bureau of health information

Bureau of Health Information

Technical Supplement

Healthcare in Focus 2014: How does NSW compare?

Annual performance report

Contents

Introduction

This is a supplement to the Bureau of Health Information's fifth annual performance report, *Healthcare in Focus 2014: How does NSW compare?* The supplement describes methods and technical terms used to compute descriptive statistics and performance indicators included in the report. It is technical in nature, and is intended for audiences interested in the creation and analysis of health performance information.

To produce the report, BHI used the following sources of data:

- Survey results from the Commonwealth Fund International Health Policy Survey 2014
- The Organisation for Economic Cooperation and Development (OECD) Health Statistics online database
- NSW Health linked admitted patient, emergency department presentation and fact of death data, accessed via the Centre for Epidemiology and Evidence [5]
- NSW Health admitted patient (2001/02–2013/14), emergency department presentation (2000–2012) and elective surgery waiting list (2012–2013) data collections, accessed via the Health Information Exchange (HIE) and Waiting List Collection Online System (WLCOS)
- Australian Bureau of Statistics (ABS) mortality data for 2014
- Survey results from the ABS Patient Experience Survey 2013–14
- Survey results from BHI's NSW Patient Survey Program 2013–14
- Australian Institute of Health and Welfare (AIHW) expenditure data
- Health and healthcare performance data already published by governments. The sources of these data are indicated where appropriate.

BHI used SAS/STAT™ software for the statistical analysis of data published in the report [1].

Data Sources

Commonwealth Fund International Health Policy Survey

Each year, the Commonwealth Fund, a philanthropic organisation in the United States, commissions an international survey to support the creation of public reports that benchmark the performance of comparable healthcare systems.

The survey focuses on different populations, generally following a three-year cycle. In 2013, the survey drew its sample from adults aged 18 years and over, while in 2014 it sampled 'older adults' (those aged 55 years and over).

The 2014 Commonwealth Fund International Health Policy Survey (2014 IHPS) of older adults was conducted by Social Science Research Solutions (SSRS) in Australia. Landline and mobile telephone interviews were conducted with a representative sample of 25,530 adults aged 55 and over in Australia, Canada, France, Germany, the Netherlands, New Zealand, Norway, Sweden, Switzerland, the United Kingdom, and the United States. In 2014, the Bureau of Health Information invested in an additional sample to ensure the number of NSW participants was sufficient to compute robust estimates of performance indicators of the NSW health system at the state and regional levels, and to make statistically valid comparisons with the countries participating in the survey.

Fieldwork in all countries took place between 4 March and 28 May 2014. The survey assessed public confidence in the health care system including questions of access, cost and quality. SSRS produced a comprehensive methodological report that details the sample design, data collection, data processing and survey procedures used in conducting the survey.

Final samples were weighted to reflect the distribution of the adult population in each country. The characteristics and populations used to calculate weights for each country are summarised in the SSRS methodology report [2]. Australian data were weighted by education, age, sex, urbanicity and region to the Australian Bureau of Statistics' population estimates for 2011. BHI received de-identified unit record data from the survey. We then verified the estimates calculated by SSRS for the selected indicators used in BHI's report.

The response rate was 31% for Australia. In NSW, 2,800 adults were surveyed between March and May 2014. The response rates for countries sampled for the 2014 IHPS varied from 16% in Norway to 60% in Switzerland (Table 1).

To provide a sense of the sampling variability associated with these survey data, the margins of error associated with an estimate of around 50% are provided in Table 2. For jurisdictions with a larger sampling fraction, such as NSW, the margin of error is smaller, indicating the sample-based estimates are likely to better reflect the true result for the population.

Statistical analysis

The performance of the NSW healthcare system was reported alongside Australia and 10 other countries. Reported percentages are the weighted estimates that are intended to reflect the views and experiences of the population (whether by NSW, region or country).

Consistent with published reports on Commonwealth Fund data [3], non-response categories, such as 'not sure', 'declined to answer', and 'not applicable', were excluded from reporting and statistical analyses. 'Not applicable' responses generally occurred in response to questions about receipt of particular services. For example, for the question *How easy or difficult is it to get medical care in the evenings, on weekends, or holidays without going to the hospital ED*?, if the response given was 'never needed care in the evenings,

on weekends or holidays' it was deemed a 'not applicable' response.

The majority of questions had low levels of non-responses and not applicable responses. Figures 1 and 2 summarise the questions for which non-responses and not applicable responses comprised over 5% of all responses for NSW, and compare them with the average percentage of these responses for Australia and 10 other countries. The percentages of weighted survey respondents that were in the non-response and not applicable categories for all questions used in the report are provided in Appendix B. More detail on the number of eligible respondents for each question is available on BHI's interactive data portal Healthcare Observer at www.bhi.nsw.gov.au.

A well-established method of reporting differences in the estimates for each indicator across jurisdictions participating in the 2014 IHPS is to statistically test the hypothesis that there is no difference between the NSW result and the results for Australia and the 10 other countries. This entails dichotomising responses to each question of interest such that the response value of interest (for example 'always') is coded as 1, and all other values, excluding non-response categories, are coded as 0. Logistic regression is then used to fit this binary variable on an explanatory variable for each respondent country, with appropriate adjustment for survey weights. BHI adopted this method and used the SAS procedures SURVEYFREQ and SURVEYLOGISTIC for the analysis [1]. Differences between the NSW result and the results for the other jurisdictions were tested at a 5% significance level using the estimates of odds ratios. Detailed results of this analysis are available on request.

Note: Null hypotheses are never accepted. We either reject them or fail to reject them. For example, for a specific indicator, the null hypothesis is that the NSW result is no different to, say, the French result. Failing to reject the null hypothesis does not mean that we accept there is no difference between NSW and France. It means that using the available data, we are unable to detect statistical differences in the performance of these two countries based on the statistical model we used.

