Hospital Performance:
Costs of acute admitted patients in public hospitals from 2012–13 to 2014–15
Technical Supplement

www.myhealthycommunities.gov.au
# Contents

Abbreviations .................................................................................................................. 3  
Summary ............................................................................................................................. 4
About the data ...................................................................................................................... 5  
  National Hospital Cost Data Collection ......................................................................... 5  
  Admitted Patient Care National Minimum Data Set .......................................................... 5  
  Hospital Casemix Protocol ............................................................................................... 6  
  Hospital results included in the report ............................................................................ 6  
  Data supply ....................................................................................................................... 6
About the measures ........................................................................................................... 7  
  What is an admission? ...................................................................................................... 7  
  What classification system is used? .................................................................................. 7  
  What is a National Weighted Activity Unit? ................................................................. 7  
  What is cost per NWAU? .................................................................................................. 8  
  What costs are included? ................................................................................................. 8
Hospital comparisons ...................................................................................................... 10  
  Hospital peer classification system .............................................................................. 10  
  Contextual information ................................................................................................... 11
Timeseries comparison .................................................................................................... 12  
  Indexation ..................................................................................................................... 12  
  Classification across the time series ............................................................................. 12  
  Private patient adjustment ............................................................................................. 12  
  Analysis of change in cost per NWAU result from 2012–13 to 2014–15 ......................... 13
Indicator specification ...................................................................................................... 14  
  Cost per National Weighted Activity Unit ...................................................................... 14
Appendix .......................................................................................................................... 18  
  Acute admitted patients ............................................................................................... 18
References ......................................................................................................................... 19
# Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABF</td>
<td>Activity Based Funding</td>
</tr>
<tr>
<td>ABF APC</td>
<td>Activity Based Funding Admitted Patient Care data collection</td>
</tr>
<tr>
<td>ABS</td>
<td>Australian Bureau of Statistics</td>
</tr>
<tr>
<td>AHPCS</td>
<td>Australian Hospital Patient Costing Standards</td>
</tr>
<tr>
<td>AIHW</td>
<td>Australian Institute of Health and Welfare</td>
</tr>
<tr>
<td>APC NMDS</td>
<td>Admitted Patient Care National Minimum Data Set</td>
</tr>
<tr>
<td>AR–DRG</td>
<td>Australian Refined–Diagnosis Related Group</td>
</tr>
<tr>
<td>AR–DRG v8.0</td>
<td>Australian Refined–Diagnosis Related Group version 8.0</td>
</tr>
<tr>
<td>ASGS</td>
<td>Australian Statistical Geography Standard</td>
</tr>
<tr>
<td>GFCE</td>
<td>Government Final Consumption Expenditure</td>
</tr>
<tr>
<td>HCP</td>
<td>Hospital Casemix Protocol data collection</td>
</tr>
<tr>
<td>ICU</td>
<td>Intensive Care Unit</td>
</tr>
<tr>
<td>IHPA</td>
<td>Independent Hospital Pricing Authority</td>
</tr>
<tr>
<td>MDC</td>
<td>Major Diagnostic Category</td>
</tr>
<tr>
<td>NEP</td>
<td>National Efficient Price</td>
</tr>
<tr>
<td>NHCDC</td>
<td>National Hospital Cost Data Collection</td>
</tr>
<tr>
<td>NPHED</td>
<td>National Public Hospital Establishments Database</td>
</tr>
<tr>
<td>NWAU</td>
<td>National Weighted Activity Unit</td>
</tr>
<tr>
<td>TTR</td>
<td>teaching, training and research</td>
</tr>
</tbody>
</table>
Summary

This technical supplement summarises the methods and data sources used to calculate measures presented in *Hospital Performance: Costs of acute admitted patients in public hospitals from 2012–13 to 2014–15*. It is assumed that readers have technical expertise in the creation and use of health information.

The report compares Australian hospitals based on the costs of acute admitted patients. Admissions (same day and overnight) are weighted to account for the complexity of a patient’s condition(s) and procedure(s) using the Australian Refined–Diagnosis Related Group (AR–DRG) classification system and by adjusting for individual patient characteristics that increase the cost of care for reasons outside the control of hospitals.

