



# Costs of acute admitted patients in public hospitals from 2012-13 to 2014-15

Published November 2018

Over the period 2012-13 to 2014-15, the average cost of delivering care in major public hospitals decreased by 1 per cent, after adjusting for inflation. Over this period there was a 6 per cent increase in hospital activity but hospital spending only rose by 5 per cent. This indicates that as a group, major public hospitals have delivered care for less cost.



Providing care to similar acute patients can cost up to 2x as much, depending on the hospital



The costs incurred by public hospitals to deliver an 'average' service to acute admitted patients, ranged from: **\$3,300 to \$6,400**

# Summary

This report shows variation in the average cost of delivering similar services to similar patients for individual public hospitals in 2014–15, and changes in average costs for major public hospitals from 2012–13 to 2014–15.

In 2014–15, some public hospitals spent almost twice as much as others to provide similar services to similar groups of acute admitted patients. The average cost of care (per National Weighted Activity Unit, or 'NWAU', see page 3) ranged from \$3,300 at one hospital to \$6,400 at another.

Over the period 2012–13 to 2014–15, the average cost of delivering care in major public hospitals decreased by 1 per cent, after adjusting for inflation. Over this period there was a 6 per cent increase in hospital activity but hospital spending only rose by 5 per cent (Table 1). This indicates that as a group, major public hospitals have improved in their efficiency—delivering care for less cost.

In 2014–15, 20 major public hospitals maintained or decreased their average cost of care in the 2 years from 2012–13. Notably, some of these were among those hospitals with the lowest average cost of care nationally in 2014–15 (Figure 2, page 9).

This report presents data from the early stages of the National Hospital Cost Data Collection (NHCDC) and the results should be viewed in this context. The AIHW is working with stakeholders to improve the timeliness of reporting this information by using the most recent NHCDC and activity data.

**Table 1: Cost per National Weighted Activity Unit (NWAU), constant prices, and percentage change for acute admitted patients, major public hospitals, 2012–13 to 2014–15**

Peer average measures	2012–13	2013–14	2014–15	Percentage change
Peer average expenditure per hospital, constant prices	\$308,278,700	\$316,440,500	\$323,596,400	5%
Peer average NWAU per hospital	65,217	66,915	69,203	6%
Peer average cost per NWAU, constant prices	\$4,730	\$4,730	\$4,680	-1%

#### Notes

1. This table presents the peer average for the major public hospitals peer group. Peer groups are groups of similar hospitals defined by the type and nature of the hospital services provided.
2. Data for all published years is classified by a single version of the AR-DRG codes (Version 8.0) and National Efficient Pricing Determination (2017–18, NEP17).
3. Data are presented for hospitals that recorded a change over time result, between 2012–13 and 2014–15.
4. Peer average cost per NWAU and percentage change figures are calculated based on unrounded data.

#### About the data

Data used to calculate the measures in this report were sourced from the National Hospital Cost Data Collection (NHCDC), the Admitted Patient Care National Minimum Data Set (APC NMDS) and the Hospital Casemix Protocol (HCP) data collection. These collections receive data from the states and territories, and private health insurers; all of whom rely on data recorded by individual hospitals.

To support the national fair comparison of the efficiency of Australia's largest public hospitals, this report uses a subset of total costs. It focuses on the costs of providing acute admitted care, which represents just less than three quarters of the running costs of a hospital (IHPA 2015).

To support comparison of cost per NWAU between 2012–13 and 2014–15, data are reported in real terms (adjusted for inflation). The Australian Bureau of Statistics' Government final consumption expenditure hospitals and nursing home deflator was used to calculate real cost per NWAU (2014–15 prices applied in all three years).

# Introduction

In 2014–15, a total of \$161.6 billion was spent on health by all governments, insurers and patients. The largest share of this spending went to running public hospitals (\$48 billion), which included \$26.4 billion to provide care for acute admitted patients (AIHW 2016).