To provide an overview of NSW's performance in the IHPS, the number of times NSW performed more favourably or less favourably than the rest of Australia and the 10 other countries is provided based on responses for 42 questions.

Organisation for Economic Cooperation and Development

The Organisation for Economic Cooperation and Development (OECD) is a comprehensive and reliable source of comparable international data on various economic and social topics, including health care.

The latest edition of the OECD's biennial report *Health at a Glance* was released in November 2013. The OECD Health Care Quality Indicators included in that report are based on specifications developed by the US Agency for Healthcare Research and Quality (www.qualityindicators.ahrq.gov) and made available through the OECD website *OECD Health Statistics* (www.oecd-ilibrary.org/social-issues-migration-health/data/oecd-health-statistics_health-data-en)

Statistical analysis

A subset of these healthcare measures have been presented in this report with the NSW results calculated based on specifications from the OECD and the Australian Institute for Health and Welfare [7]. Details relevant to BHI's calculation of these indicators are provided in Table 3.

In the absence of the information required for hypothesis testing, wherever possible

confidence intervals were used to compare NSW statistics with the other countries' results. Non-overlapping confidence intervals were flagged with an asterix (*) to identify statistically significant differences.

International data comparisons from both survey and administrative data sources present challenges due to differences in data collection, definition, and quality, as well as differences in each country's organisation of healthcare. A synthesis of administrative data measures based on the OECD values for international comparators is also provided. NSW results were compared to the range of OECD country values on a normalised scale.

The scores are calculated for each country using the formula $(x_i - \bar{x})/\sigma_x$ where x_i is the result for the country and $\bar{x}$ and σ_x are, respectively, the mean and standard deviation of the results of all countries. Scores are transformed such that the value greater than zero indicates better than average performance. The interquartile range of these transformed scores is shown in the grey area [13][14].

Australian Bureau of Statistics: Patient Experience Survey and Cause of Death

The Australian Bureau of Statistics (ABS) conducts an annual Patient Experience Survey, a nation-wide population-based survey of patients' experiences using the Australian health system. The ABS provided BHI with a customised report on the NSW results for 2013–14. The sample of 27,327 people aged 15 years and over was weighted to represent the estimated population aged 15 years and over in private dwellings in each state and territory. Further information on survey and analysis methods can be found in the ABS's survey methods documentation [4].

The ABS also provided a customised report on causes of death in NSW for the calendar years 2009–2013. The report included age-standardised rates of mortality and potential years of life lost for selected causes of death, by sex and year of death registration. Counts of potentially avoidable deaths in NSW for 2013 by cause of death were also included.. Further information can be found in the ABS's methodological documentation for its *Causes of Death 2013* report [5].

Australian Institute for Health and Welfare: Healthcare expenditures

The Australian Institute for Health and Welfare (AIHW) provided a customised report of healthcare expenditures stratified by finance, provider and function categories according to the OECD's System of Health Accounts (SHA) definitions. For more information, see the AIHW annual report on health expenditures [6].

Commonwealth Department of Health: Medical item statistics reports

The Commonwealth Department of Health collects data on instances of primary healthcare service that are described by items in the Medicare Benefits Schedule (MBS). Statistics from this data collection are provided through an online tool, accessed at: www.mbsonline.gov.au/internet/mbsonline/publishing.nsf/Content/connectinghealthservices-itemlist

This data collection is used to report on the number of telehealth services in NSW.

Bureau of Health Information: NSW Health Patient Survey Program

BHI conducts a regular, comprehensive state-wide patient experience survey program. The NSW Patient Survey Program collects information from patients across NSW about their experiences with a variety of healthcare services. It uses patient survey questionnaires developed by NRC+ Picker and is conducted in conjunction with IPSOS Social Research Institute.

For this report, BHI used de-identified unit record data from the 2013 Adult Admitted Patient Survey (35,000 patients) and the 2013–14 Emergency Department Patient Survey (26,000 patients) respondent groups. The SAS procedure SURVEYFREQ was used to compute patient population estimates using sampling and post-stratification weights provided by IPSOS [1, 5].

NSW Ministry of Health: Linked admitted patient, emergency department presentation and fact of death data

The Centre for Epidemiology and Evidence (CEE) at the NSW Ministry of Health maintains a data warehouse called Secure Analytics for Population Health Research and Intelligence (SAPHaRI) [5]. SAPHaRI holds records of hospital admissions, emergency department presentations and fact of death, each of which has been assigned a unique person identifier. The person identifier is a statistical linkage key generated by the Centre of Health Record Linkage (CHeReL) using probabilistic record linkage methods. Further information can be found at www.cherel.org.au.

In this report, data linkage allowed the computation of various statistics at a patient level of analysis, such as unplanned readmission rates. The linkage of these data occurs on a six-monthly cycle. At the time of analysis, the linked data are available up to the end of the 2013–14 financial year, though most indicators calculated using this data source are for the 2013 calendar year.

Statistics calculated as a rate or proportion of hospitalisations exclude episodes at Albury Base Hospital, since this facility is administered by the Victorian Department of Health. Statistics calculated as a population rate exclude non-residents of NSW.

NSW Ministry of Health: Hospital activity data (Health Information Exchange and Waiting List Collection Online System)

The NSW Ministry of Health maintains data warehouses containing the most recent accumulation of NSW hospital and health facility activity data available. Inpatient and emergency department presentation data are uploaded weekly and become available for BHI analysis two weeks later. Elective surgery waiting list data are uploaded monthly and become available two weeks later.

BHI, in conjunction with the NSW Ministry of Health and other agencies, has developed various measures of NSW public hospital admissions and emergency department and elective surgery activity and performance for hospitals with electronic data available. These measures are published in the BHI report series *Hospital Quarterly* and are available on BHI's online data portal Healthcare Observer. The statistics reported in *Healthcare in Focus 2014* have been calculated for the 2013–14 financial year rather than for quarters, but the specifics of the analyses remain the same. *Hospital Quarterly* activity and performance statistics exclude episodes at Albury Base Hospital, since this facility is administered by the Victorian Department of Health.

