

Independent Hospital Pricing Authority

National Hospital Cost Data Collection

Australian Public Hospitals Cost Report 2013-2014 Round 18

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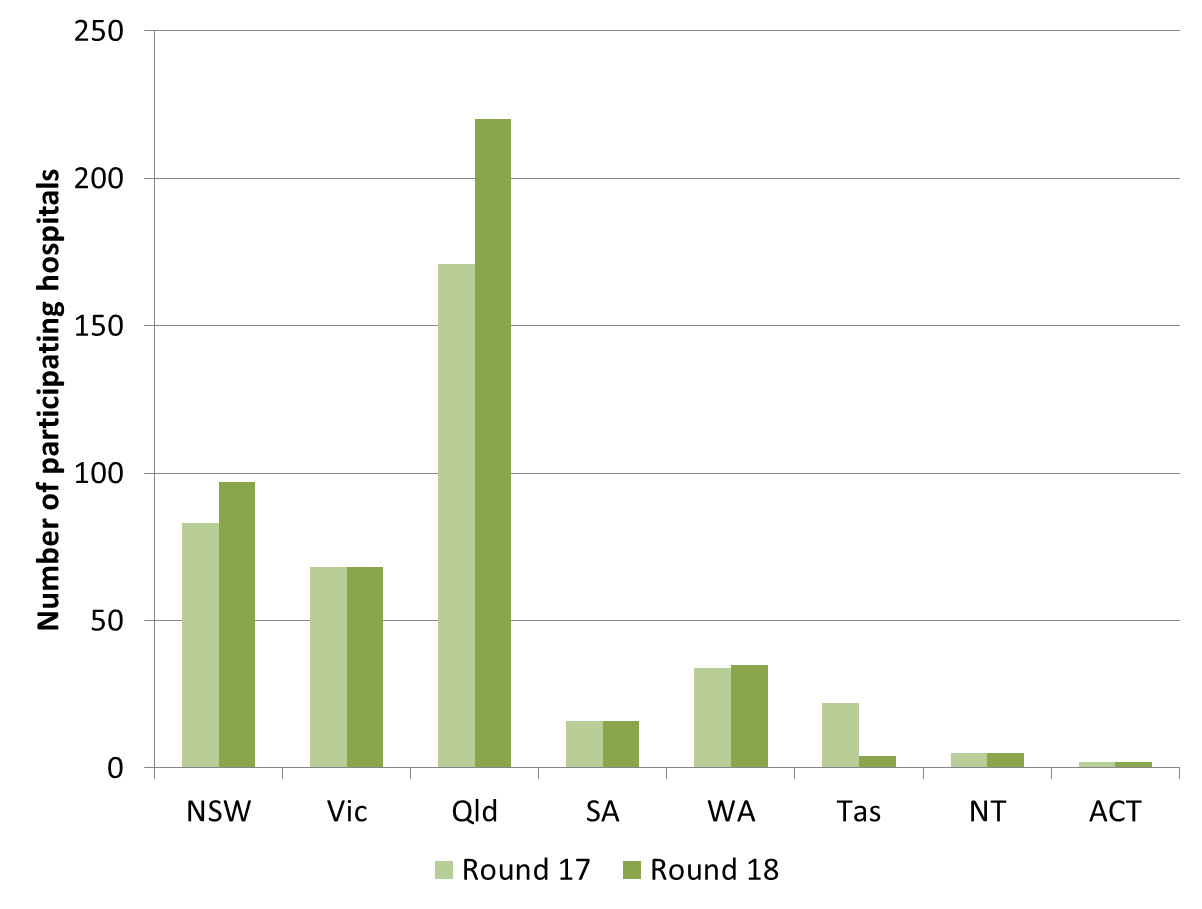
# Executive Summary

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 18, financial year 2013-14, NHCDC includes costs from 447 hospitals, 46 more than in Round 17. Queensland and NSW were the major contributors to this increase with 49 and 14 more hospitals respectively. Tasmania submitted 18 fewer hospitals than in Round 17, these were all small rural hospitals. The increase in hospital participation led to an increase in the proportion of admitted acute activity for which expenditure were submitted by 1.0 percent to 92.3 percent.

Figure 1 Round 18 number of participating hospitals by jurisdiction



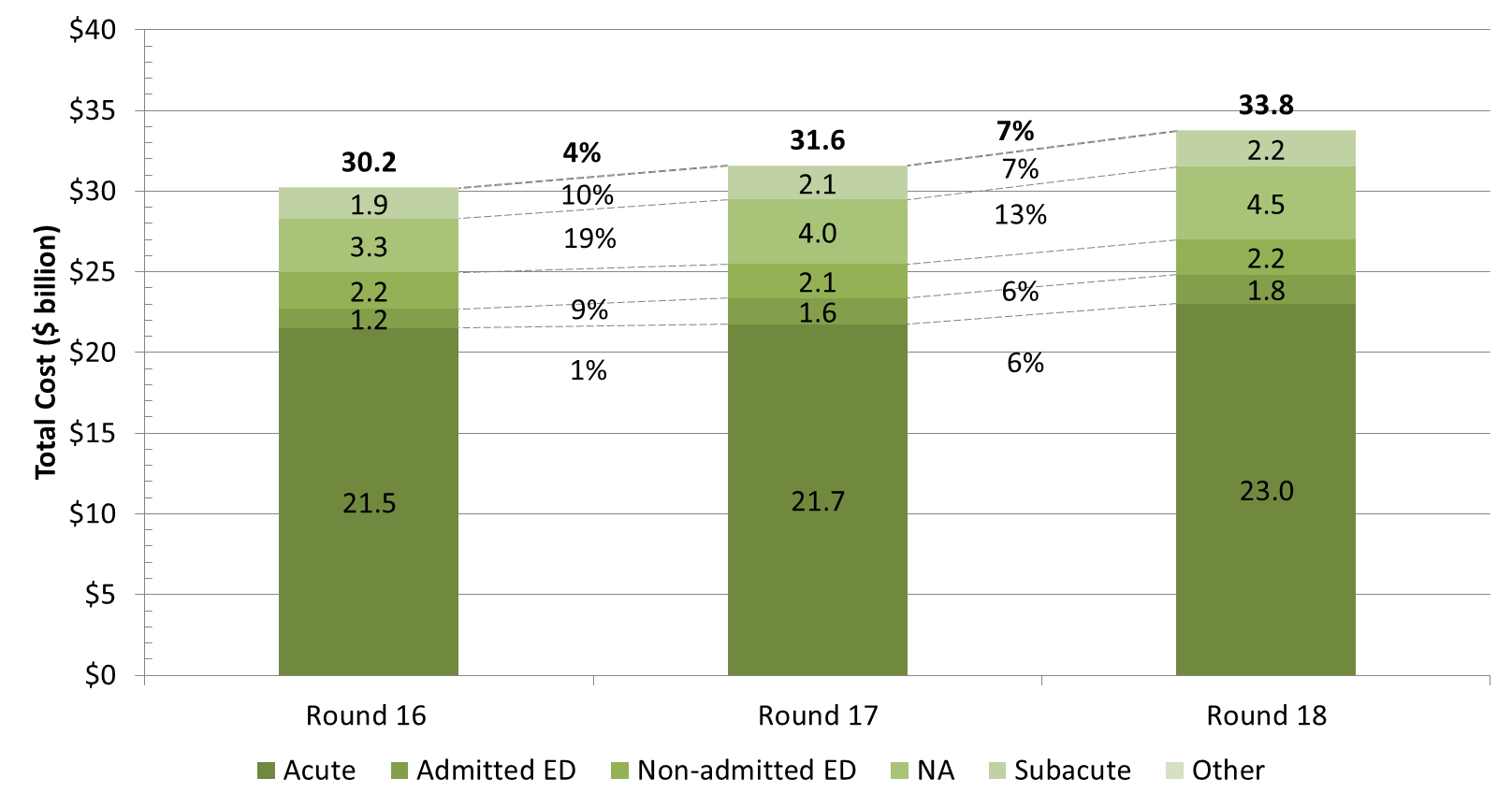
## Total expenditure

In the Round 18 NHCDC, total expenditure submitted was $33.8 billion, a 6.8 percent increase over Round 17.

Expenditure is split between five streams:

* **Admitted acute** accounted for 74 percent of total expenditure, reporting $24.8 billion from 352 hospitals. This represents a 6.3 percent increase in expenditure over Round 17, with five fewer hospitals reporting data;
* **Emergency Department** (ED) expenditure accounted for $4.0 billion from 256 hospitals. This represents a 6.1 percent increase in expenditure over Round 17, with 13 fewer hospitals reporting data;
* **Non-Admitted** expenditure accounted for $4.5 billion from 349 hospitals. This represents a 13.0 percent increase in expenditure over Round 17, and an increase of 68 hospitals reporting data;
* **Subacute** expenditure accounted for $2.2 billion from 335 hospitals. This represents a 7.0 percent increase in expenditure over Round 17, with the number of hospitals reporting data unchanged; and
* **Other product** expenditure accounted for $36.4 million from 195 hospitals. This represents a 33.9 percent decrease in expenditure over Round 17, with 27 more hospitals reporting data.

Figure 2 Total expenditure and percentage movement by stream, Round 16 to 18



## 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:

Figure 3 Round 18 key figures and logarithmic scale of average cost and percentage movement, actual, Round 16 to 18

Round 18 key figures and logarithmic scale of average cost and percentage movement, actual, Round 16 to 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 the [IHPA website](https://www.ihpa.gov.au/). This report presents an analysis of the annual data submitted to the National Hospital Cost Data Collection (NHCDC) for Round 18 (2013-14).

# Introduction

## 1.1 Objectives of the NHCDC

The National Hospital Cost Data Collection (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 and the health care industry 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 data set used to develop the National Efficient Price (NEP) and the National Efficient Cost (NEC)

## 1.2 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 that commenced collection of Round 1 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*, the Independent Hospital Pricing Authority (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. An increase in hospital participation has also seen the size of the collection grow significantly, along with greater reporting outside of admitted acute products.

For Round 18 (2013-14), jurisdictions have submitted cost data across admitted acute, emergency department, non-admitted and subacute streams.

## 1.3 The NHCDC and the National Efficient Price (NEP)

The NHCDC is the primary dataset used by IHPA to determine the NEP and the NEC. The NEP underpins Activity Based Funding (ABF) across Australia for Commonwealth funded public hospital services. The key purpose of IHPA is to promote improved efficiency in, and access to, public hospital services through the determination of NEP and NEC. Delivering an annual NEP and NEC is IHPA’s primary function and has two key purposes:

* to determine the amount of Commonwealth Government funding provided to public hospital services; and
* to provide a price signal or benchmark about the efficient cost of providing public hospital services.

Each Determination includes the scope of public hospital services eligible for Commonwealth Government funding on an activity basis (the General List) and adjustments to the price to reflect legitimate and unavoidable variations in the cost of delivering health care services.

## 1.4 Scope of the Collection

The data in scope includes all episodes of hospital care for all public hospital facilities across Australia, and the costs incurred by the health service in relation to these episodes in financial year 2013-14 (Round 18). The classifications used in this report are:

* Admitted acute - Australian Refined Diagnosis Related Groups (AR-DRG) Version 7;
* Emergency - Urgency Related Groups (URGs) Version 1.3;
* Non-admitted - Non-admitted Tier 2 Classification Version 2; and
* Subacute - Australian National - Sub and Non-acute (AN-SNAP) Patient Version 3.

## 1.5 Scope - Product Streams

### 1.5.1 Admitted acute services

The admitted acute episodes of care in scope for Round 18 include all admitted acute separations with a discharge date in financial year 2013-14 which were performed at public hospitals[[1]](#footnote-1). 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 patients are classified under the AR-DRG version 7 classification and have a care type[[2]](#footnote-2) of ‘1’ (acute) or ‘7’ (neonates).

### 1.5.2 Emergency care services

The emergency care presentations in scope for Round 18 include all patients registered for care in an emergency care service within a public hospital in 2013-14. This includes patients who present to the emergency department who are treated and then leave (non-admitted emergency), and presentations that are subsequently admitted to hospital (admitted emergency). Patients declared dead on arrival are considered in scope if the death is certified by an emergency department clinician.

In this report emergency care services are reported using URG version 1.3.2.

### 1.5.3 Non-admitted services

The non-admitted service events in scope for Round 18 include all non-admitted patient service events that occurred in 2013-14. A non-admitted patient service event is an interaction between one or more healthcare provider(s) with one or more patient. It must contain therapeutic/clinical content and result in a dated entry in the patient's medical record. This includes service events occurring in non-admitted clinics in hospitals and in the community.

The Tier 2 Non-admitted Care Services version 2 used to report non-admitted service events.

### 1.5.4 Subacute and non-acute services

The subacute and non-acute admitted episodes of care in scope for Round 18 include all separations performed at public hospitals with a care type of rehabilitation care (2), palliative care (3), geriatric evaluation and management (4), psychogeriatric care (5) or maintenance care (6) and with a discharge date in 2013-14.

Subacute admitted care is provided to patients who go through a formal admission process, where the clinical intent or treatment goal is specialised multidisciplinary care in which the primary need for care is optimisation of the patient’s functioning and quality of life[[3]](#footnote-3). These patients are classified under the Australian National Sub and Non-acute Patient Classification (AN-SNAP) version 3.

### 1.5.5 Other services

Other services are classified by a care type where the principal clinical intent does not meet the criteria to be grouped as admitted acute, non-admitted, emergency or subacute. The ‘other’ services in scope for Round 18 include all episodes defined under ‘other care’ (‘8’), posthumous organ procurement (‘9’) and hospital boarders (‘10’) with a separation date in 2013-14 which were performed at public hospitals. Teaching and training and research are also considered other services.

Teaching and training describes the activities provided by or on behalf of a public health service to facilitate the acquisition of knowledge, or development of skills. Research relates to the public health service's contribution to maintain research capability, excluding the costs of research activities that are funded from a source other than the state or territory or provided in kind.[[4]](#footnote-4)

## 1.6 Direct and overhead costs

As in Round 17, shown in Figure 2, direct costs account for 76.8 percent of total expenditure, however there was some variation in the direct to overhead cost ratio across streams.

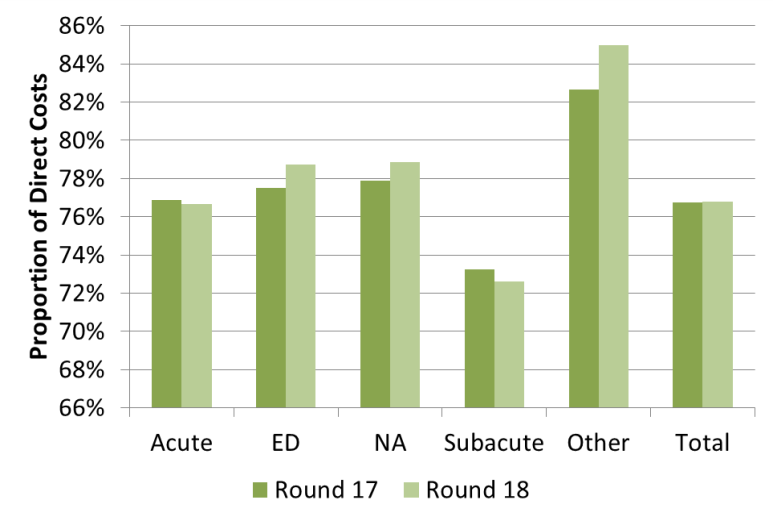


Figure 4 Proportion of direct costs to total costs actual, Round 17 to 18

## 1.7 Australian Hospital Patient Costing Standards

To ensure consistency in the approach to costing nationally, the Australian Hospital Patient Costing Standards (AHPCS) were developed through jurisdictional and IHPA input. AHPCS version 3.1 were applied for the Round 18 NHCDC.