This report provides information on the following measure:

• Cost per National Weighted Activity Unit (NWAU), including total NWAU

This measure indicates the relative efficiency of public hospitals by comparing how much money each hospital spent to deliver similar services to similar patients.

Results for more than 100 major, large and medium public hospitals are also available on [www.myhospitals.gov.au](http://www.myhospitals.gov.au).
About the data

The Australian Institute of Health and Welfare (AIHW) worked with the Independent Hospital Pricing Authority (IHPA) on the development of the report. Data outputs used for the report were prepared by the IHPA using specifications that were developed between the two agencies. The data sources for this report include the:

- National Hospital Cost Data Collection (NHCDC)
- Admitted Patient Care National Minimum Data Set (APC NMDS)
- Hospital Casemix Protocol (HCP) data collection.

National Hospital Cost Data Collection

The NHCDC is a voluntary collection of public hospital costs, established in 1996–97 (IHPA 2016). Hospitals calculate the cost of a patient’s episode using a set of standards called the Australian Hospital Patient Costing Standards (AHPCS). During the three year span covered by the report two versions of the costing standards were used, version 2.0.1 (DoHA 2011) (2012–13) and version 3.1 (IHPA 2014) (2013–14 and 2014–15).

Version 3.1 of the AHPCS contained four new standards relating to the:

- distribution of clinical salary and wages
- allocation of medical costs for private and public patients
- intermediate product/service matching method
- interpretation of product costs data.

These new standards were introduced to improve the validity and completeness of the NHCDC.

For more information about the NHCDC and the AHPCS can be found at https://www.ihpa.gov.au/what-we-do/NHCDC.

Admitted Patient Care National Minimum Data Set

The APC NMDS is a data set specification for episode-level records from admitted patients in Australian hospitals. It includes demographic, administrative, length of stay and the patient’s conditions and procedure specifications for each hospital separation.

A separation refers to an episode of admitted patient care, which can be a total hospital stay (from admission to discharge, transfer or death) or a portion of a hospital stay due to a change of type of care (for example from acute care to rehabilitation). The counting unit for the APC NMDS is the separation but is often referred to as an admission. For the purposes of the report, and on the MyHospitals website, an episode of admitted patient care is referred to as an ‘admission’, which is synonymous with a ‘separation’.

Admissions are grouped according to the complexity of conditions and procedures, and individual patient characteristics, using the AR–DRG version 8.0 (v8.0) (IHPA 2018).

For more information about the APC NMDS see the AIHW specification at: http://meteor.aihw.gov.au/content/index.phtml/itemId/535047.
Hospital Casemix Protocol

The Hospital Casemix Protocol (HCP) data set collects episodic financial data for privately insured admitted patients (DoH 2017).

As the costs of private patients are not publicly funded and are not fully recorded by the NHCDC in some jurisdictions, the IHPA sources extra data from the HCP data set to better estimate the complete costs of private patients. This adjustment is undertaken by the IHPA for the National Efficient Price (NEP) Determination. The HCP data set, managed by the Australian Government Department of Health, collects data directly from all private health insurance providers and covers all privately insured admitted patients. See page 9 for more information on costs included.

Hospital results included in the report

To ensure robust comparable results and protect the privacy of patients, a hospital was reported in a specific financial year if it met the following criteria:

- The hospital was a non-specialist major, large or medium public hospital where costing and activity data were available for at least two consecutive financial years. (Note: emergency department costs are not included.)

1. More than or equal to 90 per cent of APC NMDS patient unit records were matched to the NHCDC unit records, of total acute admitted patient care unit records at the hospital.

2. No anomalies were identified following triangulation analysis of cost data between the NHCDC and the National Public Hospital Establishments Database (NPHED).

3. Greater than zero Intensive Care Unit (ICU) hours were reported where a hospital had an ICU eligible for an NWAU ICU adjustment. (Note results for 8 hospitals were suppressed in 2012–13 as they did not meet this criterion.)

