Independent Hospital Pricing Authority

NATIONAL HOSPITAL COST DATA COLLECTION
COST REPORT: ROUND 19

FINANCIAL YEAR 2014-15

November 2016

****National Hospital Cost Data Collection Cost Report:**** Round 19 Financial year 2014-15

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# Acronyms/Abbreviations



# Executive Summary

The National Health Reform Act 2011 established the Independent Hospital Pricing Authority (IHPA) as part of the National Health Reform agenda. The key purpose of IHPA is to promote improved efficiency in, and access to, public hospital services through the setting of the National Efficient Price (NEP) and National Efficient Cost (NEC) for public hospital services. The National Hospital Cost Data Collection (NHCDC) is the annual collection of public hospital cost data, and is the primary data collection used to inform the NEP and the NEC.

## Participation

The Round 19 NHCDC, for financial year 2014-15, includes costs from 358 hospitals, 84 less than in Round 18.

Queensland was the primary contributor to this change with 92 fewer hospitals. These were primarily small rural hospitals and impacted the emergency department and non-admitted activity and expenditure. Victoria reported eight additional hospitals compared to Round 18. The increase in Victorian hospital participation led to an increase in the proportion of admitted acute activity for which costs were submitted by 1.3 per cent to 93.6 per cent.

Figure Rounds 17 to 19, number of participating hospitals by jurisdiction



## Total expenditure

In the Round 19 NHCDC, total expenditure submitted was $35.6 billion, a 5.0 per cent increase over Round 18.

Expenditure is split between five streams:

* **Admitted acute** accounted for 74 per cent of total expenditure, reporting $26.4 billion from 345 hospitals. This represents a 6.2 per cent increase in expenditure over Round 18, with seven fewer hospitals reporting data.
* **ED** expenditure accounted for $4.2 billion from 199 hospitals. This represents a 2.9 per cent increase in expenditure over Round 18, with 58 fewer hospitals reporting data.
* **Non-admitted** expenditure accounted for $4.7 billion from 268 hospitals. This represents a 3.4 per cent increase in expenditure over Round 18, with 81 fewer hospitals reporting data.
* **Subacute and non-acute** expenditure accounted for $2.3 billion from 331 hospitals. This represents a 3.0 per cent increase in expenditure over Round 18, with four fewer hospitals reporting data.
* **Other** product expenditure accounted for $51.6 million from 193 hospitals. This represents a 29.3 per cent decrease in expenditure over Round 18, with five fewer hospitals reporting data.

Figure Total expenditure and percentage movement by stream, Round 17 to 19



## Average costs

For the NHCDC, costs are reported at the patient level. This allows for the calculation of average costs per episode by product stream:

* 5.2 million admitted acute separations were reported in Round 19, an increase of 5.0 per cent over Round 18. The average cost per admitted acute separation was $5,026, a 1.1 per cent increase on Round 18.
* 6.9 million ED presentations were reported in Round 19, a decrease of 0.5 per cent over Round 18. The average cost per presentations was $605, a 3.5 per cent increase on Round 18;
* 17.2 million non-admitted service events were reported in Round 19, an increase of 7.4 per cent over Round 18. The average cost per non-admitted service event was $272, a 3.7 per cent decrease on Round 18;
* 172,317 subacute and non-acute separations were reported in Round 19, an increase of 3.0 per cent over Round 18. The average cost per subacute separation did not change from Round 18 and was $13,193;
* 25,301 other product counts of activity were reported in Round 19, a decrease of 7.0 per cent over Round 18.

Readers of the report are reminded that the results published should not be compared to the NEP. The NEP includes a series of adjustments to the NHCDC results to account for variations in the cost of delivering services, based on factors such as location, indigenous status and paediatrics. Further information about the NEP adjustments can be found on [IHPA’s website](https://www.ihpa.gov.au). This report presents an analysis of the annual data submitted to the NHCDC for Round 19 (2014-15).

# Introduction

Hospital costing is the process of identifying the resources and inputs used during an episode and applying the costs of those inputs to the different types of clinical procedures and treatments provided to each patient in a hospital.

The NHCDC is the annual collection of public hospital cost data from a range of public hospital facilities nationally. The objective of the NHCDC is to provide all governments with a robust dataset developed using nationally consistent methods of costing hospital activity.

The dataset is used for benchmarking, funding and planning hospital services and is the primary dataset used to develop the National Efficient Price (NEP) and produce weights for the funding of public hospital services on an activity basis, as well as to develop the National Efficient Cost (NEC) for block funded hospitals. More information about the NEP, NEC and activity based funding is available on [IHPA’s website](https://www.ihpa.gov.au).

The annual NHCDC process includes publication of data request specifications, data collection and validation, application of quality assurance processes and an Independent Financial Review, prior to the development of the NHCDC dataset.

## Background

The NHCDC was established in the mid-1990s through the joint collaboration of the Commonwealth with state and territory governments. State and territory health ministers agreed to collect and provide cost data to the Commonwealth for the purposes of national reporting to support a range of funding and health care initiatives. The NHCDC was designed as a voluntary cost data collection. Collection of Round 1 commenced in 1997. The early Rounds of collection were predominantly focused on collating costs at a ‘product’ level for acute hospital services.

Under the National Health Reform Act 2011, IHPA was established and assumed responsibility for the governance of the NHCDC. Through the national health reform process, a range of developments to the NHCDC have been implemented, including data quality controls, the introduction of a submission portal and developments in costing standards. These improvements have all provided increased confidence in the collection for the purpose of national reporting.

## Purpose of this report

The purpose of this report is to provide an overview of costs as reported to Round 19 of the NHCDC (2014-15). The report is intended to provide cost data information for a range of users including hospital representatives, jurisdictional representatives, policy makers, clinicians, commercial entities, researchers, and students.

This report contains detailed analysis of the Round 19 NHCDC including:

* summary tables at the national and jurisdiction level by admitted acute, subacute, non-admitted, emergency department and other products.
* cost weight tables for actual and estimated admitted acute separations.

The report also contains data quality statements that are supplied by each jurisdiction to highlight key aspects that may impact on a jurisdiction’s results. This may include variations with respect to costs, practices, participation and coverage of results that have occurred in the Round.

# Scope and reporting requirements

## Scope

The data in scope for the NHCDC includes all patient level activity for all public hospital facilities across Australia, and the costs incurred by the hospital in relation to this activity in financial year 2014-15 (Round 19).

The classifications used for reporting the Round 19 NHCDC are:

* Australian Refined Diagnosis Related Groups (AR-DRG) Version 8;
* Urgency Related Groups (URG) Version 1.4;
* Non-admitted Tier 2 Classification Version 3; and
* Australian National Subacute and Non-Acute Patient (AN-SNAP) classification Version 4.

## Reporting requirements

To ensure consistent in the approach to costing nationally, NHCDC data is subject to the Australian Hospital Patient Costing Standards Version 3.1 (the Standards), available on [IHPA’s website](https://www.ihpa.gov.au/publications/australian-hospital-patient-costing-standards-version-31). The Standards prescribe the set of line items and cost centres that hospital costs are mapped to for the costing process, to ensure that there is a consistent treatment of costs between hospitals. These costs are allocated to, and reported under, the NHCDC defined ‘cost buckets’. Please refer to the Standards for the reference tables of line items, cost centre groups and cost buckets.

Costed results are produced at the episode level, per cost centre and per line item. These results are provided to IHPA and are collated and analysed to produce this report.

Figure 3 illustrates the process undertaken to prepare and submit NHCDC data.

Work in progress patients

The Standards require that all patient activity during the year be costed according to its set of guidelines. For the purposes of the NHCDC, all patients are considered in scope where discharged within the submission year. A work in progress (WIP) patient is defined as a patient that is not admitted and discharged within the 2014-15 financial year. For the purposes of this report, data in all tables excludes WIP patients unless specifically noted.

### Independent Financial Review

The Independent Financial Review is a whole of data review from a sample selection of hospitals within each jurisdiction. The review provides transparency in the way data is reported from source to its use for development of the NEP and NEC. The Independent Financial Review report is published on IHPA’s website each year alongside this cost report.

Figure Hospital Costing Process



## Release notes

Footnotes are available under each table within the report and appendices, as applicable, to guide readers on any missing data in the tables through asterisks (\*\*\*), dashes (----) and blanks. Issues relating to missing data are:

* Confidentiality: to ensure hospital and patient confidentiality is maintained information has been removed from some tables. The figures have been replaced asterisks (\*\*\*).
* Relevance: if a particular attribute is not relevant to a jurisdiction, then dashes (----) are used.
* Data availability: if a jurisdiction does not submit data, then blanks are used.

# Admitted acute care

The admitted acute episodes of care in scope for Round 19 include all public hospital admitted acute separations with an admission and discharge date in financial year 2014-15.

Admitted acute care is provided to patients who go through a formal admission process where the clinical intent or treatment goal is to do one or more of the following:

* manage labour (obstetric);
* cure illness or provide definitive treatment of injury;
* perform surgery;
* relieve symptoms of illness or injury (excluding palliative care);
* reduce severity of illness or injury;
* protect against exacerbation and/or complication of an illness and/or injury which could threaten life or normal functions; or
* perform diagnostic or therapeutic procedures.

These separations have been classified under AR-DRG Version 8 and have a care type[[1]](#footnote-1) of ‘1’ (acute) or ‘7’ (neonates).

## Overview

The admitted acute stream represents the primary function of hospitals in Australia, with the associated expenditure of $26.4 billion representing three quarters of total hospital expenditure submitted to the Round 19 NHCDC (Appendix 1).