## 1.8 Data Collection and Costing

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. Figure 5 below illustrates the overall costing process.

Figure 5: Hospital Costing Process

1. 

### 1.8.1 Patient level costing

Hospitals provide a calculated cost of care at the patient level for each episode of care. This is done using actual patient level consumption data if practical. For example, Direct Pathology costs may be based on the actual number of pathology tests performed for each patient. If actual patient consumption is impractical to measure, allocation methods are required. The patient level method of costing is often referred to as a ‘bottom up’ method of costing because cost aggregates are devised from individual items of patient consumption[[5]](#footnote-5).

Patient level costing yields results that are closer to the true cost of an encounter within a hospital, however due to the dependency on feeder systems, perfect patient level costing can be difficult to achieve.

The AHPCS prescribes the set of line items and cost centres that hospital costs are mapped to cost buckets 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 AHPCS for the reference tables of line items, cost centre groups and cost buckets.

In the public sector collection, hospital costing is either performed by hospital or jurisdiction costing staff. Costed results are produced at the episode level, per cost centre and per line item. These results are provided to the IHPA and are collated and analysed to produce this report.

## 1.9 The Independent Financial Review

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

## 1.10 Work in progress patients

The AHPCS require that all patient activity during the year be costed according to the guidelines set in the standards. 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 2013-14 financial year. For the purposes of this report, data in all tables excludes WIP patients unless specifically noted.

## 1.11 Understanding this Report

The purpose of this report is to provide an overview of costs as reported to Round 18 of the NHCDC. It 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 also contains the admitted acute NHCDC Round 18 national actual and estimated public sector cost weights and jurisdictional data quality statements as supplied by each participating jurisdiction. These are available at Appendix 3 and Appendix 4.

## Release notes and confidentiality

To ensure hospital and patient confidentiality is maintained information has been removed from some tables. The figures have been replaced by asterisks (\*\*).

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# Admitted Acute Care

This chapter presents cost data results for the admitted acute stream submitted to the Round 18 NHCDC. The data is presented at both a national and jurisdictional level, and summarised to report an overview of changes.

Changes in casemix, operational and clinical behaviour will influence the findings within these comparative tables. However, it should be noted that as a cost collection, the number and composition of hospitals reporting costs to the NHCDC for each round may change and this will likely influence comparisons between rounds. The admitted acute activity and expenditure presented includes admitted emergency department data. Separations where the patient was not admitted and discharged in Round 18 (work-in-progress patients) have been excluded. When comparing between rounds it is important to note that in the Round 16 data some hospitals submitted cost modelled data where activity and cost data was not submitted at the individual separation level rather it was grouped to the DRG level. The NHCDC Round 17 and Round 18 data only includes data from hospitals that applied the AHPCS and costed each separation at the patient level.

## 2.1 Summary

Nationally, 352 hospitals contributed admitted acute costs for Round 18 of the NHCDC, five fewer hospitals than in NHCDC Round 17. The net reduction in participating hospitals for admitted acute patients in the Round 18 collection is a result of Tasmania and Queensland reducing their number of participant hospitals which more than offset the increased number of hospitals submitted by NSW and WA. Table 1 provides a summary of the number of hospitals that submitted to the Round 18 NHCDC their costs, separations and change between Round 16, Round 17 and Round 18.

Table 1 Admitted acute – National Round 16 to 18

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  | Change | |
|  | Round 16 | Round 17 | Round 18 | Round 16 to 17 | Round 17 to 18 |
| (%) | (%) |
| Number of hospitals | 397 | 357 | 352 | -10.1 | -1.4 |
| Separations (millions) | 4.7 | 4.8 | 5.0 | 1.9 | 5.2 |
| Expenditure ($ billion) | 22.7 | 23.4 | 24.8 | 2.9 | 6.3 |
| Average length of stay (days) | 2.90 | 2.79 | 2.70 | -4.0 | -3.1 |
| Average cost per day ($) | 1,659 | 1,764 | 1,839 | 6.3 | 4.2 |
| Average cost per separation ($) | 4,868 | 4,914 | 4,966 | 0.9 | 1.1 |

The Round 18 NHCDC admitted acute data included $24.8 billion in costs and accounted for 5.0 million separations. This is an increase in costs from the Round 17 NHCDC by 6.3 percent and an increase in separations by 5.2 percent. The average length of stay reduced by 3.1 percent from 2.79 days in Round 17 to 2.70 days in Round 18. This is largely due to a slight increase in the proportion of same day separations from 52.0 percent in Round 17 to 52.9 percent in Round 18.The average cost per separation in Round 18 is $4,966 an increase of 1.1 percent from $4,914 in Round 17. The Round 18 average cost per day is reported at $1,839, an increase of $75 or 4.2 percent on Round 17.

## 2.2 Jurisdiction

The table below, Table 2, provides a summary of Round 18 results by jurisdiction. Appendix 5 is a comparison of NHCDC Round 17 and Round 18 at the jurisdiction level and should be referred to when considering the changes reported in jurisdiction acute costs. The nationally reported admitted acute costs are influenced by jurisdictional casemix and the number of hospitals that submit data. Changes in the volume and type of services reported in the NHCDC impacts the results published in this report.

Table 2 Admitted acute - Jurisdiction

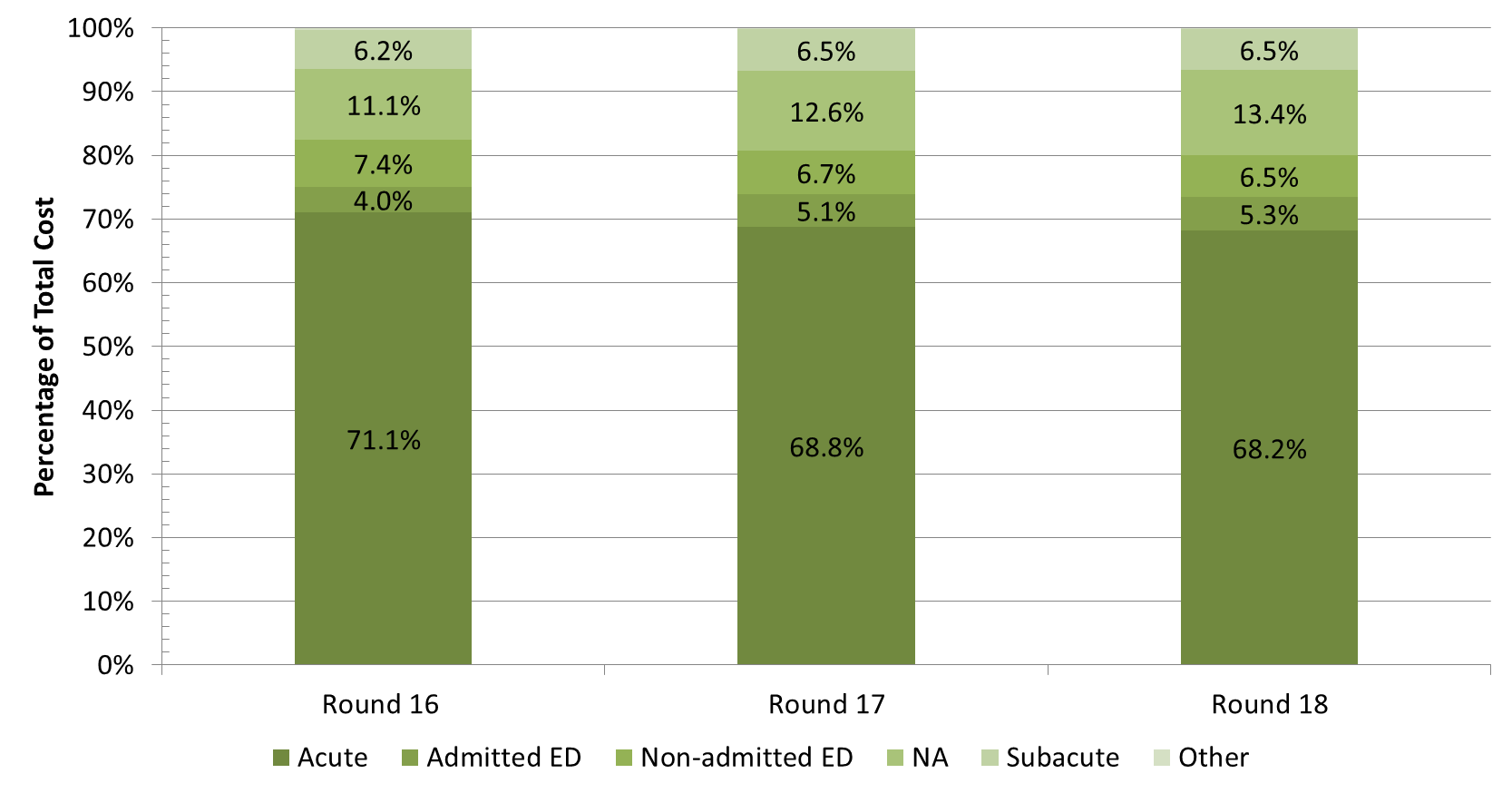
|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Jurisdiction** |  | **Total** | |  | **Average** | | | |
| Hospitals | Separations | Cost |  | Length of stay | Cost per day | Cost per separation | Cost per weighted separation |
| no. | no. | $M |  | days | $ | $ | $ |
| NSW | 89 | 1,482,917 | 7,779 |  | 3.10 | 1,694 | 5,246 | 4,964 |
| Vic | 63 | 1,321,664 | 5,531 |  | 2.47 | 1,694 | 4,185 | 4,268 |
| Qld | 138 | 1,040,374 | 4,929 |  | 2.40 | 1,974 | 4,738 | 4,858 |
| SA | 16 | 339,867 | 2,077 |  | 3.13 | 1,955 | 6,111 | 5,596 |
| WA | 35 | 491,817 | 2,770 |  | 2.55 | 2,209 | 5,633 | 5,879 |
| Tas | 4 | 106,101 | 551 |  | 2.65 | 1,959 | 5,197 | 5,106 |
| NT | 5 | 122,377 | 548 |  | 2.26 | 1,983 | 4,481 | 7,054 |
| ACT | 2 | 93,291 | 636 |  | 2.88 | 2,363 | 6,814 | 6,872 |
| **National** | **352** | **4,998,408** | **24,822** |  | **2.70** | **1,839** | **4,966** | **4,966** |

Of the 352 hospitals that submitted acute data to the collection, Queensland submitted 39 percent of hospitals, NSW 25 percent and Victoria 18 percent. The remaining five jurisdictions provided 62 hospitals equating to 18 percent of hospitals that submitted. NSW reported an additional 14 hospitals to the NHCDC in Round 18. Tasmania reduced the number of hospitals that were submitted by 18.

The total admitted acute expenditure submitted was $24.8 billion. NSW, Victoria and Queensland accounted for $18.24 billion, or 73 percent of all expenditure submitted. They submitted 31, 22 and 20 percent of expenditure respectively. The remaining five jurisdictions submitted 27 percent of the expenditure, which is consistent with their contribution in the Round 17 collection. The expenditure submitted by Northern Territory increased by 23 percent from $445 million in Round 17 to $548 million in Round 18. The increase in expenditure of all other jurisdictions is between 0.8 percent for Tasmania and 9.3 percent for ACT.

While there was a 1.4 percent decrease in the number of hospitals submitting acute data, each jurisdiction reported an increase in the number of separations and costs submitted to the acute stream. Figure 6 shows the percentage contribution each stream has to the total expenditure submitted. The slight decrease in the acute contribution indicates that the additional acute expenditure in Round 18 is not solely costs reallocated from other streams.

Figure 6 National cost - Product stream, by percentage



Total separations increased by 5.2 percent, the primary contributor to this was NSW supported by their increase in hospital participation. Victoria and Queensland also had more than 5 percent increases in separations. Tasmania decreased the number of hospitals contributing acute data however they contributed to the increase in separations submitted for the acute stream.

The national average length of stay reduced by 3.1 percent, the equivalent of a decrease in 0.08 bed days per separation. All jurisdictions had a reduction in the average length of stay. Three jurisdictions reported a reduction in average length of stay greater than the national reduction. Tasmania reported the highest reduction in average length of stay of 0.8 percent, followed by New South Wales and Victoria. The remaining jurisdictions reported a reduction less than the national reduction with Western Australia reporting the smallest reduction of 0.5 percent.

The decrease in average length of stay was largely driven by an increase in the proportion of same day to total separations. Western Australia was the only jurisdiction to have a decrease in their proportion of same day separations, with a 1.1 percent reduction in their same day proportion to 54.7 percent. The Northern Territory had the highest proportion of same day separations with 68.3 percent, reflecting a high proportion of renal dialysis patients.

The national average cost per separation increased marginally by 1.1 percent to $4,966 from $4,914 in Round 17. The highest cost per separation was reported by the ACT at $6,814 which also reported the highest cost per separation in Round 17. Tasmania, Western Australia, South Australia and New South Wales all reported an average cost above the national average consistent with Round 17. Victoria, Queensland and Northern Territory reported consistent lower average cost per separation compared to the national average. Northern Territory’s average cost increased by 17.6 percent from Round 17 due partially to the inclusion of inter-hospital patient transport costs for the first time. This large movement has resulted in Victoria having the lowest average cost per separation in Round 18. The biggest movements to the average cost per separation, apart from Northern Territory, are South Australia, Western Australia and ACT with all three jurisdictions reporting over $300 in increased average cost.

Table 3 presents the average cost per weighted separation by jurisdiction for Round 17 and Round 18. The average cost per weighted separation is a casemix weighted average, where the relative complexity of the activity is taken into account. If the weighted average is lower than the simple average the activity had a higher proportion of complex DRGs. The cost weights used to determine the weighted averages are in Appendix 3.

Table 3 Admitted acute – Jurisdiction Round 17 and Round 18

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Jurisdiction** | **Average cost** | | | | | | | |
| Per separation | |  | Per weighted separation | |  | Per separation | Per weighted separation |
| Round 17 | Round 18 |  | Round 17 | Round 18 |  | Change from Round 17 to 18 | |
| ($) | ($) |  | ($) | ($) |  | (%) | (%) |
| NSW | 5,286 | 5,246 |  | 4,983 | 4,964 |  | -0.8 | -0.4 |
| Vic | 4,168 | 4,185 |  | 4,251 | 4,268 |  | 0.4 | 0.4 |
| Qld | 4,818 | 4,738 |  | 4,871 | 4,858 |  | -1.7 | -0.3 |
| SA | 5,778 | 6,111 |  | 5,335 | 5,596 |  | 5.8 | 4.9 |
| WA | 5,285 | 5,633 |  | 5,695 | 5,879 |  | 6.6 | 3.2 |
| Tas | 5,295 | 5,197 |  | 5,226 | 5,106 |  | -1.9 | -2.3 |
| NT | 3,809 | 4,481 |  | 5,972 | 7,054 |  | 17.6 | 18.1 |
| ACT | 6,494 | 6,814 |  | 6,442 | 6,872 |  | 4.9 | 6.7 |
| **National** | **4,914** | **4,966** |  | **4,914** | **4,966** |  | **1.1** | **1.1** |

Northern Territory reports the highest cost per weighted separation of $7,054, with ACT a close second at $6,872. Northern Territory has a significant difference between their simple and weighted average costs due to the large presence of low complexity activity like renal dialysis. ACT also has the highest average cost per separation, indicating that their high cost is not casemix related. These two jurisdictions also had the highest average cost per weighted separations in Round 17. Victoria continues to have the lowest average cost per weighted separation with $4,268 in Round 18. NSW, Queensland and Tasmania all have weighted averages within a few percent of the national average.