Table 1: Commonwealth Fund International Health Policy Survey of Older Adults 2014, sample sizes and response rates by country

Country	Sample size	Response rate
Australia (including New South Wales)	3,310	31%
Canada	5,269	28%
France	1,500	29%
Germany	928	26%
Netherlands	1,000	25%
New Zealand	750	27%
Norway	1,000	16%
Sweden	7,206	23%
Switzerland	1,812	60%
United Kingdom (England, Scotland, Wales and Northern Ireland)	1,000	23%
United States (excluding Alaska and Hawaii)	1,755	24%

Table 2: Commonwealth Fund International Health Policy Survey of Older Adults 2014, design effect and margin of sampling error (for an estimate of 50%), NSW and comparator countries

	Design Effect	Margin of Sampling Error (+/- %)
Australia	5.16	3.9
New South Wales	1.70	2.4
Canada	1.87	1.8
France	1.59	3.2
Germany	1.64	4.1
Netherlands	1.58	3.9
New Zealand	1.92	5.0
Norway	1.58	3.9
Sweden	1.93	1.6
Switzerland	1.61	2.9
United Kingdom	1.43	3.7
United States	1.68	3.0

Figure 1: Percentage of adults aged 55 years and over who did not respond, NSW and average of 11 countries, questions over 5% for NSW, 2014

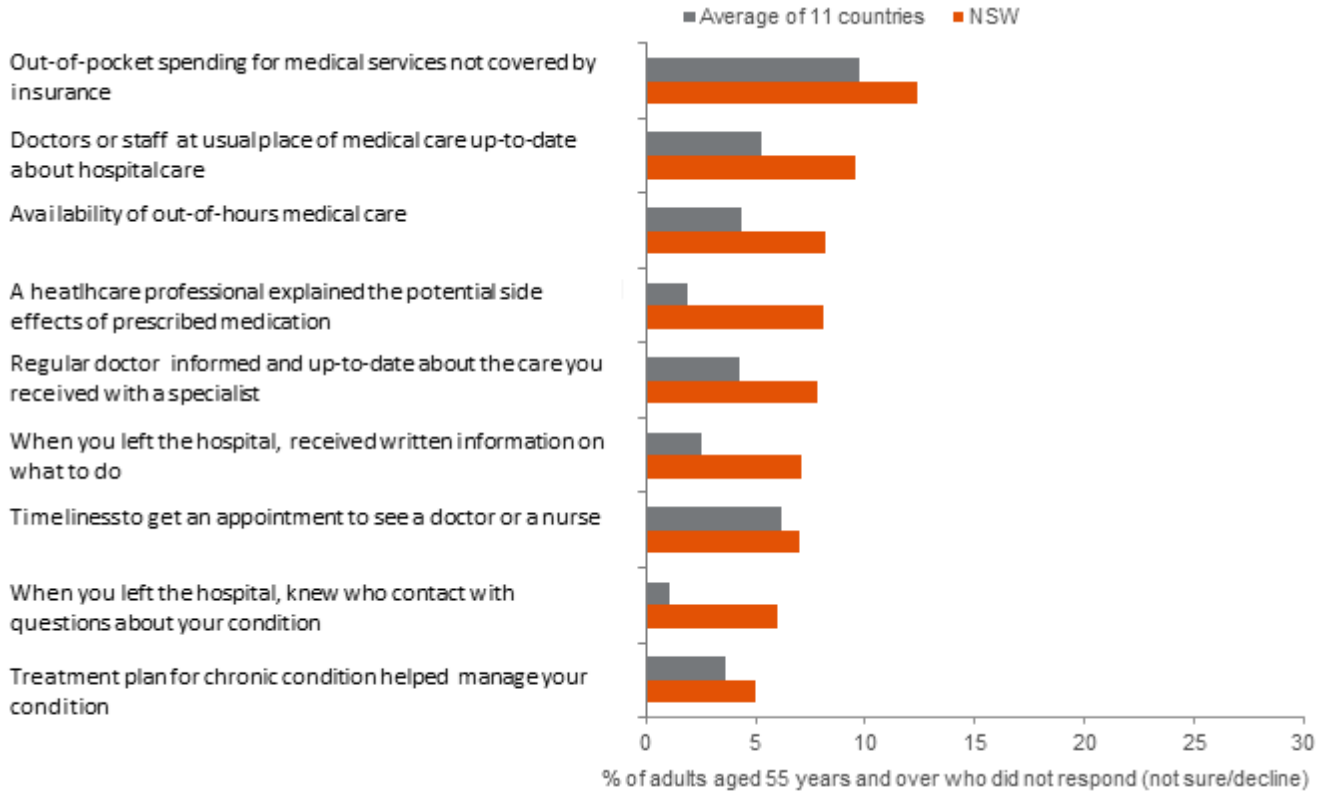
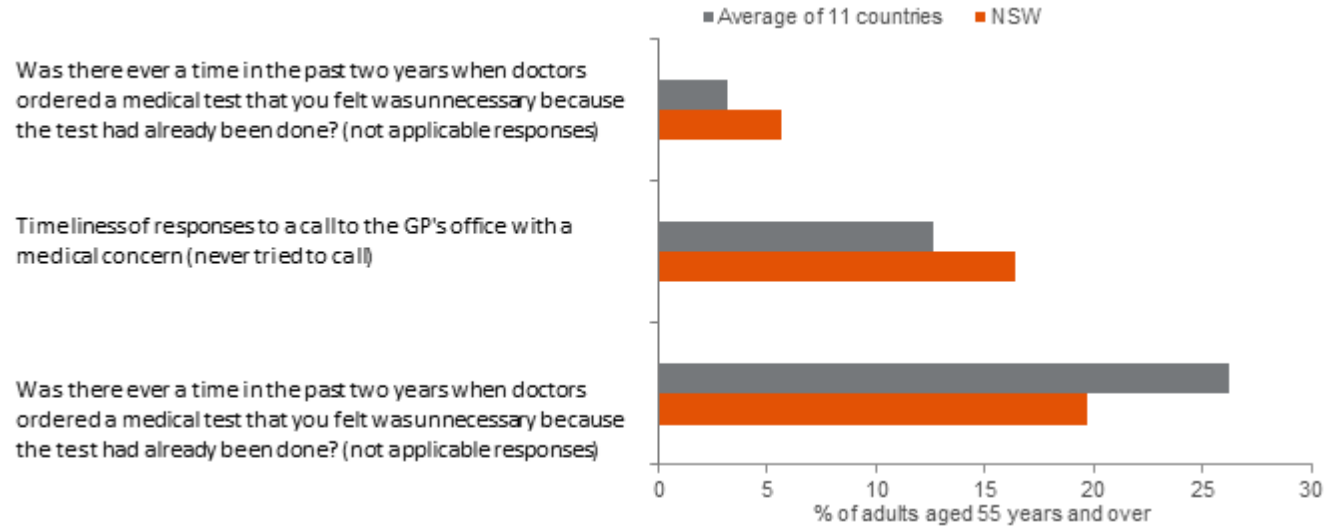


