



# National Hospital Cost Data Collection, Independent Financial Review

Round 20 (Financial year 2015-16)

Independent Hospital Pricing Authority

Final Report – January 2018

ADVISORY

*This report has been prepared as outlined in the Overview and scope Section. The services provided in connection with this engagement comprise an advisory engagement which is not subject to Australian Auditing Standards or Australian Standards on Review or Assurance Engagements, and consequently no opinions or conclusions intended to convey assurance have been expressed.*

*No warranty of completeness, accuracy or reliability is given in relation to the statements and representations made by, and the information and documentation provided by, Independent Hospital Pricing Authority's management and stakeholders consulted as part of the process.*

*KPMG have indicated within this report the sources of the information provided. We have not sought to independently verify those sources unless otherwise noted within the report.*

*The findings in this report have been formed on the above basis.*

*This report has been prepared at the request of Independent Hospital Pricing Authority in accordance with the terms of KPMG's contract dated 13 January 2017. Other than our responsibility to Independent Hospital Pricing Authority, neither KPMG nor any member or employee of KPMG undertakes responsibility arising in any way from reliance placed by a third party on this report. Any reliance placed is that party's sole responsibility.*

# Contents

Executive summary	1
Acronyms/Abbreviations	5
1. Introduction	9
1.1 Overview and scope	9
1.2 Participating hospitals	9
1.3 Review Methodology	12
1.4 Structure of the report	16
2. Findings of the review	18
2.1 Summary of findings	18
2.2 Developments in Round 20	18
2.3 Observations from the Round 20 IFR	20
2.4 Recommendations	25
3. Australian Capital Territory	29
3.1 Jurisdictional overview	29
3.2 The Canberra Hospital	30
3.3 Application of AHPCS Version 3.1	40
3.4 Conclusion	42
4. New South Wales	44
4.1 Jurisdictional overview	44
4.2 Hunter New England Local Health District	46
4.3 Conclusion	63
5. Northern Territory	65
5.1 Jurisdictional overview	65
5.2 The Royal Darwin Hospital	66
5.3 Application of AHPCS Version 3.1	76
5.4 Conclusion	78
6. Queensland	80
6.1 Jurisdictional overview	80
6.2 North West Hospital and Health Service	81
6.3 Townsville Hospital and Health Service	95
6.4 Central Queensland Hospital and Health Service	108
6.5 Application of AHPCS Version 3.1	119
6.6 Conclusion	120
7. Peer Review	238
7.1 The peer review process	238
7.2 Summary of feedback on the peer review process	238
7.3 Recommendation for future rounds of the IFR	239
8. South Australia	122
8.1 Jurisdictional overview	122

8.2	Women’s and Children’s Hospital	123
8.3	Mount Gambier and Districts Health Service	136
8.4	Application of AHPCS Version 3.1	147
8.5	Conclusion	148
9.	Tasmania	150
9.1	Jurisdictional overview	150
9.2	Royal Hobart Hospital	151
9.3	Application of AHPCS Version 3.1	163
9.4	Conclusion	164
10.	Victoria	166
10.1	Jurisdictional overview	166
10.2	The Royal Women’s Hospital	168
10.3	Austin Health	183
10.4	Swan Hill District Health	197
10.5	Application of AHPCS Version 3.1	207
10.6	Conclusion	210
11.	Western Australia	212
11.1	Jurisdictional overview	212
11.2	Royal Perth Hospital	212
11.3	Hedland Health Campus	223
11.4	Application of AHPCS Version 3.1	235
11.5	Conclusion	236
12.	IHPA Process	240
12.1	Overview	240
12.2	IHPA NHCDC data submission process	241
	Appendix A : : The NHCDC and patient level costing	246
	Appendix B : AHPCS Version 3.1 in scope	249
	Appendix C : Site visit attendees	251

## Executive summary

### The National Hospital Cost Data Collection

The National Hospital Cost Data Collection (NHCDC) is the primary data collection that the Independent Hospital Pricing Authority (IHPA) relies on to calculate the National Efficient Price (NEP) used for the funding of public hospital services. To ensure that the quality of NHCDC data is robust and fit-for-purpose, IHPA commissions an independent financial review to assess whether all participating hospitals have included appropriate costs and patient activity.

KPMG was engaged to undertake the Round 20 independent financial review (IFR). KPMG also undertook the Round 18 and 19 IFRs. The Round 20 IFR included a review of the reconciliation of costs and activity data from hospital/Local Hospital Network (LHN) through to IHPA and covered all feeder activity for the sampled hospitals/LHNs. This was done to provide IHPA and its stakeholders with a greater level of confidence over the accuracy and completeness of the NHCDC data.

The cost data submitted to the NHCDC is at the patient level. That is, each admitted acute, emergency presentation, non-admitted service event and other patient group is submitted with a cost identifying the resources consumed over their stay, appointment or transaction with a hospital or health service.

Where possible, hospitals apply a cost methodology according to the Australian Hospital Patient Costing Standards (AHPCS). These standards provide a guide to costing for NHCDC purposes, as well as providing consistency in interpreting results. For example, they prescribe: the products in scope for costing; how to define and select a preferred methodology for deriving overhead and direct care costs; how to research costs; and how to reconcile to source data.

### Observations from the Round 20 IFR

A number of key observations were made during the Round 20 IFR. Specifically:

- A number of key initiatives were implemented by jurisdictions that contributed to a more robust costing process for Round 20 submissions to the NHCDC, including: improved governance over the costing output in Victoria, Australian Capital Territory (ACT) and New South Wales (NSW) (NSW and ACT also improved linking of activity and feeder data); improved reconciliation processes in Victoria and Queensland; separation of Emergency and Inpatient episodes in Western Australia (WA); Victoria incorporated the submission of cost data for each phase of care for palliative care patients and improved the cost bucket matrix to better reflect types of costs; NSW improved the costing methodology for Teaching, Training and Research (TTR) and non-admitted patients and refined the Relative Value Units (RVUs) for the Emergency Department, oral health, Patient Transport Services and mental health; and ACT improved costing methodologies for acute, non-admitted services and TTR services.
- The review of the reconciliation between the expenditure reported in the audited financial statements and the general ledger (GL) extracted for costing identified minor variances for seven of the 14 hospitals/LHNs sampled. All variances were considered insignificant to the NHCDC submission.

- The review of the data flow from the hospital/LHN to jurisdiction identified variances for 10 of the 14 hospitals/LHNs sampled. All identified variances were considered insignificant to the NHCDC submission.
- The review of the data flow from the jurisdiction to IHPA, identified variances for two of the 14 hospitals/LHNs sampled. All identified variances were considered insignificant to the NHCDC submission. Of particular note was the variance identified in Tasmania's sampled hospital which related to resubmitted NHCDC data for the hospital post the completion of the site visit. IHPA reviewed the impact of this on the jurisdiction-level collection and considered it immaterial.
- Hospitals/LHNs and jurisdictions made a number of adjustments to the financial data both pre and post allocation of costs to patients. KPMG relied upon the assertions made by hospital/LHN staff and jurisdictional representatives (and the information presented in the templates) in forming a view as to the reasonableness of the basis of the adjustments. The basis of most adjustments appears reasonable, with common exceptions noted for Teaching, Training and Research, depreciation, amortisation and other capital related expenditure, and blood products.
- Feeder system information provided for all sampled hospitals/LHNs highlighted that the number of records linked from source to product was significant. The majority of feeder systems in all hospitals had at least a 90 percent link or match. The average linking ratio across all sampled hospitals/LHNs and their feeders was 99.15 percent.
- Common variances were noted in pharmacy and diagnostic imaging systems, where the provision of services was outside the date range in the linking rules (such as repeat prescriptions being filled up to 12 months from the original encounter and where the activity related to services provided to external clients. Other issues for other feeder systems related to data quality at source.
- The IFR is conducted in accordance with the review methodology detailed in Section 1.3 of this report. Based on this methodology and in accordance with the limitations identified in Section 1.1, jurisdictions have suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission. Furthermore, the data flow from the jurisdiction to IHPA demonstrated no unexplained variances.

## **Findings and recommendations**

The following findings and associated recommendations have been identified during the Round 20 IFR:

### **Unmatched/unlinked and out-of-scope activity**

The review found that financial reconciliation processes are suitable for all jurisdictions and occur at the hospital/LHN level and also at the jurisdictional level. Hospitals/LHNs and jurisdictions made a number of adjustments to the financial data, including for unlinked/unmatched and out-of-scope activity. While the basis of these exclusions appears reasonable, it is important that the reasons for this unlinked/unmatched and out-of-scope activity are continually investigated and addressed if necessary. This recommendation was identified in Round 19 and is repeated here as it is a continual process to ensure appropriate treatment in future rounds.

#### *Recommendation*

Hospitals and jurisdictions should continue to investigate reasons for unlinked/unmatched and out-of-scope activity to ensure appropriate treatment in future rounds.

## **The Independent Financial Review**

As jurisdictions and hospitals are continuously improving their reconciliation processes, linking of feeders and the utilisation of cost data for decision-making purposes, it is important the IFR also continues to evolve. Feedback during the Round 20 site visits suggested that jurisdictions see the need for further evolution of the IFR, to ensure it remains valuable and meets its intended objectives. The current scope of the IFR includes a reconciliation of expenditure and activity to ensure that all relevant costs/activity are included/excluded as necessary. However, it only considers that relevant hospital expenditure is allocated to patients, not how the expenditure is allocated to patients. How expenditure is allocated is extremely valuable to jurisdictions and IHPA to better understand the variances that exist between hospitals, locations, and jurisdictions.

The objectives of the Round 20 IFR are detailed in Section 1 of this report. Moving forward, KPMG considers it important that these objectives are maintained. However, there are measures that can be implemented both at the point of NHCDC submission to IHPA and via the scope of the future IFRs that can cement it as a learning tool which continues to add value to IHPA's stakeholders.

IHPA has commenced the implementation of measures that will assist in addressing the first three objectives at the point of NHCDC submission. IHPA will require for future rounds:

- A financial and activity reconciliation to be submitted with the NHCDC data for each hospital/costing site. This is currently being piloted for Round 20 and includes a summary of costing and adjustments made at the hospital/costing site and the jurisdiction levels.
- A declaration statement from jurisdictions to confirm that they have applied the AHPCS, or identify where the standards were not applied and reasons therefore.

These measures are an important step for the IFR process and form a basis for considering changes to the scope of future IFRs.

#### *Recommendation*

In addition to these implemented measures, IHPA may wish to consider adding to the scope of the IFR. Examples of additional review methods are summarised below:

- *Cost methodology review* - a series of templates could be designed to demonstrate the cost allocation approaches within various health services. This will aim to promote dialogue and discussions between health services/jurisdictions, demonstrate alignment with the AHPCS and further systems intelligence regarding feeders and cost allocation.
- *Sample patient reconciliation at the intermediate product level* – the sample patient testing can be improved by targeting a particular cohort of patients (such as non-admitted patients from a range of Tier 2 clinics) and requesting that the intermediate product costs per patient are presented.

#### *Recommendation*

- *Measuring cost completeness* - include sample testing of like patients across various health services to measure the underlying costs at intermediate product level to review the types of resources that comprise patient level costs. This could be mapped to the clinical pathway of this cohort to assist in measuring the degree of cost completeness within costed records.

KPMG still considers it important that the IFR includes reviews of the financial and activity data as part of the IFR, however, it may not need to be as detailed as per the current scope. IHPA may wish to consider the following:

- Reviewing costing sites, rather than hospitals. For example, in NSW, QLD, WA and SA, costing is undertaken at the Local Health Network level, rather than at the hospital level. This would simplify the reconciliations required from jurisdictions at NHCDC submission and may require a reconsideration of the sampling framework that was piloted in Round 20.
- Review of financial and activity data on an exceptions basis for each hospital/health service (i.e. where there are discrepancies in the reconciliations provided by jurisdictions at the point of NHCDC submission).
- IFR templates that detail adjustments (such as WIP, out of scope items etc.) to the financial and activity data. KPMG can then target review questions at items that require clarification, rather than detailed line-by-line questioning of the templates.
- Simplified reporting of application of the AHPCS. This would be on an exceptions basis, rather than for each standard/business rule and will be informed by the declaration accompanying the NHCDC submission.

## **Peer Review Process**

During the Round 20 IFR, the ability of all jurisdictions to participate in the peer review has been limited compared to previous rounds (for reasons including timing and travel constraints), with only four jurisdictions nominating representatives for the peer review. Despite this, participating peers reported that they received substantial value from attending the site visits and see the opportunity to participate in the peer review process as a useful learning tool. Recommendations from peer reviewers included reviews to the IFR scope and making video conferencing a viable alternative for peer review participation.

#### *Recommendation*

It is recommended that the peer review process continues in its current form in future IFR rounds as the process is still considered valuable. IHPA, jurisdictions and the IFR consultant should seek to confirm site visits earlier during the project, to ensure peer reviewers have adequate time for travel approvals within their State/Territory Departments. The use of video conferencing should also be considered as a viable alternative for peer reviewers, where facilities are available.



## Acronyms/Abbreviations

Acronym / Abbreviation	Description
ABF	Activity Based Funding
ABM	Activity Based Management
ACT	Australian Capital Territory
AHPCS	Australian Hospital Patient Costing Standards
AHS	Area Health Service
APC	Admitted Patient Care
BI	Business Intelligence
BPIDS	Business Performance Information and Decision Support
CAG	Cost Accounting Guidelines
CCU	Coronary Care Unit
CHAMB	Community Health Ambulatory extract from HIE
CHIME	Community Health Information Management Enterprise
CHSALHN	Country Health South Australia LHN
DNR	District and Network Return
DRG	Diagnosis Related Group
DRS	Data Request Specifications
DSS	Decision Support System
ED	Emergency department
EDW	Enterprise Data Warehouse
ETL	Extract, Transform and Load
FMS	Financial Management System
GL	General ledger
HDU	High Dependency Unit

Acronym / Abbreviation	Description
HHS	Hospital and Health Service
HHIS	Hunter Health Imaging Service
HIE	Health Information Exchange
ICD10	International Statistical Classification of Diseases and Related Health Problems 10th Revision
ICT	Information and Communications Technology
ICU	Intensive Care Unit
IFR	Independent Financial Review
IHPA	Independent Hospital Pricing Authority
LHD	Local Health District
LHN	Local Health Network
MBS	Medical Benefits Scheme
MRN	Medical Record Number
NAC	NHCDC Advisory Committee
NALHN	Northern Adelaide Local Health Network
NAP	Non Admitted Patient
NEP	National Efficient Price
NHCDC	National Hospital Cost Data Collection
NHR	National Health Reform
NICU	Neonatal Intensive Care Unit
NSW	New South Wales
NSW Health	NSW Ministry of Health
NT	Northern Territory
PAS	Patient Administration System
PFRAC	Product fractions
PPM2	Power Performance Manager 2

Acronym / Abbreviation	Description
PPP	Public Private Partnership
QA	Quality assurance
QLD	Queensland
RVU	Relative Value Unit
SA	South Australia
SA Health	South Australian Department of Health and Ageing
SCN	Special Care Nursery
SHN	Speciality Health Networks
TAS-DHHS	Tasmanian Department of Health and Human Services
THO	Tasmanian Health Organisation
TTR	Teaching, Training and Research
UDG	Urgency Diagnosis Group
UQB	Unqualified baby
UR	Unique Record
URG	Urgency Related Group
VAED	Victorian Admitted Episodes Data
VCCUG	Victorian Clinical Costing User Group
VCDC	Victorian Cost Data Collection
VEMD	Victorian Emergency Episodes Data
VIC Health	Victorian Department of Health and Human Services
VINAH	Victorian Integrated Non-Admitted Data Set
VMO	Visiting Medical Officer
VPG	Virtual Patient Group
WA	Western Australia
WA Health	WA Department of Health

Acronym / Abbreviation	Description
WACHS	Western Australia Country Health Service
WCHN	Women's and Children's Health Network
WIP	Work-In-Progress

# 1. Introduction

## 1.1 Overview and scope

The National Hospital Cost Data Collection (NHCDC) is the primary data collection that the Independent Hospital Pricing Authority (IHPA) relies on to calculate the National Efficient Price used for the funding of public hospital services. To ensure that the quality of NHCDC data is robust and fit-for-purpose, IHPA commissions an annual validation process to verify that all participating hospitals have included appropriate costs and patient activity.

IHPA engaged KPMG to undertake the Round 20 independent financial review (IFR) of a sample of state and territory hospitals who supplied data to the Round 20 NHCDC (2015-16). KPMG were also engaged to undertake the Round 18 and 19 IFRs. The Round 20 IFR includes:

- Assessment of the accuracy and completeness of the NHCDC participating health services reconciliations provided for Round 20, including a comparison between the financial and costing systems.
- Assessment of the consistency between jurisdictions sampled of the application of Version 3.1 of the Australian Hospital Patient Costing Standards (AHPCS) in selected standards, as highlighted in Appendix B.
- Review of the data flow from the health service to the jurisdictional upload of hospital information, to the data submission portal, through to the storing of data in IHPA's national database.
- Identification of improvements implemented at the health service and/or jurisdictional level from the previous round of NHCDC and address any developments made in response to the findings in the Round 19 IFR Final Report.

As this review is not an audit, no assurance on the completeness or accuracy of the costing has been provided. Procedures performed were limited to the review of supporting schedules, agreeing to source documentation (where possible), discussions with costing teams and obtaining extracts from costing systems. The outcomes and results rely on the representations, assertions and data submissions made by the hospital or local hospital network (LHN) costing teams and jurisdiction representatives and no work has been undertaken to verify the underlying data.

## 1.2 Participating hospitals

Each of the eight jurisdictions agreed to participate in the IFR for Round 20. The sample for review was consistent with the pragmatic approach of previous rounds that recognises the need for jurisdictional support for the IFR, resource constraints and a desire to obtain a geographical spread across the jurisdictions. The selection of the sample was undertaken by each jurisdiction with consideration of the volume of patient activity, complexity and remoteness of location. Each jurisdiction was provided with a list of hospitals meeting these criteria, and were provided the following guidance:

#### *Volume of patient activity.*

Expenditure and activity for each hospital in a jurisdiction was ranked from highest to lowest based on the information submitted to the NHCDC in Round 19. One hospital was selected from the top five hospitals by volume of patient activity.

#### *Complexity*

All hospitals that submitted NHCDC data in Round 19 were ranked by complexity numbering 1 to 3. The guidance requested one hospital be selected with a ranking of 1 or 2. The complexity score is based on the following:

- 1 – A hospital has both specialised paediatrics and specialised ICU;
- 2 – A hospital has specialised paediatrics OR specialised ICU; and
- 3 – A hospital has neither specialised paediatrics nor specialised ICU.

Complexity factors were defined as

- *Specialised Intensive Care Units (ICU)* - the eligible ICUs and Paediatric ICUs are those belonging to hospitals that report more than 24,000 ICU hours and have more than 20 percent of those hours reported with the use of mechanical ventilation.
- *Specialised paediatrics* hospitals are dedicated children's hospitals.

#### *Remoteness*

Each hospital that submitted data to the NHCDC in Round 19 was assigned a remoteness area (RA) based on the RA score of 0 to 5, which are defined below (ranked lowest to highest score):

- 0 - Major Cities of Australia;
- 1 - Inner Regional Australia;
- 2 - Outer Regional Australia;
- 3 - Remote Australia;
- 4 - Very Remote Australia; and
- 5 – Migratory.

One hospital was selected from the hospitals with the highest RA score for the jurisdiction.

In total, a sample of 14 sites, including 10 hospitals and four LHNs were selected by jurisdictions to participate in the IFR. Some jurisdictions were required to select less than three hospitals. In this case, it was recommended that the factors for consideration be applied in sequential order as detailed above (i.e. volume, complexity, remoteness).

*Table 1 – Round 20 IFR participating hospitals/LHNs*

<b>Jurisdiction</b>	<b>Hospital</b>	<b>Characteristics</b>
Australian Capital Territory	The Canberra Hospital	<ul style="list-style-type: none"> <li>• Participated in Round 17 and 19 NHCDC IFRs</li> <li>• Major urban hospital meeting the volume of patient activity and complexity sampling criteria</li> <li>• Costing system – PPM2</li> </ul>

<b>Jurisdiction</b>	<b>Hospital</b>	<b>Characteristics</b>
New South Wales	Hunter New England Local Health District (LHD) including: <ul style="list-style-type: none"> <li>• John Hunter Hospital</li> <li>• Tamworth Hospital</li> <li>• Calvary Mater Newcastle</li> <li>• Inverell District Hospital</li> <li>• Moree District Hospital</li> </ul>	<ul style="list-style-type: none"> <li>• LHD has previously not participated in an NHCDC IFR</li> <li>• John Hunter Hospital participated in the Round 15 IFR and meets the volume of patient activity sampling criteria</li> <li>• Tamworth Hospital and Calvary Mater Newcastle meet the complexity sampling criteria</li> <li>• Inverell District Hospital and Moree District Hospital meet the remoteness sampling criteria</li> <li>• Costing system – PPM2</li> </ul>
Northern Territory	Royal Darwin Hospital	<ul style="list-style-type: none"> <li>• Participated in Round 18 NHCDC IFR</li> <li>• Major regional hospital meeting the volume of patient activity and complexity sampling criteria</li> <li>• Costing system – PPM2</li> </ul>
Queensland	North West Hospital and Health Service including Mount Isa Hospital	<ul style="list-style-type: none"> <li>• Mount Isa Hospital participated in Round 16 NHCDC IFR</li> <li>• Mount Isa Hospital is a large regional hospital meeting the remoteness sampling criteria</li> <li>• Costing system – Transition II</li> </ul>
	Townsville Hospital and Health Service including Townsville Hospital	<ul style="list-style-type: none"> <li>• Townsville Hospital participated in Round 17 NHCDC IFR</li> <li>• Townsville Hospital is a major regional, tertiary hospital meeting the volume of patient activity and complexity sampling criteria</li> <li>• Costing system – Transition II</li> </ul>
	Central Queensland Hospital and Health Service including Rockhampton Hospital	<ul style="list-style-type: none"> <li>• Rockhampton Hospital participated in Round 15 NHCDC IFR</li> <li>• Rockhampton Hospital is a major regional, referral hospital meeting the complexity sampling criteria</li> <li>• Costing system – Transition II</li> </ul>
South Australia	Women and Children's Hospital	<ul style="list-style-type: none"> <li>• Participated in Round 15 NHCDC IFR</li> <li>• Major urban and teaching hospital meeting the volume of patient activity and complexity sampling criteria</li> <li>• Costing system – PPM2</li> </ul>

Jurisdiction	Hospital	Characteristics
	Mount Gambier and Districts Health Service	<ul style="list-style-type: none"> <li>Hospital has previously not participated in an IFR</li> <li>Major regional hospital meeting the remoteness sampling criteria</li> <li>Costing system – PPM2</li> </ul>
Tasmania	Royal Hobart Hospital	<ul style="list-style-type: none"> <li>Participated in Round 18 NHCDC IFR</li> <li>Large regional hospital meeting the volume of patient activity and complexity sampling criteria</li> <li>Costing system – User Cost</li> </ul>
Victoria	Austin Health	<ul style="list-style-type: none"> <li>Participated in Round 14 NHCDC IFR</li> <li>Major urban, teaching and research hospital meeting the volume of patient activity and complexity sampling criteria</li> <li>Costing system – PPM2</li> </ul>
	Swan Hill District Health	<ul style="list-style-type: none"> <li>Hospital has previously not participated in an IFR</li> <li>Large regional hospital meeting the remoteness sampling criteria</li> <li>Costing system – Adaptive Costing</li> </ul>
	The Royal Women's Hospital	<ul style="list-style-type: none"> <li>Participated in Round 15 NHCDC IFR</li> <li>Major specialist, teaching and research hospital meeting the complexity sampling criteria</li> <li>Costing system – PPM2</li> </ul>
Western Australia	Royal Perth Hospital	<ul style="list-style-type: none"> <li>Participated in Round 17 NHCDC IFR</li> <li>Major urban, teaching and research hospital meeting the volume of patient activity and complexity sampling criteria</li> <li>Costing system – PPM2</li> </ul>
	Hedland Health Campus	<ul style="list-style-type: none"> <li>Hospital has previously not participated in an IFR</li> <li>Large regional hospital meeting the remoteness sampling criteria</li> <li>Costing system – PPM2</li> </ul>

Source: KPMG

## 1.3 Review Methodology

The review team gathered information required for the IFR through the following methods:

- A financial and activity data collection template distributed to hospitals and jurisdictions and tailored to provide the required information to assess the application of selected standards from AHPCS Version 3.1;



- *Site visits* with the hospital costing team and jurisdictional representatives and follow-up discussions to address feedback and outstanding issues;
- *Sample testing* of five patients at each hospital to test the transfer of patient cost data from the hospital to IHPA;
- *Review of IHPA processes* to understand the processes in place for the collection, amendments and collation of financial and activity data received from the jurisdictions; and
- *A peer review process* to allow NHCDC peers to share information, processes, challenges and solutions.

### 1.3.1 Financial and activity data collection template

The Round 20 templates were a modified version of the Round 19 IFR financial and activity data collection templates. Jurisdictional representatives were given the opportunity to review these templates, with their feedback incorporated prior to finalisation. The finalised templates for Round 20 were distributed for completion prior to the scheduled site visits.

The templates were structured to reconcile and follow the flow of both financial and activity data from the hospital/LHN, to the jurisdiction and finally onto IHPA. Detail of the information requested in the templates is discussed in Table 2.

*Table 2 – Financial and activity data collection template – Tab details*

Tab	Details
LHN expenditure reconciliation	<p>This tab requested financial information from the hospital/LHN and included:</p> <ul style="list-style-type: none"> <li>• A breakdown of LHN costs reported in the audited financial statements, and how they are linked with the general ledger (GL) used for costing, including any variance analysis.</li> <li>• Inclusions or exclusions made to the GL prior to costing.</li> <li>• A list of reclass, transfers and offsets of expenditure that occurred to establish the direct cost centres and overheads for allocation to patients.</li> <li>• A breakdown of expenditure between direct and overhead.</li> <li>• Adjustments made post the allocation to patients performed by the hospital/LHN, e.g. work-in-progress (WIP) patients.</li> <li>• Final costed products submitted to the jurisdiction.</li> </ul>

Tab	Details
LHN Activity	<p>This tab requested activity and feeder data information from the hospital/LHN and included:</p> <ul style="list-style-type: none"> <li>• A description of the reconciliation or process for loading, linking and costing activity.</li> <li>• A summary of activity and feeder data systems, source records and how this data linked to products.</li> <li>• A summary of adjustments made to hospital/LHN activity data by product and product type.</li> <li>• Final activity data and costs submitted to the jurisdiction by product and product type.</li> </ul>
LHN Other Standards	<p>This tab requested information in relation to the application of AHPCS Version 3.1 <i>SCP 3G.001 - Matching Production and Cost - Reconciliation to Source Data</i>. It required hospitals/LHNs to detail the mapping of account codes to the specified line items.</p>
LHN Critical Care (Round 20 specific)	<p>This tab requested information in relation to the application of AHPCS Version 3.1 <i>GL 4A.002 – Critical Care Definition</i>. It required hospitals/LHNs to detail critical care areas, the GL amount and the pre and post allocation expenditure by cost centre.</p>
LHN Private Patients (Round 20 specific)	<p>This tab requested information in relation to the application of AHPCS Version 3.1 <i>COST 3A.002 – Allocation of Medical Costs for Private and Public Patients</i>. It required hospitals/LHNs to detail adjustments made to areas or cost centres where private patient adjustments had been made.</p>
Jurisdiction	<p>This tab requested the jurisdiction to complete the reconciliation of costs and activity submitted by the hospital/LHN to the jurisdiction's NHCDC submission to IHPA. It included:</p> <ul style="list-style-type: none"> <li>• A summary of costs and activity received by the jurisdiction by product and product type.</li> <li>• A summary of activity and cost adjustments made to the hospital/LHN data (by product and product type) including the treatment of WIP patients.</li> <li>• A summary of the activity and costs submitted to IHPA by product and product type including a</li> </ul>

Tab	Details
	summary from hospital, to jurisdiction and the final data submitted to IHPA.
IHPA	This tab included the final IHPA adjustments in the NHCDC process. Hospitals and jurisdictions were not required to complete this tab.

Source: KPMG

Where possible, the templates were provided by the jurisdictions to the review team prior to the site visit. This provided the review team with sufficient time to prepare for the site visits. The review team then summarised the information in the templates into the tables generated for the report. These tables were presented during the site visits to demonstrate how each hospital's financial and activity information would be presented in the report.

### *Review of imaging feeder processes*

During the site visit for the Hunter New England LHD in New South Wales, KPMG tested additional feeder review procedures for the purposes of including them in future rounds of the IFR. The imaging feeder was selected as the pilot and review questions were sent to the New South Wales Ministry of Health and Hunter New England LHD ahead of time. KPMG sought to understand the configuration of the imaging service (internally or externally provided), how imaging services link to patient episodes, how costs are assigned and how the costed results for imaging are tested from a quality assurance perspective. A summary of the responses is included in Section 4.2.4.

## **1.3.2 Site visits**

KPMG scheduled site visits with each of the eight jurisdictions participating in the IFR. All jurisdictional site visits were attended by the jurisdictional representatives, hospital/LHN representatives, a KPMG review team, an IHPA representative and a peer reviewer where possible. Some jurisdictions elected to host the site visit at the jurisdiction's department office, and in other jurisdictions the site visit was conducted at the participating hospitals. A list of attendees for all site visits is included at Appendix C.

During these site visits the review team discussed the overall costing process and worked through the templates. Participating sites explained any exclusions or inclusions in their data and provided additional materials relevant to the financial review. Jurisdiction meetings focused on the jurisdiction's processes and controls, and any adjustments to the dataset the jurisdiction made before submitting it to IHPA. Participants were given the opportunity to provide additional information following these visits.

Follow-up discussions were held with the jurisdictions to address any outstanding issues and the NHCDC representative from each jurisdiction reviewed the chapter prior to it being included in this report.

## **1.3.3 The peer review process**

The Round 20 IFR involved a peer review process so that costing representatives could participate in site visits at other jurisdictions. The peer review allowed NHCDC peers to share

information, processes, challenges and solutions, and provided a valuable opportunity to have costing staff and costing representatives visit other jurisdictions.

Jurisdictions were asked to nominate relevant personnel to participate in the peer review, and to identify participants either at the hospital costing level or the jurisdiction level. Jurisdictions in New South Wales, Queensland, South Australia and Tasmania nominated peers (all peers were jurisdiction representatives). The remaining jurisdictions were unable to send representatives due to capacity, funding or timing constraints.

The peer review nominees selected their preferred locations and the host site was informed of the peer review selection. The nominees attended the meetings together with the KPMG review team and IHPA representatives, and were encouraged to ask questions and actively participate during the site visits. Appendix C contains a list of the peer review participants.

Completion of a survey by peer review nominees was requested. The feedback is summarised in Section 11.

### **1.3.4 Application of AHPCS**

The objectives of the IFR for Round 20 included the assessment of the consistency between participating jurisdictions in their application of a selection of AHPCS Version 3.1. KPMG collected information from the templates and held discussions conducted with jurisdiction and hospital/LHN representatives to assist in meeting this objective. The jurisdiction chapters include a summary of the application of the selected standards by the hospitals/LHNs and the jurisdiction. The requirements of the selected standards are provided in Appendix B.