## 2.3 Peer group summary

Each hospital is assigned to a peer group reflecting the complexity and volume of patients that they admit each year. Peer group definitions have been defined by Australian Institute of Health and Welfare (www.aihw.gov.au).

Principal referral hospitals or A1 peer groups account for 22 percent of hospitals (77), 69 percent of separations, and 73 percent of costs in the Round 18 collection.

Appendix 6 includes all hospitals which contribute to the collection by jurisdiction and peer groups including expenditure, length of stay and average cost per separation. Table 4 provides a summary of national peer group including total and average costs, length of stay and number of separations.

Table 4 Admitted acute - Peer group

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Peer Group** |  | **Total** | | **Average** | | | |
| Hospitals | Separations | Cost | Length of stay | Cost per day | Cost per separation | Cost per weighted separation |
| no. | no. | $ | days | $ | $ | $ |
| A1- Principal referral | 77 | 3,462,126 | 18,093 | 2.83 | 1,844 | 5,226 | 4,946 |
| A2 - Specialist Women's and Children's | 11 | 249,766 | 1,654 | 2.78 | 2,380 | 6,621 | 5,442 |
| B1 - Large major city | 23 | 416,916 | 1,812 | 2.50 | 1,737 | 4,346 | 4,879 |
| B2- Large Regional | 14 | 181,648 | 758 | 2.27 | 1,834 | 4,172 | 5,108 |
| C1 - Medium | 28 | 261,302 | 903 | 2.01 | 1,717 | 3,454 | 4,747 |
| C2 - Medium Other | 35 | 163,032 | 444 | 2.13 | 1,281 | 2,726 | 4,098 |
| D1 - Small regional | 32 | 40,140 | 113 | 2.20 | 1,277 | 2,814 | 3,873 |
| D3 - Small remote | 31 | 25,615 | 79 | 3.06 | 1,012 | 3,093 | 4,063 |
| O - Other | 28 | 66,716 | 327 | 1.91 | 2,568 | 4,897 | 7,397 |
| A2 - Specialist Women's and Children's | 73 | 131,147 | 640 | 2.83 | 1,725 | 4,878 | 5,102 |
| **Total** | **352** | **4,998,408** | **24,822** | **2.70** | **1,839** | **4,966** | **4,966** |

The hospitals reporting costs to Round 18 of the NHCDC has not changed significantly when compared to Round 17. The only significant change was in the peer groups with fewer casemix weighted separations, where there was a reduction in the number of hospitals reporting in Round 18. This is explained by Tasmania’s rural hospitals not being reported to the Round 18 collection.

## 2.4 Cost Bucket Overview

Costs reported at patient level comprise of both cost centre and line item level and this combination of costs aggregated determine the total patient cost. Cost centre and line item data at patient level can be substantial for some patient cohorts given the volume of resources consumed over the hospital stay.

To assist with reducing data burden and organising data for comparative reporting purposes, cost buckets which describe the main functions of hospital departments have been created through a mapped combination of cost centre and line item. These cost buckets provide a high level disaggregated view of the total patient cost or the average cost per separation. Table 5 presents the contribution of each cost bucket to the average cost.

Ward medical, ward nursing and allied health cost buckets which consist of salaries and wages account for 35 percent of average costs. The operating theatre and special procedure suite cost buckets account for 15 percent of average costs. Ward supplies and prostheses contribute 10 percent, and pathology and imaging account for 5 percent of the average cost of each separation. Emergency department cost bucket is 7 percent of the total expenditure. The contribution of each cost bucket in Round 18 is similar to those in Round 17.

The ED cost bucket had the highest change between years with a 0.9 percent increase three times ward medical. Whilst percentages highlight the proportion of bucket costs to total, presenting the average bucket cost per separation provides another view of bucket costs.

Table 5 Admitted acute - Cost bucket

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  | Change in % of total | |
| **Cost Bucket** | Round 16 | | Round 17 | | Round 18 | |  | 16 to 17 | 17 to 18 |
| Avg ($) | % of Total | Avg ($) | % of Total | Avg ($) | % of Total |  | percentage point | |
| Ward Medical | 595 | 12.2 | 590 | 12.0 | 604 | 12.2 |  | -0.2 | 0.2 |
| Ward Nursing | 941 | 19.3 | 970 | 19.7 | 966 | 19.5 |  | 0.4 | -0.3 |
| Allied Health | 140 | 2.9 | 156 | 3.2 | 150 | 3.0 |  | 0.3 | -0.2 |
| Non Clinical | 274 | 5.6 | 289 | 5.9 | 303 | 6.1 |  | 0.3 | 0.2 |
| On-costs | 306 | 6.3 | 314 | 6.4 | 321 | 6.5 |  | 0.1 | 0.1 |
| Pathology | 154 | 3.2 | 131 | 2.7 | 132 | 2.7 |  | -0.5 | 0.0 |
| Imaging | 125 | 2.6 | 119 | 2.4 | 111 | 2.2 |  | -0.1 | -0.2 |
| Prosthesis | 139 | 2.9 | 146 | 3.0 | 145 | 2.9 |  | 0.1 | -0.1 |
| Ward Supplies | 348 | 7.1 | 341 | 6.9 | 334 | 6.7 |  | -0.2 | -0.2 |
| Pharmacy | 201 | 4.1 | 181 | 3.7 | 168 | 3.4 |  | -0.4 | -0.3 |
| Critical Care | 355 | 7.3 | 365 | 7.4 | 355 | 7.1 |  | 0.1 | -0.3 |
| Operating Room | 667 | 13.7 | 672 | 13.7 | 674 | 13.6 |  | 0.0 | -0.1 |
| Special Procedure Suite | 42 | 0.9 | 45 | 0.9 | 48 | 1.0 |  | 0.1 | 0.1 |
| Emergency Department | 320 | 6.6 | 327 | 6.7 | 377 | 7.6 |  | 0.1 | 0.9 |
| Hotel | 151 | 3.1 | 139 | 2.8 | 147 | 3.0 |  | -0.3 | 0.1 |
| Depreciation | 110 | 2.3 | 130 | 2.6 | 130 | 2.6 |  | 0.4 | 0.0 |
| **Total** | **4,868** |  | **4914** |  | **4,966** |  |  |  |  |

The cost bucket variance for each jurisdiction compared nationally has been provided at Appendix 7. Whilst the national average Ward Nursing costs per separation is $966 and 20 percent of the expenditure, the range of costs within the bucket varies from $743 in Victoria to $1200 in South Australia. The cost range across jurisdictions in both the Ward Medical and Ward Nursing buckets may reflect the various jurisdictional based award rates and also be a factor of a number of process improvements within hospitals which influence how clinical care is conducted, the amount and type of resources consumed and the setting by which care is also undertaken.

## 2.5 Line Item Overview

To enable the consistency and comparability of cost data the general ledger expenditure (account) codes are grouped to a set of line items that describe the input type which define the resources being used by a cost centre. There has been no significant change in the contribution of line items to the average cost between Round 17 and Round 18. The largest contributors to the cost is salaries and wages line items contributing 60 percent. Appendix 8 includes detail at the jurisdiction level of average cost per separation by line item.

Table 6 Admitted acute- Line item

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  | Change in % contribution |
| **Line Item** | Round 17 | | Round 18 | |  | Round 17 to 18 |
| Avg  ($) | % of Total | Avg  ($) | % of Total |  | percentage point |
| Salary & Wages - Nursing | 1,381 | 30.0 | 1,367 | 29.5 |  | -0.4 |
| Salary & Wages - Medical (non-VMO) | 693 | 15.0 | 713 | 15.4 |  | 0.4 |
| Salary & Wages - Medical (VMO) | 202 | 4.4 | 205 | 4.4 |  | 0.0 |
| Salary & Wages - Allied Health | 214 | 4.6 | 218 | 4.7 |  | 0.1 |
| Salary & Wages - Other | 422 | 9.2 | 426 | 9.2 |  | 0.0 |
| On-costs | 314 | 6.8 | 321 | 6.9 |  | 0.1 |
| Pathology | 93 | 2.0 | 96 | 2.1 |  | 0.1 |
| Imaging | 28 | 0.6 | 26 | 0.6 |  | -0.1 |
| Prostheses | 146 | 3.2 | 145 | 3.1 |  | 0.0 |
| Medical supplies | 248 | 5.4 | 249 | 5.4 |  | 0.0 |
| Goods and services | 399 | 8.7 | 393 | 8.5 |  | -0.2 |
| Pharmaceuticals - PBS | 28 | 0.6 | 24 | 0.5 |  | -0.1 |
| Pharmaceuticals - non-PBS | 146 | 3.2 | 140 | 3.0 |  | -0.1 |
| Blood | 5 | 0.1 | 5 | 0.1 |  | 0.0 |
| Depreciation - building | 65 | 1.4 | 74 | 1.6 |  | 0.2 |
| Depreciation - equipment | 47 | 1.0 | 41 | 0.9 |  | -0.1 |
| Hotel | 139 | 3.0 | 148 | 3.2 |  | 0.2 |
| Corporate | 23 | 0.5 | 25 | 0.5 |  | 0.0 |
| Lease | 17 | 0.4 | 16 | 0.4 |  | 0.0 |

## 2.6 Cost weight tables

The Round 18 Cost weight tables, Appendix 3 can be reviewed to identify the DRG’s with the highest cost, volume of separations, bed days and average length of stay. The top ten DRG’s by volume account for 1,655,023 separations. This accounts for 33 percent of all separations and 10 percent of costs.

## 2.7 Overnight and same day separations

The national and jurisdictional overview for the ratio of overnight and same day separations for Round 18 NHCDC is presented in Table 7. Appendix 9 has the same day and overnight separations by jurisdiction and change between Round 17 and Round 18.

Table 7 Admitted acute - Overnight and same day separations

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Jurisdiction** | **Overnight** | | |  | **Same day** | |
| Separations | ALOS | Avg Cost |  | Separations | Avg Cost |
| no. | days | ($) |  | no. | ($) |
| NSW | 790,244 | 4.93 | 8,885 |  | 692,673 | 1,095 |
| Vic | 535,592 | 4.63 | 8,557 |  | 786,072 | 1,206 |
| Qld | 501,788 | 3.90 | 8,561 |  | 538,586 | 1,177 |
| SA | 178,147 | 5.06 | 10,346 |  | 161,720 | 1,446 |
| WA | 222,733 | 4.42 | 10,643 |  | 269,084 | 1,485 |
| Tas | 47,154 | 4.72 | 9,852 |  | 58,947 | 1,473 |
| NT | 38,748 | 4.98 | 12,076 |  | 83,629 | 962 |
| ACT | 41,755 | 5.21 | 13,302 |  | 51,536 | 1,557 |
| **National** | 2,356,161 | 4.61 | 9,168 |  | 2,642,247 | 1,219 |

Approximately 53 percent of records are designated as same day an increase from 52 percent from Round 17. Review of the NHCDC Round 17 and Round 18 NHCDC results demonstrated that there was an additional 171,708 costed same day separations reported in Round 18, a 1 percent increase in the percentage of same day to total separations. The national average same day cost was reported as $1,219 this had been $1,196 in Round 17.

There was an additional $1.2 billion in overnight costs and $266 million of same day total expenditure in round 18 of the NHCDC. The percentage share of overnight and same day total expenditure remained constant between rounds at 87 percent and 13 percent nationally.

The average length of stay for overnight separations in Round 17 was 4.7 days which reduced to now 4.6 in Round 18. The change in average length of stay in Round 18 by 0.08 of a day is primarily related to the increase in percentage of same day separations and influenced to a lesser extent by the reduction in length of stay of overnight separations. The average cost of an overnight separation was $8,938 in Round 17 and is $9,168 in Round 18.

There was a 2 percent decrease in average length of stay of overnight separations between Rounds at the same time there was a 2 percent increase in average cost per separation.

## 2.8 Urgency of Admission

Within the urgency of admission measure, the primary defining characteristic of an emergency separation is one that required admission within 24 hours. The urgency of admission variable can be used to split separations between urgent and non-urgent ones.

Table 8 Admitted acute - Urgency of admission

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Jurisdiction** | **Emergency** | | | **Elective** | | | **Not Assigned** | | |
| Separations | ALOS | Avg Cost | Separations | ALOS | Avg Cost | Separations | ALOS | Avg Cost |
| no. | days | ($) | no. | days | ($) | no. | days | ($) |
| NSW | 632,155 | 4.59 | 7,413 | 710,839 | 1.56 | 2,907 | 139,923 | 4.14 | 7,336 |
| Vic | 458,242 | 3.62 | 5,886 | 785,490 | 1.68 | 2,908 | 77,932 | 3.64 | 7,059 |
| Qld | 543,051 | 2.93 | 5,514 | 222,082 | 2.08 | 5,998 | 275,241 | 1.62 | 2,190 |
| SA | 149,072 | 4.56 | 8,542 | 104,612 | 2.12 | 5,793 | 86,183 | 1.87 | 2,293 |
| WA | 193,961 | 3.88 | 8,637 | 153,229 | 1.84 | 4,975 | 144,627 | 1.51 | 2,300 |
| Tas | 39,023 | 4.22 | 7,970 | 55,508 | 1.48 | 3,243 | 11,570 | 2.99 | 5,217 |
| NT | 38,846 | 3.85 | 8,914 | 35,013 | 1.18 | 1,956 | 48,518 | 1.77 | 2,753 |
| ACT | 40,484 | 4.36 | 10,280 | 23,334 | 1.95 | 6,756 | 29,473 | 1.59 | 2,098 |
| **National** | 2,094,834 | 3.85 | 6,874 | 2,090,107 | 1.71 | 3,568 | 813,467 | 2.28 | 3,645 |

Between Round 17 and Round 18 of the NHCDC the percentage of emergency separations increased slightly by 0.8 percent to 41.9 percent. For emergency separations the average length of stay and average cost are 2.3 and 1.9 times those for a non-emergency (elective) separation, respectively. This indicates that more severe nature of these emergency separations results in a higher cost and a longer stay in hospital.

## 2.9 Indigenous patients

Separations of patients who identify as Aboriginal or Torres Strait Islander by jurisdiction are presented in Table 9.