For each financial year, the number of public hospitals with an emergency department that were eligible, excluded and those with results published in the report or on the MyHospitals website are outlined in Table 1.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligible public hospitals with an emergency department</td>
<td>129</td>
<td>130</td>
<td>130</td>
</tr>
<tr>
<td>Excluded public hospitals with an emergency department</td>
<td>19</td>
<td>13</td>
<td>11</td>
</tr>
<tr>
<td>Hospital result published in report or on MyHospitals website</td>
<td>112</td>
<td>119</td>
<td>121</td>
</tr>
</tbody>
</table>

Data supply

Data outputs used in this report were supplied by the IHPA on 26 September 2017. Individual states and territories have not revised the data supplied to the IHPA since this date. The AIHW acknowledges that data provided by states and territories may be updated with various Australian Government agencies as improvements are made in their collections.
About the measures

The report presents data on the relative efficiency of Australia’s largest public hospitals, focusing on acute admitted patients, using the measure ‘cost per National Weighted Activity Unit (NWAU)’.

What is an admission?

The APC NMDS collects information about a patient’s admission in hospital, termed ‘episode of admitted patient care’. It is defined as ‘the period of admitted patient care between a formal or statistical admission, and a formal or statistical separation (that is, discharge), characterised by only one care type’ (AIHW 2017b). For example, the period between the patient’s arrival and when the patient is discharged or moved to a ward for subacute care.

For the purposes of the report, and on the MyHospitals website, an episode of admitted patient care is referred to as an ‘admission’, which is synonymous with a ‘separation’.

What classification system is used?

Each admission is allocated to an AR–DRG, allowing measurement of the type and complexity of patients at a hospital. An AR–DRG is assigned based on the diagnosis and procedure codes or other individual patient characteristics that are recorded in the patient medical record.

AR–DRG v8.0 is applied to calculate NWAU for all published years. AR–DRG v8.0 is applied in this report as it is the corresponding AR–DRG version used by IHPA in the National Efficient Price Determination (NEP 2017–18).

What is a National Weighted Activity Unit?

An NWAU is a measure of health service activity expressed as a common unit. It provides a way of comparing and valuing each public hospital service by weighting it for its clinical complexity.

Calculating the NWAU involves allocating each AR–DRG as a defined ‘cost weight’, which is a relative measure of a patient’s complexity. This is calculated as a ratio of the average cost of a given AR–DRG compared to the average cost of all AR–DRGs, for hospitals submitting data to the NHCDC.

After allocating each admission a cost weight based on its AR–DRG, this weight is then adjusted according to individual patient characteristics which are known to lead to higher costs. This adjustment is undertaken by IHPA for development of the National Efficient Price Determination and this report. Including these adjustments in the calculation minimises their impact on overall costs and allows a more accurate comparison across hospitals. The following price weight adjustments were made when calculating the NWAU:

- Paediatric
- Specialist psychiatric age
- Patient remoteness area
- Indigenous
- Radiotherapy
- Dialysis
- Intensive care unit (ICU)
- Private patient service
- Private patient accommodation.
Applying these adjustments to the cost weight results in an NWAU value for each episode.

More intensive and expensive activities receive multiple NWAUs and simpler and less expensive activities are allocated fractions of an NWAU.

**What is cost per NWAU?**

Cost per NWAU, developed by the IHPA, measures the average cost of a public hospital service eligible for Activity Based Funding (ABF).

The cost per NWAU measure excludes services that are not eligible for funding under ABF, such as patients funded by the Department of Veterans’ Affairs or other sources such as motor vehicle accident insurance, workers’ compensation or public liability damage claims.

Cost per NWAU is calculated for acute admitted patients only and does not include emergency department costs associated with each patient’s admission.

For more information on how the NWAU is calculated see the NEP Determination 2017–18 (IHPA 2017).

The IHPA reports a similar measure to cost per NWAU called cost per weighted separation, which is not designed for performance reporting. This measure uses the DRG cost weights as the denominator, rather than price weights. Therefore the measure is unadjusted for both inlier/outliers by DRG, and specific characteristics of patient (e.g. remoteness), care (e.g. ICU) and funding (private patients). This measure is reported nationally and by jurisdiction in the NHCDC Cost Report.

**What costs are included?**

There are some instances where state and territory governments account for costs differently, for example, in accounting for depreciation. The report uses only a subset of costs that are nationally comparable to address these differences.