## **1.4 Structure of the report**

This report provides an overall summary and findings by jurisdiction and for each participating site. The report includes recommendations for IHPA and the jurisdictions to consider in future rounds of the IFR, with the aim of improving the consistency and transparency of NHCD submissions. The remainder of the report is structured as follows:

<b>Section</b>	<b>Description</b>
Findings of the review	Provides a summary of the findings from the Round 20 IFR and improvements for future NHCD rounds.
Jurisdiction chapters	Presents the costing and reconciliation process for each of the eight participating jurisdictions and their nominated hospitals.
Peer review	Presents a summary of the peer review process and feedback collected from the peer review nominees.
IHPA review	Presents the findings of IHPA's processes for receiving and reviewing data, through to the storing of data in IHPA's national database.
Appendix A	Provides an overview of patient level costing and how it applies in the NHCD context.

Section	Description
Appendix B	Provides a summary of the requirements of the AHPCS Version 3.1 selected for the Round 20 IFR.
Appendix C	Contains a list of all attendees at the site visits.

## 2. Findings of the review

This section summarises the findings of the National Hospital Cost Data Collection (NHCDC) Round 20 Independent Financial Review (IFR). It includes overall observations based on the information collected in the financial review templates and through engagement with jurisdictions and costing staff during the site visits with the participating hospitals or local hospital networks (LHNs). Financial and activity data was submitted for both hospitals and LHNs depending on the jurisdiction.

### 2.1 Summary of findings

Jurisdictions continue to improve the processes and controls associated with the clinical costing process that underpins the NHCDC submission, demonstrating the recognised value of a collection such as the NHCDC to be a well-informed evidence base, and the need for it to be fit-for-purpose. This shows the growing emphasis placed on data quality, as costing data is increasingly used to inform the management and funding of public health services nationally.

As jurisdictions and hospitals are continuously improving their reconciliation processes, linking of feeders and the utilisation of cost data for decision-making purposes, it is important the IFR also continues to evolve. Feedback during the Round 20 site visits suggested that jurisdictions see the need for further evolution of the IFR, to ensure it remains valuable and meets its intended objectives. As such, recommendations are made in areas where opportunities for improvement were identified by the review team. The recommendations are discussed to facilitate improvements of future IFRs, NHCDC submission processes and IHPA processes in future rounds.

### 2.2 Developments in Round 20

Jurisdictions continue to improve their costing methodologies and reconciliation processes on an ongoing basis to improve the cost information available to hospitals and the jurisdictions.

The following key initiatives were implemented in Round 20:

- **Improved governance over the costing output** – Jurisdictions made a number of improvements to the governance over the costing output as summarised below:
  - Victoria revised the 2014-15 Victorian Cost Data Collection (VCDC) documentation to be clearer and less ambiguous for implementation including clear definitions and guidance for costing and reporting to the VCDC and also updated validation rules and QA processes.
  - New South Wales (NSW) rebuilt the District Network Return (DNR) module to improve the efficiency of the submission process and the testing processes for the RQ Application and the DNR module were improved. This improvement included further cost data edit checks and subsequent review of cost data.
- The Australian Capital Territory (ACT) is in the process of expanding the ACT Health Costing Framework as part of ACT Health System-Wide Review. **Improved linking of activity and feeder data** – ACT refined linking rules and reviewed the quality of feeder systems with

business areas of the hospitals. Victoria revised and updated the linking rules of the cost data to the relevant activity datasets including new rules for non-admitted and mental health patients. NSW worked with all LHDs/SHNs collaboratively to review system generated encounters and the associated linking rule analysis to improve precision in linking of encounter and feeder data.

- **Improved reconciliation processes** – Victoria revised and updated the financial reconciliation templates to be more user-friendly and elaborated on the content to be provided. Likewise, Queensland has implemented the use of the IFR templates for each Hospital and Health Service's (HHS) cost data submission.
- **Separation of Emergency and Inpatient episodes** – Western Australia (WA) can now report Emergency Department encounters separately to the inpatient episode. In previous rounds, total costs for emergency and subsequent inpatient admissions were reported within the single inpatient episode. This change has been made possible through improved activity systems and costs can now be assigned separately to each product type.
- **Improved costing methodologies** – Jurisdictions made a number of improvements to their costing methodologies as summarised below:
  - ACT reviewed its costing processes including quarantining expenditure in the single ACT Health GL to source functions, improved expenditure assignment to acute, non-admitted services and TTR functions and a review of the alignment of costing methods to the AHPCS Version 3.1.
  - Victoria developed and incorporated the submission of the cost data for each phase of care for palliative care patients and updated the cost bucket matrix to better reflect the types of costs to be analysed at a service cost group level.
  - NSW made a number of refinements to costing methodologies including:
    - Refinement of the inclusions and exclusions definitions for TTR based on a costing study with 2,600 participating clinicians across NSW.
    - Costing of Non-admitted patients better aligns with the actual resource consumption.
    - Emergency Department (ED) is now costed using the Relative Value Units (RVUs) developed as part of the IHPA Emergency Care Costing Study in which NSW Health took part as a pilot. As a result, the current costing methodology no longer uses RVUs associated with the triage process as the drivers for allocation, but examines a combination of factors including location of patient in the emergency department (such as cubicles or resuscitation bay) and diagnosis.
    - RVUs to allocate costs for oral health developed for each dental item.
    - The RVUs used for the cost allocation methodology for Non-Emergency Patient Transport services in metropolitan LHDs was revised to reflect the actual number of kilometres travelled.
    - Inpatient mental health nursing RVUs developed during IHPAs Mental Health Costing Study were updated following consultation with the NSW Mental Health Working Group.
- **Improved use of costing data** – Tasmania implemented the Qlikview reporting tool for reporting and use of clinical costs across the hospitals. Victoria implemented cost data review

forums, where comparative data is presented for the benchmarking of health services. These forums involve both costing and operational staff from the health services.

## 2.3 Observations from the Round 20 IFR

### 2.3.1 Reconciliation of financial data

Financial data was gathered through the data collection templates completed for each participating site. Based on discussions during the site visits and a review of the templates, all jurisdictions demonstrated suitable financial reconciliation processes are in place at the hospital/LHN level, and jurisdictional level.

#### *Reconciliation to audited financial statements*

The review of the reconciliation between the expenditure in the audited financial statements and the general ledger (GL) extracted for costing identified minor variances for seven of the 14 hospitals/LHNs sampled. All variances were less than 0.1 percent of the expenditure in the audited financial statements. Variances existed due to audit adjustments, items that would have been excluded from the GL for costing, rounding errors and differences between revenue and expenditure classifications in the GL.

#### *Reconciliation from GL to jurisdiction*

The review of the data flow from the hospital/LHN to jurisdiction identified variances of less than \$600 for eight of the 14 hospitals/LHNs sampled. These variances were not investigated further as they were considered minor.

Variances of greater than \$600 were noted for two of the 14 hospital/LHNs sampled. Where these variances were identified, the review team sought to identify the causes of the variance with the relevant sites (jurisdictions focused on explaining significant variances).

A summary of the variances identified is provided below:

- In Queensland, a variance of \$124,049 (0.01 percent of HHS expenditure) between the total HHS expenditure and the costs allocated to patients was noted for Townsville HHS. It related to a discrepancy between the number of decimal places in the financial department and patient level of the costing system database. This variance is excluded from the NHCDC submission as there is no patient level data that can be mapped to submitted activity.
- In WA, a variance of \$12,419 (0.001 percent of WA Country Health Service expenditure) between the total hospital expenditure allocated to patients and the costed products submitted to the jurisdiction for Hedland Health Campus (the variance equated to 0.02 percent of the expenditure allocated to patients for the hospital).

#### *Reconciliation from jurisdiction to IHPA*

The review of the data flow from the jurisdiction to IHPA identified a variance of \$52 for one of the 14 hospitals/LHNs sampled. This variance was considered minor and not investigated further.

In Tasmania, a variance of (\$25,567) was noted for Royal Hobart Hospital. Royal Hobart Hospital was the pilot site visit for the Round 20 IFR. TAS-DHHS resubmitted NHCDC data for Royal Hobart Hospital post the completion of the templates and the site visit due to an identified error in allied health data. The variance is 0.002 percent of the total NHCDC submission for Tasmania and is considered immaterial by IHPA.



### *Adjustments to financial data*

Hospitals/LHNs and jurisdictions made a number of adjustments to the financial data both pre and post allocation of costs to patients. KPMG relied upon the assertions made by hospital/LHN staff and jurisdictional representatives (and the information presented in the templates) in forming a view as to the reasonableness of the basis of the adjustments.

The basis of these adjustments appears reasonable for the sampled hospitals/LHNs, with the exception of:

- Teaching, Training and Research (TTR) is excluded for most jurisdictions (ACT and NT submitted costs to the NHCDC and VIC costed but did not separately report TTR). The exclusion of these costs may impact on the completeness of the NHCDC.
- Victorian hospitals exclude depreciation, amortisation and other capital related expenditure as part of the VCDC Business Rules. The exclusion of this expenditure may impact on the completeness of the NHCDC. In addition, the AHPCS Version 3.1 does not provide specific guidance for the treatment of PPP expenditure (both capital related and operating). Capital related expenditure is deemed out of scope under the VCDC Business Rules and is therefore, not included in the costs submitted by hospitals to VIC Health. The exclusion of PPP capital related expenditure may impact on the completeness of the NHCDC.
- Women's and Children's Hospital excluded capital assets disposed expenditure from the GL for costing. The exclusion of these costs may impact on the completeness of the NHCDC.
- WA and SA excluded Blood products. The exclusion of these costs may impact on the completeness of the NHCDC.

In addition to the exceptions above, the following items are noted:

- Bad and doubtful debts expenditure was excluded by Women's and Children's Hospital and Mount Gambier and Districts Health Service. The AHPCS is silent on the specific inclusion or exclusion of bad and doubtful debts. Bad and doubtful debts expenditure relates to the provision for debts that are unrecoverable from patients/clients. It does not have an impact on the cost of patient services provided by the hospital.
- The reasons for unlinked and unmatched activity to the patient administration systems and NHCDC should be continually investigated by hospitals/jurisdictions to ensure appropriate treatment in future rounds.

Noting these adjustments and variances and in accordance with the review methodology detailed in Section 1.3 of this report and the limitations identified in Section 1.1, Jurisdictions have suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission for Round 20.

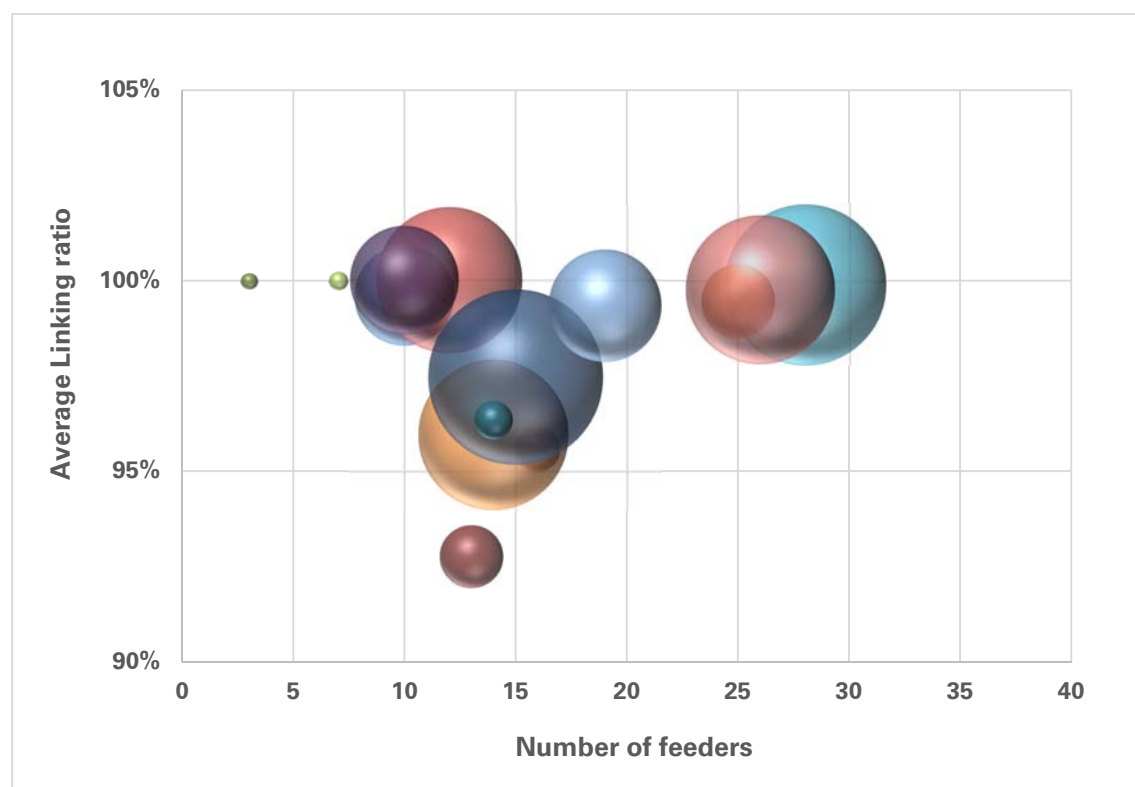
### **2.3.2 Activity Data and Feeder Data**

Activity data is presented as admitted acute, emergency and non-admitted where an episode or encounter number can be found to link to feeder data. Feeder data is hospital dependant and the

quality of linking data to activity is dependent upon the quality of information found in the feeder system<sup>1</sup>.

Based on the feeder system information provided for all sampled hospitals/LHNs, the number of records linked from source to product was significant with a 90 percent link or match for the majority of feeder systems. The average linking ratio across all sampled hospitals/LHNs and their feeders was 99.15 percent. This percentage demonstrates that jurisdictions and hospitals continue to make significant improvements to ensure that the resources consumed can be identified by patient or assigned to a system-generated patient, which ensures greater rigour to the composition of costed patient output. Figure 1 presents a high level comparison of the average linking ratio for all feeders and the number of feeders for each of the sampled hospitals/LHNs. Each hospital/LHN is represented by a bubble. The size of each bubble reflects the total number of records from the hospital/LHN's feeder systems.

Figure 1: Comparison of hospitals/LHNs (bubbles) - average linking ratio and number of feeders



Source: KPMG, based on sampled hospital/LHN feeder system data

Figure 1 illustrates that the average linking ratio (across all feeders) is above 92 percent for all sampled hospitals/LHNs. Furthermore, the accuracy in feeder systems remains high as the number of records processed by the hospital increases.

Common variances were noted in pharmacy and diagnostic imaging systems, where the provision of services was outside the date range in the linking rules (such as repeat prescriptions

<sup>1</sup> The linking of activity data can also be impacted by the dataset used. For example, Victoria uses the activity from the patient administration system as a starting point, whereas, NSW uses reconciled ABF activity for each LHD.

being filled up to 12 months from the original encounter and where the activity related to services provided to external clients). Linking percentages of less than 89 percent were also noted for the following hospitals:

- The unlinked records in the Blood Products feeder system at Royal Women's Hospital (VIC) (Linking percentage of 84.25 percent) related to missing Unique Record numbers.
- The unlinked records in the Radiology-General (79.72 percent linked) and Radiology – MRI (82.58 percent linked) feeder systems at The Royal Women's Hospital (VIC) related to the provision of services outside the date range within hospitals linking rules. This applies to date ranges for both admitted and non-admitted patients.
- Unlinked records in the pharmacy and pathology feeder (linking percentages of 74.26 percent and 82.86 percent respectively) at North West HHS (QLD) related to unmatched records based on the date range within the HHSs linking rules.
- Unlinked records in the virtual patient feeder (linking percentage of 48.80 percent) at North West HHS (QLD) related to diagnostic imaging services that did not have patient level data. The diagnostic imaging service was costed against one system-generated patient.
- Unlinked records in the pharmacy and diagnostic imaging feeder (linking percentages of 76.93 percent and 88.03 percent respectively) at Townsville HHS (QLD) related to unmatched records based on the date range within the HHSs linking rules.
- Unlinked records in the blood products and diagnostic imaging feeder (linking percentages of 85.43 percent and 81.94 percent respectively) at Central Queensland HHS (QLD) related to unmatched records based on the date range within the HHSs linking rules.
- Unlinked records in the Mount Gambier and Districts Health Service (SA) Allied Health feeder (linking percentage of 48.78 percent) related to incomplete data.

### **2.3.3 Critical care**

Eleven of the hospitals/LHNs sampled had dedicated ICU's in their facilities, with some having a range of observation units including High Dependency Units, Special Care Nurseries, Neonatal Intensive Care Units, Paediatric ICU, Psychiatric ICU and Coronary Care Units. Three sampled hospitals/LHNs did not have critical care units.

The jurisdictions identified that expenditure could be isolated in critical care areas through either cost centre structures, patient fractioning within cost centres or relative value units. Activity could also be isolated to these units and costed appropriately. Victoria and NT noted that for some health services, the activity could not be split between ICU and HDUs, due to patient administration systems. Where this occurred, total activity for both units was costed using total expenditure for both units. NSW, Victoria and SA noted that in some hospitals/LHDs, critical care expenditure was reported in the same cost centre for both ICUs and observation units. Activity for each could be identified and relative value units were then used to report both an ICU and observation unit cost.

Tasmania noted that expenditure is not recorded in a separate cost centre for the Psychiatric ICU at Royal Hobart Hospital. Critical care costs could not be separated from the psychiatric ward cost centre.

The information collected during the IFR indicated that critical care costs and activity were captured in accordance with the applicable standard, with the exception of the critical care costs for the Psychiatric ICU at Royal Hobart Hospital

#### 2.3.4 Private Patients

The majority of hospitals indicated that public and private patients are costed in the same manner. That is, costing methodologies are not adjusted based on the financial classification of the patient. NSW indicated that a zero private weighting is attached to Visiting Medical Officer (VMO) activity for private patients to ensure that no VMO cost is allocated to private patients. The zero weighting is applied because the VMO expenditure in the GL related to public patients only.

In the majority of jurisdictions medical specialists in the sampled hospitals/LHNs are paid an allowance in lieu of private practice arrangements. These costs are included in the GL and allocated to public and private patients on the same basis. In jurisdictions where the medical specialists' salary includes payments made out of Special Purpose Funds or Private Practice Funds, this payment is not included in the costing process as these cost centres are considered out of scope.

The allocation of other non-operational account expenditure such as pathology, prosthetics and medical imaging varied across the hospitals and was dependent on service provision arrangements at the hospital. For example, the allocation of external service provider costs in WA and NT hospitals was based on the MBS item number which is used as a relativity to drive the cost of the related activity area to the unique service utilised by the patient.

All hospitals indicated that private patient revenue is not offset against any related expenditure.

#### 2.3.5 Treatment of WIP

On review of the AHPCS Version 3.1 *COST 5.002: Treatment of Work-In-Progress Costs*, jurisdictions were found to apply similar approaches to costing work-in-progress (WIP) (where patient admission and discharge occur in different financial years) for each of the sampled hospitals/LHNs. The following was noted about the adjustments for reporting WIP to the NHCD for Round 20:

- All jurisdictions submitted costs for hospitals for admitted and discharged patients in 2015-16.
- Costs for patients not discharged at 30 June 2016 were excluded by all jurisdictions.
- Costs for patients discharged in 2015-16 but incurred in prior years were submitted by all jurisdictions.

#### 2.3.6 Application of AHPCS Version 3.1

The application of the selected standards from AHPCS Version 3.1 across the jurisdictions was mostly consistent with the exception of the following:

- *SCP 2.003: Product Costs in Scope* – The following items are noted in relation to the application of this cost standard:
  - Depreciation, Amortisation and other capital expenditure are excluded from the Victorian hospital submissions.

- Expenditure related to the disposal of capital assets was excluded by Women's and Children's Hospital in SA.
- Blood products are not costed in WA and SA, and are excluded post allocation by the ACT (non Canberra Hospital).
- *GL 2.004: Account Code Mapping to Line Items* – The following items are noted in relation to the application of this cost standard:
  - Victorian cost data is mapped to the NHCDC by the jurisdiction based on data submitted by hospitals to the VCDC rather than mapped directly by hospitals. This applies to the NSW and WA submissions also (where LHDs/health services map to products specified by the jurisdiction).
  - National Blood Authority products are reported in the pathology line item for Austin Health and Swan Hill District Health in Victoria.
  - Imaging consumables are not separately identified at the Royal Hobart Hospital and are recorded in the medical and surgical supplies.

## 2.4 Recommendations

Noting the changes and developments implemented for Round 20 by jurisdictions and IHPA, the review team sought to identify potential areas where NHCDC processes could be improved to further enhance the value of NHCDC data and better streamline the submission process going forward. Three key recommendations are made to improve data and processes for future NHCDC rounds.

### 2.4.1 Unmatched/unlinked and out-of-scope activity

The review found that financial reconciliation processes are suitable for all jurisdictions and occur at the hospital/LHN level and also at the jurisdictional level. Hospitals/LHNs and jurisdictions made a number of adjustments to the financial data, including for unlinked/unmatched and out-of-scope activity. While the basis of these exclusions appears reasonable, it is important that the reasons for this unlinked/unmatched and out-of-scope activity are continually investigated and addressed if necessary. This recommendation was identified in Round 19 and is repeated here as it is a continual process to ensure appropriate treatment in future rounds.

### 2.4.2 The Independent Financial Review

The IFR commenced in Round 14 and has evolved significantly since then from a pure financial reconciliation exercise to a more detailed end-to-end financial reconciliation and now also includes a complete activity reconciliation. As jurisdictions and hospitals are continuously improving their reconciliation processes, linking of feeders and the utilisation of cost data for decision-making purposes, it is important the IFR also continues to evolve. Feedback during the Round 20 site visits suggested that jurisdictions see the need for further evolution of the IFR, to ensure it remains valuable and meets its intended objectives.

The objectives of the Round 20 IFR are detailed in Section 1 of this report. Moving forward, KPMG considers it important that these objectives are maintained. However, there are measures that can be implemented both at the point of NHCDC submission to IHPA and via the scope of the future IFRs that can cement it as a learning tool which continues to add value to IHPA's stakeholders.

IHPA has commenced the implementation of measures that will assist in addressing the first three objectives at the point of NHCDC submission. IHPA will require for future rounds:

- A financial and activity reconciliation to be submitted with the NHCDC data for each hospital/costing site. This is currently being piloted for Round 20 and includes a summary of costing and adjustments made at the hospital/costing site and the jurisdiction levels.
- A declaration statement from jurisdictions to confirm that they have applied the AHPCS, or identify where the standards were not applied and reasons therefore.

These measures are an important step for the IFR process and form a basis for considering changes to the scope of future IFRs.

The current scope of the IFR includes a reconciliation of expenditure and activity to ensure that all relevant costs/activity are included/excluded as necessary. However, it only considers that relevant hospital expenditure is allocated to patients, not how the expenditure is allocated to patients. How expenditure is allocated is extremely valuable to jurisdictions and IHPA to better understand the variances that exist between hospitals, locations, and jurisdictions.

Changing the scope will also encourage IHPA and jurisdictions to focus their efforts on identifying the most appropriate costing methodologies in the future and can inform changes to AHPCS as necessary.

KPMG has summarised additional review methods that IHPA and jurisdictions may wish to consider for future IFR rounds:

#### *Cost Methodology Review*

One of the learnings from the Peer Review process is that peer reviewers find value in discussing cost allocation approaches within various jurisdictions and health services. To expand on the scope of reconciled data and activity, a series of templates could be designed to demonstrate the cost allocation approaches within various health services. This could potentially serve a number of purposes including:

1. Providing costing practitioners insight into the allocation approaches within other health services to promote dialogue and discussion.
2. Enabling greater transparency as to how a health service costing approach aligns with the AHPCS.
3. Providing IHPA with some further systems intelligence as to which health services have more detailed feeders and their approach to cost allocation. This would provide detail when trying to understand certain cost variation, provide insight as to which data may be best used to help develop pricing or funding model adjustments (e.g. such as co-payment development) or to help target specific health services when looking to undertake a costing study.

#### *Sample Patient Reconciliation at the Intermediate Product Level*

The current IFR process takes a random sample of patient level data and checks costs from jurisdiction to IHPA to ensure patient costs have flowed through the submission process. This process could be improved by targeting a particular cohort of patients (such as non-admitted patients from a range of Tier 2 clinics) and requesting that the intermediate product costs per patient are presented. This would enable greater transparency into the composition of costs per

patient per clinic and provide reviewers and peer reviewers the ability to review, discuss and understand how costs are constructed across the various stages of costing; including cost centres, feeders, relative weightings and linking.

### *Measuring Cost Completeness*

There is value in taking a sample of like patients across various health services to measure the underlying costs at intermediate product level to understand the types of resources that comprise patient level costs. This data would also include utilisation information at resource / intermediate product level which would also give further insight into the composition of resources.

If a particular patient cohort was selected, there is value in mapping the clinical pathway of this cohort and matching the intermediate product data to this. This would help gather further intelligence to the degree of cost completeness within costed records.

This form of analysis has yet to be undertaken as part of the NHCDC and would provide a number of opportunities going forward to cement the IFR process as a learning tool. Benefits may include

- health services adopt learnings for cost improvement;
- Updates to the AHPCS to reflect learnings; and
- Further funding model development at the jurisdiction and IHPA level.

Ideally this form of work would take the form of a series of workshops that could be facilitated by the IFR consultant and include relevant costing staff from the jurisdictions.

### *Other considerations*

KPMG still considers it important that the IFR includes reviews of the financial and activity data as part of the IFR, however, it may not need to be as detailed as per the current scope. IHPA may wish to consider the following:

- Reviewing costing sites, rather than hospitals. For example, in NSW, QLD, WA and SA, costing is undertaken at the Local Health Network level, rather than at the hospital level. This would simplify the reconciliations required from jurisdictions at NHCDC submission and may require a reconsideration of the sampling framework that was piloted in Round 20.
- Review of financial and activity data on an exceptions basis for each hospital/health service (i.e. where there are discrepancies in the reconciliations provided by jurisdictions at the point of NHCDC submission).
- IFR templates that detail adjustments (such as WIP, out of scope items etc.) to the financial and activity data. KPMG can then target review questions at items that require clarification, rather than detailed line-by-line questioning of the templates.
- Simplified reporting of application of the AHPCS. This would be on an exceptions basis, rather than for each standard/business rule and will be informed by the declaration accompanying the NHCDC submission.

## **2.4.3 Peer review process**

During the Round 20 IFR, the ability of all jurisdictions to participate in the peer review has been limited compared to previous rounds (for reasons including timing and travel constraints), with only four jurisdictions nominating representatives for the peer review. Despite this, participating

peers reported that they received substantial value from attending the site visits and see the opportunity to participate in the peer review process as a useful learning tool. Recommendations from peer reviewers included reviews to the IFR scope and making video conferencing a viable alternative for peer review participation.

It is recommended that the peer review process continues in its current form in future IFR rounds as the process is still considered valuable. IHPA, jurisdictions and the IFR consultant should seek to confirm site visits earlier during the project, to ensure peer reviewers have adequate time for travel approvals within their State/Territory Departments. The use of video conferencing should also be considered as a viable alternative for peer reviewers, where facilities are available.



## 3. Australian Capital Territory

### 3.1 Jurisdictional overview

#### 3.1.1 Management of NHCDC process

The Business Performance Information and Decision Support (BPIDS) unit of Australian Capital Territory (ACT) Health is responsible for the processing, reconciliation and submission of National Hospital Cost Data Collection (NHCDC) data to the Independent Hospital Pricing Authority (IHPA) for all hospitals in the ACT. The Canberra Hospital and Health Service (The Canberra Hospital), one of the two public hospitals in the ACT, was selected as the sample hospital in the ACT for the Round 20 Independent Financial Review (IFR).

The Round 20 NHCDC submission review was a joint collaboration between BPIDS, Strategic Finance and The Canberra Hospital. ACT Health's Business Performance Information and Decision Support unit is responsible for the management of the clinical costing system and the overall processing of the NHCDC submission. ACT Health uses the Power Performance Manager 2 (PPM2) costing application for patient level costing. All activity is costed and the costing process is currently performed once per year.

ACT Health's Strategic Finance staff work collaboratively with staff from The Canberra Hospital to prepare the general ledger files for costing. ACT Health and The Canberra Hospital share a single general ledger and work is undertaken collaboratively by the respective Finance staff to ascertain The Canberra hospital related expenditure. This function coincided with a major piece of work to prepare for Round 20 (see below).

ACT Health performs data validation on feeder data received from each hospital and if issues are identified, the data is returned to the hospital for resolution. Once the cost model has been run and all data is linked, ACT Health provides cost summary reports for review to the hospitals and sign off by the Director General.

ACT Health then prepares the cost data for IHPA and other submissions.

#### *Key initiatives since Round 19 NHCDC*

The Canberra Hospital participated in the Round 20 IFR. ACT costing staff indicated in the IFR interview that ACT Health's Strategic Finance unit undertook a significant project post the Round 19 NHCDC to review the Canberra Hospital's General Ledger and cost allocations to clinical services, including:

- A review of relevant operating expenses within the single ACT Health general ledger to ensure that expenses could be identified and quarantined to source functions
- Improved expenditure assignment to acute and non-admitted services
- Improved expenditure identification to teaching, training and research functions.
- A review of the cost allocation process with the costing system to ensure the most appropriate allocation methods were undertaken; including a review of alignment to the AHPCS Version 3.1

ACT Health staff indicated that because of this review, Round 20 costing results would be improved to better reflect the cost of hospital services at The Canberra Hospital. ACT Health staff also indicated that:

- Work was undertaken to further develop the ACT costing framework.
- Further refinement was made to linking rules so as to improve the completeness of costs at episode level; and
- Continued review of the quality of feeder data systems through ongoing discussion with the business areas of the hospitals.

## **3.2 The Canberra Hospital**

### **3.2.1 Overview**

The Canberra Hospital is an acute care teaching hospital of approximately 700 beds. It is a tertiary referral centre that provides a broad range of specialist services to the people of the ACT and South East New South Wales. The Canberra Hospital is the largest public hospital in the region, supporting a population of almost 540,000, with strong links to community-based services that provide continuity of care for patients.

The Canberra Hospital is the principal teaching hospital of the Australian National University Medical School. The school enhances the hospital's teaching status and capacity in clinical services, teaching and research. The hospital is also part of the University of Canberra's School of Nursing. The hospital has a strong national and international reputation in research and teaching and is affiliated with a number of pre-eminent research institutions including the John Curtin School of Medical Research at the Australian National University.<sup>2</sup>

### **3.2.2 Financial data**

Representatives from ACT Health's Business Performance and Decision Support unit completed the IFR templates and participated in consultations for the Round 20 IFR.

Table 3 presents a summary of The Canberra Hospital's costs, from the original extract from the General Ledger (GL) through to the final NHCDC submission for The Canberra Hospital for Round 20. This table presents the financial reconciliation of expenditure for Round 20 for The Canberra Hospital and the transformation of this expenditure by the jurisdiction and IHPA for NHCDC submission. There are 11 items of reconciliation in the table. These items are labelled A to K. Items A to E relate to the expenditure submitted by the hospital/LHN, Items F to H relate to the costs submitted by the jurisdiction and Items I to K relate to the transformation of costs by IHPA. The following section in the report explains each item in more detail.

