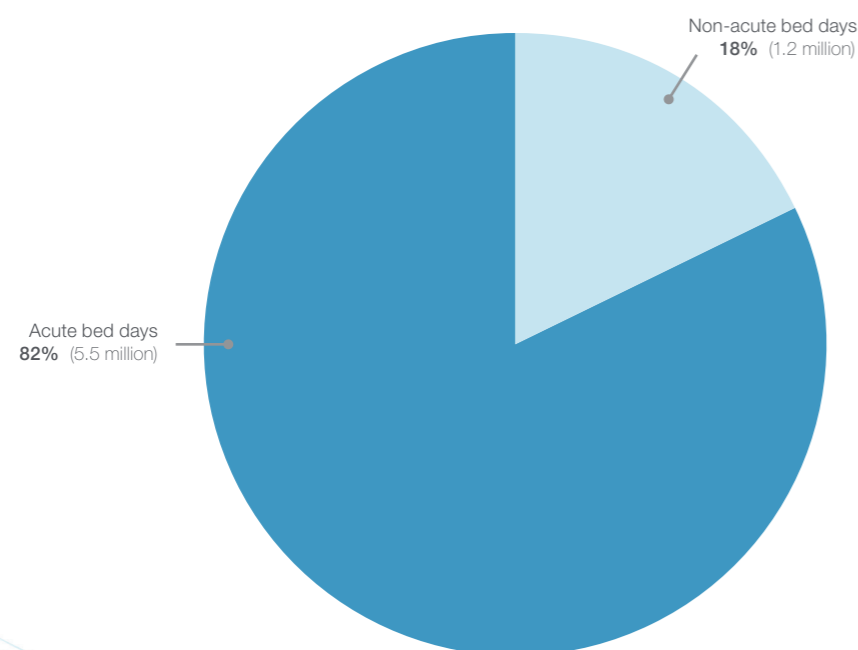


Figure 7.11: Total bed days for acute overnight hospitalisations (public and private), by principal diagnosis (ICD chapter), 2010–11<sup>⓪</sup>¥



⓪ NSW Admitted Patient Data Collection. Data extracted 3 September, 2012 (BHI analysis).  
 ¥ Data exclude newborns ‘without qualification days’ (i.e. well newborns).