Effectiveness and appropriateness

Gauging whether services are based on professional standards and evidence

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

**Effective care** refers to use of medical treatments, services and preventive actions 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**: whether there have been improvements in health status or determinants of health, which suggest that interventions have worked
- **Processes**: whether care delivered to patients is evidence-based, or has been shown to be associated with improved health.

**Appropriateness** indicators measure whether effective care was delivered in accordance with patients’ needs. They aim to count cases where:

- Effective care was not provided despite being medically necessary or of proven benefit to patients
- Care was provided when it was not medically necessary
- Care was not provided correctly or was suboptimal because of a preventable problem such as medical error, misdiagnosis or avoidable complication.

In this report, appropriateness indicators focus on two surgical procedures commonly performed on women: Caesarean sections and hysterectomies.

“Sicker adults” refers to people who are likely to have had significant direct experience of the healthcare system in the recent past. It includes 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.
### How well does NSW perform?

<table>
<thead>
<tr>
<th>What we learnt about NSW</th>
<th>NSW performed better than:</th>
<th>NSW performed worse than:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential years of life lost (PYLL) to cancer fell by 19% between 1999 and 2009†</td>
<td>In 2008 or 2009: United Kingdom, Norway, Netherlands, France</td>
<td>In 2008 or 2009: Sweden</td>
</tr>
<tr>
<td>Most sicker adults (88%) with circulatory disease or diabetes had their cholesterol checked in the past year*</td>
<td>Netherlands, Sweden</td>
<td>No countries</td>
</tr>
<tr>
<td>Almost all sicker adults (99%) with circulatory disease or diabetes had their blood pressure checked in the past year*</td>
<td>Sweden, Netherlands, Switzerland, Norway</td>
<td>No countries</td>
</tr>
<tr>
<td>More than seven in 10 (73%) people in the 65+ age group were vaccinated against influenza in 2009</td>
<td>France, United States, Canada, New Zealand, Sweden, Germany, Switzerland</td>
<td>Netherlands, United Kingdom</td>
</tr>
<tr>
<td>Potential years of life lost to circulatory disease fell by 31% between 1999 and 2009†</td>
<td>In 2008 or 2009: United Kingdom, Norway, Netherlands</td>
<td>In 2008 or 2009: France, Sweden</td>
</tr>
<tr>
<td>In 2009, more than 30% of live births were Caesarean sections</td>
<td>Switzerland, United States</td>
<td>Canada, New Zealand, United Kingdom, France, Sweden, Norway, Netherlands</td>
</tr>
</tbody>
</table>

† Australian Bureau of Statistics (ABS) cause of death data for 2009 are subject to revision. PYLL comparisons are limited to those countries with available data for 2008 or 2009.

* Statistical analyses suggest that NSW results were truly different from those in the countries indicated.
**Effectiveness and appropriateness:**

**Circulatory disease**

Premature deaths have dropped significantly

The circulatory system moves blood around the body. Circulatory disease is 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 a stroke).

Between 1999 and 2009, there was a 31% decrease in potential years of life lost to circulatory disease in NSW (Figure 2.1). In 2009, circulatory disease accounted for 15,884 deaths in NSW (34% of all deaths).¹

In 2009, there were 108,485 overnight hospitalisations (public and private) for which circulatory disease was the principal diagnosis, including 14,600 for acute myocardial infarction (AMI or heart attack) and 12,455 for stroke.²

Effective care for circulatory disease involves regular blood pressure (BP) and cholesterol checks. In 2011, most (88%) adults in NSW with hypertension, heart disease or diabetes* reported having their cholesterol checked in the past year. Almost all (99%) reported having their BP checked. Of those checked, 85% reported that their BP result was within the normal range (Figure 2.2).

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¹ Diabetes, if not well controlled, can affect the circulatory system.
Figure 2.2: **Survey 2011** Appropriate care processes for circulatory disease

(a) Have you had your cholesterol checked in the past year?

(b) Have you had your blood pressure checked in the past year?

(c) Last time your blood pressure was checked, was it under control, in the normal range?

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(Ω) The Commonwealth Fund’s 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, ① estimate almost certainly higher than NSW; ② estimate almost certainly lower than NSW.