A complete list of costs (Table 2) and patient types (Table 3) can be found in the scope summary tables (page 9).
Table 2: Scope summary—Costs

<table>
<thead>
<tr>
<th>Costs</th>
<th>Included</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allied health; Imaging; Pharmacy; Pathology</td>
<td>✔</td>
</tr>
<tr>
<td>Critical care</td>
<td>✔</td>
</tr>
<tr>
<td>Hotel goods and services</td>
<td>✔</td>
</tr>
<tr>
<td>Non-clinical and on-costs</td>
<td>✔</td>
</tr>
<tr>
<td>Operating room</td>
<td>✔</td>
</tr>
<tr>
<td>Prostheses</td>
<td>✔</td>
</tr>
<tr>
<td>Specialised procedure suite</td>
<td>✔</td>
</tr>
<tr>
<td>Ward medical, nursing and supplies</td>
<td>✔</td>
</tr>
<tr>
<td>ED costs</td>
<td>✗</td>
</tr>
<tr>
<td>Blood costs</td>
<td>✗</td>
</tr>
<tr>
<td>Teaching, training &amp; research (direct)</td>
<td>✗</td>
</tr>
<tr>
<td>Depreciation</td>
<td>✗</td>
</tr>
<tr>
<td>Excluded costs</td>
<td>✗</td>
</tr>
<tr>
<td>Payroll tax</td>
<td>✗</td>
</tr>
<tr>
<td>Medications subsidised by Commonwealth programs (e.g. PBS)</td>
<td>✗</td>
</tr>
<tr>
<td>Property, plant and equipment</td>
<td>✗</td>
</tr>
</tbody>
</table>

Table 3: Scope summary—Patient type

<table>
<thead>
<tr>
<th>Patient type</th>
<th>Included</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public patients</td>
<td>✔</td>
</tr>
<tr>
<td>Private patients (insured)</td>
<td>✔</td>
</tr>
<tr>
<td>Other hospital or public authority (contracted care)</td>
<td>✔</td>
</tr>
<tr>
<td>Self-funded patients</td>
<td>✔</td>
</tr>
<tr>
<td>Department of Veterans’ Affairs</td>
<td>✗</td>
</tr>
<tr>
<td>Department of Defence</td>
<td>✗</td>
</tr>
<tr>
<td>Compensable patients</td>
<td>✗</td>
</tr>
<tr>
<td>Motor vehicle third party personal claim</td>
<td>✗</td>
</tr>
</tbody>
</table>
Hospital comparisons

For this report the AIHW used an approach consistent to that used in Hospital Performance: Costs of acute admitted patients in public hospitals from 2011–12 to 2013–14 (NHPA 2016).

Six principles were used to support fair comparisons between hospitals:

1. **Comparable costs**: this process involved a review of the national consistency of costs information and the materiality of any differences between states and territories. Where appropriate, some costs are excluded to support comparability (Tables 2 and 3, page 9). In other instances, some costs are included because it is not possible to exclude them. In these instances, the materiality of this approach was assessed (see Hospital Performance: Costs of acute admitted patients in public hospitals in 2011–12, Technical Supplement for more details) (NHPA 2015).

2. **Patients**: admitted and discharged (including a change in care type) within a financial year are included in the report. This approach also aligns with the scope used by the IHPA for the NEP Determination 2017-18.

3. **Units of activity**: this process is necessary to standardise costs by accounting for the differences between the relative complexity of patients admitted to a hospital and the patient’s individual characteristics which may lead to legitimate cost variation, relative to the patient’s length of stay.

4. **Rounding results**: the AIHW has rounded cost per NWAU in a way that acknowledges any remaining uncertainty in estimates. Each hospital’s result has been rounded to the nearest $100.

5. **Suppression of results**: where cost and activity data from a hospital were not fully available or comparable, rules inform decisions to suppress information based on a lack of comparability (see page 6 for more information).

6. **Peer groups**: this process involves grouping hospitals so that they can be compared to their peers (see below for more information).

Hospital peer classification system

Peer groups allow hospitals to be compared to other similar hospitals. They minimise the effect caused by comparing hospitals of differing size, services and rurality.

The report includes major, large and medium public hospitals only, and hospitals are classified according to the 2015 Australian hospital peer groups (AIHW 2015). Large and medium hospitals are further split into metropolitan and regional groups using the 2011 Australian Statistical Geography Standard (ASGS) remoteness categories (ABS 2013).