Across Australia, data on costs and activity levels are available and comparable across time for 27 major public hospitals (with limited information for 4 more). Together, the costs captured in this report for these 27 hospitals accounted for approximately \$8.7 billion (33% of the total \$26.4 billion) spent on acute admitted patients in 2014–15 (IHPA 2015).

This report shows how much each of those 27 hospitals spent in 2014–15 to provide an ‘average’ hospital service to their acute admitted patients. The results were calculated by comparing a hospital’s running costs to a measure of output, called a National Weighted Activity Unit (NWAU). More detail about this measure is on page 4.

A hospital’s cost per NWAU can help us to understand how efficiently a hospital is delivering an ‘average’ hospital service over time, or compared with other hospitals. A low or falling cost per NWAU can indicate relatively high or improving efficiency, and a high or rising cost per NWAU can indicate low or worsening efficiency. In this report, the average cost of a service or activity is considered an indicator of efficiency.

While cost per NWAU is an efficiency indicator, it doesn’t account for other aspects of quality or effectiveness for that ‘average’ hospital service; noting that changes in efficiency may (or may not) affect the quality or effectiveness of care provided. This means cost per NWAU results are best considered in light of other indicators of the quality or effectiveness of hospital services.

Results for cost per NWAU may be affected by service volume as well as expenditure, since a hospital’s cost per NWAU will fall (suggesting an improvement in efficiency) if it spends the same amount of money but provides an increased number of services. Conversely, cost per NWAU will increase (suggesting worsening efficiency) if a hospital spends a similar amount of money but provides fewer services.

Every day, decisions are made in a hospital, or by governments, that influence the cost of delivering services and the efficiency of a hospital. These decisions include, for example:

- the number and types of tests, treatments and procedures to be performed
- whether a patient is admitted
- the number of days a patient stays in hospital
- staffing levels required.

This report aims to equip decision makers with comparable performance information to support their work in delivering care without placing unreasonable resource demands on health care providers or funders.

# How average cost of care is measured

## What is an NWAU?

The National Weighted Activity Unit (NWAU) was developed by the Independent Hospital Pricing Authority to set the pricing of public hospital services eligible for Activity Based Funding (ABF).

ABF is a system that funds hospitals according to the number and complexity of patients they treat; and the NWAU allows different hospital activities to be expressed in terms of a common unit of activity.

An 'average' public hospital service is worth 1 NWAU. More intensive and expensive activities are worth more than 1 NWAU, and simpler and less expensive activities are worth less. For example, a typical case of cellulitis is assigned 0.7 NWAUs, as this condition requires fewer hospital resources than, for example, a typical knee replacement, which is assigned 4.0 NWAUs.

Because of this weighting, the NWAU accounts for differences in the complexity of patients' conditions or procedures, and a selection of individual patient characteristics. For example, the patient remoteness area.