Table 1 summarises the Round 19 NHCDC admitted acute results, which have continued to stabilise when compared to previous years. In the Round 19 admitted acute stream of the NHCDC:

* 345 hospitals participated;
* expenditure increased by 6.2 per cent;
* costed activity increased by 5.0 per cent;
* the average cost of an admitted acute separation was $5,026; and
* the average length of stay was 2.64 days.

Table NHCDC Round 17 to Round 19, comparison of admitted acute summary, national



Cost weight tables are published in AR-DRG Version 8 for actual (Appendix 3) and estimated costed data (Appendix 4).

These headline changes reflect a number of developments in the Round, including changes to the number of participating hospitals, admission practices and to a lesser extent costing methodology in selected jurisdictions. The Data Quality Statements, Chapter 8, provide detail about how changes implemented at the jurisdiction level have affected NHCDC results. Table 2 provides a summary of acute cost and activity data submitted to the Round 19 NHCDC by jurisdiction.

Table NHCDC Round 19, admitted acute summary, by jurisdiction



## Participation

The jurisdiction level data included in Appendix 1 identifies that costs from 345 hospitals were reported in Round 19, a decrease of seven hospitals over Round 18. Three jurisdictions had changes in the number of reported hospitals. Queensland reported 16 fewer, Victoria reported eight more and NSW reported one more.

Participation in the Round was impacted by Queensland’s decision to reduce the number of hospitals submitted in the collection to include only those establishments that are funded through ABF. The exclusion of these small rural facilities did not have a material impact on admitted acute expenditure or activity reported. Despite the reduced number of participating hospitals, Queensland maintains the highest number of hospitals due to its relatively large population and land area. In Round 19, WA excluded data from a large metropolitan hospital due to reconfiguration of a metropolitan health network, this is detailed in the data quality statement supplied by WA.

The hospitals that submitted data to the Round 19 NHCDC do not include all hospitals nationally within the scope of ABF. The hospitals that submitted cost data account for 93.6 per cent of all admitted acute separations. This is an improvement on the Round 18 collection where NHCDC admitted acute separations accounted for just over 92.2 per cent of total ABF admitted acute separations.

## Expenditure

The admitted acute stream has the most robust costing results and developed classification system. This is reflected in consistent and stable movements in costs and number of separations between Rounds. Both expenditure and number of costed separations have had consistent increases over the last three Rounds.

National expenditure in Round 19 increased by 6.2 per cent to $26.4 billion, with all jurisdictions contributing to this increase. The three most populous jurisdictions, NSW, Victoria and Queensland, account for 77 per cent of the national population[[2]](#footnote-2) and contributed 74 per cent of national expenditure.

Growth in admitted acute expenditure was driven by an increase in number of hospitals submitted by Victoria and NSW, and a change in admission practices from Round 18 in Queensland. While national expenditure increased by 6.2 per cent, the jurisdictions with the largest increases were Queensland, and Victoria where expenditure increased by 9.9 per cent and Tasmania with an 8.2 per cent increase. ACT, NSW and SA increased expenditure between four and five per cent (Appendix 5).

There were 5.2 million admitted acute costed separations in the NHCDC in Round 19, an increase of 5.0 per cent compared to the prior Round. All jurisdictions except for WA contributed to this increase, with Queensland and Victoria reporting the largest increases at 10.9 per cent and 8.1 per cent respectively.

As with the number of hospitals and expenditure, the three most populous jurisdictions also contributed the bulk of activity, collectively accounting for 78 per cent of national separations. ACT has the smallest number of hospitals and the fewest separations with 96,479 in Round 19.

## Average cost

In Round 19, the average cost per admitted acute separation was $5,026, an increase of 1.1 per cent from $4,971 reported in Round 18.

Growth in the national average cost per admitted acute separation remained consistent in the past two Rounds. Between Round 17 and Round 18 the change in national average cost per admitted acute separation was 1.2 per cent.

Across the nation, change in the average cost per admitted acute separation varied with WA hospitals reporting the highest average increase of 5.7 per cent while hospitals in NT reported the largest decrease in average cost reduced by 6 per cent when compared to Round 18 (Appendix 5).

Average costs per separation varied across jurisdictions from a minimum of $4,213 reported by NT to $6,856 per separation in ACT (Table 3). Victoria, Queensland and NT all reported average costs below the national average.

Table NHCDC Round 18 and Round 19, comparison of admitted acute average cost per separation and average cost per weighted separation, by jurisdiction



Two jurisdictions reported a decreased average cost in Round 19, with Queensland and NT decreasing by 0.9 per cent and 6.0 per cent respectively. The large movement observed in the NT reflected improvements in cost allocation in Round 19 resulting in a shift in costs to the ED stream from admitted acute. WA and Tasmania reported the biggest increases in average cost with 5.7 per cent and 4.2 per cent respectively.

The movement in national average cost is composed of change in costs and activity contributed by each jurisdiction. Growth in Round 19 to the national average reflects contributions between Rounds from Victoria, Queensland and WA (see Table 4). Each jurisdiction’s change in expenditure and activity impact the national change depending on their level of overall contribution. A jurisdiction with a high percentage of the national separations or expenditure will affect the national percentage change differently to a jurisdiction, which makes up a low percentage of the national total.

Table Jurisdiction change in percentage point contribution in admitted acute expenditure, separations and average cost Round 18 to Round 19



Although a less refined measure, comparison at a cost per day can give context to changes in average cost per separation. The national average cost per bed day, Table 2, in Round 19 is $1,901.All jurisdictions, except NT, reported increased average costs per day in Round 19 (Appendix 5). Consistent with cost per separation, WA and Tasmania reported the largest increases in average cost per day increasing by 8.8 per cent and 5.5 per cent respectively. Only two jurisdictions, NSW and Victoria, have an average cost per day less than the national average with both reporting less than $1,800 per day. WA and ACT have the highest average cost per day with both jurisdictions reporting over $2,400 per day.

Due to the high dependence of episode cost on length of stay, a shorter length of stay tends to result in a lower cost per separation. This trend is highlighted by the fact that Queensland and NT reported the biggest decreases in average length of stay (ALOS), decreasing by 3.1 per cent and 4.0 per cent respectively. The change for Queensland was driven by an increased proportion of same day separations, while in the NT the change is a combination of a decrease in ALOS for overnight separations and an increase of proportion of same day separations.

## Average length of stay

The national average length of stay (ALOS) for admitted acute patients was 2.64 days (Table 2). Five jurisdictions had lower ALOS than the national average with NT having the shortest ALOS at 2.17 days. NSW, SA and ACT have ALOS longer than the national average with NSW and SA having ALOS longer than three days. For NSW and SA the long ALOS is driven by proportion of same day to overnight separations with only these two jurisdictions having more overnight than same day separations. Table 5 (below) identifies the number of same day and overnight separations for each jurisdiction. The ALOS for overnight separations is 4.58 days. Figure 4 shows the difference between the ALOS including and excluding same day separations.

Figure Admitted acute average length of stay of all separations and all overnight sepatations, jurisdiction



There were 2.8 million same day separations (54 per cent of all separations) and 2.4 million overnight separations reported nationally (Table 5). The ratio of same day to overnight separations varied greatly between jurisdictions with NSW having the lowest ratio with 0.89 same day separations for every overnight separations and NT with the highest ratio with 2.28 same day separations for every overnight separations. Queensland had the largest change in same day separations with an increase of 17 per cent between Round 18 and Round 19 (Appendix 9). The increase in Queensland’s same day separations correlates to a decrease in non-admitted chemotherapy, resulting in an additional 30,000 same day chemotherapy separations.

Table NHCDC Round 19 Overnight and same day separations, by jurisdiction



The high volume of dialysis patients admitted for care causes the high ratio of same day separations reported by NT. NSW and SA are the only jurisdictions with less than half of all separations being same day. This may be as a result of differing admission policies and the sample of hospitals included in the NHCDC.

Across the nation, the ALOS of overnight separations was 4.58 days, when excluding same day separations. NSW and Queensland reported a slight increase in the ALOS of their overnight separations. Queensland reported the shortest overnight ALOS at 3.94 days per separation.

## Average cost per weighted separation

Average cost per weighted separation is a casemix adjusted average cost, where the relative complexity of the activity is taken into account. It uses the national cost weights (See Appendix 3) to weight separations at the DRG level. If the weighted average is lower than the simple average the activity had a higher proportion of complex DRGs.

Figure 5 shows the variance between the average cost and average cost per weighted separation by jurisdiction. NT has the biggest variance with a low average cost and a high average cost per weighted separation. This reflects that the complexity of separations is quite low.

Figure Admitted acute average cost per separation actual and weighted, jurisdiction



The weighted average cost by jurisdiction for Round 19 is similar to that of previous Rounds. The three most populous jurisdictions (NSW, Victoria and Queensland) have weighted average costs below the national average of $5,025, with all three jurisdictions below $5,000. The remaining jurisdictions are above the national average with NT and ACT both over $6,500. WA reported the biggest increase in both average cost and weighted average cost with increases of 5.7 per cent and 4.0 per cent respectively. NSW, NT and ACT reported decreases in weighted average cost between Rounds 18 and 19 with NT having the largest decrease of 4.7 per cent.

## Cost bucket and line item costs

Line items represent types of costs (e.g. salaries and wages or goods and services) incurred by hospitals. Cost buckets represent cost pools within a hospital, i.e. all the costs associated with a particular function of the hospital (e.g. the operating room). The cost buckets and line items are set out in the Standards.