---

<sup>2</sup> <http://www.health.act.gov.au/our-services/canberra-hospital-campus/about-canberra-hospital>. Accessed 26 July 2017

Table 3 – Round 20 NHCDC Reconciliation – The Canberra Hospital

Hospital			Jurisdiction		IHPA	
Item	Amount	% of GL	Item	Amount	Item	Amount
<b>A</b> General Ledger (GL)	\$ 1,295,021,000		<b>F</b> Costed Products received by jurisdiction	\$ 966,372,617	<b>I</b> Total costed products received by IHPA	\$ 966,372,617
			<i>Variance</i>	\$ -	<i>Variance</i>	\$ -
<b>B</b> Adjustments to the GL			<b>G</b> Final Adjustments		<b>J</b> IHPA Adjustments	
Inclusions	\$ 5,962,872		Nil adjustments	\$ -	Admitted ED reallocations	\$ 43,713,891
Exclusions	\$ -		<b>Total costs submitted to IHPA</b>	<b>\$ 966,372,617</b>	<b>Final NHCDC costs</b>	<b>\$ 1,010,086,507</b>
<b>Total hospital expenditure</b>	<b>\$ 1,300,983,872</b>	100.46%				
<b>C</b> Allocation of Costs						
Post Allocation Direct amount	\$ 1,026,856,050					
Post Allocation Overhead amount	\$ 274,127,820					
<b>Total hospital expenditure</b>	<b>\$ 1,300,983,870</b>	100.46%				
<i>Variance</i>	\$ (1)	0.00%				
<b>D</b> Post Allocation Adjustments						
System-generated encounters	\$ (23,010,413)					
Current year WIP	\$ (3,675,533)					
Out of scope costs	\$ (311,924,192)					
Negative costs in TTR	\$ 158,436					
Prior year WIP	\$ 3,840,447					
<b>Total expenditure allocated to patients</b>	<b>\$ 966,372,616</b>	74.33% *				
<b>E</b> Costed products submitted to jurisdiction			<b>H</b> Costed products submitted to IHPA		<b>K</b> Final NHCDC costed products	
Acute and Newborns	\$ 495,173,662		Acute and Newborns	\$ 495,173,662	Acute^ and Newborns	\$ 538,887,552
Non-admitted	\$ 240,779,785		Non-admitted	\$ 240,779,785	Non-admitted	\$ 288,640,344
Emergency	\$ 74,598,268		Emergency	\$ 74,598,268	Emergency	\$ 74,598,268
Sub Acute	\$ 52,850,985		Sub Acute	\$ 52,850,985	Sub Acute	\$ 52,850,985
Mental Health	\$ 47,860,559		Mental Health	\$ 47,860,559	Mental Health	\$ -
Other	\$ 170,529		Other	\$ 170,529	Other	\$ 170,529
Research	\$ 23,516,831		Research	\$ 23,516,831	Research	\$ 23,516,831
Teaching & Training	\$ 31,421,997		Teaching & Training	\$ 31,421,997	Teaching & Training	\$ 31,421,997
System-generated patients	\$ -		System-generated patients	\$ -	System-generated patients	\$ -
	<b>\$ 966,372,617</b>	74.33% *		<b>\$ 966,372,617</b>		<b>\$ 1,010,086,507</b>
<i>Variance</i>	\$ -		<i>Variance</i>	\$ -	<i>Variance</i>	\$ -

Source: KPMG based on data supplied by The Canberra Hospital, jurisdiction and IHPA

\* As WIP from prior years relates to prior year costs, this percentage excludes the \$3.84 million from the calculation

^ These figures include admitted emergency costs.

### *Explanation of reconciliation items*

This section discusses each of the reconciliation items including adjustments, inclusions and exclusions to the GL. The information is based on The Canberra Hospital templates and review discussions.

#### *Item A – General Ledger*

The final GL extracted from ACT Health's financial systems includes expenditure for both ACT Health & Canberra Hospital of \$1.295 billion. This reconciled to the audited financial statements as indicated in the templates.

#### *Item B – Adjustments to the GL*

ACT Health added \$5.96 million to the GL for bonuses paid to the staff specialists through special purpose trust funds that were deemed as patient care related operating expenses.

This adjustment established an expenditure base for costing of \$1.301 billion. This was approximately 100.46 percent of total expenditure reported in the GL.

#### *Item C – Allocation of costs*

ACT Health's Strategic Finance unit undertakes a process of reclass/transfers between direct cost centres.

- It was observed that the total of all direct cost centres of \$1.027 billion was allocated.
- It was observed through the templates that all overheads of \$274.13 million were allocated to direct cost centres.

These amounts reconciled to \$1.301 billion and reflected the total for The Canberra Hospital. A minor \$1 variance between Item B and Item C was identified.

#### *Item D – Post Allocation Adjustments*

A range of post allocation exclusions were made by The Canberra Hospital. These exclusions totalled \$334.61 million and related to:

- System generated encounters – created occasions of service (\$23.01 million)
- WIP patients not discharged (\$3.68 million)
- Out of scope costs totalling \$311.92 million. The major out of scope services include:
  - Departmental costs not directly related to hospital services such as Policy and Government Relations (\$70.37 million);
  - Population Health services (\$35.05 million);
  - Pathology services provided to external agencies (\$21.55 million);
  - Dental services provided in the community (\$16.95 million);
  - Mental Health rehabilitation services at Brian Hennessy Centre (\$11.48 million);
  - Services provided relating to Calvary Hospital (\$10.78 million);
  - Logistic support / inventory services (\$9.08 million);
  - Services provided relating to justice health (\$4.87 million);

- Blood products (non Canberra Hospital) (\$1.34 million);
- Retrieval services (includes newborn retrieval services) (\$2.78 million);
- Depreciation (non Canberra Hospital), asset write-offs as well as core state wide systems (\$8.49 million); and
- Other excluded items include (state department costs, service and capital planning, food services and commercial clients etc. (\$119.17 million)
- ACT Health has excluded negative TTR costs for the NHCDC submission (totalling - 158,436)

ACT Health also included the following:

- WIP patients from prior years - \$3.84 million.

The basis of these adjustments appears reasonable, the impact of these adjustments established an expenditure base for costing purposes for The Canberra Hospital of \$966.37 million.

*Item E - Costed products submitted to jurisdiction*

Costs derived by the jurisdiction and reported at product level were equal to \$966.37 million. This represented approximately 74.33 percent of the GL (note this percentage calculation excludes WIP from prior years as do not form part of the current year GL). Costs were allocated to all products with the exception of system-generated patients, which were excluded during post allocation adjustments.

*Item F – Costed products received by the jurisdiction*

As ACT Health performs costing for both the hospital and the jurisdiction, there is no variance between Items E and F.

*Item G – Final adjustments*

The jurisdiction did not adjust the cost data prior to submission to IHPA.

*Item H – Costed products submitted to IHPA*

Costs derived by the jurisdiction and reported at product level reconcile to \$966.37 million.

*Item I – Total products received by IHPA*

Costed products received by IHPA totalled \$966.37 million. No variance was noted between Item H and Item I.

*Item J – IHPA adjustments*

- *Admitted emergency*

Upon receipt of cost data, IHPA allocates the admitted emergency costs back to admitted patients for the purposes of reporting and analysis. Within IHPA's reconciliation, this amount was a duplication of admitted emergency costs and not an additional cost. This amounted to \$43.71 million for The Canberra Hospital.

- *Product group redistribution*

IHPA redistributed the submitted costs of non-admitted mental health in the Mental Health product group to the Non-admitted product group. This did not result in increased total costed products for The Canberra Hospital.

*Item K – Final NHCDC Costed Outputs*

The final NHCDC costed data for The Canberra Hospital that was loaded into the National Round 20 cost data set was \$1.010 billion, which included the admitted emergency cost of \$43.71 million.

### **3.2.3 Activity data**

Table 4 presents patient activity data based on source and costing systems for The Canberra Hospital. This activity data is then compared to Table 5 which highlights the transfer of activity data by NHCDC product from The Canberra Hospital to ACT Health and then through to IHPA submission and finalisation.

Table 4 – Activity data – The Canberra Hospital

Activity Data	# Records from Source	# Records in costing system	Variance	# Records linked to Admitted	# Records linked to Emergency	# Records linked to Non-admitted	# Records linked to Syst-Gen patient	# Records linked to Other	Total Linking Process	# Unlinked records
Inpatients	81,865	81,865	-	81,865	-	-	-	-	81,865	-
Emergency	77,724	77,724	-	-	77,724	-	-	-	77,724	-
Outpatients	686,337	686,337	-	-	-	686,337	-	-	686,337	-
Community Mental health	313,540	313,540	-	-	-	-	-	313,540	313,540	-
Work in progress	519	519	-	-	-	-	-	-	-	519
Teaching	123	123	-	-	-	-	-	123	123	-
Research	82	82	-	-	-	-	-	82	82	-
System-generated patients	-	78,823	(78,823)	-	-	-	78,823	-	78,823	-
<b>TOTAL</b>	<b>1,160,190</b>	<b>1,239,013</b>	<b>(78,823)</b>	<b>81,865</b>	<b>77,724</b>	<b>686,337</b>	<b>78,823</b>	<b>313,745</b>	<b>1,238,494</b>	<b>519</b>

Source: KPMG based on data supplied by The Canberra Hospital and ACT Health

The following should be noted about the activity reported in Table 4:

- The 519 unlinked records in the Work In Progress data related to current year WIP that was excluded for Round 20 of the NHCDC. The variance of 78,823 records in the system-generated patients activity related to creation of system-generated patients in PPM2 associated with the created occasions of services.

Table 5 – Activity data submission – The Canberra Hospital

Product	Activity related to 2015-16 Costs	Adjustments	Activity submitted to jurisdiction	Adjustments	Activity submitted to IHPA	Activity received by IHPA	Adjustments	Total Activity submitted for Round 20 NHCDC
Acute and Newborns	78,593	-	78,593	-	78,593	78,593	-	78,593
Non-admitted	686,337	-	686,337	-	686,337	686,337	313,540	999,877
Emergency	77,724	-	77,724	-	77,724	77,724	-	77,724
Sub Acute	3,263	-	3,263	-	3,263	3,403	-	3,403
Mental Health	313,540	-	313,540	-	313,540	313,540	(313,540)	-
Other	9	-	9	-	9	9	-	9
Research	82	-	82	-	82	82	-	82
Teaching and Training	123	-	123	-	123	123	-	123
System-generated patients	-	78,823	78,823	(78,823)	-	-	-	-
<b>Total</b>	<b>1,159,671</b>	<b>78,823</b>	<b>1,238,494</b>	<b>(78,823)</b>	<b>1,159,671</b>	<b>1,159,811</b>	<b>-</b>	<b>1,159,811</b>

Source: KPMG based on data supplied by The Canberra Hospital, ACT Health and IHPA

The following should be noted about the transfer of activity data for The Canberra Hospital:

- Adjustments made by The Canberra Hospital related to the exclusion of costs (at Item G in the reconciliation) associated with system-generated patients.
- The adjustments made by IHPA to the Non-admitted and Mental Health product groups related to the redistribution of activity associated with non-admitted mental health as discussed in Item J of the explanation of reconciliation items.
- Adjustments made by IHPA related to admitted emergency reallocations are for reporting and analysis purposes (as discussed in Item J of the explanation of reconciliation items) and have no impact on the reported activity.



### **3.2.4 Feeder data**

Table 6 presents patient feeder data for The Canberra Hospital.

Table 6 – Feeder data – The Canberra Hospital

Feeder Data	# Records from Source	# Records in costing system	Variance	# Records linked to Admitted	# Records linked to Emergency	# Records linked to Non-admitted	# Records linked to Syst-Gen patient	# Records linked to Other	Total Linking Process	# Unlinked records	% Linked	% to Syst-Gen patient
Pathology	1,041,017	1,041,017	-	545,488	166,948	284,402	26,601	17,578	1,041,017	-	100.00%	2.56%
Imaging	130,599	130,599	-	48,134	46,094	29,296	5,408	1,667	130,599	-	100.00%	4.14%
Pharmacy	277,597	277,597	-	211,069	8,953	16,774	35,975	4,826	277,597	-	100.00%	12.96%
Pharmacy S100	15,894	15,894	-	-	-	10,474	5,420	-	15,894	-	100.00%	34.10%
Transfusions	19,891	19,891	-	13,764	758	4,377	497	495	19,891	-	100.00%	2.50%
Admitted Contacts	163,791	163,791	-	154,486	-	-	-	7,089	161,575	2,216	98.65%	0.00%
Emergency Contacts	4,655	4,655	-	-	4,526	-	-	-	4,526	129	97.23%	0.00%
Implants/Prosthetics	30,181	30,181	-	23,454	-	1,812	4,881	32	30,179	2	99.99%	16.17%
Metcall	1,826	1,826	-	1,654	64	-	41	67	1,826	-	100.00%	2.25%
Theatre	17,578	17,578	-	17,414	-	-	-	164	17,578	-	100.00%	0.00%

Source: KPMG based on data supplied by The Canberra Hospital and ACT Health

The following should be noted about the feeder data for The Canberra Hospital:

- There are ten feeders reported from hospital source systems and they appear to represent major hospital departments providing resource activity.
- Records from source and records loaded into the costing system match for all feeders as all feeder data is extracted, translated and validated outside of the costing system. No records are excluded from the data extract provided by the respective business areas.
- The number of records linked to admitted patients, emergency, non-admitted and other patients had a greater than 97 percent link or match. This suggests that there is robustness in the level of feeder activity reported back to episodes.
- The unlinked records in the admitted contacts, emergency contacts and implants/prosthetics feeders related to records with unmatched episode numbers.

- A proportion of feeder records are linked to system-generated patients. These records relate to all the feeder extracts where the linking rule cannot link all records to activity such as dispensed pharmacy activity which occurs outside of the generic pharmacy linking window.

### 3.2.5 Treatment of WIP

Table 7 demonstrates models for WIP and its treatment in The Canberra Hospital's Round 20 NHCDC submission.

*Table 7 – WIP – The Canberra Hospital*

Model	Description	Submitted to Round 20 NHCDC
1	Cost for patients admitted and discharged in 2015-16 only	Submitted to Round 20 of the NHCDC
2	Costs for patients admitted prior to 2015-16 and discharged in 2015-16	Submitted to Round 20 of the NHCDC. Costs are submitted back to 2014-15 if there relevant.
3	Costs for patients admitted prior to or in 2015-16 and remain admitted at 30 June 2016	Not submitted to Round 20 of the NHCDC

*Source: KPMG, based on The Canberra Hospital templates and review discussions*

In summary, for The Canberra Hospital submitted WIP costs for admitted and discharged patients in 2015-16 and WIP costs for patients admitted from 2014-15 but discharged in 2015-16. For Round 19 there were \$3.8 million WIP costs, ACT Health undertakes a thorough reconciliation process and ensures all the WIP costs are reported in Round 20.

### 3.2.6 Critical care

The Canberra Hospital operates two standalone Intensive Care Units (ICU), one adult and one neonatal (NICU). It also operates a Cardiothoracic Unit and high dependency unit. All expenses related to each area are recorded in dedicated cost centres. The NICU has a dedicated nursing cost centre. The neonatology medical salaries and wages and VMO payments are accounted for in a single cost centre. This expenditure related to intensive care and non-intensive care provided to babies. Activity is defined by bed cards and not by individual medical consultants. Critical care costs are captured in accordance with the applicable standard.

### 3.2.7 Costing public and private patients

The Canberra Hospital makes no specific adjustments to the way private patients are costed compared to public patients. Applicable costs are allocated to private patients, including pathology, medical imaging and prosthesis, in the same manner as public patients. There is no offsetting of private patient revenue against the expenditure.

The majority of the remuneration payments to medical specialists is paid via the payroll system and recorded in the General Fund general ledger. Depending on the relevant enterprise agreement, the payment may be included in their salary package or a percentage of the income generated is paid to them as an allowance. For some doctors, the payments relating to the treatment of private patients is paid to them directly from the Private Practice Trust Fund and these payments are excluded from the costing process.

### 3.2.8 Treatment of specific items

A number of items were discussed during the review to understand their treatment in the costing process as the cost data is used to inform the NEP and specific funding model adjustments for particular patient cohorts. The Canberra Hospital's treatment of each of the items is summarised below.

*Table 8 – Treatment of specific items – The Canberra Hospital*

Item	Treatment
Research	Research costs are assigned to a product and submitted to the NHCDC. Direct research costs were identified through a survey of clinicians during Round 20.
Teaching and Training	Teaching and Training costs are assigned to a product and submitted to the NHCDC. Direct teaching and training costs were identified through a survey of clinicians during Round 20.
Shared/Other commercial entities	The Canberra Hospital operates a staff cafeteria and these costs are excluded in the NHCDC. All other commercial entity expenditure is excluded.

Source: KPMG, based on IFR discussions

### 3.2.9 Sample patient data

IHPA selected a sample of five patients from The Canberra Hospital for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. ACT Health provided the patient level costs for all five patients and these reconciled to IHPA records. The results are summarised in Table 9.

*Table 9 – Sample patients – The Canberra Hospital*

#	Product	Jurisdiction Records	Received by IHPA	Variance
1	Acute	\$312.25	\$312.25	\$-
2	Non-Admitted	\$27.23	\$27.23	\$-
3	Admitted ED	\$1,446.03	\$ 1,446.03	\$-
4	Maintenance	\$2,187.46	\$ 2,187.46	\$-
5	Acute	\$371.50	\$ 371.50	\$-

Source: KPMG, based on The Canberra Hospital and IHPA data

## 3.3 Application of AHPCS Version 3.1

The following section summarises ACT Health's application of selected standards from Version 3.1 of the AHPCS (outlined in Appendix B) to The Canberra Hospital Round 20 NHCDC submission.

### **3.3.1 SCP 1.004 – Hospital Products in Scope**

ACT Health representatives demonstrated that costs are reported against all products. It was noted that costs are also created for non-patient products (created occasions of services) which are not submitted to the NHCDC.

Unlinked feeder data is allocated to system-generated records to which costs are allocated. The generation of these records is specific to the feeder. These system-generated records with costs are not submitted to the NHCDC.

### **3.3.2 SCP 2.003 – Product Costs in Scope**

ACT Health representatives demonstrated the reconciliation process for financial data used for costing purposes. Discussions indicated that all products are costed, including costs assigned to products in scope for the NHCDC, unlinked activity and costs assigned to system-generated patients where there is no activity.

### **3.3.3 SCP 3.001 - Matching Production and Cost**

The application of this standard was demonstrated during the interview and an excel file was produced from the costing system which outlined all transfers and offsets utilised.

### **3.3.4 SCP 3A.001 - Matching Production and Cost – Overhead Cost Allocation**

The jurisdiction was able to demonstrate that overhead costs were fully allocated to direct patient care areas via the pre allocation and post allocation data included in the templates. ACT Health representatives also noted that the overhead allocation hierarchy listed in the AHPCS version 3.1 is applied for costing.

### **3.3.5 SCP 3B.001 - Matching Production and Cost – Costing all Products**

The application of this standard was demonstrated in the template and ACT Health provided an overview of their internal reconciliation process, which demonstrated the allocation of costs to products.

### **3.3.6 SCP 3C.001 - Matching Production and Cost – Commercial Business Entities**

ACT Health representatives indicated that these costs were excluded from the costing process.

### **3.3.7 SCP 3E.001 - Matching Production and Cost – Offsets and Recoveries**

Revenue is not offset against any expenditure. ACT Health operates separate business units for pathology and medical imaging. The costs associated with these services are allocated to public and private patients. Costs associated with services provided to external clients are excluded from the costing process.

### **3.3.8 SCP 3G.001 – Matching Production and Cost – Reconciliation to Source Data**

ACT Health representatives outlined the reconciliation process for financial and activity data used for costing purposes. Based on a review of the templates, the process appears robust.

### **3.3.9 GL 2.004 - Account Code Mapping to Line Items**

The template submitted by ACT Health reflected that account codes and associated costs from the costing system were only allocated to the specific line items, in accordance with the standard.

### **3.3.10 GL 4A.002 – Critical Care Definition**

Direct expenditure associated with the adult ICU is captured in dedicated cost centres. The neonatal ICU has a dedicated nursing cost centre. The neonatology medical salaries and wages and VMO payments are accounted for in a single cost centre. This expenditure related to intensive care and non-intensive care for babies. For costing purposes, their costs are allocated between the ICU and NICU. The Canberra Hospital does not have any dedicated close observation units.

### **3.3.11 COST 3A.002 – Allocation of Medical Costs for Private and Public Patients**

Costs are allocated to public and private patients in the same manner. This includes costs associated with medical and nursing salaries and wages, pathology, medical imaging and prosthesis. There is no offsetting of private patient revenue against the expenditure. It should be noted that some payments are made to medical specialists directly from the Private Practice Trust Fund and are excluded from the costing process.

### **3.3.12 COST 5.002 - Treatment of Work-In-Progress Costs**

Discussions revealed that patients are allocated costs based on their consumption of resources for that reporting period. Where costs are incurred in prior years, these are also included in the final costed data and NHCDC submission.

## **3.4 Conclusion**

The findings of the ACT Round 20 IFR are summarised below:

- A number of key initiatives were implemented in Round 20 including: a review of relevant operating expenses within the single ACT Health general ledger to ensure theta expenses could be identified and quarantined to source functions, improved expenditure assignment to acute and non-admitted services and improved expenditure identification to teaching, training and research functions.
- The financial reconciliation demonstrates the transformation of cost data from the original GL extract through to the final NHCDC submission for The Canberra Hospital. Major exclusions from this hospital data included departmental costs not directly related to hospital services, pathology services provided to external agencies, dental services created occasions of service, sexual health patients, population health and other out of scope services. There were no unexplained variances in the financial reconciliation of the hospital's NHCDC submission.
- Non-Canberra Hospital related expenditure and activity were excluded from the costing process.
- Total activity data for The Canberra Hospital was adjusted for the activity associated with excluded system-generated patients.

- The number of records linked from source to product was significant with all feeders having a greater than 97 percent link or match. This suggests that there is robustness in the level of feeder activity reported back to episodes.
- WIP was treated in accordance with the COST 5.002 of the AHPCS Version 3.1.
- The five sample patients selected for review for The Canberra Hospital reconciled to IHPA records.

The IFR is conducted in accordance with the review methodology detailed in Section 1.3 of this report. Based on this methodology and in accordance with the limitations identified in Section 1.1, ACT Health has suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission. Furthermore, the data flow from the jurisdiction to IHPA demonstrated no unexplained variances.

## 4. New South Wales

### 4.1 Jurisdictional overview

#### 4.1.1 Management of NHCDC process

New South Wales (NSW) has fifteen Local Health Districts (LHDs) (eight covering metropolitan areas and seven in rural areas) with three Speciality Health Networks (SHNs) which focus on children's and paediatric services, forensic mental health, justice health and the public hospital services provided by the St Vincent's Health Network. Published financial statements are reported at the LHD/SHN level.

Since the inception of Activity Based Funding (ABF), the NSW Ministry of Health (NSW Health) has invested heavily in patient level costing to inform its Activity Based Management (ABM) functions at both state and national levels. Each of the LHDs/SHNs are required to operate and maintain patient level costing systems as part of their conditions of subsidy with NSW Health.

The ABM Team at NSW Health includes a costing team and data acquisition team, which provide support to the LHD/SHN who prepare, process and submit the District and Network Return (DNR) – the NSW patient level cost submission. This support includes:

- Cost Accounting Guidelines (CAG) – which specifies costing standards, costing guidelines and technical specifications for the DNR. NSW Health advised that the Australian Hospital Costing Standards Version 3.1 are embedded within the CAG and the CAG is reviewed each year.
- Extractor – a tool to extract the inpatient and emergency activity files for costing from the LHD/SHN Health Information Exchange (HIE) in a standard format.
- Non Admitted Patient (NAP) Datamart – which provides costing views to non-admitted activity in a standard format.
- Feeder data – a number of tools have been developed to assist with the standard formatting of feeder data such as operating theatre and imaging.
- A collaborative space – which provides access to the extractor, the general ledger (GL), documentation and a range of tools.

Additionally, a mandatory DNR Audit Program is undertaken annually by LHD/SHN, Internal Audit teams or an external consultant. The DNR Audit Program is mandated within LHD/SHN service agreements and is a condition of subsidy. The DNR Audit Program has three lines of inquiry:

- Is the financial and patient data reliable and accurate?
- Are costing methodology used appropriate and robust? and
- Does the preparation of the DNR comply with the NSW CAG?

Universal access to standard queries and reporting tools has been provided to all LHD/SHN staff to ensure that there is a consistent approach to costing. This is in recognition of the fact that there are various levels of experience and costing skills within the sector. A NSW Costing Standards User Group is convened and meets on a regular basis. All matters related to costing



are considered and determined with the members. The ABM Team also supports the Costing Standards User Group by undertaking a series of workshops and training sessions each year for LHD/SHN costing staff.

NSW Health utilises a standard build of PowerPerformance Manager (PPM2) across all LHDs/SHNs. Patient level costing at all LHDs/SHNs is conducted on a bi-annual basis. The six-month costing provides an opportunity to test initiatives and sometimes identifies data quality issues that may affect the final annual submission. Annual costing is then undertaken deleting all six-month general ledger and patient activity data and loading the GL, activity and feeder data for a full twelve months.

Reloading optimises all revisions in both the financial and activity data. A draft DNR submission is supplied by LHDs and SHNs to NSW Health in October and following further revisions, a final DNR is signed off, reconciled and submitted in November. The DNR submission is made using a secure file transfer environment.

During the draft submission period, over sixty patient-level data quality tests are performed on the cost data and average cost per class for each facility is reported back to LHD/SHNs through the Reasonableness and Quality (RQ) Application. To support LHD/SHN costing staff the results of these data quality tests are returned to the LHD/SHN the following business day. The quality of the cost data is scored and a graphical summary of the cost data against previous collections is provided. During the draft submission period, LHD/SHNs may submit repeatedly to correct cost allocation issues.

The draft submission period also includes a teleconference with each LHD/SHN Chief Executive to review the current draft submission cost results. Material year on year changes are flagged and discussed with issues for further investigation identified.

Once finalised, the LHD/SHN Chief Executive submits a signed letter and reconciliation schedule that demonstrates reconciliation to the published financial statements to formally advise of the finalisation of the DNR submission. The ABM Team does not alter cost data submissions received from LHDs/SHNs.

The data reported through the DNR will inform a range of State and National data reporting obligations, including the NHCDC (based on a policy of single submission for multiple uses). The ABM Team is responsible for the collation, formatting, consolidating, review and submission of the LHD/SHN patient level costed data for the NHCDC.

Only patient level data for ABF facilities is submitted to the NHCDC. The ABM Team adjusts for Work In Progress (WIP) patient records from prior years. Records that fail the IHPA validation checks are excluded from the submission and so too activity that is deemed out of scope for ABF purposes. Once the NHCDC submission is finalised, a data quality statement is provided and published in the cost report.

NSW nominated Hunter New England LHD to participate in the review for Round 20. The Hunter New England LHD includes John Hunter Hospital, Tamworth Hospital, Calvary Mater Newcastle, Inverell District Hospital and Moree District Hospital, which meet the sampling criteria for Round 20.

### *Key initiatives since Round 19 NHCDC*

The following initiatives have been implemented since the Round 19 NHCDC submission:

- The ABM Team worked with all LHDs/SHNs collaboratively to review system generated encounters and the associated linking rule analysis to improve precision in linking of encounter and feeder data. This work was undertaken in collaboration with the NSW Costing Standards User Group. The ABM Team reported that following this work, their internal review of costs demonstrated greater improvement in linking and therefore associated costs at episode level as a result.
- The DNR module was completely rebuilt to improve the efficiency of the reporting process and the testing processes for the RQ Application and the DNR module were improved. This improvement included further cost data edit checks and subsequent review of cost data.
- Improvements to the NSW costing guidelines resulted in further refinement of the costing methodologies in the following areas:
  - The inclusions and exclusions definitions for Teaching, Training and Research (TTR) products were further refined.
  - Cost allocation methodology relating to Non Admitted Patients was further refined to better align with the actual resource consumption.
  - Cost allocation methodology relating to the Emergency Department (ED) was refined using the Relative Value Units (RVUs) developed as part of the IHPA Emergency Care Costing Study in which NSW Health took part as a pilot. As a result, the current costing methodology no longer uses RVUs associated with the triage process as the drivers for allocation, but examines a combination of factors including location of patient in the emergency department (such as cubicles or resuscitation bay) and diagnosis. The refined costing methodology was applied state-wide to all ABF hospitals except for Royal Prince Alfred Hospital, Blacktown Hospital, Port Macquarie Base Hospital and The Sydney Children's Hospital, which used their own RVUs developed as part of the study. In the Round 21 NHCDC, each hospital will use their own RVUs.
  - Standardised state-wide adoption of refined RVUs to allocate costs for oral health developed for each dental item.
  - The RVUs used for the cost allocation methodology for Non-Emergency Patient Transport services in metropolitan LHDs was revised to reflect the actual number of kilometres travelled.
  - Inpatient mental health nursing RVUs developed during IHPAs Mental Health Costing Study were updated following consultation with the NSW Mental Health Working Group.

## **4.2 Hunter New England Local Health District**

### **4.2.1 Overview**

The Hunter New England Local Health District (Hunter New England LHD) provides public health services to the Hunter, New England and Lower Mid North Coast regions. The region is serviced by 33 public hospitals, 12 multipurpose services, 13 Residential Aged Care hospitals, two Mental Health hospitals, and 13 community health services. The LHD employs 16,033 staff and is supported by 1,600 volunteers.

John Hunter Hospital is the largest hospital in the Hunter New England LHD with approximately 650 beds (including John Hunter Children's Hospital). As part of the 2015-16 DNR submission, the LHD processed 225,000 inpatient encounters, 396,000 ED presentations, 330,000 mental health service events and 1.6 million non-admitted service cases.

The Hunter New England LHD was one of the pilot sites for the implementation of PPM. The LHD costs 73 entities under ABM including 13 standalone community health centres, 13 ABF district hospitals (33 in total), 12 multipurpose services, 13 residential aged care facilities and two mental health facilities.

Some of the public health services offered by the Hunter New England LHD include:

- Primary and community based services
- Aboriginal Health Services
- Outpatient Services
- Emergency Services
- Inpatient Hospital Services
- Mental Health Services
- Rehabilitation and Extended care Services
- Population Health Services
- Teaching and Research

Hunter New England LHD is the only district in NSW with a major metropolitan centre with a mix of several large regional centres, smaller rural centres and remote communities within its borders<sup>3</sup>.

### *Overview of the costing process*

Hunter New England LHD has two dedicated costing staff. Costing is undertaken bi-annually and a project management approach is adopted for the DNR process with weekly team meetings to discuss any issues. The CAG is used as a reference for all costing guidelines and informs the methodology. A project timeline is held by the costing staff with regular weekly meetings to inform management of status of costing deliverables. The GL is extracted and reconciled to annual financial results for the LHD.

The six-monthly costing process is used to inform the 12-month costing and it is supported by structures such as internal audit and the RQ Application to continually improve the DNR process and investigate any issues.

All operating expenditure is included in the costing system and no activity is excluded from the costing process. Where expenditure is held, but activity cannot be sourced, expenditure is linked to the system-generated patient. Whilst a number of feeders report services linked to the system-generated patient, costing staff noted that they had participated with NSW Health in a project to improve linking of services to episodes. Costing staff also noted that a portion of

---

<sup>3</sup> <http://www.hnehealth.nsw.gov.au/about/Pages/Our-District.aspx>. Accessed 11 July 2017

services which remain unlinked or attached to the system generated patient are a valid outcome of the costing process, given the nature of work undertaken by the LHD, such as pathology services for privately referred patients.