Table 9 Admitted acute -Indigenous status

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Jurisdiction** | **Indigenous** | | | **Non-Indigenous** | | | **Not Assigned** | | |
| Seps | ALOS | Avg Cost | Seps | ALOS | Avg Cost | Seps | ALOS | Avg Cost |
| no. | days | ($) | no. | days | ($) | no. | days | ($) |
| NSW | 65,095 | 2.71 | 4,629 | 1,412,718 | 3.11 | 5,264 | 5,104 | 4.21 | 8,189 |
| Vic | 16,842 | 2.36 | 4,004 | 1,292,676 | 2.46 | 4,162 | 12,146 | 3.29 | 6,821 |
| Qld | 91,932 | 2.11 | 4,005 | 926,467 | 2.43 | 4,856 | 21,975 | 2.46 | 2,825 |
| SA | 19,744 | 2.53 | 4,834 | 305,784 | 3.14 | 6,117 | 14,339 | 3.70 | 7,746 |
| WA | 54,795 | 2.15 | 4,559 | 437,022 | 2.60 | 5,767 | 0 |  |  |
| Tas | 3,435 | 2.70 | 5,845 | 101,351 | 2.65 | 5,174 | 1,315 | 2.49 | 5,259 |
| NT | 85,900 | 2.01 | 3,641 | 36,463 | 2.84 | 6,458 | 14 | 1.86 | 4,428 |
| ACT | 2,016 | 3.35 | 8,554 | 89,569 | 2.87 | 6,787 | 1,706 | 2.75 | 6,133 |
| **National** | 339,759 | 2.26 | 4,216 | 4,602,050 | 2.73 | 5,014 | 56,599 | 3.12 | 5,570 |

Indigenous separations accounted for 7 percent of all separations reported in Round 18 NHCDC. The national average cost for Indigenous separations in Round 18 of the NHCDC was $4,216 per separation. This was $798 or 16 percent lower than for non-Indigenous separations. This is a similar result to that reported in the Round 17 NHCDC cost report when the average cost for Indigenous separations was $4,036. Western Australia contributed 27 percent of Indigenous separations in Round 18 and the Northern Territory contributed 25 percent. Separations with an Indigenous flag accounted for 70 percent of all separations submitted by the Northern Territory and reflects the a high number of same day separations where Indigenous paints received renal dialysis.

## 2.10 Paediatrics

Paediatric separations are defined by patient age and hospital of admission. Table 10 includes summary figures of cost data for paediatric separations, the specialist children's hospitals included in this analysis are:

* John Hunter Hospital (NSW)
* Sydney Children's Hospital (NSW)
* The Children's Hospital At Westmead (NSW)
* Monash Medical Centre, Clayton Campus (Vic)
* The Royal Children's Hospital (Vic)
* Lady Cilento Children's Hospital (Qld)
* The Townsville Hospital (Qld)
* Women's and Children's Hospital (SA)
* Princess Margaret Hospital (WA)

Table 10 Admitted acute - Paediatric and non-paediatric separations

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Jurisdiction** | **Paediatric** | | |  | **Non-paediatric** | | |
| Separations | ALOS | average cost |  | Separations | ALOS | average cost |
| no. | days | ($) |  | no. | days | ($) |
| NSW | 53,848 | 2.67 | 6,067 |  | 1,429,069 | 3.11 | 5,215 |
| Vic | 54,164 | 2.29 | 5,504 |  | 1,267,500 | 2.48 | 4,129 |
| Qld | 42,228 | 2.15 | 5,931 |  | 998,146 | 2.41 | 4,687 |
| SA | 20,794 | 2.17 | 5,513 |  | 319,073 | 3.19 | 6,150 |
| WA | 26,882 | 2.28 | 6,479 |  | 464,935 | 2.57 | 5,584 |
| **Total** |  |  |  |  | 4,478,723 | 2.73 | 4,895 |
| **National** | 197,916 | 2.35 | 5,882 |  | 4,800,492 | 2.71 | 4,928 |

The national average cost per separation for specialist paediatrics patients is $5,882 or 16 percent higher than non-paediatric patients. For hospitals whom are designated specialist paediatrics, the number these separations increased by 9,677 or 5 percent in round 18 of the NHCDC. The greatest growth in these separations occurred in Victoria and Queensland where the number of separations increased by 6,110 and 5,241 respectively.

The national average specialist paediatric cost per separation declined by $803 or 12 percent nationally in Round 18.

## 2.11 Geographical location

The national average cost per separation for patients classified in an outer regional, remote or very remote area was $5,124. The costs reported for these separations are 4 percent higher than those living in metropolitan and inner regional areas whom report an average cost per separation of $4,939.

Table 11 Admitted acute – Geographical location

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Jurisdiction** | **Metro and inner regional** | | |  | **Outer regional, remote and very remote** | | |
| Separations | ALOS | average cost |  | Separations | ALOS | average cost |
| no. | days | ($) |  | no. | days | ($) |
| NSW | 1,386,477 | 3.12 | 5,224 |  | 96,440 | 2.81 | 5,561 |
| Vic | 1,250,274 | 2.47 | 4,161 |  | 71,390 | 2.52 | 4,606 |
| Qld | 815,964 | 2.39 | 4,769 |  | 224,410 | 2.45 | 4,624 |
| SA | 273,132 | 3.16 | 6,058 |  | 66,735 | 3.00 | 6,330 |
| WA | 388,632 | 2.58 | 5,577 |  | 103,185 | 2.43 | 5,844 |
| Tas | 68,485 | 2.68 | 5,098 |  | 37,616 | 2.61 | 5,376 |
| NT | 1,818 | 2.53 | 5,941 |  | 120,559 | 2.26 | 4,459 |
| ACT | 90,697 | 2.83 | 6,607 |  | 2,594 | 4.84 | 14,030 |
| **National** | 4,275,479 | 2.73 | 4,939 |  | 722,929 | 2.54 | 5,124 |

The number of metro and inner regional separations increased by 190,367 or 5 percent in Round 18 of the NHCDC. The number of outer regional, remote or very remote area separations increased by 54,703 or 8 percent over the previous round. In the Northern Territory 99 percent of separations are classified as outer regional, remote or very remote. Queensland, Western Australia, South Australia and Tasmania reported greater than 20 percent of separations as remote. Victoria, NSW and ACT reported less than 5 percent of separations as being outer regional, remote or very remote.

The average cost per metro and inner regional separation increased by $59 per separation or 1 percent in Round 18.The national average cost per outer regional, remote or very remote area separations changed by $1 between Round 18 and Round17. There is no consistent change reported by jurisdictions between Rounds.

## 2.12 Productivity Commission - Review of Government Services

On an annual basis the Productivity Commission produces the Review of Government Services (RoGS) report, which includes a volume for the health sector. The public hospitals’ chapter in the RoGS reports on the performance of governments in providing public hospitals’ services, with a focus on acute care services. It also reports on maternity services provided in public hospitals. IHPA provides this information using the NHCDC data set. Appendix 14 contains the data that will be provided to the Productivity Commission for the ROGS report for financial year 2013-14.

# Emergency Department Presentations

Emergency Departments (ED) are hospital based facilities specifically designed and staffed with medical and nursing staff to provide 24 hour emergency care. Upon arrival to the ED, patients are attended to by a clinician or nurse who assess the patient in order to ascertain the degree of illness or injury through a scoring system. This is known as triage. A triage score is a ranking from one (greatest urgency) to five (lowest urgency).

The triage score is one of the elements used to classify a patient into an Urgency Related Group (URG), which is the classification system for ED presentations. Round 18 presents ED presentations in URG version 1.3.2.1.

## 3.1 Summary

Nationally, 256 hospitals contributed ED costs for Round 18 of the NHCDC, 31 fewer hospitals than in Round 17 of the NHCDC. Table 12 provides an overview of the Round 16, 17 and 18 NHCDC Emergency Department data submissions.

Table 12 Emergency Department - NHCDC Round 16, 17 and 18

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Product Type** |  |  |  |  | Change | |
|  | Round 16 | Round 17 | Round 18 | Round 16 to 17 | Round 17 to 18 |
|  | (%) | (%) |
| Admitted (AE) | Number of hospitals | 154 | 249 | 231 | 61.7 | -7.2 |
| Presentations (millions) | 1.3 | 1.7 | 1.9 | 29.1 | 10.7 |
| Total Expenditure ($ billion) | 1.4 | 1.6 | 1.8 | 17.9 | 10.9 |
| Average cost per presentation ($) | 1,045 | 954 | 956 | -8.7 | 0.2 |
| Non-admitted (NE) | Number of hospitals | 248 | 256 | 243 | 3.2 | -5.1 |
| Presentations (millions) | 4.7 | 4.8 | 4.9 | 1.9 | 3.1 |
| Total Expenditure ($ billion) | 2.1 | 2.1 | 2.2 | 2.5 | 2.5 |
| Average cost per presentation ($) | 443 | 446 | 443 | 0.6 | -0.6 |
| Total ED | Number of hospitals | 248 | 269 | 256 | 8.5 | -4.8 |
| Presentations (millions) | 6.0 | 6.5 | 6.8 | 7.8 | 5.1 |
| Total Expenditure ($ billion) | 3.4 | 3.7 | 4.0 | 8.6 | 6.1 |
| Average cost per presentation ($) | 575 | 579 | 584 | 0.6 | 1.0 |

There were 6.8 million ED presentations submitted to the NHCDC in Round 18. These presentations accounted for $3.976 billion in expenditure, which included an increase of presentations by 0.3 million (4.8 percent) and $229 million (5.8 percent). This resulted in the change of the average cost per presentation being $5 which is the second year in a row that the change in average cost has been less than or equal to 1 percent.

Table 13 Emergency Department - Jurisdiction

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Jurisdiction** |  | **Total** | |  | **Average** | |
| Hospitals | Presentations | Cost |  | Cost per Presentation |  |
| no. | no. | ($M) |  | ($) |  |
| NSW | 59 | 2,043,503 | 1,205 |  | 590 |  |
| Vic | 37 | 1,501,050 | 805 |  | 536 |  |
| Qld | 107 | 1,728,261 | 1,035 |  | 599 |  |
| SA | 13 | 445,699 | 274 |  | 614 |  |
| WA | 29 | 665,092 | 397 |  | 598 |  |
| Tas | 4 | 148,205 | 86 |  | 582 |  |
| NT | 5 | 145,083 | 65 |  | 449 |  |
| ACT | 2 | 125,838 | 108 |  | 857 |  |
| **National ED** | 256 | 6,802,731 | 3,976 |  | 584 |  |

## 3.2 Admitted Emergency Department (ED) Presentation

Admitted ED presentations are those occasions where patients present to the ED and after review are admitted to the hospital. Nationally, 231 hospitals contributed admitted ED expenditure for Round 18 of the NHCDC, 18 fewer than the Round 17 collection.

Jurisdictions submitted 1.9 million admitted ED presentations to the NHCDC. Admitted ED presentations comprise 28 percent of all ED presentations in Round 18 of the NHCDC. These presentations accounted for 45 percent of all ED expenditure. Admitted ED patients cost on average 2.2 times more than non-admitted ED patients. This is due to the typically more complex and severe nature of presentations that are subsequently admitted to the hospital.

Overall admitted ED presentations reported approximately $1.8 billion in expenditure, with presentations increasing by 0.2 million or 10.7 percent and total expenditure increasing by $175.9 million or 10.9 percent on Round 17.

This consistent increase in presentations and expenditure results in a minor increase in the average cost per admitted ED presentation of $2 (or 0.2 percent).

The jurisdictional reported admitted ED presentations and associated costs are presented in Table 14.

Table 14 Emergency Department – Admitted ED presentations by jurisdiction

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Jurisdiction** |  | **Total** | |  | **Average** | |
| Hospitals | Presentations | Expenditure |  | Cost per presentation |  |
| no. | no. | ($M) |  | ($) |  |
| NSW | 59 | 565,851 | 636 |  | 1,123 |  |
| Vic | 37 | 458,830 | 407 |  | 887 |  |
| Qld | 82 | 412,989 | 379 |  | 917 |  |
| SA | 13 | 134,491 | 116 |  | 863 |  |
| WA | 29 | 193,389 | 139 |  | 719 |  |
| Tas | 4 | 36,052 | 42 |  | 1,163 |  |
| NT | 5 | 39,101 | 24 |  | 624 |  |
| ACT | 2 | 34,191 | 50 |  | 1,456 |  |
| **Admitted ED** | 231 | 1,874,894 | 1,793 |  | 956 |  |

For the second year in a row ACT report the highest average cost of admitted ED presentations of $1,456, followed by Tasmania at $1,163 and NSW at $1,123.

Lower cost jurisdictions include NT at $624, WA at $719 and SA at $863 per admitted ED presentation. However, whilst reporting lower average costs per admitted ED presentations, it should be noted that these costs increased by approximately 10 percent for both WA and SA in Round 18.

NSW comprise 30 percent of admitted ED presentations and 35 percent of expenditure to the Round 18 NHCDC. Victoria supplied 24 percent of admitted ED presentations and 23 percent of associated costs; whilst Queensland contributed 22 percent of admitted ED presentations and 21 percent of expenditure to the Round 18 NHCDC.

Combined these three jurisdictions comprise 77 percent of admitted ED presentations and 79 percent of expenditure to the Round 18 NHCDC. Victoria and Queensland both have an average cost $55 less than the national average. They represent 52 percent of the hospitals submitting data, 46 percent of presentations and 44 percent of expenditure.

## 3.3 Non-admitted Emergency Department (ED) Presentation

Non-admitted ED presentations are presentations where after review the patient leaves the hospital. Nationally, 243 hospitals contributed 6.8 million ED presentations for Round 18 and $4.0 billion. Five million non-admitted ED presentations were submitted to the Round 18 NHCDC. Non-admitted ED presentations comprise 72 percent of all ED presentations in Round 18 of the NHCDC and account for 55 percent of ED expenditure.

Overall non-admitted ED presentations reported approximately $2.2 billion in costs, with presentations increasing by 0.1 million or 3.1 percent and total expenditure increasing by $53.4m or 2.5 percent on Round 17.

The rate of increase in presentations comparative to expenditure results in a decrease in the average cost per non-admitted presentation of $2 (or 0.6 percent).

NSW, Queensland and Victoria submitted approximately 80 percent of the ED presentations and ED costs in Round 18. The table below includes information on the jurisdiction ED submitted for Round 18. Appendix 15 includes a breakdown by jurisdiction including admitted and non-admitted ED service events and changes between Rounds.

The ACT, with 2 percent of total ED presentations and total expenditure, reports the highest average cost per non-admitted ED presentations nationally of $857 for Round 18 of the NHCDC.

The Northern Territory reported the biggest change in average cost of non-admitted ED presentations with a 26 percent reduction between Rounds. This represents a decrease of $155 between rounds and appears to be driven by a change in costing methodology following the implementation of new costing software.

SA had a 13 percent increase in average cost per ED presentation between Rounds, taking it from $33 below the national average in Round 17 to $30 above the national average in Round 18.

NSW and Queensland report average costs within 3 percent of the national average. In contrast, the average cost in Victoria is over 8 percent less than the national average. Movement in average cost between rounds was within 5 percent for these three jurisdictions, however Victoria and Queensland saw increases whereas NSW saw a decrease.

The Jurisdictional reported non-admitted ED presentations and expenditure are presented in Table 15.

Table 15 Emergency Department – Non-admitted ED presentation by jurisdiction

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Jurisdiction** |  | **Total** | |  | **Average** | |
| Hospitals | Presentations | Expenditure |  | Cost per presentation |  |
| no. | no. | ($M) |  | ($) |  |
| NSW | 59 | 1,477,652 | 570 |  | 385 |  |
| Vic | 37 | 1,042,220 | 398 |  | 382 |  |
| Qld | 107 | 1,315,272 | 656 |  | 499 |  |
| SA | 13 | 311,208 | 158 |  | 507 |  |
| WA | 16 | 471,703 | 258 |  | 548 |  |
| Tas | 4 | 112,153 | 44 |  | 396 |  |
| NT | 5 | 105,982 | 41 |  | 385 |  |
| ACT | 2 | 91,647 | 58 |  | 634 |  |
| **Non-Admitted ED** | 243 | 4,927,837 | 2,183 |  | 443 |  |

Given the size of these jurisdictions, again NSW, Victoria and Queensland provide the bulk of activity. Combined these three jurisdictions comprise 78 percent of costed non-admitted ED presentations and 74 percent of expenditure. ACT reported the highest cost nationally. Its average non-admitted ED presentation cost is reported as $634, followed by WA at $548, SA $507 and Queensland at $499. Lower cost Jurisdictions include Victoria, NT and NSW whom report costs at approximately $385 per average non-admitted cost per presentation.