Figure 2: Percentage of adults aged 55 years where response is not-applicable, NSW and average of 11 countries, questions over 5% for NSW, 2014



Source: Commonwealth Fund International Health Policy Survey of Older Adults 2014

Indicator specifications by chapter

Table 3: Specifications for indicators calculated by BHI by chapter

Indicator	Cohort description (numerator, denominator)	Further details (inclusions, exclusions, references)	Data source
Accessibility			
Median time from emergency presentation to starting treatment, by urgency category	Cohort: Emergency presentations to NSW public hospital emergency departments Time to treatment is the difference between arrival time and start of treatment time	Excludes: - Non-emergency presentations - Presentations for which their treatment was not started - Presentations that did not have a valid visit type, presentation time, start of treatment time or urgency category For further details, see www.bhi.nsw.gov.au/publications/hospital_quarterly_nsw/technical_supplements_of_hospital_quarterly	NSW public hospital activity data; AIHW hospital statistics
Percentage of emergency department presentations leaving within four hours, by mode of separation	Denominator: All presentations to NSW public hospital emergency departments Numerator: Denominator cases where the time between arrival at and departure from the ED was less than four hours	For further details, see www.bhi.nsw.gov.au/publications/hospital_quarterly_nsw/technical_supplements_of_hospital_quarterly	NSW public hospital activity data; AIHW hospital statistics
Median waiting times for elective surgery	Cohort: Patients removed from the elective surgery waiting list because they received their surgery Waiting time: in days, the difference between patient's listing date on the waiting list and date of their removal from the waiting list	For further details, see www.bhi.nsw.gov.au/publications/hospital_quarterly_nsw/technical_supplements_of_hospital_quarterly	Waiting list online collection system (WLCOS)

Indicator	Cohort description (numerator, denominator)	Further details (inclusions, exclusions, references)	Data source
Percentage of patients' surgeries completed in recommended time, by selected elective surgery type	Denominator: Count of procedures of a particular type performed Numerator: Cases in the denominator with a waiting time less than recommended for the urgency category	For further details, see www.bhi.nsw.gov.au/publications/hospital_quarterly_nsw/technical_supplements_of_hospital_quarterly	Waiting list online collection system (WLCOS)
Percentage waiting over one year, by selected elective surgery type	Denominator: Count of procedures of a particular type performed Numerator: Cases in the denominator with a waiting time greater than 365 days	Excludes: - Patients who at the time of surgery were classified as staged For further details, see /www.bhi.nsw.gov.au/publications/hospital_quarterly_nsw/technical_supplements_of_hospital_quarterly	Waiting list online collection system (WLCOS)
Appropriateness			
Percentage of patients receiving hip fracture surgery within two days, for patients aged 65 years and over	Denominator: Episodes selected with principal diagnosis ICD-10-AM codes S72.0, S72.1 or S72.2 Numerator: Denominator cases where the difference between admission date and procedure date is less than or equal to two days	Excludes: - Patients under 65 years of age	Linked hospital activity data; OECD Health Statistics
Effectiveness			
Directly age-sex standardised hospitalisation rates for potentially avoidable conditions	Denominator: NSW estimated resident population aged 15 years and over at 30 June 2011 Numerator: Acute episodes of care with principal diagnosis ICD-10-AM codes for each condition as follows: - Asthma: J45, J46 COPD: J40*, J41, J42, J43, J44, J47 *J40 only qualifies if	Standard population is the 2005 OECD resident population, as specified in Table 6 Excludes: - Transfers from another institution - Pregnancy/childbirth and puerperium episodes - Same-day discharges - Patients with cystic fibrosis or	Linked admitted patient, emergency department presentation and fact of death data

Indicator	Cohort description (numerator, denominator)	Further details (inclusions, exclusions, references)	Data source
	accompanied by J41, J43, J44 or J47 - Diabetes – short-term complications: E10.0, E10.1, E11.0, E11.1, E13.0, E13.1, E14.0, E14.1	respiratory system anomalies (asthma only)	
Directly age-sex standardised rate of readmission to the same hospital, per 100 patients, following hospitalisation for indicated mental health condition	Denominator: Patients aged 15 years and over with principal or first two secondary diagnosis ICD-10-AM codes for each condition as follows: - Schizophrenia: F20, F21, F23.1, F23.2, F25.0, F25.1, F25.2, F25.8, F25.9 - Bipolar: F31 Numerator: Cases in denominator readmitted to the same hospital within 30 days with a mental health ICD-10-AM code F10-F69 or F90-F99 at any diagnosis	Method based on OECD definition Standard population is the 2010 OECD hospitalised population, as specified in Table 5 Private hospitals are de-identified in the linked data available to BHI, so all readmissions to private hospitals appear to be readmitted to a single hospital (as the number of such cases is small and the impact on the NSW rate is minimal) Excludes: - Same day discharges	Linked hospital activity data; OECD Health Statistics
Directly age-sex standardised mortality rate following hospitalisation for stroke, per 100 patients hospitalised	Denominator: Patients aged 45 years and over with principal diagnosis ICD-10-AM codes for each condition as follows: - Ischaemic stroke: I63, I64 - Haemorrhagic stroke: I60, I61, I62 Numerator: Cases in denominator that died in or out of hospital within 30 days of admission	Standard population is the 2010 OECD hospitalised population, as specified in Table 5	Linked hospital activity data; OECD Health Statistics