The preparation and loading of the activity and feeder data uses combined sources. For inpatients and ED, the Hunter New England LHD's Patient Administration System (PAS) uploads data to the Health Information Exchange (HIE). The data is then extracted from the HIE using the Extractor when required. Multiple queries are run within the Extractor and the resulting load file is reconciled with the HIE to ensure that the activity balances and any variance is investigated.

Once extracted a series of additional internal quality checks are undertaken using an internally developed quality database, set up for each source system. Any patient activity not linked is fixed at the source by way of data managers running unlinked reports on a monthly basis.

Non-Admitted data is sourced from the NAP Datamart. Feeder data is sourced from a range of departments across the LHD. Data quality checks on each feeder system are undertaken before costing data is uploaded into PPM2.

The Hunter New England LHD is notified of the results of the draft submission via the RQ Application. The costing staff of the LHD investigate each of the irregularities identified in the report along with comparison to prior year costing. Adjustments are made, where relevant and a final DNR is prepared. The costing team discusses the results with the LHD Director of Finance and the Chief Executive and the final DNR is signed by the Chief Executive and submitted to NSW Health.

#### **4.2.2 Financial data**

For the Round 20 IFR, the ABM Team on behalf of the Hunter New England LHD completed the data collection templates. Representatives from ABM Team attended and participated in the consultation process during the review, as well as the costing staff from the Hunter New England LHD.

Table 10 reflects a summary of the Hunter New England LHD's costs, from the original extract from the GL through to the final NHCDC submission for the Hunter New England LHD for the Round 20. This table presents the financial reconciliation of expenditure for Round 20 for Hunter New England LHD and the transformation of this expenditure by the jurisdiction and IHPA for NHCDC submission. There are 11 items of reconciliation in the table. These items are labelled A to K. Items A to E relate to the expenditure submitted by the hospital/LHN, Items F to H relate to the costs submitted by the jurisdiction and Items I to K relate to the transformation of costs by IHPA. The following section in the report explains each item in more detail.

Table 10 – Round 20 NHCDC Reconciliation – Hunter New England LHD

Hospital			Jurisdiction			IHPA		
Item	Amount	% of GL	Item	Amount		Item	Amount	
<b>A</b> General Ledger (GL)	\$ 2,076,444,794		<b>F</b> Costed Products received by jurisdiction	\$ 2,103,485,921		<b>I</b> Total costed products received by IHPA	\$ 1,439,751,997	
			<i>Variance</i>	\$ -		<i>Variance</i>	\$ -	
<b>B</b> Adjustments to the GL			<b>G</b> Final Adjustments			<b>J</b> IHPA Adjustments		
<i>Inclusions</i>	\$ 27,041,127		<i>Prior year WIP</i>	\$ 28,771,537		<i>Admitted ED reallocations</i>	\$ 65,101,373	
<i>Exclusions</i>	\$ -		<i>Non Patient Products</i>	\$ (2,146,193)		<b>Final NHCDC costs</b>	<b>\$ 1,504,853,370</b>	
<b>Total hospital expenditure</b>	<b>\$ 2,103,485,921</b>	101.30%	<i>ABF Aggregate Non-admitted patients</i>	\$ (12,634,582)				
<b>C</b> Allocation of Costs			<i>System-generated patients</i>	\$ (11,572,768)				
<i>Post Allocation Direct amount</i>	\$ 1,592,215,257		<i>Restricted Fund Assets</i>	\$ (9,448,816)				
<i>Post Allocation Overhead amount</i>	\$ 511,270,663		<i>Teaching and Training</i>	\$ (27,248,543)				
<b>Total hospital expenditure</b>	<b>\$ 2,103,485,921</b>	101.30%	<i>Research</i>	\$ (3,987,048)				
<i>Variance</i>	\$ -	0.00%	<i>Records with validation and linking errors</i>	\$ (91,007,910)				
<b>D</b> Post Allocation Adjustments			<i>ABF facilities - Z encounters</i>	\$ (27,892,705)				
<i>nil</i>	\$ -		<i>Non-ABF facilities in LHD</i>	\$ (506,566,895)				
<b>Total expenditure allocated to patients</b>	<b>\$ 2,103,485,921</b>	101.30%	<b>Total costs submitted to IHPA</b>	<b>\$ 1,439,751,997</b>				
<b>E</b> Costed products submitted to jurisdiction			<b>H</b> Costed products submitted to IHPA			<b>K</b> Final NHCDC costed products		
<i>Acute and Newborns</i>	\$ 1,039,028,941		<i>Acute and Newborns</i>	\$ 973,477,209		<i>Acute^ and Newborns</i>	\$ 1,043,973,227	
<i>Non-admitted</i>	\$ 432,798,793		<i>Non-admitted</i>	\$ 199,177,551		<i>Non-admitted</i>	\$ 199,177,551	
<i>Emergency</i>	\$ 227,135,270		<i>Emergency</i>	\$ 191,837,809		<i>Emergency</i>	\$ 191,837,809	
<i>Sub Acute</i>	\$ 113,118,344		<i>Sub Acute</i>	\$ 68,816,056		<i>Sub Acute^</i>	\$ 68,887,186	
<i>Mental Health</i>	\$ -		<i>Mental Health</i>	\$ -		<i>Mental Health</i>	\$ -	
<i>Other</i>	\$ 58,877,501		<i>Other</i>	\$ 6,443,372		<i>Other</i>	\$ 977,596	
<i>Research</i>	\$ 9,829,546		<i>Research</i>	\$ -		<i>Research</i>	\$ -	
<i>Teaching &amp; Training</i>	\$ 32,194,624		<i>Teaching &amp; Training</i>	\$ -		<i>Teaching &amp; Training</i>	\$ -	
<i>System-generated patients</i>	\$ 190,502,902		<i>System-generated patients</i>	\$ -		<i>System-generated patients</i>	\$ -	
	<b>\$ 2,103,485,921</b>	101.30%		<b>\$ 1,439,751,997</b>			<b>\$ 1,504,853,370</b>	
<i>Variance</i>	\$ -		<i>Variance</i>	\$ -		<i>Variance</i>	\$ -	

Source: KPMG based on data supplied by Hunter New England LHD, jurisdiction and IHPA

^ These figures include admitted emergency costs.

### *Explanation of reconciliation items*

This section discusses each of the reconciliation items including adjustments, inclusions and exclusions to the financial data. The information is based on the templates submitted for Hunter New England LHD and face-to-face review discussions.

#### *Item A – General Ledger*

The final GL amount extracted from the LHD Financial System (Oracle) for the LHD totalled \$2.076 billion. This amount reflected the total expenditure for the Hunter New England LHD. This amount reconciled to the total expenditure reported in the 2015-16 audited financial statements for the Hunter New England LHD.

#### *Item B – Adjustments to the GL*

Inclusions made to the GL totalled \$27.04 million relating to medical indemnity insurance to comply with the requirements of the AHPCS. The ABM Team advised the LHD/SHNs of the total for medical indemnity insurance as this expense is held centrally by NSW Health. The basis of this adjustment appears reasonable.

This adjustment established an expenditure base for costing of \$2.103 billion. This was approximately 101.3 percent of total expenditure reported in the GL (note this percentage is greater than 100 percent, as the jurisdiction holds costs outside of the LHDs GL e.g. medical indemnity insurance).

#### *Item C – Allocation of costs*

The Hunter New England LHD undertakes a process of reclass/transfers between cost centres. It was observed from the templates submitted that:

- the total of all direct cost centres of \$1.592 billion was allocated.
- the total of overheads of \$511.27 million was allocated to direct cost centres.

These amounted to \$2.103 billion and reflected the total expenditure for the Hunter New England LHD. No variance was identified between Item B and Item C.

#### *Item D – Post Allocation Adjustments*

Hunter New England LHD did not make post allocation adjustments.

The total expenditure allocated to patients for the Hunter New England LHD was \$2.103 billion, which represented approximately 101.3 percent of the GL.

#### *Item E - Costed products submitted to jurisdiction*

Costs submitted to the jurisdiction and reported at product level totalled \$2.103 billion. Costs were allocated to all products with the exception of Mental Health. No variance was identified between Item D and Item E.

#### *Item F – Costed products received by the jurisdiction*

Costed by product received by the jurisdiction was \$2.103 billion. No variance was noted between Items E and F, which indicates that no data was lost in the transmission of costs from the LHD to the jurisdiction.

*Item G – Final adjustments*

The ABM Team formats the LHD DNR for NHCDC submission to IHPA. The following adjustments were made for Round 20 totalling \$663.73 million:

- WIP from prior years totalling \$28.77 million was included
- Non-patient products in ABF facilities totalling \$2.15 million excluded
- Non Admitted Patient aggregate activity in ABF Facilities totalling \$12.63 million excluded.
- System-generated encounters (due to unlinked activity associated with diagnostic services such as pharmacy and imaging) totalling \$11.57 million excluded
- Restricted Fund Assets totalling \$9.45 million excluded
- Teaching and Training costs totalling \$27.29 million excluded
- Research costs totalling \$3.99 million excluded
- NHCDC Validation and linking exceptions totalling \$91.01 million excluded
- Out of scope encounters relating to ABF facilities such as population health \$27.89 million excluded.
- Non ABF Facilities within the LHD totalling \$506.57 million excluded

The basis of these adjustments appears reasonable. However, the exclusion of Teaching, Training and Research may affect the completeness of the NHCDC.

*Item H – Costed products submitted to IHPA*

Costs derived by the jurisdiction and reported at product level to IHPA totalled \$1.440 billion.

*Item I – Total products received by IHPA*

Costed products received by IHPA totalled \$1.440 billion. No variance was noted between Item H and Item I.

*Item J – IHPA adjustments*

- *Admitted emergency*

Upon receipt of cost data, IHPA allocates the admitted emergency costs back to admitted patients for the purposes of reporting and analysis. Within IHPA's reconciliation, this amount was a duplication of admitted emergency costs and not an additional cost. This amounted to \$65.10 million for Hunter New England LHD.

- *Product group redistribution*

IHPA redistributed the submitted costs of admitted Boarders in the Other product group to the Acute and Sub-Acute product groups. This did not result in increased total costed products for Hunter New England LHD.

*Item K – Final NHCDC Costed Outputs*

The final NHCDC costed data for Hunter New England LHD that was loaded into the National Round 20 cost data set was \$1.505 billion, which included the admitted emergency cost of \$65.10 million.

### **4.2.3 Activity data**

Table 11 presents patient activity data based on source and costing systems for the Hunter New England LHD. This activity data is then compared to Table 12 which highlights the transfer of activity data by NHCDC product from the Hunter New England LHD to NSW Health and then through to IHPA submission and finalisation.



Table 11 – Activity data – Hunter New England LHD

Activity Data	# Records from Source	# Records in costing system	Variance	# Records linked to Admitted	# Records linked to Emergency	# Records linked to Non-admitted	# Records linked to system-generated patient	# Records linked to Other	Total Linking Process	# Unlinked records
Inpatients	225,343	225,276	67	225,276	-	-	-	-	225,276	-
Emergency	396,233	396,227	6	-	396,227	-	-	-	396,227	-
WEB NAP	1,831,716	1,662,758	168,958	-	-	1,662,758	-	-	1,662,758	-
Mental Health CHAMB Feed	330,801	330,199	602	-	-	330,199	-	-	330,199	-
System-generated and aggregate encounters	-	51,201	(51,201)	-	-	-	51,201	-	51,201	-
<b>TOTAL</b>	<b>2,784,093</b>	<b>2,665,660</b>	<b>118,433</b>	<b>225,276</b>	<b>396,227</b>	<b>1,992,957</b>	<b>51,201</b>	<b>-</b>	<b>2,665,661</b>	<b>-</b>

Source: KPMG based on data supplied by the Hunter New England LHD and NSW Health

Variances were noted between the records from source and the records loaded into the costing system. The reasons for these variances are summarised below:

- Inpatients (67 records) and Emergency (six records) – a scripting error between the Hunter New England LHD’s PAS and the HIE. Hunter New England LHD costs the activity extracted from the HIE.
- WEBNAP (168,958 records) - Adjustment made by the LHD to remove the duplicate Mental Health service events in WEBNAP activity as this data was sourced from the Community Health Ambulatory extract from HIE (CHAMB) feeder.
- Mental Health CHAMB Feed (602 records) - The CHAMB extract from the Community Health Information Management Enterprise (CHIME) system uses the Patient Identifier instead of the patient medical record number (MRN). 602 CHIME records (0.18 percent of records from source) could not be matched to an MRN.
- Aggregated/System-generated encounters (51,201 records) – These records are created in the costing system and not extracted from the HIE.

Table 12 – Activity data submission – Hunter New England LHD

Product	Activity related to 2015-16 Costs	Adjustments	Activity submitted to jurisdiction	Adjustments	Activity submitted to IHPA	Activity received by IHPA	Adjustments	Total Activity submitted for Round 20 NHCDC
Acute and Newborns	205,455	-	205,455	(19,322)	186,133		-	
Non-admitted	1,981,096	-	1,981,096	(1,167,652)	813,444		-	
Emergency	396,220	-	396,220	(75,384)	320,836		-	
Sub Acute	6,723	-	6,723	(1,028)	5,695		-	
Mental Health	-	-	-	-	-		-	
Other	1,239	-	1,239	(702)	537		-	
Research	17	-	17	(17)	-		-	
Teaching and Training	34	-	34	(34)	-		-	
System-generated patients	51,163	-	51,163	(51,163)	-		-	
<b>Total</b>	<b>2,641,947</b>	<b>-</b>	<b>2,641,947</b>	<b>(1,315,302)</b>	<b>1,326,645</b>	<b>-</b>	<b>-</b>	<b>-</b>

Source: KPMG based on data supplied by the Hunter New England LHD, NSW Health and IHPA

The following should be noted about the transfer of activity data in Table 12 for the Hunter New England LHD:

- There was a variance between the number of records extracted from source systems detailed in Table 11 (2,665,661 records) and activity related to 2015-16 costs by NHCDC product in Table 12 (2,641,947 records) of 23,714 records. The majority of the variance is summarised below:
  - 11,849 records related to X encounters for unqualified babies (the costs are allocated to the mother)
  - 11,855 records related to unlinkable service events in mental health from non-clinical activity and duplicate data.
- The Hunter New England LHD made no activity adjustments.
- Adjustments made by NSW Health related to the activity associated with the excluded costs (refer to Item G in the reconciliation Table 10). These records related to system-generated encounters, non-ABF facilities, non-patient level data, non-patient products and records with validation or linking issues.
- The adjustment made by IHPA to the Acute and Newborns, Sub-Acute and Other product groups related to the redistribution of activity associated with admitted Boarders as discussed in Item J of the explanation of reconciliation items.

- Adjustments made by IHPA related to admitted emergency reallocations are for reporting and analysis purposes (as discussed in Item J of the explanation of reconciliation items) and have no impact on the reported activity.

#### **4.2.4 Feeder data**

Table 13 reflects data associated with patient feeder data for the Hunter New England LHD.

Table 13 – Feeder data – Hunter New England LHD

Feeder Data	# Records from Source	# Records in costing system	Variance	# Records linked to Admitted	# Records linked to Emergency	# Records linked to Non-admitted	# Records linked to Syst-Gen patient	# Records linked to Other	Total Linking Process	# Unlinked records	% Linked	% to Syst-Gen patient
OTD	295	295	-	279	-	-	-	-	279	16	94.58%	0.00%
Blood Products	77,434	77,434	-	36,028	6,108	15,598	19,700	-	77,434	-	100.00%	25.44%
Imaging	425,111	424,844	267	92,346	172,824	59,486	100,188	-	424,844	-	100.00%	23.58%
Pathology	2,702,698	2,702,698	-	1,594,798	441,233	539,003	127,664	-	2,702,698	-	100.00%	4.72%
Theatre	71,909	71,909	-	64,132	29	7,280	468	-	71,909	-	100.00%	0.65%
Anaesthetics	71,758	71,758	-	63,983	30	7,278	467	-	71,758	-	100.00%	0.65%
Recovery	67,715	67,715	-	59,980	22	7,260	453	-	67,715	-	100.00%	0.67%
NEPT	27,122	27,122	-	17,411	2,140	2,342	5,229	-	27,122	-	100.00%	19.28%
Pharmacy JHH ED	2,189	2,189	-	43	2,070	68	8	-	2,189	-	100.00%	0.37%
Pharmacy JHH NonED	149,168	149,168	-	109,246	20,542	18,492	888	-	149,168	-	100.00%	0.60%
Pharmacy Belmont ED	11,674	11,674	-	10,820	525	289	34	-	11,668	6	99.95%	0.29%
Pharmacy Belmont NonED	426	426	-	1	402	13	10	-	426	-	100.00%	2.35%
Pharmacy Maitland ED	608	608	-	30	527	15	36	-	608	-	100.00%	5.92%
Pharmacy Maitland NonED	23,208	23,204	4	17,916	4,240	585	462	-	23,203	1	100.00%	1.99%
Pharmacy Kurri NonED	970	970	-	953	12	1	4	-	970	-	100.00%	0.41%
Pharmacy Manning ED	73	73	-	3	64	5	1	-	73	-	100.00%	1.37%
Pharmacy Manning NonED	16,612	16,612	-	11,874	2,515	1,014	1,196	-	16,599	13	99.92%	7.20%
Pharmacy Tamworth ED	1,481	1,481	-	88	1,319	32	42	-	1,481	-	100.00%	2.84%
Pharmacy Tamworth NonED	33,271	33,271	-	24,149	4,552	1,667	2,903	-	33,271	-	100.00%	8.73%
Pharmacy Calvary Mater ED	1,723	1,721	2	83	1,462	120	56	-	1,721	-	100.00%	3.25%
Pharmacy Calvary Mater NonED	66,642	66,642	-	32,788	9,846	9,936	14,072	-	66,642	-	100.00%	21.12%
Pharmacy Armidale ED	8,395	8,395	-	5,598	1,542	1,097	154	-	8,391	4	99.95%	1.83%

Pharmacy Armidale NonED	175	175	-	9	140	7	19	-	175	-	100.00%	10.86%
Pharmacy Singleton ED	9	9	-	-	9	-	-	-	9	-	100.00%	0.00%
Pharmacy Singleton NonED	201	201	-	153	42	4	2	-	201	-	100.00%	1.00%
Pharmacy Cessnock NonED	1,199	1,199	-	728	334	130	6	-	1,198	1	99.92%	0.50%

Source: KPMG based on data supplied by the Hunter New England LHD and NSW Health

The following should be noted about the feeder data in Table 13 for Hunter New England LHD:

There are currently 26 feeders used from a range of hospital source systems that represent major hospital departments providing resource activity.

- Currently, while there is no feeder system for allied health, these costs are allocated to patients based on International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD10) coded procedures derived from documented attendances in the medical record.
- LHD and ABM Team representatives stated that all feeder linking rules are reviewed on an individual feeder basis, by working collaboratively with the respective data managers, and are informed by rules listed in the CAG, wherever possible. Where the LHD can further refine linking rules to suit their clinical practice, these are adopted at a local level. Reasons for variance from the guidelines must be documented. The DNR Audit Program includes a test that examines linking rules. Once the linking has occurred, linking percentages are compared with prior linking results to identify any major variations. Variations are reviewed for data quality issues or to inform linking rule updates.
- The majority of the number of records linked to admitted, emergency, non-admitted and system-generated patients had a greater than 94.6 percent link or match. This suggests that there is robustness in the level of feeder activity reported back to episodes.
- The records that link to system-generated encounters related to imaging and pharmacy related to the provision of external services to clients.

### *Review of the Imaging feeder*

During the site visit for the Hunter New England LHD, KPMG tested additional feeder review procedures for the purposes of including them in future rounds of the IFR. The imaging feeder was selected as the pilot and review questions were sent to the ABM Team and Hunter New England LHD ahead of time. KPMG sought to understand the configuration of the imaging service (internally or externally provided), how imaging services link to patient episodes, how costs are assigned and how the costed results for imaging are tested from a quality assurance perspective. The findings are summarised below:

Hunter New England LHD has an internal business unit called Hunter Health Imaging Service (HHIS). HHIS is responsible for managing and providing imaging services to the majority of the hospitals within the LHD (some parts of the LHD are serviced by external imaging providers' dependant on location). HHIS does not provide services outside of the LHD. Imaging services provided by HHIS includes Computed Tomography (CT), Magnetic Resonance Imaging (MRI), Positron Emission Tomography (PET), nuclear medicine, ultrasound scan etc. Expenditure is maintained at the business unit level and cannot be identified at the type of imaging service level. Facilities are billed by HHIS using internal pricing based on utilisation.

There is a single feeder for the entire Hunter New England LHD and it provides the following information:

- Service code
- Request date
- Financial class – e.g. private or public patient
- Actual price charged by HHIS – utilised as the RVU for cost allocation

Specific changes to improve the service code linkage in the feeders for 2016-17 include:

- Adding order date to the feeder information collected and extending the linking rules to 180 days from the order date to better capture patients with referrals beyond their discharge to improve cost assignment.
- Not linking dialysis patients for a stay of longer than 6 hours. This decision was based on the results of the RQ Application, which highlighted high imaging costs within the dialysis episode. Upon benchmarking and further investigation, it was determined that imaging tests were being inappropriately linked to the dialysis episode for episodes with a duration of greater than 6 hours. Upon discussion with the business unit, a change was made to linking criteria for these episodes.

The imaging feeder data is not currently not used for other purposes, however, the LHD acknowledged the potential for using the feeder from a business intelligence perspective.

The actual price charged by HHIS is used as the RVU for cost allocation and not the Commonwealth Medical Benefits Scheme. Private patients are assigned a zero value RVU for imaging as they are separately billed by HHIS. The HHIS service codes are mapped to NSW standard service codes using an internally developed database containing data tables, which identifies chargeable and non-chargeable expenditure. In Round 20, no significant changes were made to the approach to costing imaging services.

The Hunter New England LHD costing team considers the internal processes adopted in pricing and costing imaging services to be robust. This is because, the reasonableness of the fees charged by HHIS is assessed and often discussed as part of the whole of LHD budgeting process, with the high cost areas being subject to regular investigation. The Hunter New England LHD costing team considers that a state-wide costing study on imaging services would be useful to establish the appropriateness of the RVUs utilised within the LHD.

#### 4.2.5 Treatment of WIP

Table 14 demonstrates models for WIP and its treatment in the Hunter New England LHD's Round 20 NHCDC submission.

*Table 14 – WIP – Hunter New England LHD*

Model	Description	Submitted to Round 20 NHCDC
1	Cost for patients admitted and discharged in 2015-16 only	Submitted to Round 20 of the NHCDC
2	Costs for patients admitted prior to 2015-16 and discharged in 2015-16	Submitted to Round 20 of the NHCDC. NSW Health included costs for patients admitted in 2012-13, 2013-14 and 2014-15.
3	Costs for patients admitted prior to or in 2015-16 and remain admitted at 30 June 2016	Not submitted to Round 20 of the NHCDC

*Source: KPMG, based on the Hunter New England LHD templates and review discussions*

In summary, the Hunter New England LHD submitted costs for patients admitted and discharged in 2015-16 and WIP costs for those patients admitted prior to, but discharged in 2015-16.

#### 4.2.6 Critical care

The Hunter New England LHD indicated that they have a critical care mix of Intensive Care Units (ICU's) and High Dependency Units (HDU's) across the LHD. The expenditure is reported in a single critical care cost centre within each hospital. The Patient Administration System activity data extracted from the HIE separately identifies ICU and HDU hours based on the reported bed type. Service codes are built in PPM2 for each critical care area incorporating the bed type details, and ICU and HDU RVUs are used to allocate critical care costs based on the activity mapped.

The process described by the Hunter New England LHD for costing critical areas indicates that the expenditure relating to ICU and HDU areas is not separately recorded but costs can be separately allocated for each area and hospital based on the methodology described. Critical care costs are captured in accordance with the applicable standard.

#### 4.2.7 Costing public and patients

The Hunter New England LHD's costing staff indicated that the costing of private patients follows the guidelines specified in the CAG. The costing methodology incorporates RVUs for private patients, which ensures no Visiting Medical Officer (VMO) payments are allocated to private patients. Salaried Medical Officer and Junior Medical Officer wages are allocated to both public and private patients with no adjustments for private patients.

Any rights of private practice arrangements for staff specialists in respect of fees are directed to the Custodial Fund Accounts. Hunter New England LHD does not offset private patient revenue against expenditure.

#### 4.2.8 Treatment of specific items

A number of specific items were discussed during the consultation phase of the review to understand the manner in which they are treated in the costing process. These items are used to inform the NEP and specific funding model adjustments for particular patient cohorts. The Hunter New England LHD's treatment of each of the items is summarised below.

*Table 15 – Treatment of specific items – Hunter New England LHD*

Item	Treatment
Research	Where direct Research expenditure can be identified, it is mapped to a research area. A product fraction review is undertaken to identify where research expenditures are embedded within cost centres and this expenditure is mapped to a research area. All research expenditure is then mapped to a non-patient encounter. NSW Health excluded these from the NHCDC submission.
Teaching and Training	Where direct Teaching and Training expenditure can be identified, it is mapped to a Teaching and Training area. A product fraction review is undertaken to identify where Teaching and Training expenditures are embedded within cost centres and this expenditure is mapped to a Teaching and Training area. All Teaching and Training expenditure is then mapped to a non-patient encounter. NSW Health excluded these from the NHCDC submission.
Shared/Other commercial entities	Hunter New England LHD advised that there are no arrangements with shared or commercial entities.

*Source: KPMG, based on IFR discussions*

#### 4.2.9 Sample patient data

IHPA selected a sample of five patients from the Hunter New England LHD for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. The ABM Team provided the patient level costs for all five patients and these reconciled to IHPA records. The results are summarised in Table 16.



Table 16 – Sample patients – Hunter New England LHD

#	Product	Jurisdiction Records	Received by IHPA	Variance
1	Acute	\$541.83	\$541.83	\$-
2	Non-Admitted ED	\$402.60	\$402.60	\$-
3	Maintenance	\$51,040.51	\$51,040.51	\$-
4	Non-Admitted	\$169.02	\$169.02	\$-
5	Rehab	\$10,844.86	\$10,844.86	\$-

Source: KPMG, based on the Hunter New England LHD and IHPA data

#### Application of AHPCS Version 3.1

The following section summarises the NSW Health’s application of selected standards from Version 3.1 of the AHPCS (outlined in Appendix B) to the Round 20 NHCDC submission.

#### 4.2.10 SCP 1.004 – Hospital Products in Scope

NSW Health representatives and LHD costing staff demonstrated through the templates and interview process that costs are reported against all products.

It was noted that costs are reported for non-patient products, which are not submitted to the NHCDC. Teaching, Training and Research products are assigned costs by the LHD and submitted to NSW Health, but are attached to non-patient encounters. NSW Health excludes non-patient products and non-patient level encounters from the NHCDC submission.

#### 4.2.11 SCP 2.003 – Product Costs in Scope

LHD costing staff and NSW Health representatives discussed the NSW reconciliation process for financial data used for costing purposes and fully populated templates to demonstrate products costed.

At the LHD level, it was demonstrated that all products are costed. This includes all products in scope for the NHCDC both at a patient level and non-patient level and where appropriate, non-patient products.

#### 4.2.12 SCP 3.001 - Matching Production and Cost

The Hunter New England LHD provided reclass and transfer detail in the templates. The application of this standard was demonstrated during the interview process including discussion of examples.

#### 4.2.13 SCP 3A.001 - Matching Production and Cost – Overhead Cost Allocation

Hunter New England LHD demonstrated that overhead costs were fully allocated to direct patient care areas via the pre allocation and post allocation data included in the templates.

LHD Costing staff also demonstrated the order of preference for overhead allocation listed in the CAG. NSW Health staff indicated that these preferences are based on the AHPCS Version 3.1. Where an LHD can directly allocate overhead costs via a feeder, they are encouraged to do so.

#### **4.2.14 SCP 3B.001 - Matching Production and Cost – Costing all Products**

The application of this standard was demonstrated in the templates for the Hunter New England LHD. NSW Health provided an overview of their internal reconciliation process that demonstrated the allocation of costs to products.

It should be noted that NSW LHDs cost to the CAG. Hunter New England LHD noted they assigned teaching, training and research costs to non-patient encounters, these were not reported to the NHCDC.

#### **4.2.15 SCP 3C.001 - Matching Production and Cost – Commercial Business Entities**

LHD costing staff indicated that there were no shared or commercial entities.

#### **4.2.16 SCP 3E.001 - Matching Production and Cost – Offsets and Recoveries**

No offsets were presented in the final templates. Hunter New England LHD indicated that revenue is not offset against costs in accordance with the CAG and the applicable standard.

#### **4.2.17 SCP 3G.001 – Matching Production and Cost – Reconciliation to Source Data**

NSW Health representatives demonstrated the NSW reconciliation process for financial and activity data used for costing purposes. The process appears robust. This was further verified in the completion of the templates used in this review.

#### **4.2.18 GL 2.004 - Account Code Mapping to Line Items**

The purpose of this standard is to ensure that all cost data can be mapped to standardised line items for both NHCDC collection and comparative purposes.

NSW Health demonstrated reconciled costs by line item as indicated in this standard.

#### **4.2.19 GL 4A.002 – Critical Care Definition**

The Hunter New England LHD indicated that they have a critical care mix of Intensive Care Units (ICU's) and High Dependency Units (HDU's) across the LHD. The expenditure is reported in a single critical care cost centre. Service codes are built in PPM2 for each critical care area incorporating the bed type details, and ICU and HDU RVUs are used to allocate critical care costs based on the activity mapped.

The process described by the Hunter New England LHD for costing critical areas indicates that the costs relating to ICU and HDU areas cannot be separately identified due to the flexible nature of these areas. Critical care costs are captured in accordance with the applicable standard.

#### **4.2.20 COST 3A.002 – Allocation of Medical Costs for Private and Public Patients**

The Hunter New England LHD indicated that costing of private patients follows the guidelines specified in the CAG.

The costing methodology incorporates RVUs for private patients ensuring no VMO payments are allocated to private patients. Salaried Medical Officer and Junior Medical Officer wages are allocated to both public and private patients with no adjustments for private patients.

#### 4.2.21 COST 5.002 - Treatment of Work-In-Progress Costs

Patients are allocated costs based on their consumption of resources for that reporting period. Costs are incurred in prior years they are included in the NHCDC submission. In Round 20, this included costs from both 2012-13, 2013-14 and 2014-15. NSW Health includes these WIP costs.

### 4.3 Conclusion

The findings of the NSW Round 20 IFR are summarised below:

- NSW Health implemented a number of initiatives since the Round 19 NHCDC submission summarised below:
  - Reviewed system generated encounters and the associated linking rule analysis to improve precision in linking.
  - The DNR module was completely rebuilt and testing processes for the RQ Application were improved.
  - Improvements to the funding model resulted in further refinement of the costing methodologies for TTR, non-admitted patients, ED, Oral Health, Non-Emergency Patient Transport and Mental Health. :
- The financial reconciliation for the sampled LHD demonstrated the transformation of cost data from the original GL extract through to the final NHCDC submission for the LHD. The LHD included costs for medical indemnity insurance. All LHD expenditure is uploaded to the costing system to generate patient/encounter or non-patient product costs.
- Upon submission of the DNR, NSW Health adjusts the data for submission to the NHCDC. This incorporates the inclusion of WIP costs for patients admitted prior to and discharged in Round 20. Some major exclusions of data prior to NHCDC submission included encounters from non-ABF facilities, non-patient level and non-patient product encounters from ABF facilities, Teaching, Training and Research and encounters with data quality or linking issues.
- The basis of the adjustments at the LHD appears reasonable. However, the exclusion of Teaching, Training and Research may affect the completeness of the NHCDC. In addition, NSW Health should continue to investigate the reasons for unlinked activity to the NHCDC to ensure appropriate treatment in future rounds.
- The LHD reviewed, has a strong focus on data quality cleansing activity and ensuring episodes link appropriately. All feeders had a greater than 94.6 percent link or match
- WIP was treated in accordance with the COST 5.002 of the AHPCS Version 3.1. NSW Health included WIP costs for patients admitted in 2012-13, 2013-14 and 2014-15, and discharged in 2015-16.
- The five sample patients selected for review at Hunter New England LHD reconciled to IHPA records.