Both the report and the MyHospitals website focus on comparing and contrasting information from major, large and medium public hospitals, as these hospitals account for the vast majority of same-day and overnight admissions.

The average cost per NWAU for a peer group is calculated by tallying the total comparable cost for all hospitals within the peer groups with a complete three-year time series of data and dividing by the total number of NWAU for those hospitals. This overall peer group average is considered more accurate than individual hospital results and is rounded to the nearest $10.
The measure is used to compare 121 major, large and medium public hospitals against their peers, based on the size and location of the hospital. Cost per NWAU was calculated for:

- 28 major hospitals
- 29 large metropolitan hospitals
- 26 large regional hospitals
- 18 medium metropolitan hospitals
- 20 medium regional hospitals.

**Contextual information**

Contextual information has been provided to assist with the interpretation of results. The percentage of private patients has been calculated by dividing the number of private insurance and self-funded patient separations by total in-scope separations.
Timeseries comparison

Indexation
The cost per NWAU measure is calculated in constant prices (adjusted for inflation) to clearly demonstrate changes in hospital costs over time. Nominal costs in 2012–13 and 2013–14 were indexed to 2014–15 prices.

The deflator that the AIHW uses in this report is sourced from the Australian Bureau of Statistics (ABS): the Government Final Consumption Expenditure (GFCE) hospitals and nursing home deflator. This deflator is a chain price index calculated at a detailed level, providing a close approximation to measures of pure price change. The GFCE hospitals and nursing home deflator was selected due to its alignment with the scope of the cost per NWAU measure and its method of calculation, which is external to efficiency gains recorded by the NHCDC. The ABS deflator uses 2014–15 as the base year.

Classification across the time series
Data for all published years is classified by a single version of the AR–DRGs and NEP Determination 2017–18. Applying consistent classifications across years supports comparability of data across years and is standard industry practice. AR–DRG v8.0 and NEP 2017–18 are used in the calculation of the measure for all financial years.


Private patient adjustment
The private patient adjustment is applied by the National Efficient Pricing Model to account for missing medical costs of private patients. The IHPA sources extra data from the HCP data set to better estimate the complete costs of private patients. Using the HCP, the IHPA applies a correction factor to the NHCDC to more accurately estimate the total cost of private patients (specifically for private patient medical expenses that are not recorded in hospital accounts).

Over time, the IHPA has refined the private patient adjustment methodology, as a number of jurisdictions have provided feedback that the NHCDC contains all private patient costs.

In 2015-16 National Efficient Pricing Model correction factor was 1.9 per cent. The correction dropped to 1.4 per cent for the 2016–17 Model, as a result of a more targeted private patient correction. The National Efficient Pricing Model 2017–18 applies a 1.5 per cent correction factor.
Analysis of change in cost per NWAU result from 2012–13 to 2014–15

The AIHW undertook analysis focused on exploring whether a change in cost per NWAU was driven by a change to in-scope costs, a change in NWAU or a combination of both. This involved comparing the change of in-scope costs and in-scope NWAU from 2012–13 to 2014–15.

The AIHW also sought to understand what was driving a change in NWAU, that is, was it a change in separations or a change in relative complexity, as measured by both the cost-weight per separation and NWAU per separation. The analysis broadly observed an increase in the number of separations per hospital from 2012–13 to 2014–15; however, this increase was at a faster rate than the growth in NWAU from 2012–13 to 2013–14. That led to an observed decrease in NWAU per separation from 2011–12 to 2013–14.

Activity Based Funding (ABF) was progressively introduced from 1 July 2012 for admitted patient services. The timing of implementation varied between individual states and territories. This may have resulted in fluctuations in results between years, within and across states and territories.
**Indicator specification**

**Cost per National Weighted Activity Unit**

This measure compares the costs of acute admitted patients against a common unit of activity, termed the National Weighted Activity Unit (NWAU).