## 3.4 Cost Bucket

An ED is typically budgeted and staffed with their own specialist medical and nursing staff, and have their own medical supplies and goods and services. These costs are allocated to ED cost centres and are thus mapped to the ED cost bucket. Resources from outside the ED may also be used to assist with patient care, particularly diagnostic services such as imaging and pathology.

Over two thirds (68 percent) of ED presentation costs are allocated to the ED cost bucket. A further 15 percent of costs come from diagnostic services (imaging and pathology) which are provided by departments outside the ED. Appendix 17 provides cost and contribution to average cost by jurisdiction and cost bucket.

Table 16 Emergency Department - Cost Bucket NHCDC Round 17 and Round 18

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  | Change in % of total |
| **Cost Bucket** | Round 17 | | Round 18 | |  | 17 to 18 |
| ($) | % of Total | ($) | % of Total |  | percentage point |
| Ward Medical | 6 | 1.1 | 9 | 1.6 |  | 0.6 |
| Ward Nursing | 8 | 1.3 | 6 | 1.0 |  | -0.3 |
| Allied Health | 2 | 0.4 | 2 | 0.3 |  | -0.1 |
| Non Clinical | 5 | 0.9 | 6 | 1.1 |  | 0.2 |
| On-costs | 38 | 6.5 | 40 | 6.8 |  | 0.3 |
| Pathology | 34 | 5.8 | 32 | 5.4 |  | -0.4 |
| Imaging | 51 | 8.8 | 54 | 9.3 |  | 0.5 |
| Prosthesis | 0 | 0.0 | 0 | 0.0 |  | 0.0 |
| Ward Supplies | 11 | 1.9 | 7 | 1.2 |  | -0.7 |
| Pharmacy | 3 | 0.6 | 3 | 0.5 |  | -0.1 |
| Critical Care | 0 | 0.0 | 0 | 0.0 |  | 0.0 |
| Operating Room | 0 | 0.1 | 0 | 0.1 |  | 0.0 |
| Special Procedure Suite | 0 | 0.0 | 0 | 0.0 |  | 0.0 |
| Emergency Department | 394 | 68.1 | 399 | 68.2 |  | 0.1 |
| Hotel | 10 | 1.7 | 10 | 1.7 |  | 0.0 |
| Depreciation | 16 | 2.8 | 16 | 2.8 |  | 0.0 |
| **Total** | **579** |  | **584** |  |  |  |

## 3.5 Line Item Overview

ED’s are typically defined by a series of its own cost centres, any change in expenditure can generally be best described through line items. There has been no significant movement in the average cost by line item between Rounds 17 and 18.

Table 17 Emergency Department - Line Item Round 17 and Round 18

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  | Change in % of total |
| **Line Item** | Round 17 | | Round 18 | |  | Round 17 to 18 |
| ($) | % of Total | ($) | % of Total |  | percentage point |
| Salary & Wages - Nursing | 127 | 23.0 | 132 | 23.2 |  | 0.2 |
| Salary & Wages - Medical (non-VMO) | 149 | 27.0 | 160 | 28.2 |  | 1.1 |
| Salary & Wages - Medical (VMO) | 13 | 2.4 | 15 | 2.6 |  | 0.2 |
| Salary & Wages - Allied Health | 22 | 4.0 | 23 | 4.0 |  | 0.0 |
| Salary & Wages - Other | 52 | 9.4 | 52 | 9.2 |  | -0.3 |
| On-costs | 37 | 6.7 | 40 | 7.0 |  | 0.3 |
| Pathology | 28 | 5.1 | 27 | 4.7 |  | -0.4 |
| Imaging | 16 | 2.9 | 17 | 2.9 |  | 0.0 |
| Prostheses | - | 0.0 | 0 | 0.0 |  | 0.0 |
| Medical supplies | 16 | 2.9 | 16 | 2.9 |  | 0.0 |
| Goods and services | 49 | 8.9 | 47 | 8.2 |  | -0.7 |
| Pharmaceuticals - PBS | - | 0.0 | 0 | 0.1 |  | 0.1 |
| Pharmaceuticals - non-PBS | 8 | 1.5 | 8 | 1.5 |  | 0.0 |
| Blood | - | 0.0 | 0 | 0.0 |  | 0.0 |
| Depreciation - building | 7 | 1.3 | 8 | 1.4 |  | 0.2 |
| Depreciation - equipment | 6 | 1.1 | 5 | 1.0 |  | -0.1 |
| Hotel | 10 | 1.8 | 10 | 1.8 |  | -0.1 |
| Corporate | 8 | 1.5 | 5 | 0.9 |  | -0.5 |
| Lease | 3 | 0.5 | 3 | 0.5 |  | -0.1 |

Salaries and wages are greater than 68 percent of the average cost. Pathology and imaging, diagnostic services, are 7.5 percent and medical supplies and pharmaceuticals are 4.5 percent.

The national result demonstrated a $5 increase in the average cost per ED presentation in Round 18, a change of less than 1 percent. From a line item perspective, this change was influenced by an increase in salaries and wages medical where the average cost increased by $11 per presentation and salaries and wages nursing increased by $5 per presentation. These line item increases were offset with reductions in costs in goods and services and corporate costs. However the results reported at this level demonstrate that ED budgeting remained relatively consistent between rounds.

# Non-admitted Service Events

This chapter presents cost data results for the non-admitted stream submitted to the Round 18 NHCDC. Comparative analysis for this stream has been performed against Round 17 collection to identify changes in both volume and costs. Non-admitted care encompasses services provided to patients who do not undergo a formal admission process and do not occupy a hospital bed. For example, services provided by hospitals in hospital outpatient clinics, in community based clinics or in patients’ homes.

The classification system for non-admitted care is known as Tier 2 Non-Admitted Care Services, with service events classified within four main groups; procedure, medical consultation, general diagnostic service, or allied health or specialist nurse intervention. The activity unit of measurement for non-admitted services is known as a service event.

The results described in this chapter are for the non-admitted product types Outpatient (OP), Outpatient community (OC) and Outpatient other (OT).

## 4.1 Summary

Nationally, 349 hospitals contributed non-admitted expenditure for NHCDC Round 18, 68 more hospitals than in Round 17. Table 18 includes detail of both the NHCDC Round 17 and Round 18 non-admitted NHCDC.

Table 18 Non-admitted - NHCDC Round 17 and Round 18

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  | Change | |
|  | Round 16 | Round 17 | Round 18 | Round 16 to 17 | Round 17 to 18 |
| (%) | (%) |
| Number of hospitals | 207 | 281 | 349 | 35.7 | 24.2 |
| Service events (millions) | 10.7 | 12.6 | 16.0 | 18.1 | 26.6 |
| Expenditure ($ billion) | 3.3 | 4.0 | 4.5 | 19.4 | 13.0 |
| Average cost per service event ($) | 313 | 316 | 282 | 1.1 | -10.8 |

Approximately 16 million service events with non-admitted costs were submitted to the NHCDC for Round 18. These service events reported $4.5 billion in expenditure, with service events and total expenditure increasing in the Round by 3.4 million and $519 million respectively. The average cost per service event in Round 18 is $282 a decrease of 10 percent from Round 17. South Australia did not submit any non-admitted costs to the Round 18 NHCDC.

## 4.2 Jurisdiction

NSW submitted 37 percent of non-admitted service events and Queensland submitted 30 percent, Victoria submitted 14 percent and Western Australia submitted 10 percent. NSW submitted 28 percent of national non-admitted costs which is less than Queensland who submitted 38 percent of non-admitted costs and 30 percent of non-admitted service events. This disproportionate representation of activity and expenditure, result in NSW reporting the lowest average cost per service event, 26 percent less than the national average.

Table 19 Non-admitted – Jurisdiction NHCDC Round 18

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Jurisdiction** |  | **Total** | |  | **Average** | |
| Hospitals | Service event | Expenditure |  | Cost per service event | Cost per weighted service event |
| no. | no. | ($M) |  | ($) | ($) |
| NSW | 91 | 5,962,346 | 1,246 |  | 209 | 218 |
| Vic | 38 | 2,183,997 | 603 |  | 276 | 281 |
| Qld | 182 | 4,773,114 | 1,702 |  | 357 | 330 |
| SA | - | - | - |  | - | - |
| WA | 34 | 1,618,883 | 534 |  | 330 | 344 |
| Tas | 4 | 261,516 | 83 |  | 316 | 336 |
| NT | 5 | 215,080 | 104 |  | 485 | 453 |
| ACT | 2 | 954,236 | 237 |  | 248 | 258 |
| **National** | **349** | **15,969,172** | **4,510** |  | **282** | **282** |

The average cost per service event is $282 a reduction of $55 (21 percent). The movement in NSW’s activity and costs accounts for over 70 percent of the national movement, making NSW the primary driver of change in non-admitted data between the two rounds. Round 18 is only the second year that NSW has submitted non-admitted data, and they have had a significant improvement in reporting and costing of non-admitted data over these two rounds. NSW added 27 hospitals to the Round 18 collection which increased in the number of service events by 2.63 million (80 percent) and associated costs by $364 million up 40 percent.

Queensland service events comprise 30 percent of the collection and represent 38 percent of total non-admitted expenditure. Queensland report the second highest average cost per service event nationally $357 this was a 5 percent reduction from Round 17 however it was still 26 percent higher than the national average cost.

Queensland had minimal movement in non-admitted data between rounds with a 3 percent increase in activity and a 2 percent decrease in expenditure. This is in contrast to the number of reporting Queensland hospitals increasing by 38. This discrepancy is due to significant improvements in Queensland’s non-admitted data collection. Specifically, Queensland has linked more pharmacy and imaging costs to relevant admitted patients, resulting in a decrease in submitted non-admitted costs. Queensland has also improved linking of patients’ activity across multiple healthcare providers, leading to a reduction in submitted activity.

Victoria is the third largest jurisdiction in terms of non-admitted activity and expenditure, however the volume submitted is significantly smaller than both NSW and Queensland. Victoria has relatively consistent non-admitted data, with two additional hospitals submitting in Round 18, a 2 percent increase in activity, and a 4 percent increase in costs. WA has significantly increased the reporting and costing of non-admitted data, with a 32 percent increase in activity and a 33 percent increase in costs.

## 4.3 Tier 2 classes

Of the 15.97 billion service events submitted in the three non-admitted product types (OP, OC and OT) as part of the Round 18 NHCDC 67,915 non-admitted service events and $12 million were excluded from the Tier 2 table at Appendix 19. The excluded records were submitted without a Tier 2 version 2 class or were not linked to the non-admitted patient activity data set.

The Tier 2 class table (Appendix 20) accounts for 15.94 billion non-admitted service events and $4.503 billion in expenditure.

Tier 2 classes are structured into procedures, medical consultation services, diagnostic services and allied health and/or clinical nurse specialist intervention services. The majority of service events, 46 percent were classified as medical consultations (7.4 million) and 43 percent were nurse/allied health led service events (6.8 million). Between Rounds 17 and 18 there was considerable movement in the number of service events and the average cost across the Tier 2 classes. The major factors influencing this change were a large increase in the number of service events submitted by NSW, the change in Tier 2 version from 1.2 to 2.0 (between these versions there are 29 new Tier 2 classes and three discontinued classes), and a large reclassification of service events within Queensland. Additionally, WA, NT and ACT all undertook upgrades to their Tier 2 reporting and costing.

The quality and volume of service events included in the NCHDC is improving across all jurisdictions. This improvement can be seen by the gradual stabilisation of the average cost of the Tier 2 class data across the last four rounds. This is quantified by the proportion of service events that were in Tier 2 classes that had a less than ten percent movement in average cost between Rounds. Between NHCDC Round 17 and Round 18 the movement in average cost for 45 Tier 2 classes was less than 10 percent. These 45 Tier 2 classes accounted for 58 percent of all Round 18 service events. This was an increase from 30 percent of service events having less than a 10 percent change in average cost between Round 16 and Round 17.

Of the remaining 42 percent of service events which have a greater than 10 percent variance between Round 17 and Round 18:

* 20 percent were in Tier 2 classes where the change in average cost was driven by an increase in the number of NSW service events;
* 9 percent were not reported by all jurisdictions in Round 17 as the service events were not reported in previous activity submissions (i.e. Tier 2 v1.2 did not have classes 10.15 – 10.18 and 40.35 - 40.59);
* 3 percent were in Tier 2 classes where the change in average cost was driven by a change in the number of Queensland service events; and
* 10 percent reported higher variance between rounds due to inconsistent activity or cost reporting by jurisdictions.

Appendix 20 presents the number of service events and the average cost of Tier 2 classes in Round 17 and Round 18. Although this is a considerable improvement over previous rounds, the equivalent measures of stability in the admitted acute and ED data are well over 90 percent.

## 4.4 Cost Bucket Overview

As discussed in the admitted acute chapter, cost buckets provide a high level disaggregated view of the total patient cost. For non-admitted care, costs are expected to reflect the classification group of the service event.

Table 20 Non-admitted – Cost bucket NHCDC Round 17 and Round 18

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  | Change in % of total |
| **Cost Bucket** | Round 17 | | Round 18 | |  | 17 to 18 |
| ($) | % of Total | ($) | % of Total |  | percentage point |
| Ward Medical | 62 | 19.6 | 53 | 18.7 |  | -0.9 |
| Ward Nursing | 42 | 13.2 | 38 | 13.6 |  | 0.4 |
| Allied Health | 32 | 10.3 | 33 | 11.7 |  | 1.4 |
| Non Clinical | 29 | 9.2 | 29 | 10.3 |  | 1.1 |
| On-costs | 20 | 6.2 | 19 | 6.7 |  | 0.5 |
| Pathology | 13 | 4.0 | 10 | 3.4 |  | -0.6 |
| Imaging | 19 | 6.1 | 15 | 5.3 |  | -0.8 |
| Prosthesis | 1 | 0.2 | 1 | 0.3 |  | 0.0 |
| Ward Supplies | 41 | 13.0 | 34 | 12.2 |  | -0.8 |
| Pharmacy | 35 | 11.1 | 30 | 10.6 |  | -0.5 |
| Critical Care | 0 | 0.1 | 0 | 0.0 |  | 0.0 |
| Operating Room | 4 | 1.3 | 4 | 1.4 |  | 0.1 |
| Special Procedure Suite | 5 | 1.6 | 4 | 1.2 |  | -0.3 |
| Emergency Department | 0 | 0.1 | 0 | 0.1 |  | 0.0 |
| Hotel | 3 | 1.1 | 3 | 1.2 |  | 0.1 |
| Depreciation | 9 | 2.9 | 9 | 3.4 |  | 0.4 |
| **Total** | **316** |  | **282** |  |  |  |

For non-admitted NHCDC Round 18, 61 percent of expenditure come from salary and wages related cost buckets. National discrepancies in salaries (as noted in the admitted acute chapter) and composition of staff (e.g. ratio of nurses to doctors) will impact these costs. NSW has by far the lowest average cost across these cost buckets, with the medical cost bucket being the primary driver of the low cost.