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(#) OECD Health Data 2011. Age standardised to the 1980 OECD population. For NSW and Australia, HOIST (1999 – 2007); 2008 and 2009 figures are based on ABS data and subject to further revision.
Cancer is a group of diseases characterised by uncontrolled growth and spread of abnormal cells. In 2008, 36,611 NSW people were diagnosed with cancer. Cancers of the prostate, bowel, breast, skin and lung were together responsible for 63% of all new cases.\(^3\)

In 2009, there were 13,526 cancer deaths\(^1\) (malignant neoplasms) and 98,722 overnight and day-only hospitalisations (public and private) with cancer as the primary diagnosis.\(^4\)

Potential years of life lost (PYLL) to cancer in NSW fell by 19% between 1999 and 2009. Internationally, NSW performs well, with one of the lowest rates of PYLL (Figure 2.3).

Nine in 10 NSW women diagnosed with breast cancer in 2005–07 (87.8%) will be alive five years after their diagnosis. Almost seven in 10 colorectal cancer patients (66.4%) and two in 10 lung cancer patients (17.6%) in NSW will survive at least five years (Figure 2.4).

Screening can help in the early detection of some cancers, improving outcomes. For breast cancer, 223,823 NSW women in the target age group (50–69 years) were screened for breast cancer in 2009. This corresponds to a participation rate of 54%.\(^5\) The Netherlands (82%), Norway (74%), UK (74%) and New Zealand (67%) achieve higher participation rates. For France (55%), Germany (54%), and Australia (55%), rates are similar to NSW.\(^6\)

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**Figure 2.3:** Potential years of life lost (< 70 years) to cancer, 1999 – 2009

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*\(^3\) OECD Health Data 2011. Data are age-sex standardised to the 1980 OECD population. For NSW and Australia, HOIST (1999 – 2007); 2008 and 2009 figures are based on ABS data and are subject to further revision. 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.

*\(^4\) Population-based cancer registries. Measures survival from cancer after adjustment for other causes of death. Estimates made using period approach. For details see Coleman et al, 2010.\(^7\)*
Figure 2.4: Age-standardised five-year relative survival, breast, colorectal and lung cancer, 2005–07

(a) Breast cancer

- Sweden: 88.5
- Australia: 88.1
- New South Wales: 87.8
- Ontario: 86.4
- Canada: 86.3
- Norway: 85.5
- United Kingdom: 81.6

(b) Colorectal cancer

- New South Wales: 66.4
- Australia: 65.9
- Ontario: 64.9
- Canada: 63.7
- Sweden: 62.6
- Norway: 62.0
- United Kingdom: 53.6

(c) Lung cancer

- Ontario: 19.1
- Canada: 18.4
- New South Wales: 17.6
- Australia: 17.0
- Sweden: 16.3
- Norway: 14.4
- United Kingdom: 8.8
Diabetes mellitus occurs when the pancreas does not produce enough insulin (type 1), or the body is resistant to insulin (type 2). Type 2 diabetes is the most common (90% of all cases).

Careful control of blood sugar levels, cholesterol, blood pressure and weight help prevent complications. Poor control can result in serious chronic ill-health, disability and premature death. For example, diabetes is the leading cause of kidney failure requiring dialysis or transplantation (referred to as end-stage renal disease).

Between 1999 and 2009, NSW saw a 39% increase in end-stage renal disease prevalence (Figure 2.5). At the same time, NSW and Australia saw steep increases in overall hospitalisations for diabetes (Figure 2.6).

Among NSW diabetics participating in the 2011 Commonwealth Fund survey, most reported receiving three elements of recommended care. Nine in 10 (94%) had their HbA1c* checked in the preceding year. Almost seven in 10 diabetics (67%) had a foot exam; and eight in 10 diabetics (81%) had an eye exam (Figure 2.7).

Figure 2.5: End-stage renal disease, prevalence, 1999 – 2009*

(* Indicates whether blood sugar levels are well controlled.)
Figure 2.6: Hospitalisations for diabetes mellitus (principal diagnosis), 1999 – 2009

Figure 2.7: Survey 2011 Diabetes process measures, in NSW

Have you had an eye examination for your diabetes in the past year? 81%
Have you had your feet examined by a health professional for sores or irritations in the past year? 67%
Has your HbA1c been checked in the past year? 94%

(1) OECD Health Data 2011 and NSW Australia and New Zealand Dialysis and Transplant Registry.
(2) Suppressed due to truncated time series.
(3) OECD Health Data 2011 and NSW Admitted Patient Data Collection. Excludes day-only hospitalisations.
(4) The Commonwealth Fund’s 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). Sample size for NSW is 126 people with diabetes out of 2,108 people screened for survey participation.
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.