## What is cost per NWAU?

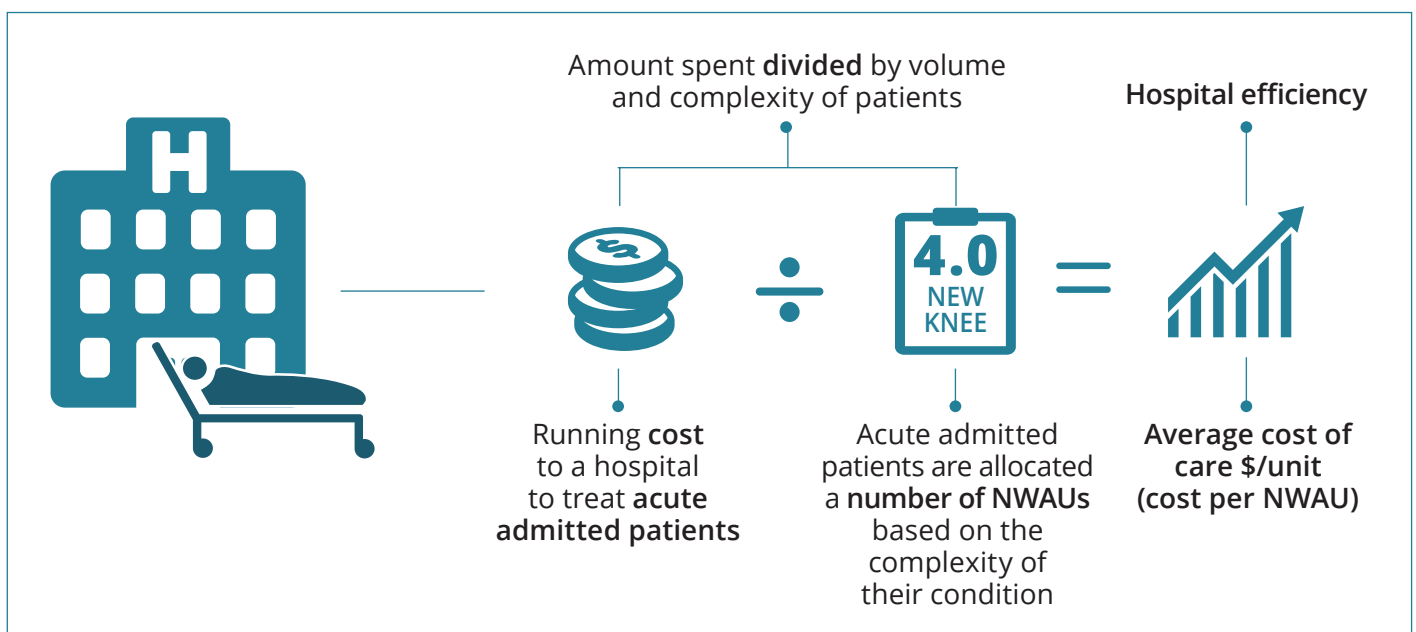
Cost per NWAU is the cost associated with providing one 'average' unit (1 NWAU) of public hospital service, based on public hospital services provided to acute admitted patients whose treatment was eligible for ABF. It is an indicator of hospital efficiency.

To ensure the national comparability of public hospitals, the cost per NWAU:

- includes a subset of comparable running costs, which were accounted for similarly across states and territories. For example, property, plant and equipment costs are excluded from the calculations.
- counts similar services for similar acute patients by using the NWAU.

Cost per NWAU is calculated by dividing the total comparable running costs by the total NWAUs for acute admitted patients. This reflects the average cost of care for a hospital, providing an indication of efficiency.

For more detailed information on the comparable costs and adjustments see the Technical Supplement at [www.myhospitals.gov.au/our-reports/cost-of-acute-admitted-patients/november-2018/technical-supplement](http://www.myhospitals.gov.au/our-reports/cost-of-acute-admitted-patients/november-2018/technical-supplement)



# Cost of care in 2014–15

In 2014–15, delivering an average service at some major public hospitals cost 55% more than at other similar hospitals, as measured by cost per NWAU.

Across major public hospitals, the average cost per NWAU was \$4,680. For individual major public hospitals, cost per NWAU ranged from \$3,900 at one hospital to \$6,000 at another (55% higher, based on unrounded data; see MyHospitals Box, page 6) (Figure 1, page 7).

The major public hospitals with the highest and lowest cost per NWAU are shown in Table 2.

**Table 2: Major public hospitals with the highest and lowest cost per NWAU in 2014–15**



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#### Highest 10%

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The Canberra Hospital (ACT)	\$6,000
Royal Perth Hospital Wellington Street Campus (WA)	\$5,900

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#### Lowest 10%

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Monash Medical Centre [Clayton] (Vic)	\$4,000
The Alfred (Vic)	\$3,900

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*Note:* Data for all published years is classified by a single version of the AR-DRG codes (Version 8.0) and National Efficient Pricing Determination (2017–18, NEP17).

## In 2014–15:

Across **large metropolitan public hospitals**, the average cost per NWAU was \$4,460. Cost per NWAU at individual large metropolitan public hospitals ranged from \$3,500 to \$6,300 (80% higher\*).