Ward supplies (12 percent), Pharmacy (11 percent ) and diagnostics (Imaging 5 percent, Pathology 3 percent) make up the bulk of the remaining costs. Pharmacy costs in NSW are underreported as Section 100 drug costs (highly specialised drugs program) are not captured for their non-admitted data.

There is little reported in Emergency Department, Critical Care, Prosthesis, and surgery buckets (operating room and special procedure suite) as patients requiring these services would normally be admitted or in ED. Where costs are reported, it is likely that staff or goods and services which are used in the non-admitted setting may have been sourced from these areas.

## 4.5 Line Item

The cost by line item has been calculated for all non-admitted service events and is provided below in Table 22, the jurisdiction cost by line item has been included in Appendix 22. Salaries and wages medical account for 17.5 percent of all non-admitted service events expenditure which is the highest single line item. The combination of all salaries and wages line items account for approximately 60 percent of all non-admitted costs. All jurisdictions have a similar breakdown of costs across the line items with all jurisdictions having around 60 percent of all costs in salaries and wages line items. Goods and services and on costs contained the next highest percentage of costs across all jurisdictions. WA and Queensland reported greater than 10 percent of costs to the line item pharmacy non-PBS.

Table 21 Non-admitted- Line item NHCDC Round 17 and Round 18

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  | Change in % contribution |
| **Line Item** | Round 17 | | Round 18 | |  | Round 17 to 18 |
| ($) | % of Total | ($) | % of Total |  | percentage point |
| Salary & Wages – Nursing | 47 | 14.8 | 43 | 15.2 |  | 0.4 |
| Salary & Wages - Medical (non-VMO) | 59 | 18.6 | 50 | 17.5 |  | -1.0 |
| Salary & Wages - Medical (VMO) | 11 | 3.5 | 10 | 3.5 |  | 0.0 |
| Salary & Wages - Allied Health | 38 | 11.9 | 38 | 13.4 |  | 1.4 |
| Salary & Wages – Other | 32 | 10.1 | 31 | 10.9 |  | 0.8 |
| On-costs | 20 | 6.3 | 19 | 6.7 |  | 0.4 |
| Pathology | 8 | 2.5 | 7 | 2.3 |  | -0.2 |
| Imaging | 4 | 1.3 | 3 | 0.9 |  | -0.3 |
| Prostheses | 1 | 0.3 | 1 | 0.3 |  | -0.1 |
| Medical supplies | 11 | 3.5 | 10 | 3.4 |  | 0.0 |
| Goods and services | 33 | 10.4 | 30 | 10.6 |  | 0.3 |
| Pharmaceuticals – PBS | 6 | 1.9 | 4 | 1.4 |  | -0.5 |
| Pharmaceuticals - non-PBS | 25 | 7.9 | 22 | 7.8 |  | 0.0 |
| Blood | 1 | 0.3 | 0 | 0.2 |  | -0.2 |
| Depreciation – building | 4 | 1.3 | 5 | 1.6 |  | 0.4 |
| Depreciation – equipment | 5 | 1.6 | 4 | 1.4 |  | -0.2 |
| Hotel | 3 | 0.9 | 3 | 1.2 |  | 0.3 |
| Corporate | 9 | 2.8 | 4 | 1.3 |  | -1.5 |
| Lease | 1 | 0.3 | 1 | 0.4 |  | 0.0 |

# Subacute Services

This chapter presents cost data results for the subacute stream submitted to the Round 18 NHCDC. Subacute care is defined as specialised multidisciplinary care where the primary need for care is optimisation of the patient’s functioning and quality of life. Subacute care comprises rehabilitation (RH), palliative care (PC), Geriatric Evaluation and Management (GEM), psychogeriatric (PG) and maintenance (MA).

## 5.1 Summary

Nationally, 335 hospitals contributed subacute cost data for Round 18 of the NHCDC, the same number of hospitals as reported in Round 17. However the composition of hospitals reporting subacute costs did change in Round 18. NSW increased its number of participating hospitals by 15 and there was a decrease in the number of hospitals contributing this data in Tasmania, with 15 fewer hospitals than Round 17. There were 167,098 separations submitted to Round 18 of the NHCDC. This is a 525 decrease or 0.31 percent reduction on Round 17. There were 2,504,877 subacute bed days reported in Round 18 of the NHCDC an increase of 9,113 days or 0.37 percent. Total expenditure increased by $144.8 million or 7.04 percent.

There was less than one percent change in the number of separations submitted however there was a 7 percent increase in the cost submitted to the NHCDC which results in a 7 percent increase in the average cost per separation.

Table 22 below provides an overview of the Round 18 data. A more comprehensive table, comparing Round 17 to Round 18 is available in Appendix 23.

Table 22 Subacute - NHCDC Round 17 and Round 18

| **Care type** |  | **Round 17** | **Round 18** | **Change**  **Round 17 to 18** |
| --- | --- | --- | --- | --- |
|  | (%) |
| GEM | Number of hospitals | 159 | 161 | 1.3 |
| Separations | 29,051 | 30,063 | 3.5 |
| Expenditure ($M) | 390.5 | 440.0 | 12.7 |
| ALOS | 16 | 18 | 8.1 |
| Average cost per separation ($) | 13,443 | 14,635 | 8.9 |
| Maintenance | Number of hospitals | 287 | 284 | -1.0 |
| Separations | 18,309 | 19,037 | 4.0 |
| Expenditure ($M) | 249.8 | 283.1 | 13.3 |
| ALOS | 13 | 14 | 7.6 |
| Average cost per separation ($) | 13,644 | 14,872 | 9.0 |
| Palliative Care | Number of hospitals | 261 | 279 | 6.9 |
| Separations | 28,794 | 28,860 | 0.2 |
| Expenditure ($M) | 298.9 | 317.2 | 6.1 |
| ALOS | 20 | 19 | -4.8 |
| Average cost per separation ($) | 10,380 | 10,992 | 5.9 |
| Psychogeriatric | Number of hospitals | 61 | 53 | -13.1 |
| Separations | 1,966 | 1,564 | -20.4 |
| Expenditure ($M) | 56.4 | 40.4 | -28.4 |
| ALOS | 26 | 22 | -14.7 |
| Average cost per separation ($) | 28,699 | 25,834 | -10.0 |
| Rehabilitation | Number of hospitals | 253 | 272 | 7.5 |
| Separations | 89,503 | 87,574 | -2.2 |
| Expenditure ($M) | 1,061.1 | 1,120.8 | 5.6 |
| ALOS | 13 | 13 | -0.8 |
| Average cost per separation ($) | 11,855 | 12,798 | 8.0 |
| **Total** | Number of hospitals | 335 | 335 | 0.0 |
| Separations | 167,623 | 167,098 | -0.3 |
| Expenditure ($M) | 2,056.7 | 2,201.5 | 7.0 |
| ALOS | 15 | 15 | 0.7 |
| Average cost per separation ($) | 12,270 | 13,175 | 7.4 |

The rehabilitation product within the subacute stream reported the most separations and expenditure for Round 18 of the NHCDC with 52 percent and 51 percent of total separations and total expenditure respectively. Combined GEM and palliative care comprise 36 percent of total separations and total expenditure submitted to Round 18 of the NHCDC.

## 5.2 Rehabilitation

There were 1,929 fewer or a 2 percent decrease in separations reported in Round 18 of the NHCDC however expenditure increased, with an additional $60 million. This resulted in the average cost per separation increasing by $943 or 8 percent in Round 18.

NSW, Victoria and Queensland combined contribute 82 percent of separations and 80 percent of costs reported in the Round 18 collection. The three largest jurisdictions all submitted increases in volume and expenditure. The change in average cost per separation was between 1 and 8 percent.

The number of separations submitted from the Northern Territory reduced by 8 percent and the expenditure increased by $3.3 million average cost increased by 57 percent. While the average length of stay for Northern Territory reduced by four days this did not explain the change in the total or average costs which may be the result of more costs being allocated to this care type during the costing process.

## 5.3 Geriatric Evaluation and Maintenance

There was an additional 2 hospitals, an increase of 3 percent in separations and an additional $49.4 million in expenditure submitted for GEM in Round 18 NHCDC. The average cost per separation increasing by $1,191 or 9 percent.

All jurisdictions reported high variance in the change of costs, separations and average cost when compared to Round 17. This ranged from a 26 percent increase in average cost for Queensland and Western Australia and a 27 percent decrease in Tasmania and a 55 percent decrease in Northern Territory.

## 5.4 Palliative Care

The number of hospitals reporting palliative care expenditure in Round 18 of the NHCDC increased by 18 hospitals which were all from NSW. There was no material change in the number of palliative care separations submitted in the Round however there average length of stay decreased by 4.8 percent. The change in average length of stay was driven by NSW who reported one third of all separations and the average length of stay reduced by 6.6 days. NSW also reported an increase in the average cost per separation of 5.4 percent. Queensland also reported a reduction in separations by 4.3 percent and a 6.5 percent increase in expenditure resulting in an increase of average cost by 11.3 percent. Nationally there was a 6 percent increase in expenditure submitted and a 6 percent increase in average cost per separation.

## 5.5 Maintenance

The number of hospitals reporting maintenance care cost data to the NHCDC decreased by 3 hospitals in Round 18. There was an increase of 728 separations, an additional $249.8 million in costs than in Round 17. The average cost per separation increasing by $1,229 or 9 percent for Round 18. There is a large variance in the average cost per separation across jurisdictions ranging from $9,539 in NSW to $52,823 in the Northern Territory. The average cost per bed day also varies greatly across jurisdictions from $306 to $2,107, the national average cost per bed day is $574. This variances is due to the non-acute nature of the patients and the range of clinical utilisation of these separations.

## 5.6 Psychogeriatric

The expenditure and separations submitted to the NHCDC for psychogeriatric care are small in volume contributing less than 1 percent of all separations reported. There is little consistency between rounds and activity and expenditure vary greatly between jurisdictions.

WA have provided the greatest number of psychogeriatric care separations and expenditure to both the NHCDC Round 17 and Round 18 NHCDC. WA also report the highest average cost per psychogeriatric care separation of $40,925. This cost is influenced by an average length of stay greater than 30 days and average bed day cost of $1372, the highest nationally.

Combined NSW, Queensland, and WA provide 87 percent of total Round 18 separations and 82 percent of total expenditure. Victoria does not report costs for psychogeriatric care patients whilst for Round 18, the NT did not report these costs.

## 5.7 Cost Bucket Overview

Table 23 presents by jurisdiction an overview of the percentage average cost per bucket for the subacute stream.

Table 23 Subacute – Cost bucket NHCDC Round 17 and Round 18

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  | Change in % of total |
| **Cost Bucket** | Round 17 | | Round 18 | |  | 17 to 18 |
| Avg  ($) | % of Total | Avg  ($) | % of Total |  | percentage point |
| Ward Medical | 1665 | 13.6 | 1833 | 13.9 |  | 0.3 |
| Ward Nursing | 4191 | 34.2 | 4,502.8 | 34.2 |  | 0.0 |
| Allied Health | 1422 | 11.6 | 1,527.4 | 11.6 |  | 0.0 |
| Non Clinical | 1303 | 10.6 | 1,411.3 | 10.7 |  | 0.1 |
| On-costs | 947 | 7.7 | 1,052.2 | 8.0 |  | 0.3 |
| Pathology | 169 | 1.4 | 153.4 | 1.2 |  | -0.2 |
| Imaging | 104 | 0.8 | 103.5 | 0.8 |  | -0.1 |
| Prosthesis | 12 | 0.1 | 12.3 | 0.1 |  | 0.0 |
| Ward Supplies | 1188 | 9.7 | 1,211.7 | 9.2 |  | -0.5 |
| Pharmacy | 372 | 3.0 | 361.7 | 2.7 |  | -0.3 |
| Critical Care | 11 | 0.1 | 20.3 | 0.2 |  | 0.1 |
| Operating Room | 26 | 0.2 | 28.3 | 0.2 |  | 0.0 |
| Special Procedure Suite | 4 | 0.0 | 5.3 | 0.0 |  | 0.0 |
| Emergency Department | 21 | 0.2 | 21.6 | 0.2 |  | 0.0 |
| Hotel | 541 | 4.4 | 611.3 | 4.6 |  | 0.2 |
| Depreciation | 293 | 2.4 | 319.1 | 2.4 |  | 0.0 |
| **National** | **12,270** |  | **13,175** |  |  |  |

As with other streams, subacute patients generally consume labour resources in the form of nursing, medical and allied health care. However the ward nursing cost bucket is higher than in any other product stream.

Whilst 34 percent of expenditure are related to ward nursing, the national average ward nursing costs for subacute separations is reported as $4,503 and across jurisdictions this ranges from $3,064 to $10,010. Ward medical costs nationally are reported as $1,833 per separation, and range from $1,394 (NSW) to $2,929 (NT). Allied Health costs are report cost range of $830 (SA) to $2,368 (NT). The average allied health bucket costs is reported as $1,527.

## 5.8 Line Item

Nursing costs represented by the line item SW Nursing (salaries and wages nursing) again contribute 34 percent of the average cost for subacute separations. This data indicates that the ward nursing bucket is generally dominated by nursing salary costs. The line item data however, provides more insight into medical costs. Whilst the ward medical cost bucket data reported an average cost of $1,833 nationally (above), Table 24, provides a disaggregated view by salary and wages medical and VMO. Here it is demonstrated that medical officer costs of $1,622 per subacute separation generally drive the ward medical line item as VMO costs reported at $264 per subacute separation.

Table 24 Subacute - Line item NHCDC Round 17 and Round 18

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  | Change in % contribution |
| **Line Item** | Round 17 | | Round 18 | |  | Round 17 to 18 |
| Avg  ($) | % of Total | Avg  ($) | % of Total |  | percentage point |
| Salary & Wages - Nursing | 4,271 | 34.9 | 4,561 | 34.7 |  | -0.2 |
| Salary & Wages - Medical (non-VMO) | 1,486 | 12.1 | 1,612 | 12.3 |  | 0.1 |
| Salary & Wages - Medical (VMO) | 219 | 1.8 | 264 | 2.0 |  | 0.2 |
| Salary & Wages - Allied Health | 1,282 | 10.5 | 1,399 | 10.6 |  | 0.2 |
| Salary & Wages - Other | 1,428 | 11.7 | 1,547 | 11.8 |  | 0.1 |
| On-costs | 947 | 7.7 | 1,052 | 8.0 |  | 0.3 |
| Pathology | 119 | 1.0 | 118 | 0.9 |  | -0.1 |
| Imaging | 31 | 0.3 | 32 | 0.2 |  | 0.0 |
| Prostheses | 12 | 0.1 | 12 | 0.1 |  | 0.0 |
| Medical supplies | 229 | 1.9 | 243 | 1.8 |  | 0.0 |
| Goods and services | 1,083 | 8.8 | 1,090 | 8.3 |  | -0.6 |
| Pharmaceuticals - PBS | 18 | 0.1 | 16 | 0.1 |  | 0.0 |
| Pharmaceuticals - non-PBS | 232 | 1.9 | 218 | 1.7 |  | -0.2 |
| Blood | 3 | 0.0 | 3 | 0.0 |  | 0.0 |
| Depreciation - building | 174 | 1.4 | 213 | 1.6 |  | 0.2 |
| Depreciation - equipment | 74 | 0.6 | 53 | 0.4 |  | -0.2 |
| Hotel | 541 | 4.4 | 611 | 4.6 |  | 0.2 |
| Corporate | 60 | 0.5 | 60 | 0.5 |  | 0.0 |
| Lease | 45 | 0.4 | 52 | 0.4 |  | 0.0 |

## 5.9 AN-SNAP Class Overview

AN-SNAP is the classification system which classifies episodes of subacute and non-acute patient care that are provided in inpatient, outpatient and community settings. Patients are assigned a classification on the basis of setting, care type, phase of care, and assessment of functional impairments, age and other measures. Subacute patient level cost data for Round 18 NHCDC was grouped into AN-SNAP Version 3. Cost data by AN-SNAP Class version 3 is presented in Appendix 24.