Potential years of life lost (PYLL) to respiratory disease in NSW decreased by 28% between 1999 and 2009. The latest available PYLL results place NSW mid-range internationally (Figure 2.8). Many hospitalisations for respiratory diseases are considered to be potentially avoidable with vaccination and appropriate management.

In NSW, hospitalisation rates for respiratory disease are relatively high compared with international figures (Figure 2.9).

Annual influenza vaccination is recommended for people aged 65 years or over as an effective way of preventing illness and minimising hospitalisations. More than seven in 10 (72.7%) people in the 65+ age group in NSW were vaccinated in 2009 – a high rate in international terms (Figure 2.10).

Figure 2.8: Potential years of life lost (< 70 years), respiratory disease, 1999 – 2009

![Potential years of life lost (PYLL) graph]

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Figure 2.9: Hospitalisations for respiratory conditions (principal diagnosis), 1999 – 2009

Figure 2.10: Influenza vaccination, people aged 65+ years, 2009 (or latest year)

(#) OECD Health Data 2011. Data are age-sex standardised to the 1980 OECD population. For NSW and Australia, HOIST (1999 – 2007); 2008 and 2009 figures are based on ABS data and are subject to further revisions. 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.

(¶) OECD Health Data 2011 and NSW Admitted Patient Data Collection. Excludes day-only hospitalisations.

(O) OECD Health Data 2011 and AIHW 2009 Adult Vaccination Survey.
Effectiveness and appropriateness: Mental health Community mental healthcare after discharge is improving

NSW has recorded a steady rate of hospitalisations for mental and behavioural disorders over the past decade. The NSW rate is mid-range internationally (Figure 2.11).

For patients admitted to psychiatric inpatient services, the provision of a responsive community support system is essential to maintaining clinical and functional stability and minimising the need for hospital readmission. International literature suggests one week as a key time period following discharge.\(^8\)

In 2009–10, over five in 10 people discharged from psychiatric inpatient services (56%) in NSW received follow-up community care within seven days of discharge. This is an increase from the rate recorded in 2005–06 and is higher than that for Australia as a whole (Figure 2.12).

The episodic and cyclic nature of some chronic mental illness can lead to multiple admissions over a lifetime. However, high levels of unplanned readmissions are generally considered indicative of poor care or coordination either from inadequate inpatient treatment and / or discharge planning, or inadequate community follow up to maintain the person in the community, or a combination of both.\(^9\) In 2009–10, NSW recorded a 16% readmission rate, higher than for Australia as a whole (Figure 2.13).

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Figure 2.12: Rates of community follow-up within seven days of discharge from psychiatric inpatient services, NSW and Australia, 2005–06 to 2009–10

Figure 2.13: Readmissions to psychiatric inpatient services within 28 days of discharge, 2005–06 to 2009–10
Effectiveness and appropriateness: Women’s healthcare

Caesarean section rates continue to increase in NSW

There have been longstanding concerns about the overuse of some procedures in healthcare such as Caesarean sections and hysterectomies.

A Caesarean section is the surgical delivery of a baby and is indicated when there is a significant risk to the health of the mother or baby from a vaginal delivery. Although a Caesarean section is appropriate for some mothers, the surgery involves risk and requires more resources than a vaginal delivery. In 2009, more than 30% of all live births in NSW were Caesareans. Between 1999 and 2009, there was a 59% increase in Caesarean section rates (Figure 2.14).

Hysterectomy is the surgical removal of the uterus. It is used to treat cancer, menorrhagia (heavy menstrual bleeding), chronic pelvic pain and uterine fibroids. There are a range of less invasive treatments available for non-cancer cases that involve fewer risks than surgery.\(^9\) If a hysterectomy is performed in non-cancer cases, a vaginal procedure is recommended.\(^10\) Therefore, greater use of alternative treatments should be reflected in a fall in vaginal hysterectomy rates.\(^6\) Recent data show that vaginal hysterectomy rates in NSW are falling (Figure 2.15).

Figure 2.14: Caesarean sections per 1,000 live births, 1999 – 2009\(^1\)

(\(^\#\)) The proportion of vaginal vs abdominal have remained fairly constant over time in NSW.
Figure 2.15: Hysterectomy rates (vaginal procedures only), 1999 – 2009

OECD Health Data 2011 and NSW Admitted Patient Data Collection.

(‡) Suppressed due to truncated time series.