At a line item level most costs comprise of salaries and wages. In Round 19, salaries and wages comprise 63 per cent of total costs nationally (Table 6). There has been little movement in line item costs between Round 18 and Round 19. Appendix 8 provides jurisdiction level line item information, which identifies that there is variance across jurisdictions, and in some cases across Rounds, in reporting of some line item costs. Line item costs were not reported for:

* Pharmaceutical PBS by NSW or Queensland;
* Blood costs by NSW, SA or WA;
* Corporate costs by NSW, Victoria, Queensland or ACT;
* Depreciation costs by Victoria; and
* Lease costs by NSW.

Jurisdiction data quality statements may clarify if these costs have been reported under alternative line items or there are alternative jurisdiction level funding and reporting mechanisms in place. For example NSW is not a signatory to the Pharmaceutical Benefits Scheme so has no expense reported under the Pharmaceutical PBS line item.

Table Round 19 Admitted acute average cost by line item, national



Table 7, below, contains costs by cost bucket and the component each bucket contributes to the total. Ward nursing and ward medical are two cost buckets which are comprised of salaries and wages and they account for over 30 per cent of acute costs. The cost bucket information reports that operating room costs account for 13.6 per cent of expenditure.

The line items of salaries and wages (and oncosts) make up 70 per cent of national costs, with nursing salaries and wages alone contributing 29 per cent. The contribution of salaries and wages line items is seen across all jurisdictions with all reporting ward nursing as the cost bucket with the highest cost.

Table Round 19 Admitted acute average cost per separation by cost bucket, national



Nationally, the increase in average cost per separation between Rounds 18 and 19 was driven by increases in the depreciation, ED and pharmacy cost buckets. Moderation to the national average was supported by decreases in average ward supplies, allied health and pathology costs.

The 14.4 per cent increase in the depreciation cost bucket was supported by expenditure from Queensland, SA, WA, ACT and NSW (Appendix 7). The depreciation cost bucket predominantly contains costs reported under the line items depreciation building and depreciation equipment, the increase in the building depreciation line item was 29.2 per cent (Appendix 8).

All jurisdictions reported increases in ED cost buckets, with the exception of the NT, resulting in the 4.2 per cent increase in the national average ED cost bucket. At the jurisdictional level, WA reported the highest increases in their average ED costs, with increasing by 86.8 per cent (Appendix 7).

The 7.0 per cent increase in the national pharmacy cost bucket was driven by expenditure from Queensland, NSW and NT which increased their pharmacy costs by over 10 per cent.

## Admitted via emergency department

The admission via ED field is used as a proxy for urgency of admission during the episode of care. If admission is via ED then it is considered that the episode is not planned or it is an emergency. Alternatively, for the purpose of cost analysis, if the patient is not admitted via the ED then they are considered a planned or elective admission. Acute separations admitted through the ED cost twice as much as planned admissions, with the average cost of a patient admitted via ED at $6,964 and planned admissions at $3,590 (Table 8).

There are two primary drivers of this cost disparity; length of stay and ED costs. Separations which were admitted via the ED have an ALOS almost twice as long as planned admissions.

Table Round 19 Admitted acute separations admitted via emergency department, jurisdiction



Across the jurisdictions, NT reported the biggest difference in cost and ALOS between emergency and elective separations with emergency separations costing almost five times more and being three times as long. Queensland reported the smallest difference between emergency and elective separations with a comparable average cost and an ALOS for emergency separations only 1.5 times that of elective separations. Changes between Round 17 to 19 can be seen at Appendix 10.

## Price weight adjustments for abf

Certain characteristics of patients are used to adjust the price weight applied to each separation for activity based payment purposes. Some of these characteristics that influence clinical complexity include Indigenous status, patient age and remoteness of a patient’s residence.

### Indigenous status

Each patient has an Indigenous status assigned. ‘Indigenous Status’ is defined in the Australian Institute of Health and Welfare (AIHW) Metadata Online Registry (METeOR) as determining whether a person identifies as being of Aboriginal or Torres Strait Islander origin.

The NT and Queensland together account for over half of the national Indigenous separations. Indigenous patients are over-represented in same day separations, reflecting an overall lower ALOS and lower average cost for Indigenous separations. Haemodialysis accounts for almost half of all Indigenous separations.

Given the relatively low average cost for haemodialysis, this casemix results in Indigenous same day separations costing 26.1 per cent less than non-Indigenous same day separations. On average Indigenous overnight separations cost 5.0 per cent more than non-Indigenous overnight separations (Appendix 11).

Table Round 19 Admitted acute Indigenous and non-Indigenous separations, jurisdiction



### Paediatric hospitals

Five jurisdictions have qualified paediatric hospitals[[3]](#footnote-3) NSW, Victoria, Queensland, SA and WA. A paediatric separation is one which occurs at a qualified hospital and the patient is up to 17 years of age. The average cost for paediatric separations is 30 per cent higher than non-paediatric separations; however, the ALOS for these separations is not significantly higher, identifying the high resource utilisation of this cohort.

SA reported the lowest average cost for paediatric separations, at $5,549. SA was also the only jurisdiction where paediatric separations cost less than non-paediatric separations. Paediatric separations in Queensland cost 1.5 times more than non-paediatric separations, the highest ratio of all jurisdictions.

Table Round 19 admitted acute paediatric and non-paediatric separations, jurisdiction



The number of reported paediatric separations was stable between Rounds 18 and 19 (Appendix 12). The average cost per paediatric admitted acute separation increased by 9.1 per cent to $6,417, resulting in paediatric separations costing 29.1 per cent more than non-paediatric separations.

### Remoteness

The patient’s postcode is used to classify each separation in to a geographical locality. The average cost for patients from remote areas of Australia is 1.8 per cent higher than those from metropolitan areas (Table 11). The ALOS for remote separations is lower by 7.8 per cent than patients from metropolitan areas. NT and Queensland account for almost half of national remote separations. ACT has the biggest difference in cost between metro and remote separations with remote separations costing almost double at $13,085. Comparisons with previous Rounds and across jurisdictions can be seen at Appendix 13.

Table Round 19 admitted acute separations by remoteness, jurisdiction



# Emergency department presentations

Emergency Department (ED) presentations in scope for Round 19 include all patients registered for care in an emergency care service within a public hospital during 2014‑15. This includes patients who present to the ED who are treated and then leave (non-admitted emergency, NE), and presentations that are subsequently admitted to hospital (admitted emergency, AE).

In this report emergency care services are reported using Urgency Related Group (URG) Version 1.4.

## Overview

The ED stream, compared to other streams, has the smallest number of hospitals reporting costs with 199 hospitals providing costs for ED presentations in Round 19, a decrease of 58 hospitals.

Table 12 summarises the Round 19 NHCDC ED results which include:

* 199 hospitals participated;
* expenditure increased by 2.9 per cent to 4.2 billion dollars;
* costed presentations decreased by 0.5 per cent;
* the average cost of an admitted ED presentation was $982; and
* the average cost of a non-admitted ED presentation was $449.

Table Round 17 to Round 19 Emergency department summary by product type, national



Expenditure submitted for ED presentations totalled $4.2 billion in Round 19; this is 11 per cent of the total Round 19 NHCDC reported expenditure. Expenditure in the Round increased by 2.9 per cent, slower than the growth from Round 18 which reported an increase of 7.6 per cent. The number of reported presentations increased by 6.4 per cent in Round 18 but decreased by 0.5 per cent in Round 19.

The respective changes in expenditure and total ED presentations in the Round translated to an increase in national average cost, which increased by 3.5 per cent. This increase was underpinned by a large reduction of non-admitted ED presentations and associated costs which was almost entirely offset by a growth in the more costly admitted ED presentations.

## Participation

Costs from 199 hospitals were reported in Round 19, a decrease of 58 hospitals over Round 18. This was predominantly due to a reduction of 72 Queensland hospitals submitting ED costs.

## Expenditure

National expenditure for ED services was $4.2 billion in Round 19, an increase of 2.9 per cent over Round 18. The three most populous jurisdictions, NSW, Victoria and Queensland, contribute 76 per cent of national expenditure, with NSW the largest at $1.3 billion (Table 13). All but one jurisdiction contributed positively to growth in total expenditure, with NSW making the most notable contribution to national growth. Queensland was the only jurisdiction to reduce their contribution in the Round, reflected in reduced number of participating hospitals and, as a result, their ED activity.

The NT however was the largest mover, increasing their ED expenditure by 37.3 per cent in the Round. The movement in the NT reflects improvements in cost allocation, which has resulted in a shift in costs to the ED stream.

Total non-admitted ED expenditure decreased by 2.3 per cent, reducing the proportion of non-admitted expenditure from 55 per cent in Round 18 to 53 per cent in Round 19. The omitted Queensland hospitals accounted for almost all of this decrease, with SA and ACT also contributing to a much lesser extent.

Table Round 19 ED presentations summary, jurisdiction



There were 6.87 million costed presentations in Round 19. This 0.5 per cent decrease from Round 18 was due to a 2.3 per cent reduction in reported non-admitted presentations.

Queensland, WA, NT and ACT reported decreases in presentations in Round 19, with Queensland decreasing by 15.8 per cent. These decreases were primarily in non‑admitted presentations with only WA reporting a decrease in admitted presentations. NSW reported the largest increase in presentations (10 per cent).

In summary, three jurisdictions (NSW, Queensland, and NT) had significant changes to expenditure or number of presentations reported between Rounds 18 and 19. NSW and Queensland changed the number of hospitals that contributed costed presentations in the Round, while the NT implemented significant changes in cost allocation between streams.

## Average cost

In Round 19, changes to Queensland and NT hospitals reporting to the NHCDC have resulted in an increase in average cost of 3.5 per cent.