Indicator	Cohort description (numerator, denominator)	Further details (inclusions, exclusions, references)	Data source
Unadjusted hospitalisation rate, per 100,000 abdominopelvic surgical discharges, for post-operative wound dehiscence	Denominator: Abdominopelvic surgical discharges for patients aged 15 years and over Numerator: Cases in denominator with ACHI procedure code 30403-03	Excludes: - Immunocompromised patients - Pregnancy/childbirth and puerperium episodes - Episodes with length of stay less than 2 days	Linked hospital activity data; OECD Health Statistics
Unadjusted hospitalisation rate, per 100,000 surgical discharges, for post-operative pulmonary embolism or deep vein thrombosis	Denominator: Surgical discharges for patients aged 15 years and over Numerator: Cases in denominator with secondary diagnosis ICD-10-AM codes I26.0, I26.9, I80.1, I80.2, I80.3, I80.8, I80.9, I82.8 or I82.9	Excludes: - Episodes with principal diagnosis of pulmonary embolism or deep vein thrombosis - Episodes with procedure code 'interruption of vena cava' (ACHI procedure code 34800-00) - Pregnancy/childbirth and puerperium episodes - Episodes with length of stay less than 2 days	Linked hospital activity data; OECD Health Statistics
Unadjusted hospitalisation rate, per 100,000 surgical discharges, for post-operative sepsis	Denominator: Surgical discharges for patients aged 15 years and over Numerator: Cases in denominator with secondary diagnosis ICD-10-AM codes A40.0, A40.1, A40.2, A40.3, A40.8, A40.9, A41.0, A41.1, A41.2, A41.3, A41.4, A41.5, A41.8, A41.9, R57.2, R57.8, R65.0, R65.1 or T81.1	Excludes: - Episodes with principal diagnosis of sepsis or infection - Immunocompromised patients -Cancer patients - Pregnancy/childbirth and puerperium episodes - Episodes with length of stay less than 3 days Additional diagnosis codes for recording wound infection sepsis are available in the Australia modification of the ICD-10 (T81.42). For comparative purposes, this was excluded for international comparison. The post-operative sepsis cases excluded had minimal impact on the rate published.	Linked hospital activity data; OECD Health Statistics

Indicator	Cohort description (numerator, denominator)	Further details (inclusions, exclusions, references)	Data source
Unadjusted rates of hospitalisation for obstetric trauma, per 100 vaginal deliveries, with and without instrument	Denominator: Vaginal deliveries for females aged 15 years and over ICD-10-AM diagnosis codes: O80, O81, O83, O84, O84.0, O84.1, O84.8, O84.81, O84.82, O84.9 Numerator: Cases in denominator with ICD-10-AM diagnosis codes O70.2 or O70.3 or ACHI procedure code 16573-00	Method based on OECD definition ACHI procedure codes for instrument-assisted delivery: 90468-00, 90468-03, 90468-04, 90468-01, 90468-02, 90470-02, 90470-04, 90469-00, 90469-01, 90468-05, 90470-01, 90472-00, 90474-00, 90475-00	Linked hospital activity data; OECD Health Statistics
Efficiency			
Average length of stay (ALOS)	An episode length of stay is the difference between the episode start and end dates minus any leave days taken during the episode	Excludes: - Same day admissions - Residential aged care - Non-acute episodes	Admitted patient data collection
Percent of knee arthroscopy procedures with previous osteoarthritis diagnosis	Denominator: Knee arthroscopy procedures on patients aged 15 years and over ACHI procedure codes: 49557-00, 49503-00, 49560-03, 49562-01, 49561-01, 49557-02 Numerator: Cases in denominator with osteoarthritis diagnosis in previous five years ICD-10-AM diagnosis code: M17	Excludes: - Pregnancy/childbirth and puerperium episodes	Linked hospital activity data
Equity			
Directly age-standardised rates of cataract surgery, per 100,000 Aboriginal persons	Denominator: Aboriginal residents of local health district Numerator: Aboriginal persons in local health district who received cataract surgery	Standard population: Estimated resident Aboriginal population of NSW, 2011	Linked hospital activity data

Indicator	Cohort description (numerator, denominator)	Further details (inclusions, exclusions, references)	Data source
Percentage of hospitalisations ending with patients leaving against medical advice, by Aboriginality	Denominator: Estimated resident population local health district, by Aboriginality Numerator: admitted for acute care, by aboriginality, by hospital with mode of separation 'Discharge at own risk'	Exclusions: - Non-acute admissions - Admissions to Albury Base Hospital - Gender missing Standard population: Estimated resident Aboriginal population of NSW, 2011	Linked hospital activity data
Sustainability			
Count of patients admitted to hospital in the home (HITH)	Cohort: All acute episodes of care with Unit Type = 25 that ended between 1 January 2002 and 31 December 2013	Counts are presented by calendar year. Exclusions: - Admissions to HITH for non-acute care -HITH admissions by private health facilities	Linked hospital activity data
Telehealth use (number of services)	MBS telehealth items included: 99, 112, 113, 114, 149, 288, 384, 389, 2799, 2820, 3003, 3015, 6004, 6016, 13210, 16399, 17609, 2100, 2126, 2143, 2195, 2122, 2137, 2147, 2199, 2125, 2138, 2179, 2220, 10983, 10984, 82150, 82151, 82152, 82220, 82221, 82222, 82223, 82224, 82225	For further details, see www.mbsonline.gov.au/internet/mbsonline/publishing.nsf/Content/connectinghealthservices-itemlist	MBS online