Highest 10%	
Fremantle Hospital (WA)	\$6,300
Armadale-Kelmscott Memorial Hospital (WA)	\$6,000
Calvary Public Hospital (ACT)	\$6,000
Lowest 10%	
Frankston Hospital (Vic)	\$3,600
Maroondah Hospital (Vic)	\$3,500

Across **large regional public hospitals**, the average cost per NWAU was \$4,420. Cost per NWAU at individual large regional public hospitals ranged from \$3,700 to \$5,600 (51% higher\*).

Highest 10%	
Mackay Base Hospital (Qld)	\$5,600
Bathurst Base Hospital (NSW)	\$5,400
Lowest 10%	
The Bendigo Hospital (Vic)	\$3,800
Latrobe Regional Hospital (Traralgon) (Vic)	\$3,700

Across **medium metropolitan public hospitals**, the average cost per NWAU was \$4,080. Cost per NWAU at individual medium metropolitan public hospitals ranged from \$3,300 to \$5,000 (53% higher\*).

Highest 10%	
Swan District Hospital (WA) <sup>†</sup>	\$5,000
Lowest 10%	
Casey Hospital (Vic)	\$3,300

<sup>†</sup> Note that in November 2015, the St John of God Midland Public Hospital opened, and the Swan District Hospital closed.

Across **medium regional public hospitals**, the average cost per NWAU was \$4,950. Cost per NWAU at individual medium regional public hospitals ranged from \$3,800 to \$6,400 (70% higher\*).

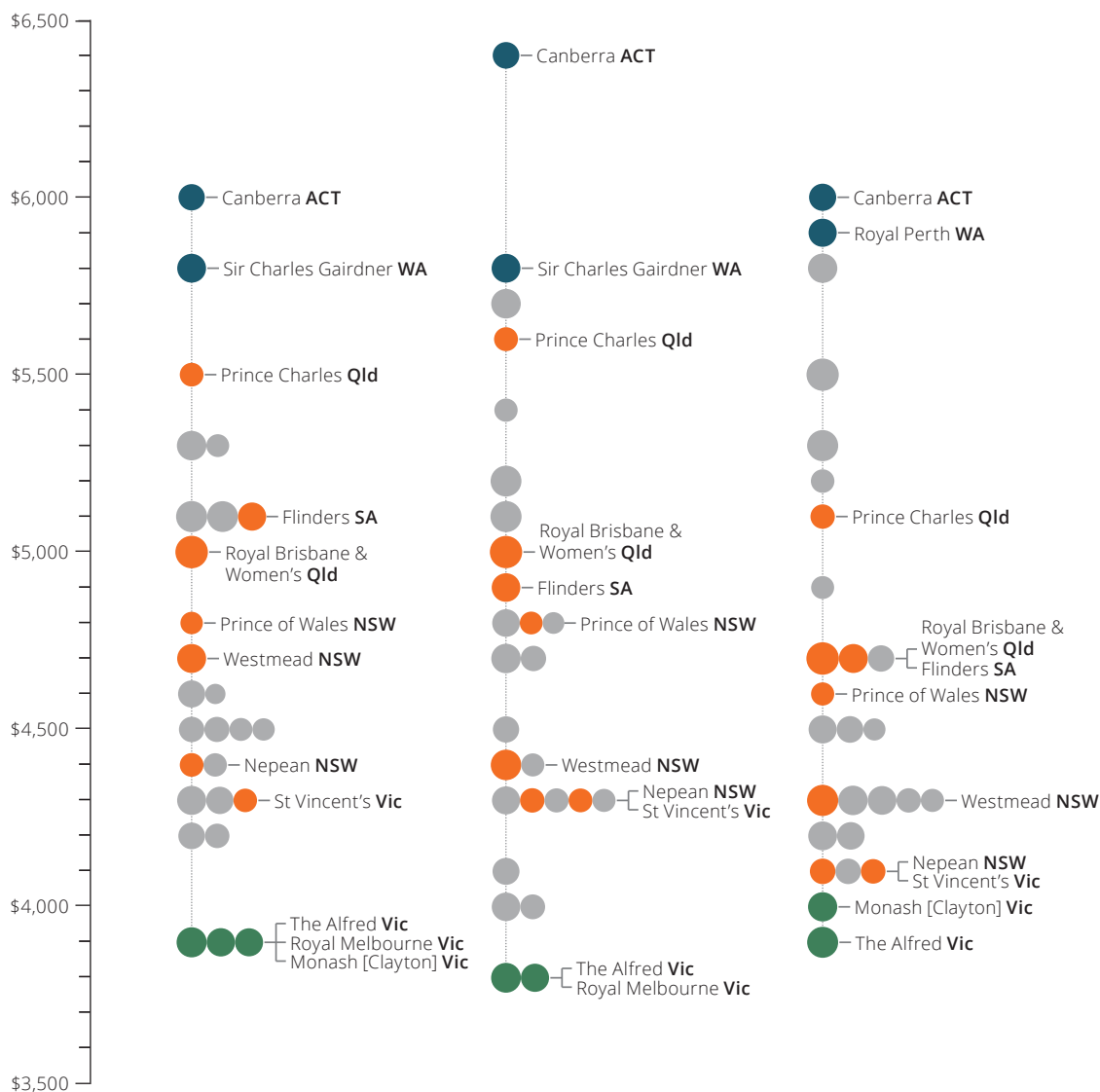
Highest 10%	
Kalgoorlie Hospital (WA)	\$6,400
Gladstone Hospital (Qld)	\$5,700
Lowest 10%	
Maryborough Hospital (Qld)	\$3,800