NSW has provided cost information at the palliative care phase level AN-SNAP classes 3‑101 to 3‑112. The palliative care phase identifies a clinically meaningful period in a patient’s condition. A patient can move between phases of care following clinical assessment during their episode of care. There may be several phases of care reported for each episode of care.

Table 25 Subacute - AN-SNAP class grouping to error classes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Jurisdiction** | **Error SNAP class** | | **Percentage of total** | |
| Phases | Expenditure | Phases | Expenditure |
| no. | ($M) | (%) | (%) |
| NSW | 22,483 | 94.2 | 32 | 13 |
| Vic | 7,228 | 86.5 | 20 | 16 |
| Qld | 15,350 | 162.8 | 37 | 33 |
| SA | 7,655 | 85.8 | 61 | 71 |
| WA | 3,668 | 70.4 | 32 | 31 |
| Tas | 1,702 | 28.9 | 100 | 100 |
| NT | 333 | 13.8 | 42 | 50 |
| ACT | 1,185 | 19.4 | 41 | 32 |
| **National** | 59,604 | 561.8 | 33 | 26 |

The AN-SNAP classification system is capable of assigning all episodes and phases with legitimate error AN-SNAP classes where there is insufficient information to correctly classify the episode. These episodes are grouped to generic classes which reflect the product type of the patient, rehabilitation, palliative care etc. Table 25, provides detail on the number and percentage number of error class records. Thirty three percent of separations/phases were ‘errors’, an improvement from Round 17 when 40 percent of separations were errors.

# Other Costed Products

This chapter presents an overview of separations reported against the other products stream in Round 18 of the NHCDC. This stream comprises costs assigned to ‘other care’ (care type ‘8’), posthumous organ procurement (care type ‘9’) and hospital boarders (care type ‘10’). Costing results for Round 18 of the NHCDC are shown for each and where possible comparisons are made against Round 17 of the NHCDC. SA and the ACT did not submit costs for any of the care types which are included in this chapter.

## 6.1 Summary

Round 18 of the NHCDC saw a decrease in the number of records submitted. There were 3,872 fewer costed records and a reduction of $18.7 million in expenditure. The changes are demonstrated at the jurisdictional level in Appendix 27.

Table 26 Other stream NHCDC Round 17 and Round 18

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Product Type** |  | **Round 17** | **Round 18** | **Change from Round 17 to 18** |
|  | (%) |
| Boarders | Number of hospitals | 131 | 150 | 14.5 |
| Separations | 27,299 | 22,665 | -17.0 |
| Expenditure ($ M) | 18.6 | 9.1 | -51.3 |
| Average cost per separation ($) | 681 | 399 | -41.3 |
|  |  |  |  |  |
| Organ Procurement | Number of hospitals | 34 | 37 | 8.8 |
| Separations | 152 | 173 | 13.8 |
| Expenditure ($ M) | 1.5 | 1.8 | 14.2 |
| Average cost per separation ($) | 10,178 | 10,213 | 0.3 |
|  |  |  |  |  |
| Other | Number of hospitals | 32 | 32 | 0.0 |
| Separations | 1,673 | 2,420 | 44.1 |
| Expenditure ($ M) | 34.9 | 25.5 | -26.8 |
| Average cost per separation ($) | 20,775 | 10,552 | -49.2 |
| **Total** | Number of hospitals | 168 | 195 | 16.1 |
| Separations | 29,130 | 25,258 | -13.3 |
| Expenditure ($ M) | 55.0 | 36.4 | -33.9 |
| Average cost per separation ($) | 1,889 | 1,439 | -23.8 |

The costs and activity reported which are classified as Other vary significantly between rounds and jurisdictions.

## 6.2 Organ Procurement

Organ procurement is defined as an activity undertaken by hospitals in which human tissue is procured for the purpose of transplantation from a donor who has been declared brain dead[[6]](#footnote-6). .

There was an increase in the number of costed records submitted to Round 18 of the NHCDC. There was an additional 21 or a 14 percent increase in costed records, a $219,839 increase or 14 percent increase in total expenditure. There is a marginal increase in the average cost of organ procurement per separation of less than 1 percent or $35 per separation.

Cost assignment for organ procurement is challenging given the model and setting where the activity occurs as costing relies upon feeder data to assign costs. Depending upon the organ procurement model, the relevant information required for costing can be difficult to identify. Clinically these procedures are generally undertaken in the operating theatre, with medical and nursing staff from specific medical units. This data is represented by cost bucket in Table 27 for NHCDC Round 18.

Table 27 Organ procurement cost bucket

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  | Change in % of total |
| **Cost Bucket** | Round 17 | | Round 18 | |  | 17 to 18 |
| ($) | % of Total | ($) | % of Total |  | percentage point |
| Ward Medical | 146 | 1.4 | 135 | 1.3 |  | -0.1 |
| Ward Nursing | 131 | 1.3 | 27 | 0.3 |  | -1.0 |
| Allied Health | 115 | 1.1 | 62 | 0.6 |  | -0.5 |
| Non Clinical | 60 | 0.6 | 39 | 0.4 |  | -0.2 |
| On-costs | 625 | 6.1 | 691 | 6.8 |  | 0.6 |
| Pathology | 596 | 5.9 | 507 | 5.0 |  | -0.9 |
| Imaging | 139 | 1.4 | 78 | 0.8 |  | -0.6 |
| Prosthesis | 257 | 2.5 | 297 | 2.9 |  | 0.4 |
| Ward Supplies | 61 | 0.6 | 45 | 0.4 |  | -0.2 |
| Pharmacy | 46 | 0.4 | 22 | 0.2 |  | -0.2 |
| Critical Care | 2546 | 25.0 | 2,449 | 24.0 |  | -1.0 |
| Operating Room | 4713 | 46.3 | 5,168 | 50.6 |  | 4.3 |
| Special Procedure Suite | 17 | 0.2 | 45 | 0.4 |  | 0.3 |
| Emergency Department | 76 | 0.7 | 2 | 0.0 |  | -0.7 |
| Hotel | 307 | 3.0 | 343 | 3.4 |  | 0.3 |
| Depreciation | 344 | 3.4 | 304 | 3.0 |  | -0.4 |
| **Total** | **10,178** |  | **10,213** |  |  |  |

Operating room and critical care cost are the highest cost buckets as organ procurement requires long intensive care and mechanical ventilation costs and high theatre resource utilisation.

## 6.3 Boarders

Boarders are defined as a person who is receiving food and/or accommodation but for whom the hospital does not accept responsibility for treatment and/or care.

Round 18 of the NHCDC saw a decrease in the number of costed records submitted. There were 4,634 fewer costed records, a decrease of 17 percent on the previous collection and a 51 percent decrease in total expenditure. That is a reduction of $18.7 million when compared to Round 17. The average cost for boarder classified separations declined by $281 or 41 percent.

## 6.4 Other Admitted acute Patient Care

Other admitted acute patient care refers to admitted patient care that does not meet the definitions of other admitted care types[[7]](#footnote-7).

Caution should be taken when reviewing between NHCDC rounds as changes to costs reported within this product type can vary according to activity assignment and changes in costing methodology; where improved feeder information can reduce the rate of activity mismatching between episodes and ultimately product types.

There was an increase of 741 costed records submitted to Round 18 of the NHCDC. That was a 44 percent increase on the previous round. Total expenditure however declined by 27 percent or $9.3 million.

# Data Quality Statement

## 7.1 NSW Health

### Overview

The NSW Round 18 2013/14 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 V 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 DNRs are consolidated and formatted to comply with the NHCDC data set specifications. ABF Taskforce includes the escalated Work in Progress (WIP) expense from previous rounds prior to submission to IHPA and no adjustments are made to the DNRs submitted by the LHD/SHNs.

The DNR is a single submission used to satisfy reporting requirements for the NHCDC, but also the Public Hospital Establishment Collection, the 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 2014/15, a total of 97 hospitals. This is an increase of 14 hospitals on the Round 17 submission with inclusion of Casino Hospital, Macksville Hospital, Maclean Hospital, Inverell Health Service, Moree Health Service, Mudgee District Hospital, Cowra District Hospital, Forbes District Hospital, Lithgow Health Service, Parkes District Hospital, Deniliquin Health Service, Cooma Health Service, Cessnock Health Service and Singleton Health Service.

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. Special Purpose Fund expenditure is included but not allocated at the patient level in the DNR. Trust Fund expenditure is not included in the DNR.

### Data Quality

Data quality processes for Round 18 were further developed on the Round 17 initiatives. An additional six 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 also performed in the draft submission period. The patient level data quality checks were also further enhanced, 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 17 NHCDC Quality Assurance checks.

A web based tool, the RQ App (Reasonableness and Quality), was 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 was refreshed nightly, with results accessible the next working day after a submission. Issues were corrected and the DNR rerun and resubmitted.

### 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.

AN-SNAP Palliative Care Phases – NSW costs and reports Palliative Care episodes at the Phase level and not the episode level. As a result, NSW and IHPA had to again develop a work around as the NHCDC submission validation rules are applied at the episode level and not the phase 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 not distributed to the LHD/SHNs and reported in the financial statements. However to ensure compliance with AHPCS SCP 2.003 Expenditure in Scope, the 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 AHPCS 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 18 where the admission year was either Round 16 or Round 17. The escalation of the Round 16 and/or the Round 17 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 PAS with two or more bed types to distinguish the ICU hours separately to the HDU hours for example. 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 – In Round 18, NSW implemented a standardised weighted duration metric for duration in the theatre feeder data to reflect both the number of staff and the time and day of the week. This was done to ensure consistency across all facilities.

## 7.2 Victoria

### Business Rules

The Victorian submission to the Round 18 (2013-014) NHCDC submission is based on the 2013-14 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 (AHPCS) V2 – excluding standards relating to Depreciation (DEP 1.001, 1A.001, 1C.001 !D.001 and 1E.001), Teaching (SCP 2A.002) and Research (SCP 2B.001)

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 23rd Edition (Admitted)
* Victorian Emergency Minimum Dataset (VEMD) manual 18th Edition (Emergency)
* Victorian Integrated Non-Admitted Health Minimum Dataset (VINAH) manual Version 9 (non-admitted)

These patient demographics are then converted to the relevant national minimum dataset or IHPA data set 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 to due to the timing of the submission date required by the IHPA. This has resulted in the following exclusions/inclusions between 2012-13 and 2013-14.

A campus that was reported in 2013-14 and not 2012-13 was 210A01232 Women’s Sandringham.

A campus that was reported in 2012-13 and not 2013-14 was 210502060 Central Gippsland Health.

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’ Affair (DVA)

### Limitations of Round 18 NHCDC data:

The following limitations of the Round 18 (2013-14) 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 2013 – 30 June 2014) were included in the Round 18 submission. Cost incurred by these patients in the prior year was also included in the reported Round 18 expenditure.

*Blood products in the Round 18 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 NHCDC Round 17 and Round 18 NHCDC collections* – There was no significant change in their NHCDC submission with the exception of:

* Northern Health (Private patient pathology and radiology costs are excluded from the VCDC)
* Barwon Head (Private patient pathology 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 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 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 and NICU only. MV hours provided min a non-approved ICU are not collected.

*Mental Health Legal Status* – Only patients in Approved Mental Health Service or Psychogeriatric Program in public hospitals who care is funded by Mental Health Services can report the status. Patients in all other care types, report for ‘non applicable’ code.

## 7.3 Queensland

### Context

For Round 18 of the National Hospital Cost Data Collection (NHCDC) establishments where activity data was available was submitted (regardless of funding source), with the exception of Community mental health, some Multipurpose Health Centres, transition care services and Hospital and Health Service (HHS) run residential care facilities.

Reconciliation of patient level costs was provided at HHS level with the facility being a sub unit of the HHS. All data was validated prior to submission to the Independent Hospital Pricing Authority (IHPA).

The following is the range of data quality issues that have been identified for Round 18 of the NHCDC.

### Unlinked Diagnostic data

Where pathology or imaging data has not been able to be linked to an episode record, according to the data matching rules, these records have been mapped to the relevant diagnostic Tier 2 clinic. Pathology has been mapped to 30.05 and diagnostic imaging has been mapped to 30.01 (General Imaging) and 30.03 (Computerised Tomography), as applicable. As there is no clinic for unlinked pharmacy these have been mapped to 40.04 (Clinical Pharmacy).

### Patient level data

Some establishments do not have 100% coverage and collection in an appropriate feeder system, especially in the case of outpatient data. Facilities that have gaps in feeder systems use an aggregate patient (modelled cost) to carry the cost of the services where patient level clinical information is not available. Where possible, these costs, which comprise approximately 0.55% of the total submitted costs, have been mapped to the aggregate clinic counts and at “patient level” are reported. As this is a form of cost modelling, records have been identified with a medical record number of “VPM” so that IHPA can exclude from the calculation of the National Efficient Price.

### Work in Progress data

Work in progress comprises two subsets of episodes. Firstly, work in progress from prior periods (i.e. those episodes started in a period prior to the reference period and completed during the reference period). The prior period costs of these episodes are included in the submission (i.e. the full cost of the episode from admission to discharge is included). The second group comprise current work in progress episodes, those episodes which have been admitted but not yet discharged and treatment is continuing. These episodes and associated costs are excluded from the submission.

### Costing of Rural and Remote Hospital and Health Services

There were three Hospital and Health Services comprising 51 rural and remote hospitals that were previously cost modelled, that moved to patient level costing in Round 18. The three HHS’s are Torres and Cape, South West and Central West. This first year of patient level costing has highlighted some issues in the treatment of costs in the HHS general ledger which has resulted in some movement in average product costs when compared to previous NHCDC Rounds.

### Blood Products

Blood product costs are included in the patient level costing for Round 18.

### Teaching, Training and Research

Costs for teaching, training and research included in the general ledger are allocated to patient products.

### Corporate costs

Corporate costs included in Round 18 comprise only corporately supported information systems;

### Other Issues identified

The following issues in Round 18 do not have a significant impact on overall cost outcome(s) but are noted here for completeness.

### Inconsistent costing methodology applied

These include:

[1] The use of an aggregate patient product instead of costing an available patient level cost product.

[2] Patient level products with no relative value unit (RVU) where the product should be costed as recommended in the costing standards. Cost records with zero RVU comprise less than 0.0008% of records.

[3] Some products with identifiable differences in human and material resource consumption have an RVU that indicates that the department has not reviewed these allocations. This affects the costing validity at a lower level and may lead to specific services or patient types carrying more cost (or less cost) than would normally be expected.

### Incomplete Coverage in Feeder Systems

Patient level feeder systems that have not yet been implemented at HHS’s in the Round 18 data include Ambulatory Endoscopy, Private Practice and community mental health information system.