Table 4: Definitions and derived data items used in the calculation of performance measures included in *Healthcare in Focus 2014*

Data item	Description
NSW resident	NSW residents are identified in administrative data collections using the data field STATE OF RESIDENCE in SAPHaRI datasets. The data recorded in this field is taken directly from the relevant table in the Health Information Exchange data warehouse. Surveys use sampling methods that ensure persons surveyed are usual residents of NSW.
Transfers into a health facility	Episodes of care that begin with a transfer in from a previous hospital are identified using BHI's method of collapsing contiguous episodes of care linked by a unique patient identifier into a period of care. As such, transfers can be identified by the absence of a subsequent episode that meets the criteria.
Same day discharge/day only admission	A same day discharge is identified by equal episode start and end dates.
Length of stay	An episode's length of stay is calculated as the difference between the episode end date and the episode start date minus total episode leave days. This definition is specified in the AIHW Health Minimum dataset. The quantity is derived in SAPHaRI datasets.
Chronic condition	The chronic condition cohort includes patients with the following conditions: hypertension or high blood pressure, heart disease (including heart attack), diabetes, asthma or chronic lung disease (such as chronic bronchitis, emphysema or COPD), depression, anxiety or other mental health problems, cancer, joint pain or arthritis.
Area of usual residence	Area of usual residence is used to attach an index of socio-economic status and remoteness category to where a patient lives.
Hospital in the Home (HITH)	In NSW, Hospital in the Home (HITH) is defined as the range of service delivery models providing acute and post-acute care that is delivered in home (including Residential Aged Care Facilities), clinic or other settings as a substitution or avoidance of hospital [NSW Health, *NSW Hospital in the Home (HITH) Guideline*].
Medical Home	Respondents have a 'medical home' if: they have a regular doctor or GP practice; AND their regular doctor always or often knows about their medical history; AND they are able to get an appointment on the same or next-day OR the GP practice or gives a same-day response to telephone calls regarding medical questions; AND their GP practice always or often helps coordinate care from other places.

Table 5: OECD standard hospitalised population 2010 [6]

Age group	Male	Female	Total
45–49	74,148	20,572	94,720
50–54	108,762	29,478	138,240
55–59	127,052	38,458	165,511
60–64	136,650	51,020	187,670
65–69	125,408	58,289	183,697
70–74	124,159	71,511	195,670
75–79	113,769	85,892	199,661
80–84	95,557	95,372	190,929
85+	83,829	132,234	216,063
Total	989,333	582,826	1,572,160

Table 6: OECD standard resident population, 2005, by age group and sex [6]

Age group	Male	Female	Total
15–19	40,625,795	38,773,417	79,399,212
20–24	41,743,145	40,258,194	82,001,339
25–29	41,941,848	40,948,668	82,890,516
30–34	43,389,484	42,704,755	86,094,239
35–39	43,371,817	42,895,601	86,267,418
40–44	43,161,119	43,109,483	86,270,602
45–49	40,248,518	40,649,038	80,897,556
50–54	36,427,644	37,364,408	73,792,052
55–59	33,380,411	34,689,310	68,069,721
60–64	26,289,839	28,254,493	54,544,332
65–69	22,346,079	25,279,333	47,625,412
70–74	18,074,327	22,236,819	40,311,146
75–79	13,607,727	19,097,765	32,705,492
80–84	8,425,270	14,684,935	23,110,205
85+	5,282,533	12,504,426	17,786,959
Total	458,315,556	483,450,645	941,766,201

Appendix A: Commonwealth Fund survey non-response

Table 7: Percentage of not sure and not applicable responses, accessibility questions, NSW and average of 11 comparator countries, 2014

	NSW (n=2800)		Average of 11 countries (n=25,530)	
	Not sure /decline (%)	Not applicable (%)	Not sure /decline (%)	Not applicable (%)
How easy or difficult is it to get medical care in the evenings, on weekends, or holidays without going to the hospital emergency department? (excludes not applicable responses for people who said they never needed care out-of-hours)	8.2	19.7	4.3	26.2
When you call your regular GP's practice with a medical concern during regular practice hours, how often do you get an answer that same day? (excludes the not applicable responses saying they never tried to call)	1.2	16.4	1.9	12.7
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? (AUD)	12.3	0.0	9.7	0.0
Last time you were sick or needed medical attention, how quickly could you get an appointment to see a doctor or a nurse?	7.0	0.0	6.2	0.0
Between doctor visits, is there a health care professional you can easily contact to ask a question or get advice about your health condition(s)?	2.8	0.0	2.6	0.0
During the past 12 months, was there a time when you did not fill a prescription for medicine, or you skipped doses of your medicine because of the cost?	0.1	2.1	0.1	1.1
Between doctor visits, is there a health care professional who contacts you to see how things are going with your condition?	2.6	0.0	0.5	0.0
During the past 12 months, was there a time when you skipped a medical test, treatment, or follow-up that was recommended by a doctor because of the cost?	0.2	1.7	0.2	0.9
During the past 12 months, was there a time when you had a medical problem but did not visit a doctor because of the cost?	0.0	1.2	0.1	0.7
After you were advised to see or decided to see a specialist, how long did you have to wait for an appointment?	2.1	0.0	2.7	0.0
During the past 12 months, was there a time when you skipped care (treatment, visit or prescription) due to cost? (derived variable)	0.6	0.0	0.3	0.0

Table 8: Percentage of not sure and not applicable responses, appropriateness questions, NSW and average of 11 comparator countries, 2014