\* Percentage difference figures are calculated based on unrounded data for individual hospitals.

**Figure 1: Cost per National Weighted Activity Unit (NWAU) for acute admitted patients, major public hospitals, 2012–13 to 2014–15**

	2012–13	2013–14	2014–15
Peer average expenditure per hospital	\$308,278,700	\$316,440,500	\$323,596,400
Peer average NWAU per hospital	65,217	66,915	69,203
Peer average Cost per NWAU	\$4,730	\$4,730	\$4,680

Cost per NWAU  
(adjusted for inflation)



Each circle represents a hospital and the size represents the units of activity for each hospital.

10,000 100,000

● Highest 10% of peer group hospitals nationally

● Lowest 10% of peer group hospitals nationally

● Hospitals that decreased Cost per NWAU by at least 5% from 2012–13 to 2014–15

● Other hospitals

**Notes**

- References can be found in the Technical Supplement and definitions of terms in the Glossary at [www.myhospitals.gov.au](http://www.myhospitals.gov.au).
- Data for all published years is classified by a single version of the AR-DRG codes (Version 8.0) and National Efficient Pricing Determination (2017–18, NEP17).
- Data are presented for hospitals that recorded a change over time result, between 2012-13 and 2014-15.

**Sources:** Australian Institute of Health and Welfare analysis of results calculated using the National Hospital Cost Data Collection, the Admitted Patient Care National Minimum Data Set and the Hospital Casemix Protocol Data Collection. Data supplied 26 September 2017.

# Cost of care from 2012–13 to 2014–15

From 2012–13 to 2014–15, the average cost of care at major public hospitals decreased by 1 per cent. This suggests that as a group, major public hospitals may have achieved improvements in efficiency (Table 1, page 2).

Across the three year period, 17 major public hospitals decreased their cost per NWAU for acute admitted patients; 7 hospitals by at least 5 per cent. Over the same period, 7 major public hospitals increased their cost per NWAU by up to 10 per cent (Figure 2, page 9).

A decrease in cost per NWAU over time implies improved efficiency. This may be due to a decrease in spending or by increasing the volume of services provided, or a combination of both (Table 3). One way a hospital may ensure more services are provided but a similar amount is spent, is to treat more patients by decreasing the average length of a patient’s stay in hospital.