The IFR is conducted in accordance with the review methodology detailed in Section 1.3 of this report. Based on this methodology and in accordance with the limitations identified in Section 1.1, NSW Health has suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission. Furthermore, the data flow from the jurisdiction to IHPA demonstrated no unexplained variances.



## 5. Northern Territory

### 5.1 Jurisdictional overview

#### 5.1.1 Management of NHCDC process

The Northern Territory Department of Health (NT Health), through the Activity Based Funding (ABF) team, is responsible for the processing, reconciliation and submission of National Hospital Cost Data Collection (NHCDC) data to the Independent Hospital Pricing Authority (IHPA) for all hospitals in the NT. This is consistent with the approach used in prior rounds of the NHCDC submission and ensures that there is a consistent approach applied to costing for all NT hospitals. The NHCDC submission for the Royal Darwin Hospital was reviewed for the Round 20 Independent Financial Review (IFR).

In the Northern Territory there are two Local Health Networks (LHNs), the Top End and Central Australia. The LHNs are responsible for the capture and maintenance of financial data in the health service general ledger (GL). The hospital financial data is signed-off and submitted to NT Health via the LHN. As part of this process, the health service provides a list of any new cost centres created during the year. NT Health applies cost information related to leave liabilities (annual leave and long service leave) as these costs are held centrally by the NT Department of Treasury. The NT Health GL reflects the consolidation of the two LHN ledgers plus the ledger for the Department. Hospitals are responsible for recording activity data in the relevant system, e.g. the Patient Administration System (PAS). Activity data is extracted to a central NT Health data warehouse. There is a quality assurance process undertaken by the LHN and NT Health.

As part of the Round 20 costing process product fractioned (PFRAC) data was reviewed by the LHN at cost centre level. NT Health also undertakes validation checks to identify any significant changes in the use of PFRACS. Where NT Health identifies unexplained variances in financial and activity data, NT Health will follow up with the hospital for an explanation.

Prior to submitting NHCDC data to IHPA, NT Health undertakes a number of quality assurance procedures prior to sign-off of the final file by the Director Casemix, Costing and Funding Models. This includes: benchmarking costs to prior year results to assess whether there are unreasonable variances and following up with the hospital where there are anomalies identified. NT Health uses PPM2 for clinical costing purposes.

#### *Key initiatives since Round 19 NHCDC*

There were no major changes to the clinical costing process used in the NT since Round 19. Round 20 was treated as a period of consolidation following the introduction of a new costing system prior to the Round 18 submission.

In Round 19, teaching and training costs were excluded from the NHCDC submission, which can impact on the completeness of NHCDC datasets. During Round 20, NT Health submitted teaching and training costs to IHPA.

## 5.2 The Royal Darwin Hospital

### 5.2.1 Overview

The Royal Darwin Hospital is located on the northern side of Darwin. It has approximately 371 beds and more than 2,500 staff and provides a broad range of services in all speciality areas to the Darwin urban population as well as serving as a referral centre to the Top End of the NT, Western Australia and South-East Asia<sup>4</sup>. The Top End population serviced by the hospital is approximately 150,000 people.

The Royal Darwin Hospital is a university teaching hospital and the only public hospital providing health care services to the Darwin population. The Royal Darwin Hospital hosts Australia's National Critical Care and Trauma Response Centre. The Royal Darwin Hospital provides a range of medical, surgical, maternal, paediatric and emergency services, as well as radiology and pathology facilities supporting inpatient and non-admitted clinical services.<sup>5</sup>

### 5.2.2 Financial data

For the Round 20 IFR, representatives of NT Health completed the relevant IFR templates in conjunction with the software vendor PowerHealth Solutions and participated in consultations during the review.

Table 3 presents a summary of the Royal Darwin Hospital's costs, from the original extract from the General Ledger (GL) through to the final NHCDC submission for the Royal Darwin Hospital for Round 20. This table presents the financial reconciliation of expenditure for Round 20 for The Royal Darwin Hospital and the transformation of this expenditure by the jurisdiction and IHPA for NHCDC submission. There are 11 items of reconciliation in the table. These items are labelled A to K. Items A to E relate to the expenditure submitted by the hospital/LHN, Items F to H relate to the costs submitted by the jurisdiction and Items I to K relate to the transformation of costs by IHPA. The following section in the report explains each item in more detail.

---

<sup>4</sup> NT Health (2016), Department of Health Annual Report.

[http://digitallibrary.health.nt.gov.au/prodjspui/bitstream/10137/723/3/DoH\\_Annual%20Report\\_2015-16.pdf](http://digitallibrary.health.nt.gov.au/prodjspui/bitstream/10137/723/3/DoH_Annual%20Report_2015-16.pdf)

<sup>5</sup> NT Health (2016), Department of Health Annual Report.

[http://digitallibrary.health.nt.gov.au/prodjspui/bitstream/10137/723/3/DoH\\_Annual%20Report\\_2015-16.pdf](http://digitallibrary.health.nt.gov.au/prodjspui/bitstream/10137/723/3/DoH_Annual%20Report_2015-16.pdf)

Table 17 – Round 20 NHCDC Reconciliation – The Royal Darwin Hospital

Hospital			Jurisdiction		IHPA	
Item	Amount	% of GL	Item	Amount	Item	Amount
<b>A</b> General Ledger (GL)	\$ 1,222,366,263		<b>F</b> Costed Products received by jurisdiction	\$ 518,568,452 #	<b>I</b> Total costed products received by IHPA	\$ 518,568,452
			<i>Variance</i>	\$ -	<i>Variance</i>	\$ -
<b>B</b> Adjustments to the GL			<b>G</b> Final Adjustments		<b>J</b> IHPA Adjustments	
<i>Inclusions</i>	\$ -		<i>Nil adjustments</i>		<i>Admitted ED reallocations</i>	\$ 25,503,497
<i>Exclusions</i>	\$ (3,925,126)		<b>Total costs submitted to IHPA</b>	<b>\$ 518,568,452</b>	<b>Final NHCDC costs</b>	<b>\$ 544,071,948</b>
<b>Total hospital expenditure</b>	<b>\$ 1,218,441,137</b>	99.68%				
<b>C</b> Allocation of Costs						
<i>Post Allocation Direct amount</i>	\$ 963,702,060					
<i>Post Allocation Overhead amount</i>	\$ 254,739,078					
<b>Total hospital expenditure</b>	<b>\$ 1,218,441,137</b>	99.68%				
<i>Variance</i>	\$ -	0.00%				
<b>D</b> Post Allocation Adjustments						
<i>Other hospitals</i>	\$ (349,633,883)					
<i>Current year WIP</i>	\$ (10,171,872)					
<i>System-generated encounters</i>	\$ (9,072,064)					
<i>Out of scope activity</i>	\$ (341,146,348)					
<i>Prior year WIP</i>	\$ 10,151,482					
<b>Total expenditure allocated to patients</b>	<b>\$ 518,568,452</b>	41.59% *				
<b>E</b> Costed products submitted to jurisdiction			<b>H</b> Costed products submitted to IHPA		<b>K</b> Final NHCDC costed products	
<i>Acute and Newborns</i>	\$ 326,157,490		<i>Acute and Newborns</i>	\$ 326,157,490	<i>Acute^ and Newborns</i>	\$ 351,657,665
<i>Non-admitted</i>	\$ 81,528,039		<i>Non-admitted</i>	\$ 81,528,039	<i>Non-admitted</i>	\$ 97,267,661
<i>Emergency</i>	\$ 55,769,294		<i>Emergency</i>	\$ 55,769,294	<i>Emergency</i>	\$ 55,769,294
<i>Sub Acute</i>	\$ 26,486,897		<i>Sub Acute</i>	\$ 26,486,897	<i>Sub Acute^</i>	\$ 26,490,218
<i>Mental Health</i>	\$ 15,739,622		<i>Mental Health</i>	\$ 15,739,622	<i>Mental Health</i>	\$ -
<i>Other</i>	\$ 1,311,059		<i>Other</i>	\$ 1,311,059	<i>Other</i>	\$ 1,311,059
<i>Research</i>	\$ -		<i>Research</i>	\$ -	<i>Research</i>	\$ -
<i>Teaching &amp; Training</i>	\$ 11,576,051		<i>Teaching &amp; Training</i>	\$ 11,576,051	<i>Teaching &amp; Training</i>	\$ 11,576,051
<i>System-generated patients</i>	\$ -		<i>System-generated patients</i>	\$ -	<i>System-generated patients</i>	\$ -
	<b>\$ 518,568,452</b>	41.59% *		<b>\$ 518,568,452</b>		<b>\$ 544,071,948</b>
<i>Variance</i>	\$ -		<i>Variance</i>	\$ -	<i>Variance</i>	\$ -

Source: KPMG based on data supplied by the Royal Darwin Hospital, jurisdiction and IHPA

^ These figures include admitted emergency costs.

\* As WIP from prior years expenditure relates to prior year costs, this percentage excludes the \$10.15 million from the calculation

# The amount in Item F does not reflect the template as the jurisdiction completed the templates on behalf of the hospital and all adjustments are made at Item D

### *Explanation of reconciliation items*

This section discusses each of the reconciliation items including adjustments, inclusions and exclusions to the GL. The information is based on the Royal Darwin Hospital templates and review discussions.

#### *Item A – General Ledger*

The final GL extracted from NT Health's financial systems includes expenditure for both NT Health and Royal Darwin Hospital of \$1.222 billion.

#### *Item B – Adjustments to the GL*

The GL was adjusted for the removal of unrelated NT Health financial data included in the GL totalling \$3.93 million. These costs related to the provision of goods and services to non-health related facilities for which NT Health receives revenue. This adjustment established an expenditure base for costing of \$1.218 billion.

#### *Item C – Allocation of costs*

The Royal Darwin Hospital undertakes a process of reclass/transfers between direct cost centres. The net effect of these reclass/transfers was zero.

- It was observed that the total of all direct cost centres of \$963.70 million were allocated.
- It was observed that total overheads of \$254.74 million were allocated.

These amounts reconciled to \$1.218 billion and reflected the total for NT Health. No variance between Item B and Item C was identified.

#### *Item D – Post Allocation Adjustments*

A range of post allocation adjustments were made by NT Health. These exclusions totalled \$699.87 million and included:

- WIP patients not discharged (\$10.17 million)
- System-generated encounters not submitted to NHCDC (\$9.07 million)
- Out of scope costs totalling \$341.15 million. These costs related to:
  - Top End and Central Australia Primary Health care services (\$185.50 million)
  - Cross border services (\$34.64 million)
  - Patient travel (\$25.42 million)
  - Top End and Central Mental Health services (\$32.55 million)
  - Drug and Alcohol services (\$20.96 million)
  - St John's Ambulance travel (\$5.50 million)
  - Aged Care – Top End and Central (\$4.78 million)
  - Palmerston Hospital development (\$2.52 million)
  - Allocation to non-patient products (\$12.83 million)
  - Out of scope services – sexual assault referral clinics, community support and Medi Hotel (\$16.45 million).



- Other NT hospitals and services not included in the IFR (\$349.63 million).

WIP patients from prior years and discharged in 2015-16 were included and totalled \$10.15 million.

The basis of these adjustments appears reasonable.

Total expenditure allocated to patients equalled \$518.57 million.

*Item E - Costed products submitted to jurisdiction*

Costs derived by the jurisdiction and reported at product level were equal to \$518.57 million. This represented approximately 41.59 percent of the total GL expenditure for the NT LHNs (excluding WIP from prior years' expenditure as it relates to prior year costs). Costs were allocated to all products with the exception of Research. Costs associated with system-generated patients was removed at Item D.

*Item F – Costed products received by the jurisdiction*

No variance was noted between Items E and F.

*Item G – Final adjustments*

The jurisdiction did not adjust the cost data prior to submission to IHPA.

*Item H – Costed products submitted to IHPA*

Costs derived by the jurisdiction and reported at product level reconciled to \$518.57 million.

*Item I – Total products received by IHPA*

Costed products received by IHPA totalled \$518.57 million. No variance was noted between Item H and Item I.

*Item J – IHPA adjustments*

- *Admitted emergency*

Upon receipt of cost data, IHPA allocates the admitted emergency costs back to admitted patients for the purposes of reporting and analysis. Within IHPA's reconciliation, this amount was a duplication of admitted emergency costs and not an additional cost. This amounted to \$25.50 million for Royal Darwin Hospital.

- *Product group redistribution*

IHPA redistributed the submitted costs of non-admitted mental health in the Mental Health product group to the Non-admitted product group. This did not result in increased total costed products for Royal Darwin Hospital.

*Item K – Final NHCDC Costed Outputs*

The final NHCDC costed data for Royal Darwin Hospital that was loaded into the National Round 20 cost data set was \$544.07 million which included the admitted emergency cost of \$25.50 million.

### 5.2.3 Activity data

Table 18 presents patient activity data based on source and costing systems for the Royal Darwin Hospital. This activity data is then compared to Table 19 which highlights the transfer of activity

data by NHCDC product from the Royal Darwin Hospital to NT Health and then through to IHPA submission and finalisation.

Table 18 – Activity data – The Royal Darwin Hospital

Activity Data	# Records from Source	# Records in costing system	Variance	# Records linked to Admitted	# Records linked to Emergency	# Records linked to Non-admitted	# Records linked to Syst-Gen patient	# Records linked to Other	Total Linking Process	# Unlinked records
Acute	71,251	71,251	-	71,251	-	-	-	-	71,251	-
Admitted Emergency	68,701	68,701	-	68,701	-	-	-	-	68,701	-
Non-Admitted Emergency	148,147	148,147	-	148,147	-	-	-	-	148,147	-
Teaching	1	1	-	-	-	-	-	1	1	-
<b>TOTAL</b>	<b>288,100</b>	<b>288,100</b>	-	<b>288,099</b>	-	-	-	<b>1</b>	<b>288,100</b>	-

Source: KPMG based on data supplied by the Royal Darwin Hospital and NT Health

Table 19 – Activity data submission – The Royal Darwin Hospital

Product	Activity related to 2015-16 Costs	Adjustments	Activity submitted to jurisdiction	Adjustments	Activity submitted to IHPA	Activity received by IHPA	Adjustments	Total Activity submitted for Round 20 NHCDC
Acute and Newborns	69,901	-	69,901	(324)	69,577		-	
Non-admitted	148,147	-	148,147	-	148,147		-	
Emergency	68,701	-	68,701	(18)	68,683		-	
Sub Acute	641	-	641	(31)	610		-	
Mental Health	703	-	703	(22)	681		-	
Other	6	-	6	-	6		-	
Teaching and Training	1	-	1	-	1		-	
<b>Total</b>	<b>288,100</b>	-	<b>288,100</b>	<b>(395)</b>	<b>287,705</b>	-	-	-

Source: KPMG based on data supplied by the Royal Darwin Hospital, NT Health and IHPA

The following should be noted about the transfer of activity data for the Royal Darwin Hospital:

- The activity presented in Table 18 is for the Royal Darwin Hospital only and is the final activity post all adjustments made for the whole of NT Health (including removal of system-generated patients). As such, no activity adjustments are presented in Table 19 between the hospital and the jurisdiction.
- The adjustments made by IHPA to the Non-admitted and Mental Health product groups related to the redistribution of activity associated with non-admitted mental health as discussed in Item J of the explanation of reconciliation items.
- Adjustments made by IHPA related to admitted emergency reallocations are for reporting and analysis purposes (as discussed in Item J of the explanation of reconciliation items) and have no impact on the reported activity.

#### **5.2.4 Feeder data**

Table 6 presents patient feeder data for the Royal Darwin Hospital.

Table 20 – Feeder data – The Royal Darwin Hospital

Feeder Data	# Records from Source	# Records in costing system	Variance	# Records linked to Admitted	# Records linked to Emergency	# Records linked to Non-admitted	# Records linked to Syst-Gen patient	# Records linked to Other	Total Linking Process	# Unlinked records	% Linked	% to Syst-Gen patient
Allied Health	58,404	58,404	-	45,951	625	11,350	478	-	58,404	-	100.00%	0.82%
Angiogram	851	851	-	551	4	108	188	-	851	-	100.00%	22.09%
Angioplasty	123	123	-	122	-	-	-	-	122	1	99.19%	0.00%
Blood	3,300	3,300	-	2,897	89	168	-	-	3,154	146	95.58%	0.00%
Defibrillators	38	38	-	37	-	-	-	-	37	1	97.37%	0.00%
Emergency	68,385	68,385	-	-	68,385	-	-	-	68,385	-	100.00%	0.00%
Imaging	83,314	83,314	-	29,256	31,893	17,354	4,811	-	83,314	-	100.00%	5.77%
Pacemakers	99	99	-	95	-	-	-	-	95	4	95.96%	0.00%
Pathology	719,606	719,606	-	396,340	159,832	107,016	56,418	-	719,606	-	100.00%	7.84%
Pharmacy	1,117,705	1,117,705	-	1,099,359	2,954	7,467	7,866	-	1,117,646	59	99.99%	0.70%
Pharmacy_HSD	10,783	10,783	-	2,265	47	4,468	4,003	-	10,783	-	100.00%	37.12%
Theatre Anaesthesia	12,793	12,793	-	12,793	-	-	-	-	12,793	-	100.00%	0.00%
Theatre Nursing	12,938	12,938	-	12,938	-	-	-	-	12,938	-	100.00%	0.00%
Theatre Recovery	12,961	12,961	-	12,961	-	-	-	-	12,961	-	100.00%	0.00%
Theatre Surgeon	13,516	13,516	-	13,516	-	-	-	-	13,516	-	100.00%	0.00%
Travel Care Flight Darwin	2,474	2,474	-	1,473	888	4	109	-	2,474	-	100.00%	4.41%
Catheter Laboratory	3,314	3,314	-	3,244	27	14	-	-	3,285	29	99.12%	0.00%
Travel RFDS	2,421	2,421	-	1,681	679	1	60	-	2,421	-	100.00%	2.48%
Travel TMS	45,770	45,770	-	10,139	2,793	13,462	19,376	-	45,770	-	100.00%	42.33%

Source: KPMG based on data supplied by the Royal Darwin Hospital and NT Health

The following should be noted about the feeder data for the Royal Darwin Hospital:

- There are 19 feeder files reported from hospital source systems and they represent major hospital departments providing resource activity.
- The number of records linked to admitted patients, emergency, non-admitted and other patients had a greater than 95 percent link or match. This suggests that there is robustness in the level of feeder activity reported back to episodes.
- The records linked to system generated patients for Pathology and Imaging are primarily related to services provided to external agencies and patients who are not Royal Darwin Hospital patients. In addition, there are some records that cannot be linked to a patient as they do not match within the linking rule date ranges used by NT Health.
- The records linked to system generated patients for Pharmacy and Pharmacy HSD reflected valid patients who presented at Royal Darwin Hospital to have their prescription filled without needing to present as a patient either through ED or as a non-admitted patient. The unlinked angioplasty and cardiac catheter records were due to unmatched records as the service files had a different Hospital Reference Number than the encounter files.
- The Travel TMS records linked to system generated patients related to travel for the patient's family.

## 5.2.5 Treatment of WIP

Table 7 demonstrates models for WIP and its treatment in the Royal Darwin Hospital's Round 20 NHCDC submission.

Table 21 – WIP – The Royal Darwin Hospital

Model	Description	Submitted to Round 20 NHCDC
1	Cost for patients admitted and discharged in 2015-16 only	Submitted to Round 20 of the NHCDC
2	Costs for patients admitted prior to 2015-16 and discharged in 2015-16	Submitted to Round 20 of the NHCDC. WIP costs were submitted for 2014-15 only.
3	Costs for patients admitted prior to or in 2015-16 and remain admitted at 30 June 2016	Not submitted to Round 20 of the NHCDC

Source: KPMG, based on the Royal Darwin Hospital templates and review discussions

In summary, for the Royal Darwin Hospital, NT Health submitted WIP costs for admitted and discharged patients in 2015-16.

## 5.2.6 Critical care

The Royal Darwin Hospital operates a combined Intensive Care Unit (ICU) and High Dependency Unit (HDU). Patients in the HDU are costed in the same way as ICU patients as there is no method to differentiate the patients in the source systems. The total costs of ICU (which includes the HDU) is allocated across the ICU/HDU patients based on the time spent by each patient in the ICU/HDU.

The Royal Darwin Hospital does not have any dedicated close observation units. Critical care costs are captured in accordance with the applicable standard.

## 5.2.7 Costing public and private patients

The Royal Darwin Hospital does not make any specific adjustments to the way private patients are costed compared to public patients. Applicable costs are allocated to private patients, including nursing, pathology, medical imaging and prosthesis, in the same manner as public patients. NT Health operates separate business units for pathology and medical imaging. The costs associated with these services are allocated to public and private patients. It should be noted that the cost allocation of expenditure to tests is in proportion to the relevant Medicare Benefits Scheme item number's fee.

There is no offsetting of private patient revenue against the expenditure.

## 5.2.8 Treatment of specific items

A number of items were discussed during the review to understand their treatment in the costing process as the cost data is used to inform the NEP and specific funding model adjustments for particular patient cohorts. The Royal Darwin Hospital's treatment of each of the items is summarised below.

Table 22 – Treatment of specific items – The Royal Darwin Hospital

Item	Treatment
Research	Research costs are not assigned to a product and not submitted to the NHCDC.
Teaching and Training	Teaching and Training costs are assigned to a product and submitted to the NHCDC.
Shared/Other commercial entities	The Royal Darwin Hospital operates other commercial entities including a kiosk and car park facility. All commercial entity expenditure is excluded from the costing process.

Source: KPMG, based on IFR discussions

## 5.2.9 Sample patient data

IHPA selected a sample of five patients from the Royal Darwin Hospital for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. NT Health provided the patient level costs for all five patients that were reconciled to IHPA records. The results are summarised in Table 9.

Table 23 – Sample patients – The Royal Darwin Hospital

#	Product	Jurisdiction Records	Received by IHPA	Variance
1	Acute	\$578.09	\$578.09	\$-
2	Non-Admitted	\$288.54	\$288.54	\$-
3	Admitted ED	\$633.02	\$633.02	\$-
4	Palliative CD	\$11,037.31	\$11,037.31	\$-
5	Acute	\$578.09	\$578.09	\$-

Source: KPMG, based on the Royal Darwin Hospital and IHPA data

## 5.3 Application of AHPCS Version 3.1

The following section summarises NT Health's application of selected standards from Version 3.1 of the AHPCS (outlined in Appendix C) to the Royal Darwin Hospital's Round 20 NHCDC submission.

### 5.3.1 SCP 1.004 – Hospital Products in Scope

Costs are allocated to all products by NT Health, with the exception of Research. This was demonstrated through the templates submitted and interview process.

In the majority of feeders unlinked feeder data are allocated to system-generated records to which costs are allocated. The generation of these records is specific to the feeder. These system-generated records with costs are not submitted to the NHCDC.



### **5.3.2 SCP 2.003 – Product Costs in Scope**

The NT reconciliation process for financial data used for costing purposes was demonstrated through the interview process. It was also stated that all products are costed including costs assigned to products in scope for the NHCDC with the exception of Research, unlinked activity assigned to a system-generated patient and costs assigned to system-generated patients where there is no activity.

### **5.3.3 SCP 2B.002 - Research Costs**

During the interview process NT Health advised that there were no research costs assigned to the research product at the Royal Darwin Hospital. Where research is undertaken, these expenditures are embedded within the teaching and training product.

### **5.3.4 SCP 3.001 - Matching Production and Cost**

The application of this standard was demonstrated during the interview and an excel file was produced from the costing system which outlined all transfers and offsets utilised.

### **5.3.5 SCP 3A.001 - Matching Production and Cost – Overhead Cost Allocation**

The jurisdiction was able to demonstrate that overhead costs were fully allocated to direct patient care areas via the pre allocation and post allocation data included in the templates.

### **5.3.6 SCP 3B.001 - Matching Production and Cost – Costing all Products**

This application of this standard was demonstrated in the template and NT Health provided an overview of their internal reconciliation process which demonstrated the allocation of costs to products.

### **5.3.7 SCP 3C.001 - Matching Production and Cost – Commercial Business Entities**

NT Health does have commercial entities. During the review, NT Health representatives stated that these costs were excluded from the costing process.

### **5.3.8 SCP 3E.001 - Matching Production and Cost – Offsets and Recoveries**

Revenue is not offset against any expenditure (with the exception of revenue received for non-health related facilities that NT Health receives revenue for). Costs associated with services provided to external clients are excluded from the costing process.

### **5.3.9 SCP 3G.001 – Matching Production and Cost – Reconciliation to Source Data**

NT Health representatives outlined the reconciliation process for financial and activity data used for costing purposes. Based on a review of the templates, the process appears robust.

### **5.3.10 GL 2.004 - Account Code Mapping to Line Items**

The purpose of this standard is to ensure that all cost data can be mapped to standardised line items for both NHCDC collection and comparative purposes. The template submitted by NT Health reflected that account codes and associated costs from the costing system were only allocated to the specific line items, in accordance with the standard. This was confirmed during the site visit.

### 5.3.11 GL 4A.002 – Critical Care Definition

Direct costs associated with the ICU are captured in dedicated cost centres. The Royal Darwin Hospital operates a combined ICU and HDU. Patients in HDU are costed in the same way as ICU patients as there is no method to differentiate the patients in the source systems. The total costs of ICU (which includes the HDU) is allocated across the ICU/HDU patients based on the time spent by each patient in the ICU/HDU.

The Royal Darwin Hospital does not have any dedicated close observation units. Critical care costs are captured in accordance with the applicable standard.

### 5.3.12 COST 3A.002 – Allocation of Medical Costs for Private and Public Patients

Costs are allocated to public and private patients in the same manner. This includes costs associated with medical and nursing salaries and wages, pathology, medical imaging and prosthesis. There is no offsetting of private patient revenue against the expenditure.

### 5.3.13 COST 5.002 - Treatment of Work-In-Progress Costs

Discussions revealed that patients are allocated costs based on their consumption of resources for that reporting period. Where costs are incurred in prior years, these are also included in the final costed data and NHCDC submission.

## 5.4 Conclusion

The findings of the NT Round 20 IFR are summarised below:

- NT Health did not implement new costing initiatives during the Round 20 NHCDC, however, submitted teaching and training costs to IHPA which were previously excluded in Round 19.
- The financial reconciliation demonstrates the transformation of cost data from the original GL extract through to the final NHCDC submission for the Royal Darwin Hospital. Major exclusions from this hospital data included out-of-scope costs not directly related to hospital services and out of scope costs, for the Top end and Central LHN, such as primary care services, cross border services, patient travel, aged care and Drug and Alcohol services. There were no unexplained variances in the financial reconciliation of the hospital's NHCDC submissions. The costs submitted to the jurisdiction and IHPA represented approximately 41.59 percent of the total GL expenditure for the NT LHNs (excluding WIP from prior years' expenditure as it relates to prior year costs). There were no unexplained variances in the financial reconciliation of Royal Darwin Hospital.
- The basis of the adjustments made by NT Health appears reasonable.
- WIP was treated in accordance with the COST 5.002 of the AHPCS Version 3.1.
- Activity for Royal Darwin Hospital was not adjusted between the hospital and the jurisdiction as the activity presented was for the hospital only. This activity was the final costed activity, post the adjustments made for the whole of NT Health.
- The number of records linked from source to product was significant with all feeders having a greater than 95 percent link or match. This suggests that there is robustness in the level of feeder activity reported back to episodes.

- The five sample patients selected for review for the Royal Darwin Hospital reconciled to IHPA records.

The IFR is conducted in accordance with the review methodology detailed in Section 1.3 of this report. Based on this methodology and in accordance with the limitations identified in Section 1.1, NT Health has suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission. Furthermore, the data flow from the jurisdiction to IHPA demonstrated no unexplained variances.

## 6. Queensland

### 6.1 Jurisdictional overview

#### 6.1.1 Management of NHCDC process

The Queensland NHCDC process is a shared responsibility between both the Queensland Department of Health (Queensland Health) and the organisations that support the provision of public health services throughout Queensland. These organisations include 16 Local Hospital Networks (Hospital and Health Services) hereafter known as HHS, and the Mater Adult and Mater Mothers Public Hospitals in Brisbane. Each HHS is responsible for the preparation and submission of the costing data that contributes to the NHCDC submission, with the exception of four Rural and Remote HHSs where the costing function is managed by Queensland Health. Queensland Health, through the HHS Funding and Costing Unit (a part of the Healthcare Purchasing and System Performance branch) provides overall oversight, quality control and reconciliation of the final data submitted. The costing data submitted by the HHS's supports the costing function in Queensland, with cost data seen as an essential component of the state's healthcare funding model, including through its submission to the NHCDC.

The HHS's have costing staff who undertake patient costing at the hospital level. The local costing team is responsible for reconciliation of cost outcomes from the costing system against the general ledger (GL). Upon completing the costing process, the local team is responsible for the alignment of costs and activity and producing costing reports for local management analysis and review. Once the costing process has been completed, the HHS costing staff inform Queensland Health that the data has been finalised and it is submitted to a central state-wide database.

At the time of this review there were two costing systems used across Queensland Health. The legacy costing system Transition II is in use at 13 of the HHS and Power Performance Manager (PPM2) at 3 HHS' and the Mater Public Hospitals (Brisbane). The - Queensland Health's Funding and Costing Unit has direct access to the HHS costing system database where the site uses the Transition II costing system. Once notification has been received from the respective site, the submission files are extracted from the database (or supplied as a load file from PPM2 sites) and a series of validation processes and reports are run for quality assurance purposes. There are also extract data audit reports that assess records for errors in activity and mismatching of costed data to source activity systems. These audit reports also assess if there are new cost departments (hospital departments) that require mapping to local and national requirements.

Once finalised, a state costing report is produced for each HHS that includes all episodes costed. This report is based on the production of cost weight reports for Acute (Diagnosis Related Groups (DRG)) , Subacute (SNAP), Emergency (URG and UDG) and Outpatients (Tier2) with comparison data provided for the current and previous four years showing cost outcome trends for each classification group within the HHS' and comparison to state average cost outcomes.

The costing results are reviewed and compared to the previous round and variances in the results of less than 10 percent are seen as insignificant. All reports are provided to hospitals for review prior to the submission of the data for the NHCDC.

Where data quality issues are identified, hospital costing staff address these and prepare for final submission to Queensland Health. Hospital Chief Financial Officers will sign off on the data. This cost data submission is used for both the Queensland state funding model and NHCDC submission.

Queensland Health selected the following HHS's for review:

- North West Hospital and Health Service incorporating Mount Isa Hospital;
- Townsville Hospital and Health Service incorporating Townsville Hospital; and
- Central Queensland Hospital and Health Service incorporating Rockhampton Hospital.

### *Key initiatives since Round 19 NHCDC*

Since the Round 19 NHCDC submission, Queensland Health has implemented the use of the IFR templates for each HHS. This is in addition to existing End to End Reconciliation processes, and audit and data validation reports used for jurisdictional review of cost outcomes. The templates demonstrate data reconciliation of cost data to source systems (including the GL and feeder systems) and are now required to be submitted with finalised cost data. This process has now been written into the Queensland Health cost data submission process.