Table Round 18 and Round 19 average cost for admitted and non-admitted ED presentations, jurisdiction



The split between admitted and non-admitted ED presentations is significant, with admitted presentations costing more than twice that of non-admitted presentations. The increase in total average cost was due to an increased proportion of admitted presentations, which have a higher average cost. The average cost of admitted presentations increased by 2.7 per cent to $982 and non-admitted presentations increased by 0.9 per cent to $449.

Two jurisdictions reported a decreased average cost in Round 19 with NSW and ACT decreasing by 2.3 per cent and 0.4 per cent respectively. NT and Queensland reported the biggest increases in average cost with 40.1 per cent and 10.2 per cent respectively. The change in the average cost in NT was due to updates to their costing process where costs were better allocated to the emergency department from the non-admitted product type. Queensland’s change average cost reflected the hospitals submitting to the NHCDC as the ratio of non‑admitted to admitted ED presentations decreased in comparison to Round 18. In Round 19, NSW and Victoria reported average costs below the national average, with $576 and $544 respectively, with ACT reporting the highest average cost at $854.

Figure Comparison of ratios of admitted ED to total presentations versus admitted ED to total ED, costs jurisdiction



Figure 6 compares the two ratios of admitted ED costs to total costs, and the admitted ED activity to total ED activity across jurisdictions, that is, percentage of ED presentations that are admitted (e.g. 27% in NSW) and the percentage of ED costs that are related to those presentations (52%).. Admitted ED presentations accounted for approximately 30 per cent of all presentations and between 35 and 51 per cent of ED costs. This demonstrates the significant cost difference between admitted and non-admitted ED presentations, with some notable variations across jurisdictions

There is variation across jurisdictions in the ratio of admitted to non-admitted average cost (figure 7). Tasmania has the highest ratio with admitted presentations costing 3.2 times non-admitted presentations (Figure 7). WA has the smallest ratio at 1.5 times. Due to this variation, some jurisdictions have above average cost for admitted presentations but below average cost for non-admitted. For non-admitted presentations, WA has the highest cost at $577 and NSW has the lowest cost at $377. For admitted presentations, ACT has the highest cost at $1,586 and Victoria has the lowest cost at $857.

Figure Emergency department ratio of average cost admitted to non-admitted presentation, jurisdiction



## Cost bucket and line item costs

The increase in average cost per presentation between Rounds 18 and 19 was driven by increases in the nursing salaries and wages, and goods and services line items (Appendix 18). The increase in nursing salaries and wages was driven by all but one jurisdiction, with only NSW reporting a small decrease. Five jurisdictions reported increases in goods and services, NT reported the largest increases with 163 per cent.

Similar to admitted acute, salaries and wages costs in ED account for 66 per cent of total ED expenditure (Table 15). The three largest line items are all salaries and wages related, being medical, nursing and other. Medical and nursing are significantly higher than the remaining line items, collectively accounting for 50 per cent of costs. However, unlike in admitted acute, medical salaries and wages are higher than nursing in ED.

Seventy per cent of ED costs fall in to the ED cost bucket (Appendix 17) the remaining costs are in the imaging, on-costs and pathology cost buckets.

Table Round 18 and Round 19 ED average cost by line item, national



# Non-admitted service events

Non-admitted care in scope for Round 19 includes all patients who attended a non-admitted clinic at a public hospital during 2014-15. In this Report community, mental health service events are reported in the non-admitted chapter. With the introduction of the Australian Mental Health Care Classification, these service events will be reported under the mental health stream in future years.

Non-admitted activity accounts for the majority of unique patient encounters in public hospitals in Australia. In this report, non-admitted activity is reported using the Tier 2 classification Version 3. The Tier 2 classification is assigned by the hospital and reflects the type of clinic the patient has visited. Unlike other classification systems, no diagnosis or procedure codes are used when assigning a class.

## Overview

Table 16 summarises the Round 19 non-admitted NHCDC results including that:

* 268 hospitals participated;
* expenditure increased by 3.4 per cent;
* there were 17.2 million service events;
* costed service events increased by 7.4 per cent; and
* the average cost of a service event was $272.

Table Round 17 to Round 19 Non-admitted summary, national



## Participation

The number of hospitals submitting non-admitted cost data in Round 19 was 268, a reduction of 71 hospitals. This reflects Queensland’s decision to submit only cost data that linked with ABF activity data. South Australia submitted non-admitted cost data for the first time for all their participating hospitals. NSW, Victoria and WA also increased the number of hospitals submitting non‑admitted cost data (Appendix 21).

## Expenditure

Despite the material decrease in number of hospitals reporting to the collection in Round 19, non-admitted expenditure captured in the NHCDC increased by 3.4 per cent to $4.67 billion and the number of service events costed increased by 7.4 per cent. The number of services events reported in Round 19 was 17.2 million, which is 1.2 million more service events than were reported in Round 18. Though significant, this is a reduction in the growth rate compared to the prior Round, which saw expenditure and service events increase more markedly by 9.4 and 19.6 per cent respectively.

In Round 19, jurisdictions that increased their total number of services events include NSW, Victoria, ACT and Tasmania with Victoria the biggest mover at 19.0 per cent (Table 17). NSW submitted 38 per cent of national service events and 29 per cent of non-admitted costs. South Australia submitted data for the first time previously they have not been able to cost patient level activity and link this to activity data. The NT remained unchanged, while Queensland and WA reported decreases in activity with Queensland reducing by 27.5 per cent.

Table Round 18 and Round 19 Non-admitted summary, by jurisdiction



All jurisdictions, with the exception of the NT and Tasmania, had a consistent change in their total expenditure when compared to movements in total service events. The NT reported a marked reduction in expenditure while maintaining consistent volumes in service events. The change is primarily due to treatment of costs between Rounds for Specialist Mental Health Clinics, which resulted in their total expenditure to reduce by 8.3 per cent. Also of note in Round 19, ACT submitted over 305,000 community mental health service events, with costs of over $40 million dollars. These service events although counted in the total non-admitted activity are not classified using the Tier 2 classification system (Appendix 20).

At the national level, two jurisdictions (Queensland and SA) accounted for the majority of change in both total expenditure and number of service events. The reduced expenditure and service events from Queensland had a material effect at the national level. Compounding this, Queensland also implemented changes in admission practices over Round 19 that resulted in a decrease in total volume of non-admitted service events and expenditure with a corresponding increase to separations and expenditure in the admitted streams. The total reduction by Queensland was directly offset by SA, which contributed non-admitted data to the collection for the first time.

## Average cost

The average cost for non-admitted service events is the lowest of all streams, with $272 per service event in Round 19. The primary driver for this is the generally low levels of resource utilisation during non-admitted service events.

Table Round 19 Non-admitted average cost per non-admitted service event, jurisdiction



The total average cost has continuously decreased over the last three Rounds from $308 in Round 17 to $272 in Round 19 (Appendix 21). In each Round, the primary driver to this decline has been a result of major changes in participation by jurisdictions. Between Rounds 18 and 19, the cost of a non-admitted service event decreased by 3.7 per cent (Table 18). Figure 8 shows the variance across jurisdictions of the average cost of non-admitted service events.

Figure 8 Round 19 Non-admitted average cost per service event by jurisdiction



Across the nation, all jurisdictions average cost in the Round decreased, with Tasmania reporting the biggest decrease at 23 per cent. NSW, Victoria, Tasmania and the ACT all had an average cost below the national average, NT reported the highest average cost at $445.

## Cost bucket and line item costs

Review of the cost components that make up the total national average cost shows that the national decrease in Round 19 of 3.7 per cent was driven by decreases in the ward supplies, pharmacy, non-clinical and nursing costs and almost entirely associated to the reduced average cost of Queensland hospitals. Furthermore, changes to Queensland’s admission policy resulted in a number of service events that were previously classified as non-admitted medical oncology to be treated in the acute admitted setting. The reduction in high cost drugs for chemotherapy had a material impact in reducing the average cost of pharmacy. WA also had a material effect to the national average pharmacy costs as they reduced their reporting of pharmacy expenditure by 46.4 per cent. This is summarised in Table 19 below and in Appendix 23.

Table Round 18 and Round 19 Non-admitted average cost per line item national



Table 19 shows the four largest line items are all salaries and wages related, being medical, nursing, allied and other. Individually, each of these four account for over 10 per cent of non-admitted costs, with nursing being the largest at 18 per cent. Collectively, supplies (medical and goods and services) and pharmacy account for a further 22 per cent of costs. Across the nation, each jurisdiction consistently reported either salaries and wages, goods and services, or pharmacy line items in their three highest cost line items (Appendix 23).

Table NHCDC Round 18 and Round 19 Non-admitted average cost per cost bucket



## Tier 2 class variation

Of the 17.2 million service events reported for non-admitted in Round 19, 408,191 did not have a valid Tier 2 class, as identified in the Tier 2 table at Appendix 20. The excluded records were submitted with an error or missing Tier 2 class. The bulk of these service events (305,115) are mental health service events reported by ACT with no Tier 2 class. In Round 18 ACT had submitted a similar number of service events using Tier 2 class 40.34 Specialist Mental Health.

Table Round 18 and Round 19 Tier 2 classes (grouped) summary, national



The 139 Tier 2 classes are structured into four groups, procedures; medical consultation services, diagnostic services, and allied health and/or clinical nurse specialist intervention services. Consistent with results in Round 18, the bulk of service events, 47 per cent, were classified as medical consultations (8.0 million) and 41 per cent were nurse/allied health led service events (6.9 million).