<table>
<thead>
<tr>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
</tr>
<tr>
<td>Description</td>
</tr>
</tbody>
</table>

**Indicator disaggregation**
The indicator is reported by:
- hospital
- peer group (MyHospitals website peer groups).

**Results**
http://www.myhospitals.gov.au

**Data sources**
The data used to calculate cost per NWAU is sourced from three different collections:

Hospital and patient level data were provided by the IHPA to the AIHW on 26 September 2017 (excluding patient level data for NSW).
Data sources (continued)

Hospital costs data are sourced from the NHCDC held by the IHPA. The NHCDC collects data for activity based funding purposes and records the vast majority of health system costs at a patient or ‘product’ level, according to the AHPCS. The NHCDC includes the allocation of indirect costs from the general ledger. To ensure that the quality of NHCDC data is robust and fit-for-purpose, the IHPA commissions an independent financial review to assess whether all participating hospitals have included appropriate costs and patient activity.

Hospital activity data on the number of acute care separations are sourced from the IHPA’s Activity Based Funding Admitted Patient Care data collection (ABF APC data collection). The scope of the ABF APC data collection is episodes of care for admitted patients in all public and private acute and psychiatric hospitals, free standing day hospital facilities and alcohol and drug treatment centres in Australia.

As the costs of private patients not publicly funded are not fully recorded by the NHCDC in some jurisdictions the IHPA sources extra data from the HCP data set to better estimate the complete costs of private patients. This adjustment is undertaken by the IHPA for the NEP Determination. The HCP data set, managed by the Department of Health, collects data directly from all private health insurance providers and covers all privately insured admitted patients.

Indicator description and calculation

Numerator

The numerator is in-scope acute admitted operational costs for a hospital.

In-scope costs are included on the basis of nationally comparability, including: allied health, imaging, pharmacy, pathology, critical care, hotel goods and services, non-clinical and on-costs, operating room, prosthesis, specialised procedure suites, ward medical, ward nursing and supplies.

Nationally comparable costs exclude blood costs, teaching, training and research (where TTR is costed separately), depreciation, payroll tax, medications subsidised by Commonwealth programs (e.g. the Pharmaceutical Benefits Scheme) and property, plant and equipment.
Indicator description and calculation (continued)

**Denominator**

The denominator is in-scope acute admitted NWAUs (NEP 2017–18, AR–DRG v8.0) for a hospital.

An NWAU is a measure of health service activity expressed as a common unit, against which the NEP is paid. It provides the basis for understanding the activity undertaken at a hospital during the financial year (number of admissions), adjusted for the relative complexity of patients admitted to the hospital. The NWAU has many adjustments relating to patient characteristics beyond the AR–DRG classification, including Indigenous status, remoteness, patient age, length of stay, ICU hours and leave days. The average hospital service is worth 1 NWAU, the most intensive and expensive activities are worth multiple NWAUs, and the simplest and least expensive are worth fractions of an NWAU.

**Calculation**

\[(\text{Numerator ÷ denominator}), \text{ indexed by the Australian Bureau of Statistics (ABS) Government final consumption expenditure (GFCE) hospital and nursing home deflator to 2014–15 prices (adjusted for inflation), rounded to the nearest } \$100.\]

Growth rates for the GFCE hospital and nursing home deflator are:

- 2.8 per cent 2012–13 to 2013–14

**Scope**

The reported activity is consistent with the IHPA’s National Efficient Pricing Model, and only includes patients who were both admitted and separated within the reported financial year.

The following patient types are included in the cost per NWAU analysis: public patients, private patients (insured), contracted care patients and self-funded patients.

Patients whose services are not eligible for Commonwealth funding under activity based funding are excluded from the cost per NWAU calculation. This includes: Department of Veterans’ Affairs patients, Department of Defence patients, compensable patients and motor vehicle third party personal claim patients.

The following care types are excluded: other sub-acute, non-acute and non-admitted emergency department care.
Suppression rules

The reporting of selected hospitals is suppressed to ensure robust comparable results and protect the privacy of patients.

Hospitals were reported if they met the following criteria:

- the hospital was a major, large metropolitan, large regional, medium metropolitan, or medium regional non-specialist public hospital
- the hospital had an emergency department
- the hospital received ABF for acute admitted patients
- cost and activity data were available for at least two consecutive financial years
- more than or equal to 90 per cent of patient unit records were matched to the NHCDC unit records of total admitted patient care unit records at the hospital
- no anomalies were identified following triangulation analysis of cost data between the NHCDC and the NPHED
- where a hospital had an ICU that was eligible for an NWAU ICU adjustment, the hospital must have recorded ICU hours greater than zero.
Appendix

Acute admitted patients

The report focuses on acute admitted patients, as they account for the largest proportion of hospital costs nationally. Acute admitted patients include patients who are admitted for the management of childbirth, surgery, or other diagnostic and therapeutic procedures. Table 4 provides more information on the Major Diagnostic Categories (MDCs) which are included as part of the analysis (AIHW 2017a).