## **6.2 North West Hospital and Health Service**

### **6.2.1 Overview**

The North West Hospital and Health Service (North West HHS) serves a population of around 33,000 people, distributed across 300,000 square kilometres. North West HHS consists of the Mount Isa Hospital (regional hospital) and two multipurpose health services, three rural/ remote hospitals, four primary health clinics and five community health centres across Burketown, Camooweal, Cloncurry, Dajarra, Doomadgee, Julia Creek, McKinlay, Karumba, Mornington Island, Normanton and Urandangi.<sup>6</sup>

Mount Isa Hospital is the main referral centre within the North West HHS. It comprises 52 inpatient beds and provides inpatient, ambulatory and sub ambulatory services. The hospital serves as the major hub for telehealth services across the entire service area, ensuring all sites have access to emergency medical and nursing advice 24 hours a day, seven days a week. Services at Mount Isa Hospital include<sup>7</sup>:

- Accident and Emergency
- Specialist Medical and Nurse Led Services – Outpatients
- General Medical
- Cardiac

---

<sup>6</sup> North West Hospital and Health Service 2015-16 Annual Report, <http://www.parliament.qld.gov.au/documents/tableOffice/TabledPapers/2016/5516T1689.pdf>. Accessed 22 June 2017

<sup>7</sup> Ibid.

- General Surgical including day surgical procedures (endoscopy, colonoscopy)
- Gynaecology
- Ophthalmology
- Obstetrics and Midwifery – Regional Birthing
- Facility for low and medium risk birthing (from 34 weeks' gestation), with outlying remote facilities only providing emergency/unplanned births
- Critical Care
- Neonatal and Special Care Nursery
- Paediatrics
- Telehealth (inpatient, in reach and outpatient)
- Sub-acute care (palliative, geriatric evaluation and management)
- Mental Health and Alcohol, Tobacco and Other
- Drugs Service
- Oncology – Chemotherapy support by Townsville Cancer Care service
- Renal (Dialysis provided by Townsville Hospital and Health Service – Satellite unit on-campus Mount Isa)

Due to resourcing constraints, HHS Funding and Costing Unit staff at Queensland Health undertook the costing function for the North West HHS for Round 20 and used the Transition II costing system.

### **6.2.2 Financial data**

Data collection templates for Round 20 were completed and submitted by Queensland Health's HHS Costing and Funding Unit on behalf of North West HHS. Representatives from the Queensland Health HHS Costing and Funding Unit attended and participated in consultation process during the review, as well as the Chief Financial Officer and Senior Finance staff from Mount Isa Hospital.

Table 24 reflects a summary of North West HHS's costs, from the original extract from the GL through to the final NHCDC submission for Round 20. This table presents the financial reconciliation of expenditure for Round 20 for North West Hospital and Health Service and the transformation of this expenditure by the jurisdiction and IHPA for NHCDC submission. There are 11 items of reconciliation in the table. These items are labelled A to K. Items A to E relate to the expenditure submitted by the hospital/LHN, Items F to H relate to the costs submitted by the jurisdiction and Items I to K relate to the transformation of costs by IHPA. The following section in the report explains each item in more detail.

Table 24 – Round 20 NHCDC Reconciliation – North West Hospital and Health Service

Hospital			Jurisdiction		IHPA	
Item	Amount	% of GL	Item	Amount	Item	Amount
<b>A</b> General Ledger (GL)	\$ 161,218,866		<b>F</b> Costed Products received by jurisdiction	\$ 163,630,240	<b>I</b> Total costed products received by IHPA	\$ 85,843,954
			<i>Variance</i>	\$ -	<i>Variance</i>	\$ -
<b>B</b> Adjustments to the GL			<b>G</b> Final Adjustments		<b>J</b> IHPA Adjustments	
<i>Inclusions</i>	\$ -		<i>Current WIP</i>	\$ (7,891,195)	<i>Admitted ED reallocations</i>	\$ 3,123,397
<i>Exclusions</i>	\$ (4,450,193)		<i>System-generated patients</i>	\$ (36,300,304)	<b>Final NHCDC costs</b>	<b>\$ 88,967,352</b>
<b>Total hospital expenditure</b>	<b>\$ 156,768,673</b>	97.24%	<i>Teaching and training</i>	\$ (1,302,525)		
<b>C</b> Allocation of Costs			<i>Unmatched cost records to NHCDC</i>	\$ (35,494,118)		
<i>Post Allocation Direct amount</i>	\$ 132,670,915		<i>Invalid DRG record</i>	\$ (1,668)		
<i>Post Allocation Overhead amount</i>	\$ 24,097,758		<i>Nhcctltems Exclude and Cap excluded</i>	\$ (158,440)		
<b>Total hospital expenditure</b>	<b>\$ 156,768,673</b>	97.24%	<i>Negative costed episodes</i>	\$ 32,813		
<i>Variance</i>	\$ -	0.00%	<i>Negative cost rows</i>	\$ 3,329,155		
<b>D</b> Post Allocation Adjustments			<b>Total costs submitted to IHPA</b>	<b>\$ 85,843,957</b>		
<i>Prior year WIP</i>	\$ 6,861,567					
<b>Total expenditure allocated to patients</b>	<b>\$ 163,630,240</b>	97.24% *	<b>H</b> Costed products submitted to IHPA		<b>K</b> Final NHCDC costed products	
<b>E</b> Costed products submitted to jurisdiction			<i>Acute and Newborns</i>	\$ 55,002,409	<i>Acute^ and Newborns</i>	\$ 58,089,460
<i>Acute and Newborns</i>	\$ 54,592,869		<i>Non-admitted</i>	\$ 8,024,585	<i>Non-admitted</i>	\$ 8,024,585
<i>Non-admitted</i>	\$ 28,632,510		<i>Emergency</i>	\$ 18,956,238	<i>Emergency</i>	\$ 18,956,238
<i>Emergency</i>	\$ 26,589,042		<i>Sub Acute</i>	\$ 3,129,027	<i>Sub Acute^</i>	\$ 3,162,303
<i>Sub Acute</i>	\$ 3,692,744		<i>Mental Health</i>	\$ -	<i>Mental Health</i>	\$ -
<i>Mental Health</i>	\$ 4,464,794		<i>Other</i>	\$ 731,695	<i>Other</i>	\$ 734,766
<i>Other</i>	\$ 3,940,920		<i>Research</i>	\$ -	<i>Research</i>	\$ -
<i>Research</i>	\$ -		<i>Teaching &amp; Training</i>	\$ -	<i>Teaching &amp; Training</i>	\$ -
<i>Teaching &amp; Training</i>	\$ 1,302,525		<i>System-generated patients</i>	\$ -	<i>System-generated patients</i>	\$ -
<i>System-generated patients</i>	\$ 40,414,837		<b>Variance</b>	\$ (3)	<b>Variance</b>	\$ -
<b>Total</b>	<b>\$ 163,630,240</b>	97.24% *				
<i>Variance</i>	\$ -					

Source: KPMG based on data supplied by North West HHS, jurisdiction and IHPA

\* As WIP from prior years expenditure relates to prior year costs, this percentage excludes the \$6.86 million from the calculation

^ These figures include admitted emergency costs.

### *Explanation of reconciliation items*

This section discusses each of the reconciliation items including adjustments, inclusions and exclusions to the financial data. The information is based on the templates submitted for North West HHS and face-to-face review discussions.

#### *Item A – General Ledger*

The final GL amount extracted by Queensland Health for the North West HHS costing system totalled \$161.22 million. This amount reflected the total expenditure for the North West. This amount did not reconcile to the total expenditure reported in the 2015-16 financial statements for the North West HHS of \$161.20 million. The minor variance of \$15,866 (0.01 percent of the HHS GL) related to capital works cost centres moved to the North West HHS, that were not included in the annual return but where included reporting hierarchy that is used to extract the GL data for costing. Queensland Health representatives advised that these cost centres are out of scope for ABF and NHCDC purposes.

#### *Item B – Adjustments to the GL*

Exclusions were made to the GL of approximately \$4.45 million. Queensland Health representatives advised that these costs related to community service expenses that were out of scope for ABF and NHCDC purposes.

These adjustments established an expenditure base for costing of \$156.77 million. This was approximately 97.2 percent of total expenditure reported in the GL.

#### *Item C – Allocation of costs*

No transfers or offsets were made through the costing system for the North West HHS.

- It was observed that the total of all direct cost centres of \$132.67 million were allocated in the costing system.
- It was observed that all overheads of \$24.10 million were allocated to direct cost centres.

These amounted to \$156.77 million and reflected the total for the North West HHS.

#### *Item D – Post Allocation Adjustments*

Work In Progress (WIP) from prior years totalling \$6.86 million was included post allocation for the HHS. The basis of this adjustment appears reasonable.

The total expenditure allocated to patients for North West HHS was \$163.63 million and represented approximately 97.2 percent of the GL (note this percentage calculation excludes WIP from prior years as it is not part of the current year GL).

#### *Item E - Costed products submitted to jurisdiction*

Costs submitted to the jurisdiction and reported at product level totalled \$163.63 million. Costs were allocated to all products with the exception of Research.

#### *Item F – Costed products received by the jurisdiction*

Costed products received by the jurisdiction totalled \$163.63 million. No variance was noted between Items E and F.



### *Item G – Final adjustments*

Queensland Health adjusts the hospital submission. The adjustments made for Round 20 totalled \$77.89 million and related to the following:

- Excluded current year WIP of \$7.89 million
- Excluded costs associated with System Generated Patients of \$36.30 million related to:
  - Records where no patient level data was available for costing the of the following services: Alcohol and Other Drugs, Capital Works costs, Hospital Trusts cost centres (no medical costs included in trusts), Oral Health, Commonwealth Patient Transport Scheme and private practice costs totalling \$34.31 million
  - Outreach & community care totalling \$1.99 million
- Excluded Teaching and Training costs of \$1.30 million from teaching and training cost centres, as these costs are not able to be matched with an activity record in the IHPA activity submission as this type of service is not included in the existing Data Set Specifications.
- Excluded cost records not able to be matched to the activity submission from small rural and remote facilities within the HHS that are either Block funded under the NEC, or Primary Health Care Centres as these facilities were reported at aggregate level for the reference year and only matched cost to activity submission records where included in the NHCDC submission of \$35.49 million related to:
  - Outpatient - Tier 2 records totalling \$26.19 million
  - Non-admitted emergency records totalling \$9.30 million
- Excluded records with an invalid DRG record totalling \$1,668
- Excluded costs associated with Nhcddltems Exclude and Cap excluded from episode costs totalling \$158,440. These cost items are from chart of account mapping for expense items that are specifically excluded from the NHCDC. These costs are included in the costing process but are excluded by the jurisdictional NHCDC data transformation process prior to submission of the final patient level cost records.
- To meet IHPA data requirements cost records were adjusted to remove negative costs. Negative costed episodes and negative cost rows reported in the costing system of \$3.36 million were adjusted (the effect of this adjustment is an inclusion to the costs submitted to IHPA).

The basis of these adjustments appears reasonable. However, the exclusion of Teaching, Training and Research may impact on the completeness of the NHCDC. It is recommended that Queensland Health add the patient level activity from those facilities currently reported at aggregate level wherever patient level activity data is available. This will add to the value of the NHCDC with the inclusion of costs for these services from the small rural and remote facilities. This is in line with Round 19 recommendations.

### *Item H – Costed products submitted to IHPA*

Costs derived by the jurisdiction and reported at product level to IHPA totalled \$85.84 million. There was a minor variance of \$3 between Item G and Item H.

*Item I – Total products received by IHPA*

Costed products received by IHPA totalled \$85.84 million. No variance was noted between Item H and Item I.

*Item J – IHPA adjustments*

- *Admitted emergency*

Upon receipt of cost data, IHPA allocates the admitted emergency costs back to admitted patients for the purposes of reporting and analysis. Within IHPA's reconciliation, this amount was a duplication of admitted emergency costs and not an additional cost. This amounted to \$3.12 million for North West HHS.

- *Unqualified Baby Adjustment*

Upon receipt of cost data, IHPA redistributes the unqualified baby cost to the mother separation to provide a complete delivery cost. Within IHPAs reconciliation this was not an additional cost but a movement between patients.

*Item K – Final NHCDC Costed Outputs*

The final NHCDC costed data for North West HHS that was loaded into the National Round 20 cost data set was \$88.97 million which included the admitted emergency cost of \$3.12 million.

### **6.2.3 Activity data**

Table 25 presents patient activity data based on source and costing systems for the North West HHS. This activity data is then compared to Table 26 which highlights the transfer of activity data by NHCDC product from the North West HHS to Queensland Health and then through to IHPA submission and finalisation for North West HHS.

Table 25 – Activity data – North West Hospital and Health Service

Activity Data	# Records from Source	# Records in costing system	Variance	# Records linked to Admitted	# Records linked to Emergency	# Records linked to Non-admitted	# Records linked to Syst-Gen patient	# Records linked to Other	Total Linking Process	# Unlinked records
Inpatient	9,521	9,521	-	9,521	-	-	-	-	9,521	-
Emergency	43,075	43,075	-	-	43,075	-	-	-	43,075	-
Outpatient	82,133	82,133	-	-	-	82,133	-	-	82,133	-
Non Admitted Mental Health	1,916	1,916	-	-	-	1,916	-	-	1,916	-
Boarder	1,031	1,031	-	1,031	-	-	-	-	1,031	-
Community	11,880	11,880	-	-	-	11,880	-	-	11,880	-
Teaching	1,188	1,188	-	-	-	-	1,188	-	1,188	-
Virtual Patient	10,766	10,766	-	-	-	-	10,766	-	10,766	-
Virtual patient unlinked	7,736	7,736	-	-	-	7,736	-	-	7,736	-
<b>TOTAL</b>	<b>169,246</b>	<b>169,246</b>	<b>-</b>	<b>10,552</b>	<b>43,075</b>	<b>103,665</b>	<b>11,954</b>	<b>-</b>	<b>169,246</b>	<b>-</b>

Source: KPMG based on data supplied by North West HHS and Queensland Health

Table 26 – Activity data submission – North West Hospital and Health Service

Product	Activity related to 2015-16 Costs	Adjustments	Activity submitted to jurisdiction	Adjustments	Activity submitted to IHPA	Activity received by IHPA	Adjustments	Total Activity submitted for Round 20 NHCDC
Acute and Newborns	9,332	51	9,383	(57)	9,326		-	
Non-admitted	89,869	-	89,869	(61,991)	26,430		-	
Emergency	43,075	-	43,075	(12,531)	30,076		-	
Sub Acute	133	5	138	(10)	128		-	
Mental Health	1,789	127	1,916	(1,916)	1,916		-	
Other	12,903	8	12,911	(11,889)	1,022		-	
Research	-	-	-	-	-		-	
Teaching and Training	1,188	-	1,188	(1,188)	-		-	
System-generated patients	10,753	13	10,766	(10,766)	-		-	
<b>Total</b>	<b>169,042</b>	<b>204</b>	<b>169,246</b>	<b>(100,348)</b>	<b>68,898</b>	<b>-</b>	<b>-</b>	<b>-</b>

Source: KPMG based on data supplied by North West HHS, Queensland Health and IHPA

The following should be noted about the transfer of activity data for North West HHS:

- There was a variance of 204 identified between the number of records from source systems detailed in Table 25 (169,246 records) and activity related to 2015-16 costs by NHCDC product in Table 26 (169,042 records). The 204 records related to WIP adjustments that are made by North West HHS. The records from source in Table 25 already included these records.
- Adjustments made by North West HHS related to the activity associated with the inclusion of prior year WIP.
- Adjustments made by Queensland Health related to the activity associated with the excluded costs (refer to Item G in the reconciliation). These records related to the removal of current year WIP, system-generated patients (including outpatients from Tier 2 clinics), unmatched costs records, invalid DRG records and negative cost records.
- The adjustments made by IHPA to the Acute and Newborns product group related to the UQB adjustment as discussed in Item J of the explanation of reconciliation items.

- Adjustments made by IHPA related to admitted emergency reallocations are for reporting and analysis purposes (as discussed in Item J of the explanation of reconciliation items) and have no impact on the reported activity.

#### **6.2.4 Feeder data**

Table 27 reflects data associated with patient feeder data for the North West HHS.

Table 27 – Feeder data – North West Hospital and Health Service

Feeder Data	# Records from Source	# Records in costing system	Variance	# Records linked to Admitted	# Records linked to Emergency	# Records linked to Non-admitted	# Records linked to Syst-Gen patient	# Records linked to Other	Total Linking Process	# Unlinked records	% Linked	% to Syst-Gen patient
Appointment Schedule Outpatient Data	162,392	162,392	-	1,947	501	159,900	44	-	162,392	-	100.00%	0.03%
Community Mental Health Data	28,940	28,940	-	2,919	2,067	23,954	-	-	28,940	-	100.00%	0.00%
Emergency Presentation Data	87,086	87,086	-	-	87,086	-	-	-	87,086	-	100.00%	0.00%
Local Clinical System Data	339	339	-	339	-	-	-	-	339	-	100.00%	0.00%
Medical ATD(Bedday) Data	35,757	35,757	-	35,634	-	-	123	-	35,757	-	100.00%	0.34%
Nursing ATD(Bedday)Data	99,769	99,769	-	99,494	-	-	275	-	99,769	-	100.00%	0.28%
Operating Theatre Data	14,212	14,212	-	14,212	-	-	-	-	14,212	-	100.00%	0.00%
Pathology Data	134,465	134,465	-	33,189	50,275	27,901	46	-	111,411	23,054	82.86%	0.03%
Pharmacy Data	29,975	29,975	-	11,236	4,581	6,398	44	-	22,259	7,716	74.26%	0.15%
Virtual Patient Data	46,404	46,404	-	-	-	-	20,268	2,376	22,644	23,760	48.80%	43.68%
Allied Health Intervention Data	20,712	20,712	-	5,712	324	14,676	-	-	20,712	-	100.00%	0.00%
Blood Products Data	34	34	-	10	22	2	-	-	34	-	100.00%	0.00%
Delivery (Birthing) Data	482	482	-	482	-	-	-	-	482	-	100.00%	0.00%

Source: KPMG based on data supplied by the North West HHS and Queensland Health

In relation to the feeder data for North West HHS, the following should be noted:

- There are 13 feeders used from a range of hospital source systems and they appear to represent major hospital departments providing resource activity.
- The number of records linked to admitted patients, emergency, non-admitted, system-generated and other patients had a greater than 82 percent link or match for 11 of the 13 feeders. This suggests that there is robustness in the level of feeder activity reported back to episodes.
- The unlinked pathology and pharmacy records occur when activity data from legacy pathology and pharmacy systems (which do not contain point of order entry data) cannot be matched to inpatient, emergency or outpatient clinic presentation records based on time date stamp matching criteria. An unlinked feeder system record is created still containing the patients Patient Master Index details for the tests undertaken and is included in the costing process. These records are not reported in the activity submission as there is not a reportable episode / presentation/Service event and would be

excluded by IHPA for the building of the funding model. Therefore they are excluded from the NHCDC submission. All records are therefore linked to an episode/presentation but not all records are linked to an episode/ presentation that can be reported as activity within the definition of the IHPA activity Data Set Specifications. Full costing of each of these unlinked episodes still occurs.

For reference year, no patient level data was available for diagnostic imaging services. This service was costed against a virtual patient.



### 6.2.5 Treatment of WIP

Table 28 demonstrates models for WIP and its treatment in the North West HHS's Round 20 NHCDC submission.

*Table 28 – WIP – North West Hospital and Health Service*

Model	Description	Submitted to Round 20 NHCDC
1	Costs for patients admitted and discharged in 2015-16 only	Submitted to Round 20 of the NHCDC
2	Costs for patients admitted prior to 2015-16 and discharged in 2015-16	Submitted to Round 20 of the NHCDC. Costs are submitted for all years from admission to discharge. The legacy costing system in use for costing North West is a patient centric multi fiscal year system
3	Costs for patients admitted prior to or in 2015-16 and remain admitted at 30 June 2016	Not submitted to Round 20 of the NHCDC

*Source: KPMG, based on the North West HHS templates and review discussions*

In summary, for North West HHS, costs were submitted for admitted and discharged patients in 2015-16 and WIP costs for patients admitted prior to 2013-14, but discharged in 2015-16.

### 6.2.6 Critical care

The North West HHS has a four bed Intensive Care Unit (ICU) located at Mount Isa Hospital. The hospital does not have any High Dependency Units or Close Observation Units located in wards in the hospital. All direct costs associated with ICU are allocated to specific ICU cost centres. Critical care costs are captured in accordance with the applicable standard.

### 6.2.7 Costing public and private patients

North West HHS does not adjust costing specific patients based on their financial classification, i.e. whether they are a public or a privately insured patient. Applicable costs are allocated to private patients, including a share of pathology, prosthesis and medical costs, in the same manner as public patients. Private patient revenue is not offset against any related expenditure.

The majority of medical officers are salaried medical officers at North West HHS and are paid an allowance in-lieu of private practice arrangements, i.e. there is no use of private practice funds to supplement the employment costs. Furthermore there are no adjustments made to expenditures for the Right of Private Practice Models. Therefore, the full employment cost associated with medical officers is allocated to all patients, regardless of financial class.

This aligns with the principles of the AHPCS Version 3.1 and reflects the true patient level data cost incurred for public and private patients treated by the HHS.

### 6.2.8 Treatment of specific items

A number of specific items were discussed during the consultation phase of the review to understand the manner in which they are treated in the costing process. These items are used

to inform the NEP and specific funding model adjustments for particular patient cohorts. North West HHS's treatment of each of the items is summarised below.

*Table 29 – Treatment of specific items – North West Hospital and Health Service*

Item	Treatment
Research	There were no research cost centres at North West HHS for this reporting period
Teaching and Training	Direct teaching and training costs are allocated to a system-generated patient and excluded. Embedded teaching and training costs are not separately identified.  Teaching and Training costs are captured but not at the patient level. These costs will be separately submitted to IHPA by the jurisdiction.
Shared/Other commercial entities	Any expenditure associated with these activities is excluded by the hospital for costing purposes.

Source: KPMG, based on IFR discussions

## 6.2.9 Sample patient data

IHPA selected a sample of five patients from North West Health Service for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. Queensland Health provided the patient level costs for all five patients and these reconciled to IHPA records. The results are summarised in Table 30.

*Table 30 – Sample patients – North West Hospital and Health Service*

#	Product	Jurisdiction Records	Received by IHPA	Variance
1	Acute	\$3,130.58	\$3,130.58	\$-
2	Non-Admitted	\$194.21	\$194.21	\$-
3	Admitted ED	\$482.76	\$482.76	\$-
4	Border	\$796.55	\$796.55	\$-
5	Acute	\$15,281.48	\$15,281.48	\$-

Source: KPMG, based on the North West HHS and IHPA data

## 6.3 Townsville Hospital and Health Service

### 6.3.1 Overview

The Townsville Hospital and Health Service (Townsville HHS) is a public hospital, and principal tertiary healthcare facility in Northern Australia. It covers 148,000 square kilometres; servicing 5.1% of Queensland's population<sup>8</sup>. Townsville HHS comprises the Townsville Hospital, Ayr Health Service, Cambridge Street Health Campus, Cardwell Community Clinic, Charters Towers Health Service, Charters Towers Rehabilitation Unit, Eventide Residential Aged Care Facility, Home Hill Health Service, Hughenden Multi-Purpose Health Service, Ingham Health Service, Josephine Sailor Adolescent Inpatient Unit and Day Service, Joyce Palmer Health Service, Kirwan Health Campus, Kirwan Mental Health Rehabilitation Unit, Magnetic Island Community Clinic, North Ward Health Campus, Palmerston Street Health Campus, Parklands Residential Aged Care Facility, Richmond Health Service and Townsville Public Health Unit. Townsville HHS includes 732 acute beds and the Townsville Hospital's services and programs include:

- Acute renal dialysis unit
- Cardiac surgery unit
- Coronary care unit
- Diabetes unit
- Domiciliary care unit
- Emergency department
- Hospice care unit
- Infectious diseases unit
- Intensive care unit
- Major plastic or reconstructive surgery unit
- Neonatal intensive care unit
- Neurosurgical unit
- Obstetric services
- Oncology unit
- Paediatric service
- Psychiatric unit
- Rehabilitation unit
- Sleep centre<sup>9</sup>

---

<sup>8</sup> [https://www.health.qld.gov.au/\\_\\_data/assets/pdf\\_file/0025/443059/thhs-annual-report-2015-16.pdf](https://www.health.qld.gov.au/__data/assets/pdf_file/0025/443059/thhs-annual-report-2015-16.pdf). Accessed 22 June 2017

<sup>9</sup> <https://www.myhospitals.gov.au/hospital/310000200/the-townsville-hospital>. Accessed 22 June 2017

The Townsville Hospital also provides the largest neonatal retrieval service, renal services in the North West Region of Queensland, specialised mental health services, outreach oncology services and army base services.

Townsville HHS has a dedicated Clinical Costing and Funding Unit that undertakes the costing function and uses the Transition II costing system. Costing is undertaken on a monthly basis and a final submission is made to Queensland Health for reporting purposes. This data is then used by the HHS Costing and Funding Unit at Queensland Health for NHCDC purposes.

### **6.3.2 Financial data**

Data collection templates for Round 20 were completed and submitted by Queensland Health's HHS Costing and Funding Unit on behalf of Townsville HHS. Representatives from the Queensland Health HHS Costing and Funding Unit attended and participated in consultation process during the review, as well as representatives from the Townsville HHS Clinical Costing and Funding Unit.

Table 31 reflects a summary of Townsville HHS's costs, from the original extract from the GL through to the final NHCDC submission for Round 20. This table presents the financial reconciliation of expenditure for Round 20 for Townsville Hospital and Health Service and the transformation of this expenditure by the jurisdiction and IHPA for NHCDC submission. There are 11 items of reconciliation in the table. These items are labelled A to K. Items A to E relate to the expenditure submitted by the hospital/LHN, Items F to H relate to the costs submitted by the jurisdiction and Items I to K relate to the transformation of costs by IHPA. The following section in the report explains each item in more detail.

Table 31 – Round 20 NHCDC Reconciliation – Townsville Hospital and Health Service

Hospital			Jurisdiction		IHPA	
Item	Amount	% of GL	Item	Amount	Item	Amount
<b>A</b> General Ledger (GL)	\$ 862,350,708		<b>F</b> Costed Products received by jurisdiction	\$ 924,064,291	<b>I</b> Total costed products received by IHPA	\$ 608,821,616
			<i>Variance</i>	\$ -	<i>Variance</i>	\$ -
<b>B</b> Adjustments to the GL			<b>G</b> Final Adjustments		<b>J</b> IHPA Adjustments	
<i>Inclusions</i>	\$ -		Current WIP	\$ (49,812,465)	UQB removals	\$ (4,865)
<i>Exclusions</i>	\$ -		System-generated patients	\$ (158,261,338)	Admitted ED reallocations	\$ 29,829,389
<b>Total hospital expenditure</b>	<b>\$ 862,350,708</b>	100.00%	Care type not consistent with Product type	\$ (211,533)	<b>Final NHCDC costs</b>	<b>\$ 638,646,140</b>
<b>C</b> Allocation of Costs			Unmatched cost records to NHCDC	\$ (106,706,539)		
Post Allocation Direct amount	\$ 750,144,754		Invalid DRG record	\$ (105,053)		
Post Allocation Overhead amount	\$ 112,081,905		NhcddItems Exclude and Cap excluded from episode costs	\$ (1,263,761)		
<b>Total hospital expenditure</b>	<b>\$ 862,226,659</b>	99.99%	Negative costed episodes	\$ 183,641		
<i>Variance</i>	\$ (124,049)	-0.01%	Negative cost rows	\$ 934,369		
<b>D</b> Post Allocation Adjustments			<b>Total costs submitted to IHPA</b>	<b>\$ 608,821,610</b>		
Prior year WIP	\$ 44,736,734					
Costs from following year	\$ 17,100,898					
<b>Total expenditure allocated to patients</b>	<b>\$ 924,064,291</b>	99.99% *				
<b>E</b> Costed products submitted to jurisdiction			<b>H</b> Costed products submitted to IHPA		<b>K</b> Final NHCDC costed products	
Acute and Newborns	\$ 424,757,499		Acute and Newborns	\$ 397,284,392	Acute^ and Newborns	\$ 427,043,416
Non-admitted	\$ 148,957,687		Non-admitted	\$ 73,639,509	Non-admitted	\$ 73,639,509
Emergency	\$ 58,884,738		Emergency	\$ 61,540,376	Emergency	\$ 61,540,376
Sub Acute	\$ 93,265,546		Sub Acute	\$ 76,296,318	Sub Acute^	\$ 76,360,130
Mental Health	\$ 38,081,533		Mental Health	\$ -	Mental Health	\$ -
Other	\$ 3,523,661		Other	\$ 61,021	Other^	\$ 62,708
Research	\$ -		Research	\$ -	Research	\$ -
Teaching & Training	\$ -		Teaching & Training	\$ -	Teaching & Training	\$ -
System-generated patients	\$ 156,593,625		System-generated patients	\$ -	System-generated patients	\$ -
<b>Total</b>	<b>\$ 924,064,291</b>	107.16%	<b>Total</b>	<b>\$ 608,821,616</b>	<b>Total</b>	<b>\$ 638,646,140</b>
<i>Variance</i>	\$ -		<i>Variance</i>	\$ 6	<i>Variance</i>	\$ -

Source: KPMG based on data supplied by Townsville HHS, jurisdiction and IHPA

\* As WIP from prior years expenditure relates to prior year costs, this percentage excludes the \$61.84 million from the calculation.

^ These figures include admitted emergency costs.

### *Explanation of reconciliation items*

This section discusses each of the reconciliation items including adjustments, inclusions and exclusions to the financial data. The information is based on the templates submitted for Townsville HHS and face-to-face review discussions.

#### *Item A – General Ledger*

The final GL amount extracted by the Townsville HHS Costing and Funding Unit for the costing system totalled \$862.35 million. This amount did not reconcile to the total expenditure reported in the 2015-16 financial statements for the Townsville HHS, i.e. \$862.91 million. The \$568,212 variance (0.07 percent of the HHS GL) related to:

- Expenditure recorded in cost centres related to Capital Works that are out of scope but included in the Annual Financial Statement. This equated to \$661,609.
- Business area costs reported in the audited financial statements that are not linked to a cost centre for costing purposes (\$97,381)
- Rounding of expenditures for the Annual Financial Statement which amounted to \$4,064.

#### *Item B – Adjustments to the GL*

No additional inclusions or exclusions were made to the GL. The expenditure base for costing was \$862.35 million.

#### *Item C – Allocation of costs*

No transfers or offsets were made through the costing system for the Townsville HHS.

- It was observed that the total of all direct cost centres of \$750.14 million were allocated in the costing system.
- It was observed through the templates that all overheads of \$112.08 million were allocated to direct cost centres.

These amounted to \$862.23 million. This was approximately 99.9 percent of the Townsville HHS GL. There was a variance of \$124,049 identified between Item B and Item C (0.01 percent of the Townsville HHS GL). Queensland Health's investigation of this variance indicates it is due to a difference between the number of decimal places within the costing system between the financial department and patient level of the database. Costs are not correctly reported at the final patient level but only where there are low-volume high-cost cost centres. This was identified as an issue with the final application upgrade of this legacy system and only impacts virtual patients where a monthly volume of 1 virtual patient has been used. There were in this reference year still some services with an annual volume of 12 against a virtual patient. Note all of these are excluded from the NHCDC submission (as there is no patient level data for these services which can be mapped to a submitted activity data record and thus do not impact the final cost outcomes of data submitted for the NHCDC).