	NSW (n=2800)		Average of 11 countries (n=25,530)	
	Not sure /decline (%)	Not applicable (%)	Not sure /decline (%)	Not applicable (%)
When you left the hospital, did someone discuss with you the purpose of taking each of your medications?	4.0	4.7	1.6	5.6
In the past 12 months, has a health care professional explained the potential side effects of any medication that was prescribed?	8.1	0.0	1.9	0.0
When you left the hospital, did you receive written information on what to do when you returned home and what symptoms to watch for?	7.1	0.0	2.5	0.0
When you left the hospital, did you know who to contact if you had a question about your condition or treatment?	6.0	0.0	1.0	0.0
In the past year, has a health care professional given you a written list of all medication?	5.6	0.0	1.4	0.0
During the past year, when you received care, has any health care professional you see for your condition given you a written plan to help you manage your own care?	5.3	0.0	1.3	0.0
When you need care or treatment, how often does your regular doctor or medical staff you see encourage you to ask questions?	2.2	3.0	2.1	4.9
During the past two years, has any health professional talked with you about the health risks of smoking or using tobacco and ways to quit?	4.1	1.0	1.2	1.1
When you left the hospital, did the hospital make arrangements or make sure you had follow-up care with a doctor or other health care professional?	2.8	1.3	0.9	2.4
During the past year, when you received care, has a health care professional you see for your chronic condition discussed with you your main goals in caring for your condition?	3.5	0.0	1.7	0.0
In the past 12 months, has a health care professional reviewed all medications you take?	3.1	0.0	1.2	0.0
During the past year, when you received care, has any health care professional you see for your condition given you clear instructions about symptoms to watch for?	3.1	0.0	1.2	0.0
When you have received care or treatment from specialists, how often did they involve you as much as you want to be in decisions about your treatment or care?	0.9	1.8	2.0	4.8
During the past two years, has a health professional talked with you about things in your life that worry you or cause stress?	1.4	0.4	0.6	0.9
During the past two years, has a health professional talked with you about exercise?	1.4	0.4	0.4	0.9
When you need care or treatment, how often does your regular doctor or medical staff you see know important information about your medical history?	0.9	0.9	2.1	2.0
During the past two years, has any health professional talked with you about a healthy diet and healthy eating?	1.1	0.4	0.5	1.0
In the past 12 months, a health care professional has reviewed, explained and given you a list of all medications (derived variable)	1.0	0.0	0.2	0.0
When you need care or treatment, how often does your regular doctor or medical staff you see explain things in a way that is easy for you to understand?	0.2	0.6	0.7	1.9
In the past two years, was there ever a time you thought a medical mistake was made in your treatment or care?	0.7	0.0	0.9	0.0
In the past 12 months, have you ever been unsure about when you should take a drug or how much to take?	0.5	0.0	Not available	

Table 9: Percentage of not sure and not applicable responses, effectiveness and efficiency questions, NSW and average of 11 comparator countries, 2014

	NSW (n=2800)		Average of 11 countries (n=25,530)	
	Not sure /decline (%)	Not applicable (%)	Not sure /decline (%)	Not applicable (%)
Effectiveness				
Has the treatment plan you have for your condition helped you control or manage your chronic condition?	5.0	0.0	3.6	0.0
Which of the following statements comes closest to expressing your overall view of the health care system in this country?	3.2	0.0	3.7	0.0
In the past year, have you stayed overnight in a hospital or visited the emergency department because of your condition (hypertension, diabetes or asthma)?	0.8	0.0	0.3	0.0
Efficiency				
After you left the hospital, did the doctors or staff at the place where you usually get medical care seem informed and up-to-date about the care you received in the hospital?	9.5	1.9	5.3	3.2
In the past two years, was there a time after you saw a specialist that your regular doctor did not seem informed and up-to-date about the care you received?	7.8	0.7	4.3	3.2
In the past two years, was there a time when a specialist did not have basic medical information or test results from your regular doctor about the reason for your visit?	6.0	0.0	3.3	0.3
Was there ever a time in the past two years when doctors ordered a medical test that you felt was unnecessary because the test had already been done?	0.4	5.6	0.9	3.2
Was there ever a time when test results or medical records were not available at the time of your scheduled medical care appointment?	1.4	2.5	1.8	3.6
The last time you went to the hospital emergency department was it for a condition that you thought could have been treated by the doctors where you usually get medical care?	3.3	0.0	3.5	0.0
Has the treatment plan you have for your condition helped you control or manage your chronic condition?	5.0	0.0	3.6	0.0

Appendix B: OECD country comparisons

The analysis of *Healthcare in Focus* places NSW in an international context focusing on Australia and 10 other countries: Canada, France, Germany, the Netherlands, New Zealand, Norway, Sweden, Switzerland, the United States and the United Kingdom. In addition, data for the remaining 23 of the 34 OECD countries (Austria, Belgium, Chile, the Czech Republic, Denmark, Estonia, Finland, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Mexico, Poland, Portugal, the Slovak Republic, Slovenia, Spain and Turkey) was obtained for a broader perspective of performance across a range of measures.

Indicators compared

1. Asthma hospitalisation rate
2. COPD hospitalisation rate
3. Diabetes hospitalisation rate
4. Diabetes amputation hospitalisation rate
5. Haemorrhagic stroke mortality rate
6. Ischemic stroke mortality rate
7. Hip fracture surgery within 2 days
8. Bipolar disorder readmission to the same hospital within 30 days
9. Schizophrenia readmission to the same hospital within 30 days
10. Post-operative wound dehiscence unadjusted rate per 100,000 surgical hospitalisations
11. Post-operative pulmonary embolism or deep vein thrombosis unadjusted rate per 100,000 surgical hospitalisations
12. Post-operative sepsis rate unadjusted rate per 100,000 surgical hospitalisations
13. Obstetric trauma rate per 100 deliveries without instrument
14. Obstetric trauma rate per 100 deliveries with instrument
15. Average length of overnight stay in days
16. Potential years of life lost (< 70 years) for all causes per 100,000 population
17. Potential years of life lost due to stroke, total years lost (<70 years) per 100,000 population

Data for OECD countries was sourced from Health Statistics (http://stats.oecd.org/index.aspx?DataSetCode=HEALTH_STAT) and is based on 2011 or the most recent year as indicated (#2008, ~2009, ^2010, ^^2012).