Table 4: Major Diagnostic Categories included in the computation of cost per NWAU, acute admitted patients.

<table>
<thead>
<tr>
<th>MDC</th>
<th>MDC description</th>
<th>Included</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Pre-MDC categorisation of high-resource use Diagnosis-Related Groups (DRGs) such as transplants and tracheostomy</td>
<td>✔️</td>
</tr>
<tr>
<td>1</td>
<td>Diseases and disorders of the nervous system</td>
<td>✔️</td>
</tr>
<tr>
<td>2</td>
<td>Diseases and disorders of the eye</td>
<td>✔️</td>
</tr>
<tr>
<td>3</td>
<td>Diseases and disorders of the ear, nose, mouth and throat</td>
<td>✔️</td>
</tr>
<tr>
<td>4</td>
<td>Diseases and disorders of the respiratory system</td>
<td>✔️</td>
</tr>
<tr>
<td>5</td>
<td>Diseases and disorders of the circulatory system</td>
<td>✔️</td>
</tr>
<tr>
<td>6</td>
<td>Diseases and disorders of the digestive system</td>
<td>✔️</td>
</tr>
<tr>
<td>7</td>
<td>Diseases and disorders of the hepatobiliary system and pancreas</td>
<td>✔️</td>
</tr>
<tr>
<td>8</td>
<td>Diseases and disorders of the musculoskeletal system and connective tissue</td>
<td>✔️</td>
</tr>
<tr>
<td>9</td>
<td>Diseases and disorders of the skin, subcutaneous tissue and breast</td>
<td>✔️</td>
</tr>
<tr>
<td>10</td>
<td>Endocrine, nutritional and metabolic diseases and disorders</td>
<td>✔️</td>
</tr>
<tr>
<td>11</td>
<td>Diseases and disorders of the kidney and urinary tract</td>
<td>✔️</td>
</tr>
<tr>
<td>12</td>
<td>Diseases and disorders of the male reproductive system</td>
<td>✔️</td>
</tr>
<tr>
<td>13</td>
<td>Diseases and disorders of the female reproductive system</td>
<td>✔️</td>
</tr>
<tr>
<td>14</td>
<td>Pregnancy, childbirth and the puerperium</td>
<td>✔️</td>
</tr>
<tr>
<td>15</td>
<td>Newborns and other neonates</td>
<td>✔️</td>
</tr>
<tr>
<td>16</td>
<td>Diseases and disorders of the blood and blood forming organs and immunological disorder</td>
<td>✔️</td>
</tr>
<tr>
<td>17</td>
<td>Neoplastic disorders (haematological and solid neoplasms)</td>
<td>✔️</td>
</tr>
<tr>
<td>18</td>
<td>Infectious and parasitic diseases</td>
<td>✔️</td>
</tr>
<tr>
<td>19</td>
<td>Mental diseases and disorders</td>
<td>✔️</td>
</tr>
<tr>
<td>20</td>
<td>Alcohol/drug use and alcohol/drug induced organic mental disorders</td>
<td>✔️</td>
</tr>
<tr>
<td>21</td>
<td>Injuries, poisoning and toxic effects of drugs</td>
<td>✔️</td>
</tr>
<tr>
<td>22</td>
<td>Burns</td>
<td>✔️</td>
</tr>
<tr>
<td>23</td>
<td>Factors influencing health status and other contacts with health services</td>
<td>✔️</td>
</tr>
<tr>
<td>24</td>
<td>Operating room procedures unrelated to MDC of principal diagnosis</td>
<td>✔️</td>
</tr>
<tr>
<td>24</td>
<td>Error DRGs (960Z, 961Z, 963Z)</td>
<td>✗️</td>
</tr>
</tbody>
</table>

References


IHPA (Independent Hospital Pricing Authority) 2014. Australian Hospital Patient Costing Standards version 3.1. Sydney IHPA.


Stronger evidence, better decisions, improved health and welfare