The 30 series clinics (diagnostic services) reduced by 42 per cent was a result of Queensland not submitting non-ABF funded facilities, where diagnostic services, including blood test, imaging and pathology services are a primary service provided by hospitals to the communities that they serve. The 36 per cent increase in procedure class service events was a combination of changes to costs submitted by NSW and the first South Australian NHCDC submission.

Between Rounds 18 and 19, there was a three per cent decrease in the average cost per Tier 2 clinic. The number of clinics which had less than 10 per cent movement in either the number of service events or the average cost increased from 64 to 75. This represented about 60 per cent of total expenditure in Round 18 and 65 per cent in Round 19.

Even with 65 per cent of service events having a less than ten per cent variance there was still considerable movement across most Tier 2 classes. On closer review, the changes introduced by Queensland, the inclusion of SA and increased participation by NSW, as detailed above, affected results for numerous clinics. In particular, medical and radiation oncology, psychiatry, endocrinology and general imaging.

# Subacute andnon-acute services

Subacute and non-acute care in scope for Round 19 includes all patients who received subacute or non-acute care at a public hospital during 2014-15.

This care is classified using Australian National Subacute and Non-acute Patient Classification Version 4 (AN-SNAP) and includes all separations with a care type of rehabilitation care (care type ‘2’), palliative care (care type ‘3’), geriatric evaluation and management (GEM) (care type ‘4’), psychogeriatric care (care type ‘5’) or maintenance care (care type ‘6’).

## Overview

Table 22 summarises costs submitted using the subacute care types in Round 19 including that:

* 331 hospitals participated;
* $2.3 billion of costs were submitted; and
* activity and cost increased by 3 per cent.

Table Round 17 to Round 19 admitted subacute summary, national



## Participation

The subacute stream has 331 hospitals reporting costs in Round 19, this is a decrease of four hospitals and is a similar number of hospitals to the acute stream.

Four jurisdictions had changes in the number of reported hospitals (Table 23). Queensland reported the highest number of hospitals at 119, equivalent to 36 per cent of all participating hospitals. Queensland hospitals however, represented a proportionally smaller percentage of total activity and expenditure, reported as 24 per cent of activity and 23 per cent of expenditure.

Table Round 18 and Round 19 admitted subacute comparison by jurisdiction

 

## Expenditure

National expenditure in Round 19 was $2.3 billion, an increase of 3.0 per cent, $66 million dollars, over Round 18. Between Rounds 18 and 19, subacute expenditure and activity moved inline, both increasing by 3.0 per cent respectively.

The three most populous jurisdictions contribute the bulk of expenditure, collectively accounting for 80 per cent of national expenditure (Appendix 24). NSW reported 32 per cent of subacute expenditure, with $733 million. Rehabilitation is the product type with the largest expenditure, with $1.1 billion reported in Round 19, accounting for half of total subacute expenditure. Psychogeriatric reports the lowest expenditure with $51 million.

NSW and Victoria contributed the largest increases to expenditure with both jurisdictions reporting increases of $31 million (Table 23). WA, NT and ACT reported decreases in expenditure totalling $27 million of which WA contributed a decrease of $21 million, this was due to the large reduction in expenditure submitted in rehabilitation.

Figure 9 identifies the impact that each jurisdiction had in each of the subacute care types. Specifically that WA had a greater than $25 million reduction in reported rehabilitation costs.

Figure Subacute care types change in expenditure from Round 18 to 19, jurisdiction



Nationally all product types reported increases in expenditure with maintenance reporting the largest increase, contributing $29 million of the $66 million increase. NSW reported the largest increase in maintenance expenditure with $25 million. Victoria, SA and NT reported decreases in maintenance expenditure with SA the biggest contributor at $5.8 million.

There were 172,317 costed separations in Round 19, a 3.0 per cent increase on Round 18. Across the nation, NSW contributed the most separations, with 62,055. All jurisdictions, except WA reported increases in activity between Rounds 18 and 19. NSW and SA were the biggest contributors to the increase, which more than offset the large decrease by WA. Table 24 summarises the changes in subacute care between Rounds 18 and 19 by product type.

Table Round 18 and Round 19 subacute summary, by type, national



Consistent with the prior Round, rehabilitation was the product type with the most separations, with 91,252 reported in Round 19, accounting for 53 per cent of total activity. This includes over 33,000 same day rehabilitation separations reflecting the differing modes of care. The second largest products are GEM and palliative care each account for 17 per cent of activity.

## Average cost

The average cost for subacute separations in Round 19 was $13,193. The primary driver for the cost per separation is the long length of stay for subacute separations, with the average being 13.0 days. Despite a reduction in ALOS of 2.4 per cent, the average cost remained unchanged between Rounds. This is in contrast to Rounds 17 and 18, where average cost increased by 7.4 per cent.

Table 25 summarises the ALOS and average cost by jurisdiction between Rounds 18 and 19.

Table Round 18 and Round 19 admitted subacute comparison, jurisdiction



Across the jurisdictions the relatively low numbers of separations can lead to volatility in the average cost. However, the average cost for four of the five product types are within 18 per cent of the total average cost, ranging from palliative care at $10,753 to GEM at $15,613.

These four product types had relatively lower changes in average cost with palliative care and rehabilitation decreasing by 2.2 per cent and 2.6 per cent, respectively, and GEM and maintenance increasing by 6.8 per cent and 0.6 per cent, respectively.

The remaining product type, psychogeriatric, is almost three times the total average cost at $36,878, primarily due to its long ALOS at 26.3 days, which was double the national ALOS. Psychogeriatric is also the product with the largest change in average cost between Rounds with 43 per cent. The magnitude of this change is due to the small number of psychogeriatric separations, which can result in some volatility between years.

In Round 19, as in Rounds 17 and 18, only NSW reported palliative care data costed at the phase level. In this report, the AN-SNAP table reports phase level information, whereas the remaining subacute tables aggregate the NSW data to the separation level.

Appendix 25 shows the number and average cost of subacute phases/episodes by AN‑SNAP class.

## Cost bucket and line item costs

Although average cost was stable between Rounds 18 and 19, some reallocation of costs across line items was reported. Depreciation for buildings has the biggest change, with the average cost per separation increasing by $74 to $288. Similarly, Allied Health and Other also increased by $39 and $49, respectively. These main contributors to growth in average cost were almost entirely offset by reductions in Hotel, and Nursing and Medical Salaries & Wages line items, which decreased by $25, $21 and $71 respectively.

Salaries and wages costs account for 71 per cent of subacute expenditure. The three largest line items are all salaries and wages related, being Nursing, Other and Medical. Nursing was significantly higher than the remaining line items, accounting for over a third of all costs. Goods & Services is the highest cost non-salaries and wages line item, accounting for 8.3 per cent of total costs.

All jurisdictions report Salaries & Wages – Nursing as the highest cost line item, followed by other salaries and wages line items or Goods & Services (Appendix 27).

Table Round 19 Subacute average cost per line item



Table Round 19 subacute average cost per cost bucket



The high line item cost of salaries and wages translates in to the Ward Nursing cost bucket holding 34.1 per cent of subacute costs (Table 27). The next three highest cost buckets consist predominantly of Salaries & Wages, Ward Medical, Allied Health and Non-Clinical. This is consistent across all jurisdictions (Appendix 27).

# Other costed products

This chapter reports on a group of product types that are grouped together as ‘Other’, which includes hospital boarders, posthumous organ procurement, teaching, training and research and other.

## Overview

The number of hospitals reporting Other data in Round 19 was 193, a decrease of five from Round 18. This is set out at Table 28, which shows that expenditure submitted for Other episodes totalled 51.6 million in Round 19, two thirds of the Round 18 figure. Activity also decreased between Rounds by 7.0 per cent.

Table other product types summary, national



Both NSW and Queensland reported larger changes to their Other data between Rounds 18 and 19 (Appendix 28). NSW made a significant change to their approach of costing organ donation. For Round 19, the costs associated with each organ donation were compiled centrally and distributed to the organ donor LHD/SHN for inclusion. This means that that full cost for organ donation is now reported.

The reduction of remote hospitals reported by Queensland has resulted in a reduction of activity and cost for Other episodes. This was a reduction of over $20 million and accounted for the majority of the change reported.

## Organ procurement

Organ procurement costs from 45 hospitals were reported in Round 19, an increase of eight hospitals over Round 18. There were 196 costed episodes in Round 19, 23 more than in the prior Round. National expenditure in Round 19 was $3.7 million, more than double the Round 18 figure. NSW was the primary driver of this increase, reporting a $1.9 million increase and contributes the bulk of expenditure, accounting for 61 per cent of national expenditure. This increase was due to a new approach to how NSW costed organ procurement, ensuring that all costs were allocated to the organ donor.

The average cost for organ procurement episodes in Round 19 was $18,828 and 84 per cent higher than that reported in Round 18. This large increase is due to changes introduced by NSW that reported an average cost of $35,945 which almost double the national average.

Table Organ procurement average cost per separation by cost bucket, national



Breaking down the total average cost by cost bucket it can be seen that the operating room and ward nursing cost buckets accounting for over half of the average cost per separation.

Although Operating room has had the highest cost since Round 17, Ward nursing was a relatively low cost in previous Rounds, but had a significant increase in Round 19. The increase in Ward nursing average cost from $27 to $4,678 accounts for over half of the total increase in Organ procurement average cost. The other cost buckets which had big changes are Ward Medical, Ward Supplies and Pharmacy. Collectively, these four cost buckets account for 97 per cent of the increase. All these increases are due to NSW, the remaining jurisdictions all report Operating Room and Critical Care as the cost buckets with highest cost.