#### *Item D – Post Allocation Adjustments*

Work In Progress (WIP) from prior years totalling \$61.84 million was included post allocation for the HHS. The basis of this adjustment appears reasonable.

The total expenditure allocated to patients for Townsville HHS was \$924.06 million and represented approximately 99.9 percent of the GL (note this percentage calculation excludes WIP from prior years as it is not part of the current year GL).

*Item E - Costed products submitted to jurisdiction*

Costs submitted to the jurisdiction and reported at product level totalled \$924.06 million. Costs were allocated to all products. For the reference year Research was costed using a virtual patient – Teaching and training costs were treated as overhead cost centres with final costs being passed to patient level using the overhead allocation structure.

*Item F – Costed products received by the jurisdiction*

Costed products received by the jurisdiction totalled \$924.06 million. No variance was noted between Items E and F.

*Item G – Final adjustments*

Queensland Health adjusts the hospital submission. The adjustments made for Round 20 totalled \$315.24 million and related to:

- Excluded current year WIP of \$49.81 million
- Excluded costs associated with System Generated Patients of \$158.26 million related to:
  - Records where no patient level data was available for costing of the following services: Clinical Outreach Services to External Clients (Other HHS's) totalling \$156.59 million.
    - Other Admitted Patient Care totalling \$1.67 million.
- Excluded records where the care type provided was not consistent with the NHCDC product type of \$211,533
- Excluded cost records not able to be matched to the activity submission from small rural and remote facilities within the HHS that are either Block funded under the NEC, or Primary Health Care Centres as these facilities were reported at aggregate level for the reference year and only matched cost to activity submission records where included in the NHCDC submission to the NHCDC of \$106.71 million related to:
  - Outpatient - Tier 2 records totalling \$104.61 million.
  - Sub-acute (maintenance) records totalling \$1.51 million.
  - Other admitted care types totalling \$428,207
  - Non-admitted emergency records totalling \$165,866
- Excluded records with an invalid DRG record totalling \$105,053
- Excluded costs associated with Nhcddltems Exclude and Cap excluded from episode costs totalling \$1.26 million. These cost items are from chart of account mapping for expense items that are specifically excluded from the NHCDC. These costs are included in the costing process but are excluded by the jurisdictional NHCDC data transformation process prior to submission of the final patient level cost records.
- To meet IHPA data requirements cost records were adjusted to remove negative costs. Negative costed episodes and negative cost rows reported in the costing system of \$1.12 million were adjusted (the effect of this adjustment is an inclusion to the costs submitted to IHPA).

The basis of these adjustments appears reasonable. It is recommended that Queensland Health add the patient level activity from those facilities currently reported at aggregate level wherever patient level activity data is available. This will add to the value of the NHCDC with the inclusion of costs for these services from the small rural and remote facilities. This is in line with Round 19 recommendations.

#### *Item H – Costed products submitted to IHPA*

Costs derived by the jurisdiction and reported at product level to IHPA totalled \$608.82 million. There was a minor variance of \$6 between Item G and Item H.

#### *Item I – Total products received by IHPA*

Costed products received by IHPA totalled \$608.82 million. No variance was noted between Item H and Item I.

#### *Item J – IHPA adjustments*

- *Unqualified Baby Adjustments*

Upon receipt of cost data, IHPA redistributes the unqualified baby cost to the mother separation to provide a complete delivery cost. Within IHPAs reconciliation this was not an additional cost but a movement between patients.

If there are remaining UQB separations and all mother separations have been allocated costs from a UQB separation, these remaining UQB costs are excluded from the NHCDC. For Townsville HHS, the UQB removals totalled \$4,865.

- *Admitted emergency*

Upon receipt of cost data, IHPA allocates the admitted emergency costs back to admitted patients for the purposes of reporting and analysis. Within IHPA's reconciliation, this amount was a duplication of admitted emergency costs and not an additional cost. This amounted to \$29.83 million for Townsville HHS.

#### *Item K – Final NHCDC Costed Outputs*

The final NHCDC costed data for Townsville HHS that was loaded into the National Round 20 cost data set was \$638.65 million which included the admitted emergency cost of \$29.83 million.

### **6.3.3 Activity data**

Table 32 presents patient activity data based on source and costing systems for the Townsville HHS. This activity data is then compared to Table 33 which highlights the transfer of activity data by NHCDC product from the Townsville HHS to Queensland Health and then through to IHPA submission and finalisation.



Table 32 – Activity data – Townsville Hospital and Health Service

Activity Data	# Records from Source	# Records in costing system	Variance	# Records linked to Admitted	# Records linked to Emergency	# Records linked to Non-admitted	# Records linked to Syst-Gen patient	# Records linked to Other	Total Linking Process	# Unlinked records
Inpatient	78,321	78,321	-	78,321	-	-	-	-	78,321	-
Emergency	112,738	112,738	-	-	112,738	-	-	-	112,738	-
Outpatient	449,607	449,607	-	-	-	449,607	-	-	449,607	-
Boarder	234	234	-	234	-	-	-	-	234	-
Non Admitted Mental Health	16,404	16,404	-	-	-	16,404	-	-	16,404	-
Virtual Patient	133,475	133,475	-	-	-	-	133,475	-	133,475	-
Virtual Patient Unlinked	30,482	30,482	-	-	-	30,482	-	-	30,482	-
<b>TOTAL</b>	<b>821,261</b>	<b>821,261</b>	<b>-</b>	<b>78,555</b>	<b>112,738</b>	<b>496,493</b>	<b>133,475</b>	<b>-</b>	<b>821,261</b>	<b>-</b>

Source: KPMG based on data supplied by the Townsville HHS and Queensland Health

Table 33 – Activity data submission – Townsville Hospital and Health Service

Product	Activity related to 2015-16 Costs	Adjustments	Activity submitted to jurisdiction	Adjustments	Activity submitted to IHPA	Activity received by IHPA	Adjustments	Total Activity submitted for Round 20 NHCDC
Acute and Newborns	76,765	455	76,220	(525)	75,695		-	
Non-admitted	480,089	-	480,089	(250,999)	229,090		-	
Emergency	112,728	10	112,738	2,273	115,011		-	
Sub Acute	1,095	190	2,095	(189)	1,906		-	
Mental Health	15,086	1,318	16,404	(16,404)	-		-	
Other	236	4	240	(7)	233		-	
Research	-	-	-	-	-		-	
Teaching and Training	-	-	-	-	-		-	
System-generated patients	133,475	2	133,477	(133,477)	-		-	
<b>Total</b>	<b>819,284</b>	<b>-</b>	<b>821,263</b>	<b>(399,328)</b>	<b>421,935</b>	<b>-</b>	<b>-</b>	<b>-</b>

Source: KPMG based on data supplied by the Townsville HHS, Queensland Health and IHPA

The following should be noted about the transfer of activity data for Townsville HHS:

- Adjustments made by Queensland Health related to the activity associated with the excluded costs (refer to Item G in the reconciliation). These records related to the removal of current year WIP, system-generated patients, unmatched costs records, invalid DRG records and negative cost records.
- The adjustments made by IHPA to the Acute and Newborns product group related to the UQB adjustment (2,214 records) and UQB removals (three records) as discussed in Item J of the explanation of reconciliation items.
- Adjustments made by IHPA related to admitted emergency reallocations are for reporting and analysis purposes (as discussed in Item J of the explanation of reconciliation items) and have no impact on the reported activity.

#### **6.3.4 Feeder data**

Table 34 reflects data associated with patient feeder data for Townsville HHS.

Table 34 – Feeder data – Townsville Hospital and Health Service

Feeder Data	# Records from Source	# Records in costing system	Variance	# Records linked to Admitted	# Records linked to Emergency	# Records linked to Non-admitted	# Records linked to Syst-Gen patient	# Records linked to Other	Total Linking Process	# Unlinked records	% Linked	% to Syst-Gen patient
Appointment Schedule Outpatient Data	1,338,641	1,338,641	-	53,229	3,513	1,281,895	4	-	1,338,641	-	100.00%	0.00%
Blood Products Data	7,159	7,159	-	3,243	714	3,201	1	-	7,159	-	100.00%	0.01%
Community Mental Health Data	453,935	453,935	-	73,518	16,596	363,821	-	-	453,935	-	100.00%	0.00%
Diagnostic Imaging Data	336,507	336,507	-	80,869	129,132	86,209	18	-	296,228	40,279	88.03%	0.01%
Emergency Presentation Data	500,199	500,199	-	-	500,199	-	-	-	500,199	-	100.00%	0.00%
Local Clinical System Data	5,969	5,969	-	4,927	-	880	162	-	5,969	-	100.00%	2.71%
Medical ATD(Bedday) Data	311,133	311,133	-	311,121	-	-	12	-	311,133	-	100.00%	0.00%
Nursing Acuity Data	3	3	-	3	-	-	-	-	3	-	100.00%	0.00%
Nursing ATD(Bedday)Data	822,733	822,733	-	822,703	-	-	30	-	822,733	-	100.00%	0.00%
Operating Theatre Data	172,241	172,241	-	171,090	-	77	1,074	-	172,241	-	100.00%	0.62%
Pathology Data	519,429	519,429	-	216,073	165,132	122,801	18	-	504,024	15,405	97.03%	0.00%
Pharmacy Data	182,778	182,778	-	88,437	7,389	44,791	3	-	140,620	42,158	76.93%	0.00%
Virtual Patient Data	366,314	366,314	-	-	-	-	366,314	-	366,314	-	100.00%	100.00%
Allied Health Intervention Data	207,237	207,237	-	100,445	674	105,296	822	-	207,237	-	100.00%	0.40%
Sub-Acute Data	125	125	-	125	-	-	-	-	125	-	100.00%	0.00%

Source: KPMG based on data supplied by the Townsville HHS and Queensland Health

The following should be feeder data for Townsville HHS:

- There are 15 feeders used from a range of hospital source systems and they appear to represent major hospital departments providing resource activity.
- The number of records linked to admitted patients, emergency, non-admitted, pharmacy and other patients had a 97 percent link or greater match for 13 of the 15 feeders. This suggests that there is robustness in the level of feeder activity reported back to episodes.
- The unlinked pharmacy and diagnostic imaging records occur when activity data from legacy pathology and pharmacy systems (which do not contain point of order entry data) cannot be matched to inpatient, emergency or outpatient clinic presentation records based on time date stamp matching criteria. An unlinked feeder system record is created still containing the patients Patient Master Index details for the tests undertaken and is included in the costing process. These records are not reported in the activity submission as there is not reportable episode / presentation/Service event and would be excluded by IHPA for the building of the funding model. Therefore they are excluded from the NHCDC submission. All records are therefore linked to an episode/presentation but not all records are linked to an episode/presentation that can be reported as activity within the definition of the IHPA activity Data Set Specifications. Full costing of each of these unlinked episodes still occurs.

### 6.3.5 Treatment of WIP

Table 35 demonstrates models for WIP and its treatment in the Townsville HHS's Round 20 NHCDC submission.

*Table 35 – WIP – Townsville Hospital and Health Service*

Model	Description	Submitted to Round 20 NHCDC
1	Costs for patients admitted and discharged in 2015-16 only	Submitted to Round 20 of the NHCDC
2	Costs for patients admitted prior to 2015-16 and discharged in 2015-16	Submitted to Round 20 of the NHCDC. Costs are submitted for all years from admission to discharge. The legacy costing system in use for costing Townsville is a patient centric multi fiscal year system
3	Costs for patients admitted prior to or in 2015-16 and remain admitted at 30 June 2016	Not submitted to Round 20 of the NHCDC

*Source: KPMG, based on the Townsville HHS templates and review discussions*

In summary, for Townsville HHS, costs were submitted for admitted and discharged patients in 2015-16 and WIP costs for patients admitted prior to 2013-14, but discharged in 2015-16.

### 6.3.6 Critical care

Townsville HHS reported an Adult Intensive Care Unit (ICU), Coronary Care Unit, General Critical Care Unit, Neonatal Intensive Care Unit and Paediatric Intensive Care Unit located at Townsville Hospital. The hospital does not have any High Dependency Units or Close Observation Units located in wards in the hospital. All direct costs associated with ICU are allocated to specific ICU cost centres. Critical care costs are captured in accordance with the applicable standard.

### 6.3.7 Costing public and private patients

Townsville HHS does not adjust costing specific patients based on their financial classification, i.e. whether they are a public or a privately insured patient. Applicable costs are allocated to private patients, including a share of pathology, medical imaging, prosthesis and medical costs, in the same manner as public patients. Private patient revenue is not offset against any related expenditure.

The majority of medical officers are salaried medical officers at Townsville HHS and are paid an allowance in-lieu of private practice arrangements, i.e. there is no use of private practice funds to supplement the employment costs. Furthermore there are no adjustments made to expenditures for the Right of Private Practice Models. Therefore, the full employment cost associated with medical officers is allocated to all patients, regardless of financial class.

This aligns with the principles of the AHPCS Version 3.1 and reflects the true patient level data cost incurred for public and private patients treated by the HHS.

### 6.3.8 Treatment of specific items

A number of specific items were discussed during the consultation phase of the review to understand the manner in which they are treated in the costing process. These items are used to inform the NEP and specific funding model adjustments for particular patient cohorts. Townsville HHS's treatment of each of the items is summarised below.

*Table 36 – Treatment of specific items – Townsville Hospital and Health Service*

Item	Treatment
Research	Research costs are captured in specific, separate cost centres and allocated to a system-generated patient. For Round 20 these costs were excluded and not submitted as part of the NHCDC but will be reported separately to IHPA as there is no corresponding patient level record in the activity submission with the current design of the activity data set specifications.
Teaching and Training	<p>Direct teaching and training costs for this reference year were treated as overhead costs with costs passed down to final patient cost centres via the overhead allocation process. Embedded teaching and training costs are not separately identified.</p> <p>Teaching and Training costs are captured but not at the patient level.</p>
Shared/Other commercial entities	Any expenditure associated with these activities is excluded by the hospital for costing purposes.

Source: KPMG, based on IFR discussions

### 6.3.9 Sample patient data

IHPA selected a sample of five patients from Townsville HHS for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. Queensland Health provided the patient level costs for all five patients and these reconciled to IHPA records. The results are summarised in Table 37.

*Table 37 – Sample patients – Townsville Hospital and Health Service*

#	Product	Jurisdiction Records	Received by IHPA	Variance
1	Acute	\$1,542.00	\$1,542.00	\$-
2	Non-Admitted	\$207.79	\$207.79	\$-
3	Non-Admitted ED	\$581.70	\$581.70	\$-
4	GEM	\$20,045.93	\$20,045.93	\$-
5	Acute	\$5,692.08	\$5,692.08	\$-

*Source: KPMG, based on the Townsville HHS and IHPA data*

## 6.4 Central Queensland Hospital and Health Service

### 6.4.1 Overview

The Central Queensland Hospital and Health Service (Central Queensland HHS) serves a population of 234,000 persons from Gladstone in the south, inland to Southern and Central Highlands and north along the Capricorn Coast. Rockhampton Hospital is the main referral centre for Central Queensland HHS. Central Queensland HHS also includes:

- Biloela Hospital
- Capricorn Coast Hospital and Health Service
- Emerald Hospital
- Gladstone Hospital
- Moura Community Hospital
- Six multi-purpose services and four outpatient clinics.<sup>10</sup>

Rockhampton Hospital provides a number of specialty services within the cancer domain and offers critical care services. Some other services include:

- Inpatient services
- Emergency Department (24 hour)
- Radiology including - x-rays, CT Scans, Ultrasounds and Interventional Radiology
- General medical
- Surgical day and overnight
- Pharmacy
- Anaesthetics
- Pathology
- Acute renal dialysis
- Intensive care and Coronary care
- Hospice care
- Obstetric services (Maternity and paediatric services including antenatal)
- Psychiatric
- Rehabilitation
- Palliative Care
- Chemotherapy & Radiation Oncology

---

<sup>10</sup> [https://www.health.qld.gov.au/\\_\\_data/assets/pdf\\_file/0031/439384/cqhhs-ar-2015-2016.pdf](https://www.health.qld.gov.au/__data/assets/pdf_file/0031/439384/cqhhs-ar-2015-2016.pdf). Accessed 22 June 2017



- Red Cross Blood Transfusion Service<sup>11</sup>

Central Queensland HHS has a Business and Decision Support Unit which are a dedicated clinical costing and reporting unit undertaking the costing function using the Transition II costing system. Costing is undertaken on a monthly basis and a final submission is made to Queensland Health for reporting purposes. This data is then used by the HHS Costing and Funding Unit at Queensland Health for NHCDC purposes.

#### 6.4.2 Financial data

Data collection templates for Round 20 were completed and submitted by Queensland Health's HHS Costing and Funding Unit on behalf of Central Queensland HHS. Representatives from the Queensland Health HHS Costing and Funding Unit attended and participated in consultation process during the review, as well as representatives from the Central Queensland HHS Business and Decision Support Unit.

Table 38 reflects a summary of Central Queensland HHS's costs, from the original extract from the GL through to the final NHCDC submission for Round 20. This table presents the financial reconciliation of expenditure for Round 20 for Central Queensland Hospital and Health Service and the transformation of this expenditure by the jurisdiction and IHPA for NHCDC submission. There are 11 items of reconciliation in the table. These items are labelled A to K. Items A to E relate to the expenditure submitted by the hospital/LHN, Items F to H relate to the costs submitted by the jurisdiction and Items I to K relate to the transformation of costs by IHPA. The following section in the report explains each item in more detail.

---

<sup>11</sup> <https://www.myhospitals.gov.au/hospital/310000141/rockhampton-hospital>. Accessed 22 June 2017

Table 38 – Round 20 NHCDC Reconciliation – Central Queensland Hospital and Health Service

Hospital			Jurisdiction		IHPA	
Item	Amount	% of GL	Item	Amount	Item	Amount
<b>A</b> General Ledger (GL)	\$ 526,399,881		<b>F</b> Costed Products received by jurisdiction	\$ 535,222,114	<b>I</b> Total costed products received by IHPA	\$ 332,323,070
			<i>Variance</i>	\$ -	<i>Variance</i>	\$ -
<b>B</b> Adjustments to the GL			<b>G</b> Final Adjustments		<b>J</b> IHPA Adjustments	
<i>Inclusions</i>	\$ 3,206,817		<i>Current WIP</i>	\$ (12,118,246)	<i>UQB removals</i>	\$ (12,285)
<i>Exclusions</i>	\$ (3,897,786)		<i>System-generated patients</i>	\$ (123,691,990)	<i>Admitted ED reallocations</i>	\$ 22,048,990
<b>Total hospital expenditure</b>	<b>\$ 525,708,913</b>	99.87%	<i>Teaching and training</i>	\$ (2,746,795)	<b>Final NHCDC costs</b>	<b>\$ 354,359,775</b>
<b>C</b> Allocation of Costs			<i>Unmatched cost records to NHCDC</i>	\$ (57,102,109)		
<i>Post Allocation Direct amount</i>	\$ 425,820,096		<i>Invalid DRG record</i>	\$ (6,675)		
<i>Post Allocation Overhead amount</i>	\$ 99,888,818		<i>Invalid care types/not consistent with Prod type</i>	\$ (5,726,016)		
<b>Total hospital expenditure</b>	<b>\$ 525,708,913</b>	99.87%	<i>Other</i>	\$ (1,733,550)		
<i>Variance</i>	\$ -	0.00%	<i>Negative costed episodes</i>	\$ 53,931		
<b>D</b> Post Allocation Adjustments			<i>Negative cost rows</i>	\$ 172,399		
<i>Prior year WIP</i>	\$ 9,513,201		<b>Total costs submitted to IHPA</b>	<b>\$ 332,323,064</b>		
<b>Total expenditure allocated to patients</b>	<b>\$ 535,222,114</b>	99.87% *				
<b>E</b> Costed products submitted to jurisdiction			<b>H</b> Costed products submitted to IHPA		<b>K</b> Final NHCDC costed products	
<i>Acute and Newborns</i>	\$ 198,927,627		<i>Acute and Newborns</i>	\$ 194,865,090	<i>Acute^ and Newborns</i>	\$ 216,787,240
<i>Non-admitted</i>	\$ 82,908,146		<i>Non-admitted</i>	\$ 49,351,417	<i>Non-admitted</i>	\$ 49,351,417
<i>Emergency</i>	\$ 75,017,209		<i>Emergency</i>	\$ 66,028,218	<i>Emergency</i>	\$ 66,028,218
<i>Sub Acute</i>	\$ 23,825,798		<i>Sub Acute</i>	\$ 21,903,730	<i>Sub Acute^</i>	\$ 22,018,285
<i>Mental Health</i>	\$ 16,310,620		<i>Mental Health</i>	\$ -	<i>Mental Health</i>	\$ -
<i>Other</i>	\$ 5,885,732		<i>Other</i>	\$ 174,615	<i>Other</i>	\$ 174,615
<i>Research</i>	\$ -		<i>Research</i>	\$ -	<i>Research</i>	\$ -
<i>Teaching &amp; Training</i>	\$ 2,746,795		<i>Teaching &amp; Training</i>	\$ -	<i>Teaching &amp; Training</i>	\$ -
<i>System-generated patients</i>	\$ 129,600,187		<i>System-generated patients</i>	\$ -	<i>System-generated patients</i>	\$ -
<b>Total</b>	<b>\$ 535,222,114</b>	99.87% *	<b>Total</b>	<b>\$ 332,323,070</b>	<b>Total</b>	<b>\$ 354,359,775</b>
<i>Variance</i>	\$ -		<i>Variance</i>	\$ 6	<i>Variance</i>	\$ -

Source: KPMG based on data supplied by Central Queensland HHS, jurisdiction and IHPA

\* As WIP from prior years expenditure relates to prior year costs, this percentage excludes the \$9.51 million from the calculation

^ These figures include admitted emergency costs.

### *Explanation of reconciliation items*

This section discusses each of the reconciliation items including adjustments, inclusions and exclusions to the financial data. The information is based on the templates submitted for Central Queensland HHS and face-to-face review discussions.

#### *Item A – General Ledger*

The final GL amount extracted by the Business and Decision Support Unit for Central Queensland HHS totalled \$526.40 million. This amount did not reconcile to the total expenditure reported in the 2015-16 financial statements of \$526.95 million. The \$548,119 variance related (0.1 percent of the 2015-16 audited expenditure) to expenditure recorded in cost centres related to Capital Works that are out of scope but included in the Annual Financial Statement.

#### *Item B – Adjustments to the GL*

Inclusions were made to the GL of approximately \$3.20 million. These inclusions related to 7 cost centres loaded into the costing system that were not including in the General ledger Reporting Hierarchy. Note this Hierarchy is due to be updated for the 17-18 fiscal year with a replacement financial management system. Exclusions were made to the GL and totalled \$3.89 million. These exclusions related to dead ended costs of \$3.56 million where were for services considered out of scope for costing including commercial entities and out of scope health care services (Nursing Home and long stay disability facility) a further \$0.33 million relate to dispensing costs mapped to one of the 7 cost centres not included in the GL Hierarchy..

These adjustments established an expenditure base for costing was \$525.71 million. This was approximately 99.87 percent of total expenditure reported in the GL (including the amounts in the seven cost centres not included in the Hierarchy report sourced for this reconciliation)

#### *Item C – Allocation of costs*

No transfers or offsets were made through the costing system for the Central Queensland HHS.

- It was observed that the total of all direct cost centres of \$425.82 million were allocated in the costing system.
- It was observed through the templates that all overheads of \$99.89 million were allocated to direct cost centres.

These amounted to \$525.71 million.

#### *Item D – Post Allocation Adjustments*

Work In Progress (WIP) from prior years totalling \$9.51 million was included post allocation for the HHS. The basis of this adjustment appears reasonable.

The total expenditure allocated to patients for Central Queensland HHS was \$535.22 million which represented approximately 99.9 percent of the GL (note this percentage calculation excludes WIP from prior years as it is not part of the current year GL).

#### *Item E - Costed products submitted to jurisdiction*

Costs submitted to the jurisdiction and reported at product level totalled \$535.22 million. Costs were allocated to all products -.

*Item F – Costed products received by the jurisdiction*

Costed products received by the jurisdiction totalled \$535.22 million. No variance was noted between Items E and F.

*Item G – Final adjustments*

Queensland Health adjusts the hospital submission. The adjustments made for Round 20 totalled \$202.90 million and related to:

- Excluded current year WIP of \$12.12 million
- Excluded costs associated with System Generated Patients of \$123.69 million related to records where no patient level data was available for costing the of the following services: Capital Works, Trust Accounts ( No Medical Costs), Teaching, Training and Research, Oral Health, Home and Community Care, Community Breast Screening, Public Health, Offender Health , Private Practice costs, Nursing Homes
- Excluded Teaching and Training costs of \$2.75 million from teaching and training cost centres- as there is no activity record to match these costs.
- Excluded unmatched cost records to the NHCDC of \$57.10 million related to:
  - Outpatient - Tier 2 records totalling \$45.92 million
  - Non-admitted emergency records totalling \$10.69 million
  - Other admitted care type records totalling \$486,537
- Excluded records with an invalid DRG record totalling \$6,675
- Excluded cost records not matched to product or care types totalling \$5.73 million
- Excluded costs associated with the NHCDC line items Exclude and Cap which are out of scope for the NHCDC totalling \$1.73 million
- To ensure that no negative cost records are reported, negative costed episodes and negative cost rows reported in the costing system of \$226,330 were adjusted (the effect of this adjustment is an inclusion to the costs submitted to IHPA).

The basis of these adjustments appears reasonable. However, the exclusion of Teaching, Training and Research may impact on the completeness of the NHCDC. It is recommended that Queensland Health continue to investigate the reasons for the unlinked and unmatched records to ensure appropriate treatment in future rounds. This is in line with Round 19 recommendations.

*Item H – Costed products submitted to IHPA*

Costs derived by the jurisdiction and reported at product level to IHPA totalled \$332.32 million. There was a minor variance of \$6 between Item G and Item H.

*Item I – Total products received by IHPA*

Costed products received by IHPA totalled \$332.32 million. No variance was noted between Item H and Item I.

*Item J – IHPA adjustments*

- *Unqualified Baby Adjustments*

Upon receipt of cost data, IHPA redistributes the unqualified baby cost to the mother separation to provide a complete delivery cost. Within IHPAs reconciliation this was not an additional cost but a movement between patients.

If there are remaining UQB separations and all mother separations have been allocated costs from a UQB separation, these remaining UQB costs are excluded from the NHCDC. For Central Queensland HHS, the UQB removals totalled \$12,285.

- *Admitted emergency*

Upon receipt of cost data, IHPA allocates the admitted emergency costs back to admitted patients for the purposes of reporting and analysis. Within IHPA's reconciliation, this amount was a duplication of admitted emergency costs and not an additional cost. This amounted to \$22.05 million for Central Queensland HHS.

*Item K – Final NHCDC Costed Outputs*

The final NHCDC costed data for Central Queensland HHS that was loaded into the National Round 20 cost data set was \$354.36 million which included the admitted emergency cost of \$22.05 million.

### **6.4.3 Activity data**

Table 39 presents patient activity data based on source and costing systems for Central Queensland HHS. This activity data is then compared to Table 40 which highlights the transfer of activity data by NHCDC product from Central Queensland HHS to Queensland Health and then through to IHPA submission and finalisation.

Table 39 – Activity data – Central Queensland Hospital and Health Service

Activity Data	# Records from Source	# Records in costing system	Variance	# Records linked to Admitted	# Records linked to Emergency	# Records linked to Non-admitted	# Records linked to Syst-Gen patient	# Records linked to Other	Total Linking Process	# Unlinked records
Inpatient	62,886	62,886	-	62,886	-	-	-	-	62,886	-
Boarder	1,700	1,700	-	1,700	-	-	-	-	1,700	-
Emergency	119,001	119,001	-	-	119,001	-	-	-	119,001	-
Outpatient	332,806	332,806	-	-	-	332,806	-	-	332,806	-
Non Admitted Mental Health	12,820	12,820	-	-	-	12,820	-	-	12,820	-
Virtual Patient	924	924	-	-	-	-	924	-	924	-
Teaching	36	36	-	-	-	-	36	-	36	-
<b>TOTAL</b>	<b>530,173</b>	<b>530,173</b>	<b>-</b>	<b>64,586</b>	<b>119,001</b>	<b>345,626</b>	<b>960</b>	<b>-</b>	<b>530,173</b>	<b>-</b>

Source: KPMG based on data supplied by the Central Queensland HHS and Queensland Health

Table 40 – Activity data submission – Central Queensland Hospital and Health Service

Product	Activity related to 2015-16 Costs	Adjustments	Activity submitted to jurisdiction	Adjustments	Activity submitted to IHPA	Activity received by IHPA	Adjustments	Total Activity submitted for Round 20 NHCDC
Acute and Newborns	60,560		60,560	(325)	60,235		-	
Non-admitted	332,806	-	332,806	(172,643)	160,163		-	
Emergency	119,001	-	119,001	(10,726)	108,275		-	
Sub Acute	2,326	-	2,326	(86)	2,240		-	
Mental Health	12,820	-	12,820	(12,820)	-		-	
Other	1,700	-	1,700	(8)	1,692		-	
Research	-	-	-	-	-		-	
Teaching and Training	36	-	36	(36)	-		-	
System-generated patients	924	-	924	(924)	-		-	
<b>Total</b>	<b>530,173</b>	<b>-</b>	<b>530,173</b>	<b>(197,568)</b>	<b>332,605</b>	<b>-</b>	<b>-</b>	<b>-</b>

Source: KPMG based on data supplied by Central Queensland HHS, Queensland Health and IHPA

The following should be noted about the transfer of activity data for Central Queensland HHS:

- There was no variance recorded between the number of records from source systems, detailed in Table 39 (530,173 records) and activity related to 2015-16 costs by NHCDC product in Table 40 (530,173 records).
- Activity associated with the expenditure adjustment for WIP made by Central Queensland HHS is already included in the 530,173 records from source.
- Adjustments made by Queensland Health related to the activity associated with the excluded costs (refer to Item G in the reconciliation). These records related to the removal of current year WIP, system-generated patients, unmatched costs records, invalid DRG records and negative cost records.
- The adjustments made by IHPA to the Acute and Newborns product group related to the UQB adjustment (2,069 records) and UQB removals (12 records) as discussed in Item J of the explanation of reconciliation items.
- Adjustments made by IHPA related to admitted emergency reallocations are for reporting and analysis purposes (as discussed in Item J of the explanation of reconciliation items) and have no impact on the reported activity.

#### **6.4.4 Feeder data**

Table 41 reflects data associated with patient feeder data for Central Queensland HHS.