Table 10: Values for 34 OECD comparator countries and NSW, for selected OECD indicators, 2011 or most recent year

Place\ indicator	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Australia	68.1	317	133	5				15.17	18.11	116.1		918.8^^	2.2^^	7.3^^	5.8	2763.7	60.8
Austria	50.6	319.6	335.9												7.8	3068.2	61.8
Belgium	37.9~	217.2~	181.1~	15.9~			82.9~	12.3^	12.3^	208.8~	573.4~	690.8~	0.6~	2.6~	8.1^	3445.9^	79.3^
Canada	13.6	199.5	81.2	10			83.2			146.6	868.7	682.1	3.1	17		3006.6	57.5
Chile	21.3^	161.5^	249.0^		29.9^	13.9^		6.4^	6.2^						5.7	4187.7	171.4
Czech Republic	37	143.7	221		32.5	12.4	85.1	6.61	7.77						9.8	3849.8	125.1
Denmark	36.3~	291.8~	151.0~	19.2~	33.2	10.9	94	13.23	15.7	301.0^^	84.2^^	678.5^^	3.2^^	17.3^^	4.5	3101.7	84.1
Estonia															7.7	5557.6	185.6
Finland	67.8	143.4	138.1	5.8	24.5	10.3	84.2	7.06	7.77	277.6	74	377.6	0.7	3.5	11.4	3394.8	99
France	36.6	101.9		7.1								892.8	0.6	2.6	9.1	3338.1	70.7
Germany	19.6	211.8	217.2	18.4			86.2			595.1	867.7	827.6	2.1	8.1	9.3	3069.8	77.3
Greece															7#	3105.4	123.7
Hungary	73.6	378.1	404.6	1.1	45.9~	13.7~	88.3~	5.52	8.86						9.3	5712.5	258.3
Iceland	40.7~	236.7~	54.5~	0.0~			95.8								6.1~	2415.2~	85.7~
Ireland	36.8	365	135.3	3.8			83.2	15.63	12.58	316.9	483.3	1698.7	1.5	4.9	6.4	2977.7^	81.2^
Israel	61.4^	229.2^	93.4^	19.5^	28.3^	8.9^	75.2^	16.71	19.85	182.0^	608.0^	96.8^	0.3^	1.3^	6.3	2576.7	61
Italy	11.4	89.6	54.2	5.7			36.8	9.64	11.7	122.3	260	388.8	0.4	1.3	8	2526.5	71.6
Japan	34.7	23.5													32	2779.2	151.1
Korea	102.8	220.2	350.1	9.8	18.5	5.4		10.35	19.38						16.4	3095.1	141.6
Luxembourg	23.9	162.1		2.8	23.3	12.6									8.8	2639.2	77
Mexico	14.5	105.4	364	9.2				5.91	5.5						3.9	6782.1	160
Netherlands	31.8^	162.1^		13.5^	31.7^	10.3^	95.1^						2.5^	3.3^	11#	2687	68.4
New Zealand	76.3	329.3	173.1	6.7	34.7	13.1	84.5	13.06	14.61	259.2	1288.4	1259.8	1.3	7.1	9.1	3354.2^	97.0^
Norway	28.1	210.6	78.7	8.7	24.3	8.8		13.49	13.87	1175.1	245.2	585.6	1.6	5.4	6.5	2760.2	64.5
Poland	68.7^	202.3^	247.4^	13.9^						159.3	90.1	99.8	0.1	0.5	7.4	5171	223.4
Portugal	16	70.5	88.7	12.8			46.6	4.54	5.48	858.8	112.6	1082.8	0.5	1.8	8.9	3398.4	126.5
Slovak Republic	150.9	184.5													8	5113.9^	224.6^
Slovenia	39.3	112		15.1	34.4	14.8	55.6	12.02	9.74	866.9	851.1	816.5	0.4	1.6	7.3	3406.7^	131.3^
Spain	39.5	211.3	85	9.6	26.8	10.4	43.2	11.85	12.18	461.4	270.9	1085.7	0.6	2.8	7.7	2668.2	73.8
Sweden	22.2	168.8	116.9	3.3	24	9.8	93.4	15.7	15.11	369.8	351.9	1420.3	3.5	12.7	5.9	2419.7	58.9
Switzerland	30.2^	95.1^	70.0^	7.1^			39.9^	5.5^	5.9^	52.8^	437.5^	244.7^	3.7^	7.1^	9.3	2482.5^	44.5^
Turkey							100.0^^								3.9	3668.8	163.8
United Kingdom	60.8	226.5	71.8	5.1	33.7	12.4	88.4	11.34	11.01	124	492.1	877.2	2.5	7.1	7.3	3261.8^	93.6
United States	117.0^	226.1^	201.4^	17.1^						147.3^	605.9^	945.3^	1.5^	11.1^	6.1	4628.9^	108.2
P25	23.9	143.4	85	5.1	24.3	9.8	65.4	6.485	7.77	146.6	245.2	487.2	0.6	2.6	6.3	2760.2	70.7
P75	67.8	229.2	221	13.9	33.7	13.1	90.9	13.36	14.86	461.4	851.1	1014.1	2.5	7.3	9.1	3668.8	141.6
OECD average	47.4	197.3	171.9	9.5	29.7	11.18	77.1	10.6	11.7	354.8	540.6	783.1	1.6	6.1	8.5	3482.8	110.7
NSW	30	303	120	9	29.6	11.5	67	14.5	14.7	114	1328	1440	2.1	6.6	5	2703.1	63

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