## Boarder costs

Boarder costs from 153 hospitals were reported in Round 19, an increase of three hospitals over Round 18. There were 23,004 costed episodes in Round 19, 1.5 per cent more than in Round 18. Only WA reported a decrease in activity with 10 per cent fewer episodes between Rounds 18 and 19. Queensland reported the largest increase with the number of episodes increasing by 1,403. Queensland and WA contribute the bulk of activity, collectively accounting for 99 per cent of episodes. Queensland reported 12,674, which represents 55 per cent of national activity.

National expenditure in Round 19 was $10.8 million, 20 per cent higher than the Round 18. Queensland was the primary driver of this increase, reporting a $2.2 million increase, in line with their increase in activity.

The average cost for Boarder episodes in Round 19 is $471, which is 18 per cent higher than Round 18. This increase was driven by Queensland, which reported a 27 per cent increase in average cost.

# Data quality statements

## New South Wales

### Overview

The NSW Round 19 2014/15 NHCDC is based on the NSW District and Network Return (DNR). Guidelines for preparing, quality checking and submitting the DNR are published in the NSW Cost Accounting Guidelines (CAG), which incorporate Version 3.1 of the Australian Hospital Patient Costing Standards.

The DNR is prepared and submitted by each of the 15 Local Health Districts and 3 Specialist Health Networks (LHD/SHNs). In NSW, financial results are reported at the LHD/SHN level and not at the hospital level.

The DNR includes all products for all LHD/SHNs and reconcile to the published financial results. On submission to ABF Taskforce, the LHD/SHN DNR’s are consolidated and formatted to comply with the NHCDC dataset specifications. ABF Taskforce includes the Work in Progress (WIP) expense from previous Rounds prior to submission to IHPA and no adjustments are made to the DNR’s submitted by the LHD/SHN’s.

The DNR is a single submission used to satisfy reporting requirements for the NHCDC, Public Hospital Establishment Collection, Mental Health Establishment National Minimum Dataset and the Health Expenditure submissions. This facilitates reconciliation across all reporting requirements.

### Coverage

NSW submitted patient level data for all hospitals considered in scope for ABF for 2015/16, a total of 97 hospitals.

Only patient level data is submitted by NSW Health. No aggregate Non Admitted Patient or TTR products are submitted for the NHCDC.

Only General Fund expense is allocated at the patient level in the DNR. Restricted Asset Fund expenditure is included but not allocated at the patient level in the DNR. Custodial Fund expenditure is not included in the DNR.

### Data quality

Data quality processes for Round 19 were further developed on the Round 18 initiatives. An additional three (3) validations were included in the PPM2 DNR Module to flag low cost encounters and short stay high cost encounters.

The DNR draft submission period enables LHD/SHNs to assess the reasonability of aggregate cost results when compared with peer hospitals.

Patient level data quality checks are performed in the draft submission period. The patient level data quality checks were further expanded from Round 18, with a number of checks attracting a score. The data checks were again informed by the IHPA National Efficient Price Determination Technical Specifications as well as the Round 19 NHCDC Quality Assurance checks.

A web based tool, the RQ App (Reasonableness and Quality), is utilised during the DNR draft submission period to enable LHD/SHNs to access the aggregate results and the patient level data quality checks. The RQ App is refreshed nightly, with results accessible the next working day after a submission. Issues were corrected and the DNR rerun and resubmitted.

During the draft submission period, teleconferences were held separately with each LHD/SHN Chief Executive to review the draft submission to highlight any material movements in average cost or data quality issues requiring further investigation or remediation. These teleconferences greatly assisted in the timely analysis of Round 19 cost results.

### DNR audit program

A mandatory audit program was developed by ABF Taskforce to be completed by LHD/SHN Internal Audit teams for the 2014/15 DNR. Completion of this audit program is now part of the ‘Conditions of Subsidy’ and is included in the LHD/SHN Service Agreement with the Secretary, NSW Health.

The audit objective is to ensure the DNR is fit for purpose and provides consistent and accurate patient data and is addressed through three lines of inquiry:

1. Is financial and patient data reliable and accurate?
2. Are costing methodologies used appropriate and robust?
3. Does the preparation of the DNR comply with NSW Cost Accounting Guidelines?

LHD/SHN DNR Audit Reports were submitted to local Audit and Risk Committee Board Subcommittees.

LHD/SHN Chief Executives were required to submit an Attestation Certificate to the Secretary NSW Health upon completion of the DNR Audit Program.

ABF Taskforce engaged a third party to undertake a peer review of six LHDs to identify any Audit Program implementation issues. No major issues were identified with the program.

### Technical issues

Costing frequency – the DNR is submitted twice yearly by LHD/SHNs to ABF Taskforce. July to December is submitted in mid-March and July to June is submitted in mid-October.

Teaching, Training and Research Costs – Considerable effort was deployed to improve the allocation of costs for Teaching, Training and Research products for Round 19. The list of inclusions and exclusions for Teaching and Training in particular was refined following consultation with key LHD/SHN stakeholders. Additional analysis of average costs per clinical FTE was undertaken during the draft DNR submission period. This analysis included a workshop with representatives from LHD/SHNs participating.

AN-SNAP Palliative Care Phases – NSW costs and reports Palliative Care episodes at the Phase level and not the episode level.

Blood costs – The NHCDC reports on the State share of blood costs as this is the expense that is distributed to and reported in the LHD/SHN financial statements.

Professional Indemnity costs – This expense is held centrally by NSW Health and is not distributed to the LHD/SHNs. It is therefore not reported in the financial statements. To ensure compliance with AHPCS SCP 2.003 Expenditure in Scope, this expense is distributed to LHD/SHNs and added to the general ledger loaded into PPM2. This adjustment is noted in the LHD/SHN reconciliation scheduled that is submitted as part of the DNR.

S100 drug costs – the expense associated with S100 drugs are not linked and included to the relevant non-admitted patient level service event. The NSW DNR CAG standard requires all S100 drug costs to be reported separately. This deviation from the Australian Hospital Patient Costing Standards has been necessary due to the relatively recent move from aggregate to patient level non-admitted patient data collection and the staged rollout of the statewide pharmacy system.

WIP – work in progress encounters were included in Round 19 where the admission year was either Round 17 or Round 18. The inclusion of the Round 17 and/or the Round 18 cost components of the encounter was undertaken by ABF Taskforce.

Critical Care – many critical care services in NSW have the critical care and the step down beds in the one ward. Examples of this include ICU/HDU, CICU/CCU. Typically these services have one cost centre and one ward set up in the Patient Administration System (PAS) with two or more bed types to distinguish the ICU hours /beddays separately to the HDU hours/beddays. The bed type is used to calculate ICU hours.

The final cost allocation reflects appropriate nursing ratios such as 1:2 for ICU/HDU patients. In some instances where a patient only has HDU hours, the cost centre will map to Critical Care, but there will be no ICU hours. Additionally, only facilities with Level 3 ICUs will map their cost centre to Critical Care, even though locally they may use the ICU bed type.

Medical Cost Allocation – Visiting Medical Officer expense is not allocated to private patients in the DNR. Staff Specialist costs are allocated to both public and private patients with no adjustments.

Hosted Services – a number of LHDs have hosted service arrangements in place. These are for services such as IT. Where appropriate, the expense associated with these services is adjusted for both the Host LHD and the Hosted LHD. This adjustment is noted in the LHD/SHN reconciliation schedule that is submitted as part of the DNR.

### Cost methodology changes

Organ Donation - In Round 19, NSW implemented a major change to the cost allocation methodology for organ donor encounters. Previously the costs associated with organ donation were held in up to four separate general ledgers as the three retrieval teams and the coordination service are in separate LHD/SHNs.

For Round 19, the costs associated with each organ donation were compiled centrally and distributed to the organ donor LHD/SHN for inclusion. This means that that full cost for organ donation is now reported.

## Victoria

### Business rules

The Victorian submission to the Round 19 (2014-15) NHCDC submission is based on the 2014-15 Victorian Cost Data Collection (VCDC).

The Business Rules for the VCDC collection are published annually by the Department of Health and Human Services, Victoria and provides guidance to health services in the costing and reporting of patient level cost data to the VCDC (http://www.health.vic.gov.au/hdss/vcdc/index.htm).

The VCDC business rules ensure that the submission from Health Services complies with:

* the VCDC File Specifications
* the Australian Hospital Patient Costing Standards v3.1 - **excluding standards** relating to Depreciation (DEP 1.002, 1A.002,1B.002,1C.002 1D.002 and 1E.002), Teaching (SCP 2A.003),Research (SCP 2B.002) and Cost 3A.002 – Allocation of Medical costs for private and public patients.

The patient demographics that are linked to the cost data collection are collected based on the specifications outlined in the following manuals:

* Victorian Admitted Episodes Dataset (VAED) manual 24th Edition (Admitted)
* Victorian Emergency Minimum Dataset (VEMD) manual 19th Edition (Emergency)
* Victorian Integrated Non-Admitted Health Minimum Dataset (VINAH) manual Version 10 (Non-admitted)

These patient demographics are then converted to the relevant national minimum dataset or IHPA dataset specification based on the Department of Health and Human Services, Victoria’s interpretation of the specifications.

Scope

The number of hospitals that report to the NHCDC can vary from year to year due to the timing of the submission date required by the IHPA. This has resulted in the following exclusions/inclusions between 2013-14 and 2014-15.

Campuses that reported in 2014-15 and not 2013-14 were:

* 210502060 Central Gippsland Health Service
* 210201101 East Grampians Health Service
* 210301260 Kyabram & District Health Service
* 210305010 Castlemaine Health
* 210301351 Maryborough District Health Service

Due to technical difficulties experienced at the health service, 210A01550 Peter MacCallum Cancer Institute reported only 6 months data.