**Table 3: Major public hospitals that decreased the average cost of care by at least 5%, 2012–13 to 2014–15**

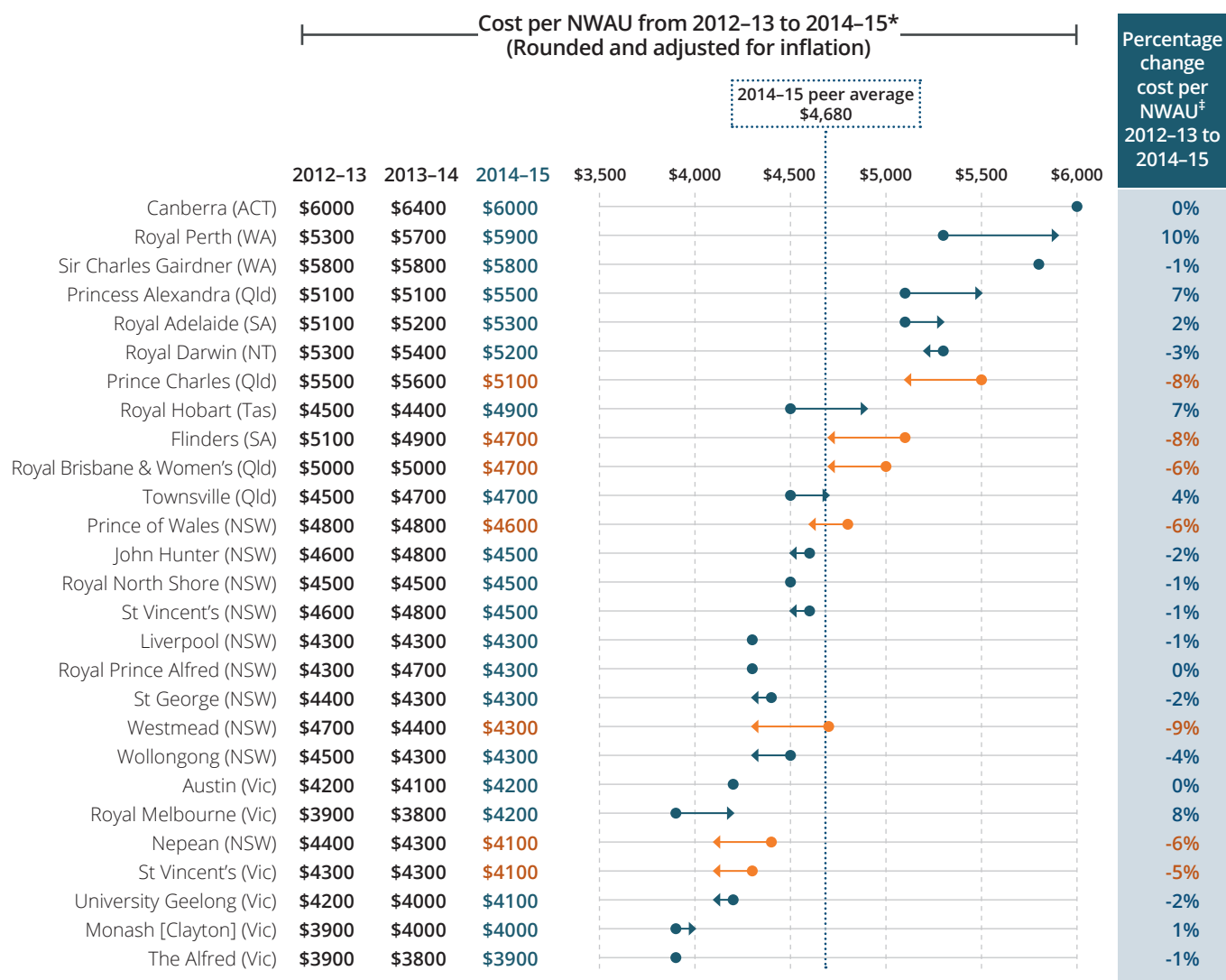
Major metropolitan public hospitals	Reduced spending*	Increased number of activity units (NWAUs)
St Vincent’s Hospital (Fitzroy)		✓
Nepean Hospital		✓
Westmead Hospital		✓
Prince of Wales Hospital		✓
Flinders Medical Centre	✓	✓
Royal Brisbane & Women’s Hospital	✓	✓
The Prince Charles Hospital	✓	✓