## 7.4 South Australia

### Participation and Coverage

South Australia's 2013-14 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 17, cost data for all eight metropolitan hospitals and six large country hospitals were submitted in Round 18. 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.

South Australia produces patient level costing data for Inpatient, Outpatient and Emergency Department (ED) services, however only Inpatient and ED cost data are submitted to the NHCDC. The Outpatient cost data was reviewed and it was determined not to be of sufficient accuracy to be submitted and further work is being undertaken to improve the quality of the Outpatient data.

### Teaching, Training and Research (TTR)

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 2013-14 were submitted. The escalation factor (as provided by IHPA) is applied to all work in progress records.

### Changes to costing or admission policies between NHCDC Round 17 and Round 18 NHCDC collections

To improve the costing of ED services, the costing methodology was changed. In Round 17, cost attribution was based on ED time, not recognising acuity and manually applying a patient fraction to reallocate the Inpatient costs. In Round 18, ED costing recognises that different triage categories, resuscitation and Inpatients require different staffing ratios. The impact was a reallocation of costs between ED patients, and from the ED Inpatient wards to ED.

During 2013-14, the nursing dependency system ceased to be available. Therefore the allocation of nursing cost to patients was based on patient time.

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.

## 7.5 Western Australia

### Participation

Western Australia (WA) contributed patient level data for thirty-five public hospital sites for Round 18 of the National Hospital Cost Data Collection (NHCDC). All hospitals that are considered in scope for Activity Based Funding are currently part of the NHCDC submission for WA.

For the second year Power Performance Management 2 (PPM2) was used in the preparation of the costing submissions for all sites. Work was ongoing in terms of data quality and standardisation and all NHCDC submissions were in compliance with version 3.1 of the Australian Hospital Patient Costing Standards (AHPCS).

### 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 the majority of participating sites Admitted Emergency Department costs still formed part of the Acute Inpatient costings. WA’s Outpatient activity was predominantly costed at a patient level however work is continuing on disaggregating and costing the 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 18, 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 AHPCS 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 but not included in the Round 18 submission.

Only costs for those patients that were discharged in the reference year (2013/14) were included in the Round 18 submission. These included costs incurred in the previous year (2012/13). 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.

The successful implementation of a new costing system and the relative stability of the costing requirements and submission protocols over recent rounds of the NHCDC will enhance the quality and timeliness of the Round 19 costing data.

## 7.6 Tasmania

The Tasmanian Department of Health and Human Services (DHHS) submission to the Round 18 (2013-14), National Hospital Cost Data Collection (NHCDC), was produced centrally by the Casemix Strategy and Advice Unit, Purchasing and Performance, DHHS, in close consultation with the Tasmanian Health Service (THS). Costing for Round 18 was undertaken in accordance with the Australian Hospital Costing Standards (AHPCS) V3.1.

In Round 18, Tasmania replaced the existing costing software with the latest software from the vendor Visasys. Tasmania utilises a single general ledger with a common chart of accounts. Cost data for centralised services, such as ICT, finance and human resources were allocated to each THS site using an agreed formula.

Tasmania also uses a single Patient Management System and each site’s data are extracted to a central data warehouse. Data from the central data warehouse were used for processing.  In addition, sites were provided cost allocations for centralised services, such as ICT, Human Resources and procurement, for inclusion in the patient costing process.

Tasmania did not report small rural hospitals to the NHCDC for Round 18, as it was considered that the quality of data collection and crossover of costs between the acute services and the aged care facilities associated with these hospitals made costing unreliable and not of sufficient standard for the NHCDC .

### Work in Progress

Only those patients who were discharged during the reporting year (1 July 2013 - 30 June 2014), were included in the Round 18 submission.  Costs incurred by these patients in the prior year were included in the reported Round 18 total expenditure, however some ICU costs were not carried forward. Episodes admitted in the collection year but yet to be discharged are not included. The end-of-period work in progress activity was fully costed and will be included in the Round 19 submission.

### Teaching, Training and Research (TT&R)

TT&R costs were not reported at the patient level but excluded and reported as part of the reconciliation process.  TT&R costs were based on both direct and indirect TT&R.

### Blood Products

It should be noted that 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

Where pathology or imaging data has not been able to be linked according to the data matching rules, these records have been costed but considered out of scope and excluded from the NHCDC submission.

Pharmacy products are costed at gross value. 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.

### AN-SNAP episode costing

Tasmania does not cost episodes at the Phase level but at the episode level due to the unavailability of Phase level data.

### Changes to costing or admission policies between NHCDC Round 17 and Round 18 NHCDC collections

There were no significant changes to costing or admission policies between the two rounds, however, sites generally improved their capture of activity and continued to improve coding practices during 2013-14.

Should your require any further information, please contact Ian Jordan, Team Leader, Clinical Costing, on 03 6166 1028 or email ian.jordan@dhhs.tas.gov.au.

## 7.7 Northern Territory

In the Northern Territory (NT) all public hospitals participated in the round 18 costing study, including both principal referral hospitals located in Darwin and Alice Springs and three remote rural hospitals located in Katherine, Nhulunbuy (Gove) and Tennant Creek. The round 18 cost study is the twelfth collection for which the NT Department of Health (DoH) has submitted episode level patient costing for all five NT public hospitals.

The NT’s unique and volatile acute case mix is affected by a small, dispersed and transient population, of which a large proportion are Indigenous people who live in very remote locations. Provision of health services to an isolated and dispersed population with a high burden of disease impacts on patient acuity and limits the potential for economies of scale.

The NT round 18 costing submission is fully compliant with the Australian Hospital Patient Costing Standards. Important improvements achieved in the alignment and linking of general ledger costs and episode of care level patient data for admitted patients who required an inter-hospital transfer. This has resulted in significant changes to the costing profile of this cohort of admitted patients. The effect is greatly diminishing comparability to previous years data for admitted patients due to the very high cost of inter-hospital transfers in the NT, approximately $14.5 million in 2013-14.

Inter-hospital patient transport is of integral importance in providing equity of access to hospital services for Northern Territory patients. The cost of IHTs in the NT is far greater than in other jurisdictions. The smallest distance IHT in the Territory is the 330 kilometres from Katherine to Darwin. Tennant Creek to Alice Springs is approximately 600 kilometres, whereas Gove Hospital to Darwin is over 700 kilometres. Interstate inter-hospital transfers are all between 3000 and 3600 kilometres for Royal Darwin Hospital and 1500 kilometres for Alice Springs Hospital resulting in the average distance per inter-hospital transfer being significantly further, and the costs significantly greater, than the cost of inter-hospital transfers for other jurisdictions as highlighted in the table below.

Tables shows number of transfers and average cost by five hospitals.

Changes in NT costing methodology in round 18 were:

* The engagement of new costing consultants and the use of new costing software. Consequentially work in progress costs were not able to be carried forward from prior rounds, as such,:
  + Patients admitted prior to 1 July 2013 and discharged prior to 30 June 2014 were excluded from the submission;
  + Patients admitted after 1 July 2013 and not discharged by 30 June 2014 were also not submitted;
  + All costs associated with work in progress patients admitted but not discharged in 2013-14 will be carried forward into the round 19 costing study.
* Ongoing training and consultation with hospital staff enabled the continued decentralisation of the costing study and increased emphasis on evidence based product fractions. As this process further matures, it is anticipated that variations to historic results may continue to occur.
* All costs generated by NT hospitals in producing patient and non-patient products are submitted in the costing studying, specific inclusions in compliance with the costing standards include:
  + Ambulance and patient transport (generated by the hospital) – specifically the costs of inter hospital patient transfers where a validated link to episode level data is verified:
  + Blood products – all costs are submitted;
  + Organ and tissue donation for transplantation –all costs are submitted
  + Insurance – building, equipment, workers compensation and medical indemnity insurance – only costs incurred by the hospitals and expensed in the hospital accounts are submitted;
  + Depreciation – all costs are submitted;
  + Corporate services cost including human resources, payroll, finance, procurement, information technology; and corporate costs incurred at LHN or equivalent level.
* The NT continues to allocate the costs of Indigenous only services entirely to Indigenous patients, where the cost centre is hospital controlled and all costs relate to additional, complementary or different services provided exclusively to Indigenous clients. For example the cost of patient liaison services are not allocated or split between Indigenous and non-Indigenous clients as the service is available for all patients, however, services provided by Aboriginal liaison officers are supplementary services provided only to Indigenous clients.
  + Indigenous only cost centres in Round 18 include;
    - Aboriginal Health Workers,
    - Aboriginal Liaison Officers,
    - Indigenous Cultural Competency and Cultural Security Training,
    - Indigenous Services and Support Units; and
    - Indigenous Interpreter services

## 7.8 Australian Capital Territory

### Adherence to Australian Hospital Costing Standards (AHPCS) Overview.

Data submitted to the NHCDC complied with the Australian Hospital Patient Costing Standards (AHPCS), Version 3.1, and went through numerous internal data quality checks before being submitted.

ACT Health submitted 100% coverage, by submitting costs for all ACT hospitals, in-scope for the National Health Cost Data Collection (NHCDC).

Of these hospitals, 93.4% of all products were submitted to the NHCDC, including costs for all acute, subacute, emergency care, non-admitted care and all teaching and training undertaken in these hospitals.

### Significant Changes that affected Round 18 NHCDC data.

2013-2014 (Round 18) was the first year that our two costed ACT public hospitals had a single combined Patient Activity Systems (PAS) to cost activity against.

For Canberra Hospital and Health Services (NHCDC Hospital Code 82 – “1TCH”), there was continued improvements to data matching rates when compared with previous year. Areas of improvement were matching of prosthesis data to surgical cases, better matching of National Blood Authority (NBA) Blood costs, Pathology costs, Pharmacy (both PBS and Non-PBS) costs being allocated to the patient, as well as further work completed in Round 18 against prostheses used in procedure rooms; especially prosthesis used in a non admitted setting.

Calvary Hospital (NHCDC Hospital Code 83 – “1CAL”) had a change of staff, in Round 18, and it was a year of rebuilding in-house costing skills. For this reason, some of the product fractioning of costs to non-admitted, subacute, and teaching and training was rebuilt, and it affected the overall costs; with further costs going to acute care than the previous years . However, the overall cost of the hospital was stable, and with the rise in activity, it would have seen a fall in their acute costs over this period. An example of a noted gain in efficiency is their control to the number of pathology tests ordered, as well as the control of other intermediate product cost and usage, from the previous year.

ACT wide, non-admitted counting continues to be a challenge, and further work was completed at both sites to better count these services. A significant area of improvement was made in the non-admitted activity counting at Calvary Public Hospital, where a large amount of palliative care data has now been collected and costed by ACT Health, as part of the annual NHCDC 2013-14 (Round 18) submissions.

There continues to be issues with both public hospital intermediate Allied health services linking to inpatient care. As such, ACT Health performed further reviews to the linking rules process in 2013-14, to further improve this process for future NHCDC costing studies.

### Teaching, Training and Research.

Work was completed in Round 18 to better capture Teaching, Training and Research (TTR) costs, especially within Canberra Hospital and Health Services. However it must be noted that reported Teaching Training and Research costs are considered low and further work will be completed in Round 19 to better capture costs against these product lines.

### Work-In-Progress

Round 18 was the second consecutive year that Work In Progress (W.I.P) inpatient costs were both included and excluded from our costing dataset. However not all costs were able to be summarised, and we are refining our processes to ensure *all* costs can be captured and reported against WIP patients.

### Changes to business rules or methodologies.

No major changes in methodology was noted between Round 17 and Round 18, with both years having ‘High level’ (Jurisdiction) costs excluded from their cost data, as well as shared services costs being allocated to each hospital at the jurisdiction level – after acceptance of these costs was sought from both sites.

# Appendices

Appendix 1. NHCDC Rounds 18 and 17 summary, actual, by jurisdiction and stream

Appendix 2. NHCDC Rounds 18 and 17 Direct and Overhead Cost, actual, by stream

Appendix 3. Cost weights for AR-DRG version 7.0, Round 18 (2013-14)

Appendix 4. Estimated cost weights for AR-DRG version 7.0, Round 18 (2013-14)

Appendix 5. NHCDC Rounds 18 and 17 comparison of admitted acute summary, actual, by jurisdiction

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Appendix 8. NHCDC Round 16, Round 17 and Round 18 admitted acute line item average cost per separation, actual, by jurisdiction

Appendix 9. NHCDC Round 17 and Round 18, admitted acute overnight and sameday, actual, by jurisdiction

Appendix 10. NHCDC Round 17 and Round 18, admitted acute urgency of admission, actual, by jurisdiction

Appendix 11 NHCDC Round 17 and Round 18, admitted acute same day and overnight Indigenous and non-Indigenous, actual, by jurisdiction

Appendix 12. NHCDC Round 17 and Round 18, admitted acute paediatric and non-paediatric, actual, by jurisdiction

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Appendix 15. NHCDC Round 18 Emergency Department summary by jurisdiction

Appendix 16. NHCDC Round 18 Emergency Department by Urgency Related Group Version 1.3

Appendix 17. NHCDC Round 18 Emergency Department cost bucket per presentation by jurisdiction

Appendix 18. NHCDC Round 16, Round 17 and Round 18 Emergency Department line item cost per presentation by jurisdiction

Appendix 19. NHCDC Round 18 Non-admitted Tier 2 class version 2.1

Appendix 20. NHCDC Round 17 and Round 18 Non-admitted by Tier 2 class

Appendix 21. NHCDC Round 18 and 17 Non-admitted summary by jurisdiction

Appendix 22. NHCDC Round 18 Non-admitted cost bucket per service event, actual, by jurisdiction

Appendix 23. NHCDC Round 16, Round 17 and Round 18 Non-admitted line item cost per service event by jurisdiction

Appendix 24. NHCDC Rounds 18 and 17 subacute summary, care type, by jurisdiction

Appendix 25. NHCDC Rounds 18 and 17 subacute ANSNAP version 3

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Appendix 27. NHCDC Round 16, Round 17 and Round 18 subacute line items cost per separation by jurisdiction

Appendix 28. NHCDC Round 18 and 17 Other stream, by care type, by jurisdiction

Appendix 29. NHCDC Round 18 Organ Procurement cost bucket per separation, by jurisdiction

1. All data and tables describes and presented in this Round 18 NHCDC Cost Report only reference activity admitted and discharged within 2013-14. Activity and costs that include prior year activity has been excluded from this report, [↑](#footnote-ref-1)
2. 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 11/03/2015. [↑](#footnote-ref-2)
3. Australian Institute of Health and Welfare (AIHW) Metadata Online Registry (METeOR) – ‘Care type, derived subacute’. URL: <http://meteor.aihw.gov.au/content/index.phtml/itemId/512105> accessed 11/03/2015. [↑](#footnote-ref-3)
4. Independent Hospital Pricing Authority (IHPA), Classifications, Teaching, Training and Research. URL. http://www.ihpa.gov.au/internet/ihpa/publishing.nsf/Content/teaching-training-and-research [↑](#footnote-ref-4)
5. DoHA, Hospital Reference Manual for Round 11 (2006-07) [↑](#footnote-ref-5)
6. http://meteor.aihw.gov.au/content/index.phtml/itemId/327258 [↑](#footnote-ref-6)
7. http://meteor.aihw.gov.au/content/index.phtml/itemId/391539 [↑](#footnote-ref-7)