Victoria reports the following contact account classes to the NHCDC:

* MP - Public Eligible
* MA - Reciprocal Health Care Agreement
* MV - Public Eligible: VACS-funded Outpatient
* MG - Public Eligible: Specified-grant-funded Outpatient
* VX - Department of Veterans' Affairs (DVA)

### Limitations of Round 19 NHCDC data:

The following limitations of the Round 19 (2014-15) NHCDC data for Victoria should be noted:

Direct Teaching, Training and Research (TTR) - Victorian hospitals have only excluded TTR costs that were associated with Research Special Purpose Funds. Where teaching and training cannot be separated from routine work undertaken, it has been included as a salary and wages expense. Where teaching and training can be discerned from other activities, it was allocated as an overhead.

Work in Progress – Only patients who were discharged during the reporting year (1 July 2014 – 30 June 2015) were included in the Round 19 submission. Cost incurred by these patients in the prior year was also included in the reported Round 19 total costs.

Blood products in the Round 19 NHCDC submission – Blood products are not included in the hospital general ledger as they are paid by the department. However, there may be a small insignificant amount of costs for recombinant blood products included at some hospitals.

Changes to costing or admission policies between Round 18 and 19 NHCDC collections - There was no significant change to costing or admission policies from Round 18 to Round 19.

Ancillary Costs for private patients – The majority of Victorian Health Services include ancillary costs for private patients in their NHCDC submission with the exception of:

Northern Health (Private patient pathology and radiology costs are excluded from the VCDC)

* Barwon Health (Private patient pathology costs are excluded from the VCDC)
* Ballarat Health (Private patient pathology and radiology costs are excluded from the VCDC)
* Peninsula Health (Private patient pathology costs are excluded from the VCDC)
* Western Health (Private patient pathology costs are excluded from the VCDC)
* Alfred Health Caulfield Campus (Private patient radiology costs are excluded from the VCDC)

### Limitations with the activity data linked to the cost data:

The following limitations have been identified in respect to the activity data that is linked to the cost data:

ICU Hours – Where ICU and CCU coexist, Victoria is unable to distinguish the time spent in a CCU or ICU.

PICU Hours and NICU Hours – PICUs are located at Monash Medical Centre, and the Royal Children's Hospital only. NICUs located within four Victorian hospitals - Mercy Hospital for Women, Monash Medical Centre, Royal Women’s Hospital and the Royal Children's Hospital. However, where a patient spends time in a PICU and NICU, Victoria is unable to distinguish PICU from NICU hours.

PysICU Hours – Victoria does not collect the amount of time measured in hours that a patient spends in a state of psychosis while in an ICU.

Mechanical ventilation hours – Victoria only collects the total duration of Mechanical Ventilation (MV) in hours provided in an approved ICU or NICU only. MV hours provided in a non-approved ICU are not collected.

Mental Health Legal Status – Only patients in Approved Mental Health Service or Psychogeriatric Program in public hospitals whose care is funded by Mental Health Services can report the status. Patients in all other care types, report the ‘not applicable’ code.

## Queensland

### Context

Guidelines for preparing cost data are published in the Queensland Clinical Costing Guidelines (QCCG). It is a supplementary document to the Australian Hospital Patient Costing Standards (the Standards) and is a guide to the Hospital and Health Services’ (HHS) costing teams in the application of the Standards within the technical environment of the costing system/s used within Queensland Health.

Costing data is prepared for 16 Hospital and Health Services. Once finalised by the Hospital and Health Service the reconciliation is undertaken and the data transformed into the National Hospital Cost Data Collection (NHCDC) specification format. All data are validated, by the Department of Health and the Hospital and Health Service prior to submission to IHPA.

The following is the range of data quality issues that have been identified for Round 19 of the NHCDC.

### Data submission

Of the 235 facilities cost data held by the Department of Health, 123 were submitted as part of the NHCDC in Round 19, a reduction of 97 facilities from Round 18. These excluded facilities accounted for 5.2% of the State episodes and 2.2% of costs and are out of scope for the National Efficient Price determination.

### Mental health services

In Round 19 a new feeder system for mental health services was implemented. Forty four facilities commenced intermediate product costing at patient level for community mental health services. For Round 19 when the service was provided the standard encounter linking business rules were applied to link the service to the encounter in an inpatient, emergency or outpatient setting.

### Unlinked diagnostic data

Pathology, Imaging and Pharmacy data that was not able to be matched or linked through the data matching process has been excluded from the NHCDC. For Round 19 there are approximately 258,000 unlinked utilisation records which account for $88M of cost. This should be taken into consideration when comparing the costs of the diagnostic clinics between Rounds.

### Depreciation

It was identified that a portion of depreciation cost had been bundled into goods and services in the previous Rounds. This has been corrected for Round 19, with the costs separated and reported correctly as overhead depreciation. This has resulted in an increase (approximately $77M) in overhead depreciation costs compared to Round 18.

### Blood products

Blood product costs are included in the patient level costing for Round 19.

### Teaching, training and research

Direct costs for teaching, training and research have been mapped to their respective products. Teaching in the course of patient care is included in the patient products.

### Corporate costs

No adjustments have been made for corporate costs in Round 19.

### AN-SNAP episode costing

Queensland costed sub and non-acute patients at the episode level for Round 19.

### Other issues identified

The following issues in Round 19 do not have a significant impact on overall cost outcome(s) but are noted here for completeness.

[1] The use of an aggregate patient product instead of costing an available patient level cost product is <0.01% of costs for activity based funded facilities.

[2] Cost records with zero RVU comprise less than 0.018% of records.

## South Australia

### Participation and coverage

South Australia's 2014-15 cost data is produced by the Department for Health and Ageing (DHA) using one instance of the patient costing system. The maintenance of the patient costing system and the processing of data are undertaken centrally by staff within the DHA based on advice from Local Hospital Network (LHN) representatives and in accordance with the Australian Hospital Patient Costing Standards v3.1.

As per Round 18, cost data for eight metropolitan hospitals and six large country hospitals were submitted in Round 19. Stand-alone designated mental health hospitals and rehabilitation hospitals are not included in the South Australian cost data.

The data were extensively reviewed by the DHA staff, in conjunction with the LHNs and signed off by the LHNs, before submission to the National Hospital Cost Data Collection (NHCDC). The costing data was subjected to considerable scrutiny, with appropriate corrections and resubmissions as required to ensure that it was fit for this purpose.

### Teaching, training and research

Teaching, Training and Research (TTR) direct costs are not reported at the patient level, however they are reported in the reconciliation. TTR costs have been treated in compliance with the Australian Hospital Patient Costing Standards v3.1.

### Blood products

Blood product costs were not included in the cost data submitted.

### Work in progress

In the patient costing process, all work in progress is costed, however only work in progress for patients that were admitted prior to 1 July 2013 and discharged during 2014-15 were submitted. As directed by IHPA the escalation factor was not applied to all work in progress records.

### Changes to costing or admission policies between Round 18 and 19 NHCDC collections

South Australia produces patient level costing data for inpatient, outpatient and emergency department services. For the first time outpatient cost data has been submitted based on the patient level data available and noting that the patient level data only covers 80% of the outpatient services.

There were no material changes in the costing process except for work undertaken with outpatients to ensure that the correct level of activity by clinic was reported and costed.

As in previous years SA has not complied with costing standard 3A.002 – Allocation of Medical Costs for Private and Public Patients. Only medical costs that are reported in the hospitals operational accounts have been included in the costing process. Public and private patients are treated the same in the allocation of medical costs.

There was no change to the admission policy between the two Rounds.

### Other

South Australia has a common chart of accounts and one general ledger from which each hospital's financial data is extracted for processing. Other data is also sourced from central data collections were possible and with LHNs providing the balance of necessary data to permit accurate cost attribution.

In addition, costs for centralised services such as ICT and procurement are included in the patient costing process.

Ancillary costs for private patients are included except for pathology because the hospitals are not charged for these services.

Pathology services are provided to the hospitals by SA Pathology and hospitals are charged for the services provided to public patients but this does not cover the full cost of the service. An additional loading is applied to the hospital's pathology cost to reflect full cost of the service.

The costing data submitted has been reconciled to the Public Hospital Expenditure (PHE) with work continuing to minimise the variation between the two data sources.

## Western Australia

### Participation and coverage

Western Australia (WA) contributed patient level data for thirty-five public hospital sites for Round 19 of the National Hospital Cost Data Collection (NHCDC). All hospitals, with the exception of Fiona Stanley Hospital (FSH), that are considered in scope for Activity Based Funding are currently part of the NHCDC submission for WA.

FSH data was withheld from Round 19 due to the hospital opening during the 2014/15 year with a staggered uptake of services. The transition of services to FSH also impacted the casemix and service provision of the other hospitals in the South Metropolitan Area Health Service.

### Data quality

Round 19 was the third year Power Performance Management 2 (PPM2) was used by the Area Health Services (AHS) in the preparation of the costing submissions for all sites. Work has been ongoing in terms of data quality and standardisation and all NHCDC submissions were completed in compliance with Version 3.1 of the Australian Hospital Patient Costing Standards (the Standards). Data submissions were extensively reviewed by the Area Health Services, prior to official sign off and submission to the Department.

On submission to the Department, the AHS submissions were tested and reconciled with AHS corrections and resubmissions being made if required. The Department then made adjustments to the data including incorporating Work in Progress (WIP) from previous Rounds, before the data was consolidated and formatted in accordance with IHPA specifications. Data matching and validation also occurred to ensure the costed datasets aligned with the activity data submitted to IHPA for other patient collections.