\* This table shows hospitals that recorded a reduction in spending, calculated using comparable running costs adjusted for inflation. Note that calculations exclude selected costs, for example: property, plant and equipment costs. A full list of costs that did not meet comparable running costs criteria are detailed in the technical supplement.

**Note:** Data for all published years is classified by a single version of the AR-DRG codes (Version 8.0) and National Efficient Pricing Determination (2017–18, NEP17).



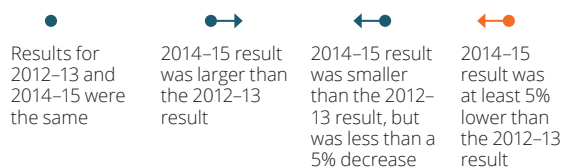
**Figure 2: Cost per National Weighted Activity Unit (NWAU) for acute admitted patients, major public hospitals, 2012–13 to 2014–15, sorted by cost per NWAU in 2014–15**



**Other hospitals**

Gold Coast University (Qld)	NA	NP	\$5300
Gold Coast (Qld)	\$5100	NP	NA
Concord (NSW)	NP	\$4800	\$4500
Fiona Stanley (WA)	NA	NA	NA

Each dot represents the 2012–13 result and the triangle represents the 2014–15 result.



Percentage change results may differ from plotted results due to rounding.<sup>‡</sup>

\* Further information on cost per NWAU and change over time can be found in the Technical Supplement at [www.myhospitals.gov.au](http://www.myhospitals.gov.au)

† Percentage change 2012–13 to 2014–15 was calculated on unrounded cost per NWAU

NA Data not available at time of publication

NP Data did not meet minimum reporting requirements as detailed in the Technical Supplement

**Note:** Data for all published years is classified by a single version of the AR–DRG codes (Version 8.0) and National Efficient Pricing Determination (2017–18, NEP17).

**Sources:** Australian Institute of Health and Welfare analysis of results calculated using the National Hospital Cost Data Collection, the Admitted Patient Care National Minimum Data Set and the Hospital Casemix Protocol Data Collection. Data supplied 26 September 2017.

## Acknowledgements

The Australian Institute of Health and Welfare established an expert group to provide advice around the clinical and technical aspects of this report. The group did not have a direct role in writing the report. The group was comprised of:

- Adrian Webster (Australian Institute of Health and Welfare) (Committee Chair)
- Rob Anderson (Department of Health, Western Australia)
- Jessica Dean (Department of Health, Western Australia)
- Ken Lang (SA Health)
- Robert Mackway-Jones (Metro South Health, Queensland)
- Andrew Mitchell (ACT Health)
- Sarah Neville (Independent Hospital Pricing Authority)
- Samuel Webster (Independent Hospital Pricing Authority)
- Allan Went (NSW Health)

## References

AIHW (Australian Institute of Health and Welfare) 2016. Health expenditure Australia 2014–15. Cat. no. HWE 67. Canberra: AIHW.

IHPA (Independent Hospital Pricing Authority) 2015. National Hospital Cost Data Collection, Public Hospitals Cost Report, Round 19 (Financial year 2014–15). Sydney: IHPA.

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### Suggested citation

Australian Institute of Health and Welfare 2018. Hospital performance: Costs of acute admitted patients in public hospitals from 2012–13 to 2014–15. Cat. no. HPF 18. Canberra: AIHW.

ISSN: 2201-3901

ISBN: 978-1-76054-304-4

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