### Products costed

WA has provided its most extensive NHCDC submission with patient level coverage of Inpatient, Emergency and Non Admitted patients in accordance with the IHPA data specifications. For a significant number of participating sites Admitted Emergency Department costs still formed part of the Acute Inpatient costings. This is changing as WA sites adopt a new Patient Administration System that enables the disaggregation of these costs. WA’s Outpatient activity was predominantly costed at a patient level however work is continuing on disaggregating and costing the small amount of activity that remains non patient costed.

All WA hospital submissions were reconciled to total accrued operating expenditure as per the audited financial statements with a reconciliation statement supplied for each site.

For Round 19, Teaching and Research costs were identified by site and allocated at a patient level for the purpose of local management use. In accordance with the relevant Standards these costs were removed from the costing submission but identified in the reconciliation process.

Costs of corporate services including payroll, human resources and information technology are allocated at an Area Health Service and hospital level and included in the submission.

Blood product costs are managed by the department and not included in the Round 19 submission.

Costs of ancillary services including pathology, imaging and pharmacy, that have not been able to be linked to patient episodes have been costed but excluded from the submissions.

Only costs for those patients that were discharged in the reference year (2014/15) were included in the Round 19 submission. These included costs incurred in 2012/13 and 2013/14. End of year work in progress, that is, patients admitted during the reference year but not discharged during that year are fully costed and will form part of future submissions. No escalation has been applied to the prior year work in progress.

There were no significant changes to admission or costing policies between the two Rounds however work is ongoing to enhance the quality, accuracy and timeliness of the NHCDC data submissions.

## Tasmania

The Tasmanian Department of Health and Human Services (DHHS) submission to the Round 19 (2014-15) National Hospital Cost Data Collection (NHCDC) was produced centrally by the Casemix Strategy and Advice Unit, Purchasing, Planning and Performance, DHHS, in close consultation with the Tasmanian Health Service (THS). Costing for Round 19 was undertaken in accordance with the Australian Hospital Patient Costing Standards (the Standards) v3.1.

Tasmania submitted cost data for four major hospitals across the THS. It was considered that finance and activity data for the small rural hospitals was of insufficient standard to submit costs to Round 19.

In Round 19, Tasmania included Medical Salaries paid from cost centres outside the Hospital’s operational accounts, not incorporated in previous Rounds. This complies with COST 3A.002 of the Standards. This inclusion, combined with two major Enterprise Bargaining Agreements, resulted in a rise in the overall average cost.

### Ward nursing

Tasmania has implemented a process of linking nurse roster data to patient ward stay data to provide nurse salary costs on an hourly basis. This provides a far greater level of cost granularity at episode level and is considered a major improvement over previous Rounds.

### Corporate services

The costs of centralised services such as ICT, Human Resources and Costing, where not included in the hospital’s ledger, have been allocated to sites for inclusion in the patient costing process.

### Work in progress

Only those patients who were discharged during the reporting year (1 July 2014 - 30 June 2015) were included in the Round 19 submission. Costs incurred by these patients in the prior year were included in the reported Round 19 total costs at Cost Centre and Item level. Episodes admitted in the collection year but yet to be discharged were not included. The end-of-period work in progress activity was fully costed and will be included in the Round 20 submission.

### Teaching, training and research

Work was undertaken for Round 19 to better identify TT&R costs, in particular where it occurs in conjunction with the University of Tasmania Clinical School. TT&R costs are not allocated to patient level.

TT&R costs have been treated in compliance with SCP 2A.003 of the Standards v3.1.

### Blood products

Tasmania reports only the State share of blood costs in the NHCDC, as this expense is distributed to the THS sites. Blood costs were assigned to patients where appropriate. The cost of blood products supplied to private organisations is recorded in the THS general ledger but is considered out of scope for the NHCDC and not submitted.

### Diagnostic and pharmacy data

Pharmacy products are costed at gross value, including Highly Specialised Drugs and PBS items. Pharmacy data are linked according to the data matching rules. Where records are not matched they have been costed but considered out of scope and excluded from the NHCDC submission.

## Northern Territory

All public hospitals in the Northern Territory (NT) participated in the Round 19 National Hospital Cost Data Collection namely; the two referral hospitals – Royal Darwin and Alice Springs Hospitals as well as the three remote rural hospitals - Katherine , Gove & Tennant Creek Hospitals. This is the thirteenth costing study that the NT Department of Health has participated in.

The high cost of emergency medical inter-hospital transfers interstate continues to be an unavoidable cost of service provision to the NT which is not adequately represented in the National Efficient Price hence isn’t covered in the IHPA Pricing Framework. The uniqueness of the NT environment presents unique challenges which are incomparable to other jurisdictions in Australia such as remoteness, socio-economic disadvantage, burden of disease in the Indigenous population, sparse and low population count hindering adequate service provision/delivery.

Below is a three year summary of high cost interstate inter-hospital transfers from the principle referral hospitals in both Health Services.

### Royal Darwin Hospital - Top End Health Service

| Financial Year | Total Expenditure | Interhospital Transfers | Average Cost $ |
| --- | --- | --- | --- |
| 12/13 | $4,836,455 | 94 | 51,452 |
| 13/14 | $4,580,657 | 82 | 55,862 |
| 14/15 | $4,883,938 | 89 | 54,876 |

### Alice Springs Hospital Central Australia Health Service

| Financial Year | Total Expenditure | Interhospital Transfers | Average Cost $ |
| --- | --- | --- | --- |
| 12/13 | $1,603,947 | 309 | 5,191 |
| 13/14 | $1,830,411 | 315 | 5,811 |
| 14/15 | $1,725,773 | 277 | 6,230 |

The Round 19 costing study complies fully with the Australian Hospital Patient Costing Standards v3.1. All costs incurred by NT hospitals in the production of patient and non-patient products were submitted.

Changes to the NT costing study in Round 19 include:

* New allocation statistics were introduced in Round 19 to improve overhead allocation e.g. Floor Space, Headcount and Cleaning Frequency.
* Ambulance costs were allocated to specific patients using a flag in the activity data rather than spreading this cost evenly across all inpatients as was the case in Round 18.
* Blood Products were also allocated to specific patients using available service data unlike in Round 18 where these costs were allocated as part of the Goods & Services output across all inpatients.
* Improvements in the allocation of centralised overheads such as Building Depreciation & Maintenance due to availability of more detailed data from which allocation statistics were derived.
* Submission of opening Work in Progress (WIP) patients and costing of closing WIP patients escalated at a rate of 2.1% unlike in Round 18 where these were not included due to the implementation of a new costing system. Closing WIPS were however only costed but not submitted.

## Australian Capital Territory

Data Quality Statement not provided.

# Appendices

1. NHCDC Round 17 to 19 summary, actual, by jurisdiction and stream
2. NHCDC Round 17 to 19 Direct and Overhead Expenditure, actual, by stream
3. Cost weight tables AR-DRG Version 8.0, Round 19 (2014-15), national sample
4. Cost weight tables AR-DRG Version 8.0, Round 19 (2014-15), national estimated
5. NHCDC Round 17 to 19 admitted acute summary, actual, by jurisdiction
6. NHCDC Round 17 to 19 admitted acute summary, actual, by peer group
7. NHCDC Round 17 to 19 admitted acute cost bucket average cost per separation, actual, by jurisdiction
8. NHCDC Round 17 to 19 admitted acute line item average cost per separation, actual, by jurisdiction
9. NHCDC Round 17 to 19 admitted acute overnight and sameday, actual, by jurisdiction
10. NHCDC Round 17 to 19 admitted acute urgency of admission, actual, by jurisdiction
11. NHCDC Round 17 to 19 admitted acute same day and overnight, Indigenous and non-Indigenous, actual, by jurisdiction
12. NHCDC Round 17 to 19 admitted acute paediatric , actual, by jurisdiction
13. NHCDC Round 17 to 19 admitted acute geographic location, actual, by jurisdiction
14. NHCDC Round 17 to 19 admitted acute maternity DRGs summary
15. NHCDC Round 17 to 19 Emergency Department by jurisdiction
16. URG Version 1.4.3, Round 19 (2014-15)
17. NHCDC Round 17 to 19 emergency department cost bucket average cost per separation, actual, by jurisdiction
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19. Tier 2 Version 3, Round 19 (2014-15)
20. NHCDC Round 17 to 19 Non-admitted summary by Tier 2 class
21. NHCDC Round 17 to 19 Non-admitted summary by jurisdiction
22. NHCDC Round 17 to 19 non-admitted cost bucket per service event by jurisdiction
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24. NHCDC Round 17 to 19 subacute summary care type, by jurisdiction
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1. The Care Types are defined in the Australian Institute of Health and Welfare (AIHW) Metadata Online Registry (METeOR). URL: <http://meteor.aihw.gov.au/content/index.phtml/itemId/584408> , accessed 07/06/2015. [↑](#footnote-ref-1)
2. Australian Bureau of Statistics, [3101.0 - Australian Demographic Statistics](http://www.abs.gov.au/AUSSTATS/abs%40.nsf/Previousproducts/3101.0Main%20Features2Sep%202015?opendocument&tabname=Summary&prodno=3101.0&issue=Sep%202015&num=&view=), Sep 2015 abs.gov.au [↑](#footnote-ref-2)
3. Specialist paediatric hospitals that treat patients up to and including 17 years of age (IHPA National Efficient Price Determination 2015-16, <https://www.ihpa.gov.au/sites/g/files/net636/f/publications/national-efficient-price-determination-2015-16.pdf>, viewed 15/8/16) [↑](#footnote-ref-3)