Table 41 – Feeder data – Central Queensland Hospital and Health Service

Feeder Data	# Records from Source	# Records in costing system	Variance	# Records linked to Admitted	# Records linked to Emergency	# Records linked to Non-admitted	# Records linked to Syst-Gen patient	# Records linked to Other	Total Linking Process	# Unlinked records	% Linked	% to Syst-Gen patient
Allied Health Intervention Data	33,703	33,703	-	24,192	198	5,691	-	-	30,081	3,622	89.25%	0.00%
Appointment Schedule Outpatient Data	791,285	791,285	-	40,114	2,322	748,690	144	-	791,270	15	100.00%	0.02%
Blood Products Data	3,555	3,555	-	1,348	640	1,048	1	-	3,037	518	85.43%	0.03%
Community Mental Health Data	279,430	279,430	-	27,419	14,278	237,733	-	-	279,430	-	100.00%	0.00%
Delivery (Birthing) Data	713	713	-	713	-	-	-	-	713	-	100.00%	0.00%
Diagnostic Imaging Data	185,970	185,970	-	32,683	75,868	43,828	3	-	152,382	33,588	81.94%	0.00%
Emergency Presentation Data	905,006	905,006	-	-	899,878	-	-	-	899,878	5,128	99.43%	0.00%
Medical ATD(Bedday) Data	285,692	285,692	-	284,972	-	-	720	-	285,692	-	100.00%	0.25%
Nursing Acuity Data	134,170	134,170	-	134,167	-	-	3	-	134,170	-	100.00%	0.00%
Nursing ATD(Bedday)Data	523,522	523,522	-	522,545	-	-	977	-	523,522	-	100.00%	0.19%
Operating Theatre Data	131,192	131,192	-	131,164	-	15	13	-	131,192	-	100.00%	0.01%
Pathology Data	485,277	485,277	-	176,088	181,302	116,254	334	-	473,978	11,299	97.67%	0.07%
Pharmacy Data	99,193	99,193	-	49,897	3,672	35,295	-	-	88,864	10,329	89.59%	0.00%
Virtual Patient Data	2,088	2,088	-	-	-	-	2,016	72	2,088	-	100.00%	96.55%

Source: KPMG based on data supplied by the Central Queensland HHS and Queensland Health



The following should be noted about the feeder data for Central Queensland HHS:

- There are 14 feeders used from a range of hospital source systems and they appear to represent major hospital departments providing resource activity.
- The number of records linked to admitted patients, emergency, non-admitted, system-generated and other patients had a greater than 81 percent link or match to a submitted activity record. This suggests that there is robustness in the level of feeder activity reported back to episodes.
- The unlinked Allied Health, blood products, pharmacy and diagnostic imaging records occur when activity data from these source feeder systems (which do not contain point of order entry data) cannot be matched to inpatient, emergency or outpatient clinic presentation records based on time date stamp matching criteria. An unlinked feeder system record is created still containing the patients Patient Master Index details for the tests undertaken and is included in the costing process. These records are not reported in the activity submission as there is not reportable episode / presentation/Service event and would be excluded by IHPA for the building of the funding model. Therefore they are excluded from the NHCDC submission. All records are therefore linked to an episode/presentation but not all records are linked to an episode/ presentation that can be reported as activity within the definition of the IHPA activity Data Set Specifications. Full costing of each of these unlinked episodes still occurs.

#### 6.4.5 Treatment of WIP

Table 42 demonstrates models for WIP and its treatment in the Central Queensland HHS's Round 20 NHCDC submission.

*Table 42 – WIP – Central Queensland Hospital and Health Service*

Model	Description	Submitted to Round 20 NHCDC
1	Costs for patients admitted and discharged in 2015-16 only	Submitted to Round 20 of the NHCDC
2	Costs for patients admitted prior to 2015-16 and discharged in 2015-16	Submitted to Round 20 of the NHCDC. Costs are submitted for all years from admission to discharge. The legacy costing system in use for costing Central Queensland HHS is a patient centric multi fiscal year system.
3	Costs for patients admitted prior to or in 2015-16 and remain admitted at 30 June 2016	Not submitted to Round 20 of the NHCDC

*Source: KPMG, based on Central Queensland HHS templates and review discussions*

In summary, for Central Queensland HHS, costs were submitted for admitted and discharged patients in 2015-16 and WIP costs for patients admitted prior to 2013-14, but discharged in 2015-16.

#### 6.4.6 Critical care

Central Queensland HHS reported costs associated with an Adult Intensive Care Unit and Coronary Care Unit located at Rockhampton Hospital. All direct costs associated with ICU are

allocated to specific ICU cost centres. Critical care costs are captured in accordance with the applicable standard.

#### 6.4.7 Costing public and private patients

Central Queensland HHS does not adjust costing specific patients based on their financial classification, i.e. whether they are a public or a privately insured patient. Applicable costs are allocated to private patients, including a share of pathology, medical imaging, prosthesis and medical costs, in the same manner as public patients. Private patient revenue is not offset against any related expenditure.

The majority of medical officers are salaried medical officers are paid an allowance in-lieu of private practice arrangements, i.e. there is no use of private practice funds to supplement the employment costs. Furthermore there are no adjustments made to expenditures for the Right of Private Practice Models. Therefore, the full employment cost associated with medical officers is allocated to all patients, regardless of financial class.

This aligns with the principles of the AHPCS Version 3.1 and reflects the true patient level data cost incurred for public and private patients treated by the HHS.

#### 6.4.8 Treatment of specific items

A number of specific items were discussed during the consultation phase of the review to understand the manner in which they are treated in the costing process. These items are used to inform the NEP and specific funding model adjustments for particular patient cohorts. Central Queensland HHS's treatment of each of the items is summarised below.

*Table 43 – Treatment of specific items – Central Queensland Hospital and Health Service*

Item	Treatment
Research	Research costs are captured in specific, separate cost centres and allocated to a system-generated patient. For Round 20 these costs were excluded and not submitted as part of the NHCDC.
Teaching and Training	Direct teaching and training costs are allocated to a system-generated patient and excluded. Embedded teaching and training costs are not separately identified.  Teaching and Training costs are captured but not at the patient level.
Shared/Other commercial entities	Any expenditure associated with these activities is excluded by the hospital for costing purposes.

*Source: KPMG, based on IFR discussions*

#### 6.4.9 Sample patient data

IHPA selected a sample of five patients from Central Queensland HHS for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. Queensland Health provided the

patient level costs for all five patients and these reconciled to IHPA records. The results are summarised in Table 44.

*Table 44 – Sample patients – Central Queensland Hospital and Health Service*

#	Product	Jurisdiction Records	Received by IHPA	Variance
1	Acute	\$1,681.35	\$1,681.35	\$-
2	Non-Admitted	\$631.99	\$631.99	\$-
3	Non-Admitted ED	\$110.02	\$110.02	\$-
4	Maintenance	\$31,200.91	\$31,200.91	\$-
5	Acute	\$7,470.29	\$7,470.29	\$-

Source: KPMG, based on the Central Queensland HHS and IHPA data

## 6.5 Application of AHPCS Version 3.1

The following section summarises Queensland Health’s application of selected standards from Version 3.1 of the AHPCS (outlined in Appendix B) to the Round 20 NHCDC submission.

### 6.5.1 SCP 1.004 – Hospital Products in Scope

Queensland Health representatives completed templates for this review for hospitals and demonstrated through the templates and interview process that costs are reported against admitted acute, emergency care and non-admitted products.

It was noted that costs are also created for non-patient products (such as unlinked records).

### 6.5.2 SCP 2.003 – Product Costs in Scope

During the interview process, Queensland Health and HHS representatives stated that all products are costed, which includes costs assigned to products in scope for the NHCDC, unlinked activity, and costs assigned to system-generated patients. Unlinked activity and system-generated patients are not submitted to the NHCDC.

It was noted in the interview process that costs are applied using the same standards and principles to patients regardless of their financial classification.

### 6.5.3 SCP 3.001 - Matching Production and Cost

The application of this standard was demonstrated during the interview and an Excel file was produced from the various hospital costing systems outlining the derived accounts.

### 6.5.4 SCP 3A.001 - Matching Production and Cost – Overhead Cost Allocation

The jurisdiction was able to demonstrate that overhead costs were fully allocated to direct patient care areas via the pre allocation and post allocation data included in the templates.

### 6.5.5 SCP 3B.001 - Matching Production and Cost – Costing all Products

The application of this standard was demonstrated in the template and Queensland Health provided an overview of their internal reconciliation process, which demonstrated the allocation of costs to products.

#### **6.5.6 SCP 3C.001 - Matching Production and Cost – Commercial Business Entities**

Based on discussions with Queensland Health and hospital representatives during the review, commercial business entity expenditure was excluded in accordance with the standard.

#### **6.5.7 SCP 3E.001 - Matching Production and Cost – Offsets and Recoveries**

There was no offsetting of costs with revenue.

#### **6.5.8 SCP 3G.001 – Matching Production and Cost – Reconciliation to Source Data**

Based on discussions during the review, Queensland Health completes a final reconciliation of its costing system to source documentation.

#### **6.5.9 GL 2.004 - Account Code Mapping to Line Items**

Queensland Health representatives indicated that total costs were mapped to the standard specified line items; this was reflected in the hospital templates submitted.

#### **6.5.10 GL 4A.002 – Critical Care Definition**

The three HHS reviewed had dedicated ICUs in their main referral hospitals, with Central Queensland HHS having a CCU, and Townsville HHS having a CCU, General Critical Care Unit, Neonatal Intensive Care Unit and Paediatric Intensive Care Unit. The direct costs associated with ICU are allocated to discrete cost centres and those costs are only applied to patients who used the ICU. There were no examples of close observation units of High Dependency Units at any of the hospitals reviewed. Critical care costs are captured in accordance with the applicable standard.

#### **6.5.11 COST 3A.002 – Allocation of Medical Costs for Private and Public Patients**

Costs are allocated to public and private patients in the same manner. This includes costs associated with medical and nursing salaries and wages, pathology, medical imaging and prosthesis. There is no offsetting of private patient revenue against the expenditure.

The majority of medical officers are salaried medical officers are paid an allowance in-lieu of private practice arrangements, i.e. there is no use of private practice funds to supplement the employment costs. Furthermore there are no adjustments made to expenditures for the Right of Private Practice Models. Therefore, the full employment cost associated with medical officers is allocated to all patients, regardless of financial class.

#### **6.5.12 COST 5.002 - Treatment of Work-In-Progress Costs**

Discussions revealed that patients are allocated costs based on their consumption of resources for that reporting period. Where costs are incurred in prior years, these are also included in the final costed data and NHCDI submission.

### **6.6 Conclusion**

The findings of the Queensland Round 20 IFR are summarised below:

- Queensland Health has improved its NHCDI reconciliation processes since Round 19, by implementing implemented the use of the IFR templates for each HHS. The templates

demonstrate data reconciliation of cost data to source systems (including the GL and feeder systems) and are now required to be submitted with finalised cost data. This process has now been written into the Queensland Health cost data submission process.

- The financial reconciliation demonstrates the transformation of cost data from the original GL extract through to the final NHCDC submission for the respective hospitals. Exclusions from the original GL data are only those accounts in the general ledger that are identified as out of scope for the NHCDC. These costs are only excluded at jurisdictional level prior to the submission of the final cost data to IHPA. The principal of the inclusion of the full general ledger for every expense account has been in place in Queensland since the inception of patient centric costing. There were variances between the audited statements and final GL amount entered into the respective costing system, due to changes in the GL reporting hierarchy for the HHS level data not being updated when the jurisdictional team ran the annual report at HHS level (note this is a point in time issue and the hierarchy is to be updated)- however the reasons for these variances were considered to be out of scope for NHCDC.
- The basis of the adjustments appears reasonable, with the exception of:
  - The exclusion of Teaching, Training and Research may impact on the completeness of the NHCDC.
  - It is recommended that Queensland Health investigates the reasons for the unlinked and unmatched records to ensure appropriate treatment in future rounds.
- Minor variances were noted in the financial reconciliations for each Queensland HHS. The reasons for these variances have been noted within this chapter.
- Total activity data submitted by the Queensland HHSs reviewed was adjusted during then jurisdictional NHCDC data transformation process which runs over 300 data element level audits and validations of data, matches data to the reported activity submission and excludes costs out of scope for the NHCDC as outlined in the Australian Hospital Patient Costing Standards prior to the final submission of the costing data.
- The HHS's reviewed have a strong focus on cleansing activity and ensuring episodes link appropriately. The number of records linked from source to product was significant with the majority of feeders having a 100 percent link or match. This suggests that there is robustness in the level of feeder activity reported back to episodes.
- WIP was treated in accordance with the COST 5.002 of the AHPCS Version 3.1.
- The five sample patients selected for review at Mount Isa Hospital, Rockhampton Hospital and Townsville Hospital reconciled to IHPA records.

The IFR is conducted in accordance with the review methodology detailed in Section 1.3 of this report. Based on this methodology and in accordance with the limitations identified in Section 1.1, Queensland Health has suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission. Furthermore, the data flow from the jurisdiction to IHPA demonstrated no unexplained variances.

## 7. South Australia

### 7.1 Jurisdictional overview

#### 7.1.1 Management of NHCDC process

The South Australian Department of Health and Ageing (SA Health) through the Funding Models Unit is responsible for the preparation and submission of South Australia's NHCDC submission. The approach for Round 20 is consistent with the approach used for the previous year's submission, i.e. SA Health prepared and submitted the Round 20 submission in consultation with the relevant hospitals and Local Health Networks (LHNs).

SA Health has a single instance of PowerHealth Solutions, Power Performance Management 2 (PPM2), as its corporate clinical costing solution. The use of a single instance, co-ordinated by a central unit ensures that there is a consistent approach to clinical costing in SA across all hospitals.

Hospitals are responsible for recording activity data in their respective Patient Administration Systems (PAS). Hospital activity data is uploaded to a state-wide data warehouse. Quality assurance processes are conducted by the LHN and SA Health to ensure that the activity data is robust and consistent. As the activity file has multiple uses (reporting, funding and costing), the data is cleansed before submission to the state-wide database.

SA Health has a single, state-wide financial management information system with each LHN having a dedicated general ledger (GL). Individual LHNs are responsible for the financial data in their respective ledgers. The hospital financial data is extracted from the GL as part of the costing process. For LHN costing purposes, SA Health includes expenditure for a range of services that they manage, which are not allocated to the respective LHN ledgers during the financial year. These costs include ICT Services, Procurement Services and the Work Cover Levy. Costs associated with other centralised services, e.g. finance and workforce services, are allocated to the LHNs during the financial year. Overhead cost associated with the provision of pathology, imaging and pharmacy services not in the LHN GL were also included.

Prior to submitting NHCDC data to IHPA, the Funding Models Unit provides each LHN with a reconciliation of any changes in the costing submission since the last review and seeks Executive sign-off from the LHN on the current NHCDC submission. The Manager, Funding Models is responsible for the sign-off of the final data submitted to IHPA.

Product fractioned (PFRAC) data is utilised for the costing of the hospitals included in this IFR (there were over 100,000 reclassification rules for Country Health South Australia LHN (CHSALHN) and over 18,000 for Women's and Children's Health Network (WCHN) in this submission). The focus for the fractions is to allocate costs to a range of products including acute admitted, non-admitted, teaching and training.

The Women's and Children's Hospital and the Mount Gambier Hospital were nominated to participate in the IFR for Round 20. These hospitals are each within a separate LHN, the WCHN and the CHSALHN respectively.

### *Key initiatives since Round 19 NHCDC*

The SA Health Funding Models team indicated there were no new initiatives implemented since the Round 19 NHCDC submission.

## **7.2 Women's and Children's Hospital**

### **7.2.1 Overview**

The Women's and Children's Hospital is part of the WCHN and is one of five health networks in South Australia. The WCHN oversees 8 different health services and hospitals including the Women's and Children's Hospital.

The Women's and Children's Hospital is the major provider of tertiary healthcare services for women and children and their families. The Women's and Children's Hospital is a leading provider of specialist care for children with acute and chronic conditions in South Australia, as well as the State's largest maternity and obstetric service.<sup>12</sup> Services provided by the Women's and Children's Hospital include:

- Children's Wards;
- Women's Wards;
- Women's Patient Care Units;
- Support Services;
- Child and Adolescent Mental Health;
- Aboriginal Health; and
- Pregnancy services

In 2015-16, the WCHN employed approximately 3,500 people (2,600 FTE equivalent), 3,000 of which were employed at the Women's and Children's Hospital in a variety of roles.<sup>13</sup> In 2013-14, the hospital provided care for over 301,000 outpatient appointments to women and children while about 44,700 children presented to the Hospital's Paediatric Emergency Department and 4,900 babies were born at the hospital.<sup>14</sup>

### *Overview of the costing process*

The Women's and Children's Hospital costing representative indicated that all data related to the costing process is centrally processed by SA Health and the hospital costing team work closely with the SA Health Funding Models group throughout the year. Data is sent out quarterly to business units indicating the costs and revenues for Inpatient, Outpatients and Emergency Department together with pivot tables to allow for further drill down. This data is then used for Health Round Table statistics and Transforming Health.

Historically, only inpatients have been reported on internally, however the costing team have been advocating for outpatient data analysis and are receiving more clinical buy-in. This has

---

<sup>12</sup> <http://www.wch.sa.gov.au/services/az/index.html>. Accessed 22 June 2017

<sup>13</sup> [http://www.wch.sa.gov.au/about/documents/WCHN\\_Annual\\_Report\\_2015-2016.pdf](http://www.wch.sa.gov.au/about/documents/WCHN_Annual_Report_2015-2016.pdf). Accessed 22 June 2017

<sup>14</sup> <http://www.wch.sa.gov.au/about/>. Accessed 22 June 2017

allowed for informed decisions in adjusting PFRACS, both in targeted reviews, and for the full PFRACS review commencing in 2016-17.

Internal sign-off of the bi-monthly costing data and overall submissions is undertaken by the LHN Director of Finance.

### **7.2.2 Financial data**

For the Round 20 IFR, the data collection templates were completed and submitted by SA Health's Finance and Corporate Services (Funding Models) unit on behalf of the Women's and Children's Hospital. Representatives from the Funding Models Unit attended and participated in the consultation process during the review, as well as staff from the Women's and Children's Hospital. The costing process at the Women's and Children's Hospital is consistent with the approach across the other LHNs in SA Health.

Table 10 reflects a summary of the Women's and Children's Hospital's costs, from the original extract from the GL through to the final NHCDC submission for Round 20. This table presents the financial reconciliation of expenditure for Round 20 for the Women's and Children's Hospital and the transformation of this expenditure by the jurisdiction and IHPA for NHCDC submission. There are 11 items of reconciliation in the table. These items are labelled A to K. Items A to E relate to the expenditure submitted by the hospital/LHN, Items F to H relate to the costs submitted by the jurisdiction and Items I to K relate to the transformation of costs by IHPA. The following section in the report explains each item in more detail.



Table 45 – Round 20 NHCDC Reconciliation – Women’s and Children’s Hospital

Hospital			Jurisdiction		IHPA	
Item	Amount	% of GL	Item	Amount	Item	Amount
<b>A</b> General Ledger (GL)	\$ 341,922,399		<b>F</b> Costed Products received by jurisdiction	\$ 312,136,505	<b>I</b> Total costed products received by IHPA	\$ 299,345,221
			<i>Variance</i>	\$ -	<i>Variance</i>	\$ 52
<b>B</b> Adjustments to the GL			<b>G</b> Final Adjustments		<b>J</b> IHPA Adjustments	
Inclusions	\$ 20,117,835		Prior year WIP - 2014-15	\$ 7,707,558	Admitted ED reallocations	\$ 11,145,642
Exclusions	\$ (13,704,739)		Current year WIP - not fully costed	\$ (232,364)	<b>Final NHCDC costs</b>	<b>\$ 310,490,863</b>
<b>Total hospital expenditure</b>	<b>\$ 348,335,495</b>	101.87%	Current year WIP	\$ (8,567,279)		
			Aggregate/Non-patient level data	\$ (3,281,117)		
<b>C</b> Allocation of Costs			Records unmatched to ABF ED	\$ (263)		
Post Allocation Direct amount	\$ 255,833,159		Women’s Assessment Unit	\$ (8,417,870)		
Post Allocation Overhead amount	\$ 92,502,312		<b>Total costs submitted to IHPA</b>	<b>\$ 299,345,169</b>		
<b>Total hospital expenditure</b>	<b>\$ 348,335,471</b>	101.88%				
<i>Variance</i>	\$ (24)	0.00%				
<b>D</b> Post Allocation Adjustments						
Costs Shared with Activity Across Hosp	\$ 17,670					
Z areas - out of scope activity	\$ (15,408,088)					
Research	\$ (3,500,334)					
Teaching	\$ (12,991,372)					
Dummy/Non Casemix	\$ (4,316,816)					
<b>Total expenditure allocated to patients</b>	<b>\$ 312,136,531</b>	91.29%				
<b>E</b> Costed products submitted to jurisdiction			<b>H</b> Costed products submitted to IHPA		<b>K</b> Final NHCDC costed products	
Acute and Newborns	\$ 210,298,499		Acute and Newborns	\$ 209,522,430	Acute^ and Newborns	\$ 220,662,873
Non-admitted	\$ 64,929,646		Non-admitted	\$ 61,648,529	Non-admitted	\$ 61,648,575
Emergency	\$ 35,231,905		Emergency	\$ 26,795,902	Emergency	\$ 26,795,902
Sub Acute	\$ 1,676,454		Sub Acute	\$ 1,378,309	Sub Acute^	\$ 1,383,513
Mental Health	\$ -		Mental Health	\$ -	Mental Health	\$ -
Other	\$ -		Other	\$ -	Other	\$ -
Research	\$ -		Research	\$ -	Research	\$ -
Teaching & Training	\$ -		Teaching & Training	\$ -	Teaching & Training	\$ -
System-generated patients	\$ -		System-generated patients	\$ -	System-generated patients	\$ -
	<b>\$ 312,136,505</b>	91.29%		<b>\$ 299,345,169</b>		<b>\$ 310,490,863</b>
<i>Variance</i>	\$ (27)		<i>Variance</i>	\$ -	<i>Variance</i>	\$ -

Source: KPMG based on data supplied by the Women’s and Children’s Hospital, jurisdiction and IHPA

^ These figures include admitted emergency costs.

### *Explanation of reconciliation items*

This section discusses each of the reconciliation items including adjustments, inclusions and exclusions to the financial data. The information is based on the templates submitted for the Women's and Children's Hospital and face-to-face review discussions.

#### *Item A – General Ledger*

The final GL amount extracted by SA Health from the general ledger totalled \$439.08 million. This amount reflected the total expenditure for the WCHN, which includes the Women's and Children's Hospital, however the total for the WCHN did not reconcile to the total expenditure reported in the 2015-16 financial statements. There was a minor variance of \$25,986 due to revenue reclassified as expenditure for reporting purposes in the audited financial statements (asset disposal) and rounding.

This amount was split in the template to identify the costs specifically related to the Women's and Children's Hospital. The final GL amount that related to the Women's and Children's Hospital was \$341.92 million.

#### *Item B – Adjustments to the GL*

A number of inclusions and exclusions were made to the GL data with a net impact (inclusion) of approximately \$6.41 million.

Inclusions made to the GL were approximately \$20.12 million, the significant portion of which were determined by SA Health and related to a range of centrally managed, state-wide services. The items are summarised below:

- Services paid by Central Adelaide LHN (CALHN) related to the WCHN - \$20.97 million, related to both SA Medical Imaging and SA Pharmacy costs which were recorded in CALHN cost centres.
- Bad and Doubtful Debts - \$17,723
- SA Medical Imaging Overhead Charges - \$539,262
- SA Medical Imaging Depreciation Charges - \$2.10 million
- SA Health Procurement Services - \$2.27 million
- Centralised ICT Services - \$3.26 million
- Work Cover Levy - \$420,372
- SA Pathology Overhead Charges - \$3.74 million
- SA Pharmacy Overhead Charges - \$147,187
- Recharges added back – a negative adjustment of (\$13.35 million)

Exclusions made to the GL totalled approximately \$13.70 million, the majority of which are related to overheads transferred to other areas in the WCHN and other areas such as Community Health Services. The exclusions included:

- Allocation of WCHN Corporate costs to and from Women's and Children's Hospital - \$13.49 million including:
  - Child and Adolescent Mental Health Service - \$3.56 million

- Child and Youth Services - \$11.66 million
- Torrens House program (part of the Child and Family Health Service) - \$265,055
- Women's Health State-wide service - \$372,471
- Yarrow Program (Rape and Sexual Assault Service) - \$375,767
- Other overhead costs allocated to WCHN areas (this is an offset item to other exclusions above, and hence entered as a negative) – (\$2.75 million)
- Capital Assets Disposed- \$215,430

The basis of these adjustments appears reasonable, with the exception of expenditure related to capital assets disposed. This expenditure should be included in accordance with the AHPCS Version 3.1.

Blood products are not costed in SA hospitals as the expenditure is held in SA Health cost centres and not allocated to hospitals. The exclusion of this expenditure may impact on the completeness of the NHCDC.

In addition, the AHPCS is silent on the specific inclusion or exclusion of bad and doubtful debts. Bad and doubtful debts expenditure relates to the provision for debts that are unrecoverable from patients/clients. It does not have an impact on the cost of patient services provided by the hospital.

The impact of these adjustments established an expenditure base for costing purposes of \$348.34 million. This was approximately 101.9 percent of total expenditure reported in the GL.

#### *Item C – Allocation of costs*

The Women's and Children's Hospital undertakes a process of reclass/transfers between cost centres. The WCHN has up to 19,000 reclass rules entered into PPM2, primarily related to reclass rules associated with product fractions. Product fractions are used extensively to allocate costs for a range of products including acute admitted, non-admitted, teaching and training etc.

- It was observed that the total of all direct cost centres of \$255.83 million was allocated.
- It was observed that overheads of \$92.50 million were allocated to direct cost centres.

These amounted to \$348.34 million and reflected the total for the Women's and Children's Hospital. A minor variance of \$24 was identified between Item B and Item C. This variance was not considered material.

#### *Item D – Post Allocation Adjustments*

A number of exclusions were made post allocation and included:

- Teaching – \$12.99 million
- Research - \$3.50 million
- System-generated patients/Non Casemix - \$4.32 million, this is predominantly made up of pathology costs that were unable to be matched.
- 'Z' Encounters - \$15.41 million are related to out of scope encounters, including:
  - Community Child Protection - \$4.53 million
  - Non-patient products - \$3.59 million

- Adolescent Day Service - \$1.91 million
- Aboriginal Services - \$1.03 million
- Cystic State-wide service - \$892,677
- Regional Referral Unit - \$671,634
- Home Parenteral Nutrition - \$653,217
- Other State-wide programs totalling - \$2.13 million
- Costs shared with activity across hospitals and removal of non-patient costing related items - \$17,670

The basis of these adjustments appears reasonable. However, the exclusion of Teaching, Training and Research may impact on the completeness of the NHCDC.

The total expenditure allocated to patients for the Women's and Children's Hospital was \$312.14 million, which represented approximately 91.3 percent of the GL.

*Item E - Costed products submitted to jurisdiction*

Costs submitted to the jurisdiction and reported at product level totalled \$312.14 million. Costs were allocated to all products with the exception of, Other, Research, Teaching and Training and System-generated patients. Mental Health costs are included in the other costed products. A minor variance of \$27 was identified between Item D and Item E. This variance was considered to be immaterial.

*Item F – Costed products received by the jurisdiction*

Costs by product received by the jurisdiction was \$312.14 million. No variance was noted between Items E and F.

*Item G – Final adjustments*

SA Health made a number of adjustments to the final data submitted by the hospital. The adjustments made for Round 20 totalled \$12.79 million and included:

- Included costs of \$7.71 million related to WIP records for patients admitted prior to 2015-16 but discharged in 2015-16
- Excluded costs of \$232,364 for patients admitted prior to 2015-16 that are not fully costed or matched
- Excluded costs of \$8.57 million related to WIP records for patients still admitted in 2015-16
- Excluded costs of \$3.28 million relating to Non-admitted patient data not maintained at patient level
- Excluded \$263 in unmatched emergency department data
- Excluded costs of \$8.42 million from the Women's Assessment Unit which is out of scope

The basis of these adjustments appears reasonable. The total NHCDC costs submitted to IHPA by SA Health was \$299.35 million.

*Item H – Costed products submitted to IHPA*

Costs derived by the jurisdiction and reported at product level to IHPA totalled \$299.35 million.

*Item I – Total products received by IHPA*

Costed products received by IHPA totalled \$299.35 million. A minor variance of \$52 was noted between Item H and Item I.

*Item J – IHPA adjustments*

Upon receipt of cost data, IHPA allocates the admitted emergency costs back to admitted patients for the purposes of reporting and analysis. Within IHPA's reconciliation, this amount was a duplication of admitted emergency costs and not an additional cost. This amounted to \$11.15 million for Women's and Children's Hospital.

*Item K – Final NHCDC Costed Outputs*

The final NHCDC costed data for Women's and Children's Hospital that was loaded into the National Round 20 cost data set was \$310.49 million which included the admitted emergency cost of \$11.15 million.

### **7.2.3 Activity data**

Table 11 presents patient activity data based on source and costing systems for the Women's and Children's Hospital. This activity data is then compared to Table 12 which highlights the transfer of activity data by NHCDC product from the Women's and Children's Hospital to SA Health and then through to IHPA submission and finalisation.

Table 46 – Activity data – Women’s and Children’s Hospital

Activity Data	# Records from Source	# Records in costing system	Variance	# Records linked to Admitted	# Records linked to Emergency	# Records linked to Non-admitted	# Records linked to Other	Total Linking Process	# Unlinked records
Inpatient	31,610	31,610	-	31,610	-	-	-	31,610	-
Emergency	61,747	61,747	-	-	61,747	-	-	61,747	-
Outpatients	198,798	198,798	-	-	-	198,798	-	198,798	-
Outpatient manual	127	12,808	12,681	-	-	12,808	-	12,808	-
<b>TOTAL</b>	<b>292,282</b>	<b>304,963</b>	<b>12,681</b>	<b>31,610</b>	<b>61,747</b>	<b>211,606</b>	<b>-</b>	<b>304,963</b>	<b>-</b>

Source: KPMG based on data supplied by the Women’s and Children’s Hospital and SA Health

A variance of 12,681 records was noted between the records from source and the records from the costing system for Outpatient manual. The 127 Outpatient manual source records are at an aggregate level by clinic, per month. For costing purposes these records are split by the number of service events, which for the Women’s and Children’s Hospital totalled 12,808 costed records.

Table 47 – Activity data submission – Women’s and Children’s Hospital

Product	Activity related to 2015-16 Costs	Adjustments	Activity submitted to jurisdiction	Adjustments	Activity submitted to IHPA	Activity received by IHPA	Adjustments	Total Activity submitted for Round 20 NHCDC
Acute and Newborns	31,583	-	31,583	(186)	31,397	31,397	-	31,397
Non-admitted	211,606	-	211,606	(12,808)	198,798	198,798	-	198,798
Emergency	61,769	-	61,769	(15,791)	45,978	45,978	-	45,978
Sub Acute	27	-	27	(3)	24	24	-	24
Mental Health	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-
Research	-	-	-	-	-	-	-	-
Teaching and Training	-	-	-	-	-	-	-	-
<b>Total</b>	<b>304,985</b>	<b>-</b>	<b>304,985</b>	<b>(28,788)</b>	<b>276,197</b>	<b>276,197</b>	<b>-</b>	<b>276,197</b>

Source: KPMG based on data supplied by the Women’s and Children’s Hospital, SA Health and IHPA

The following should be noted about the transfer of activity data for the Women's and Children's Hospital:

- There was a variance between the number of records in the costing system for the Women's and Children's Hospital, detailed in Table 2 (304,963 records) and activity related to 2015-16 costs by NHCDC product for the Women's and Children's Hospital in Table 3 (304,985 records) of 22 records. This variance related to records where the ED presentation was prior to 30/06/2015 and discharged was after 01/07/2015. These records were removed.
- The Women's and Children's Hospital made no further adjustments to activity.
- Adjustments made by SA Health related to the activity associated with the excluded costs (refer to Item G above). These records related to excluded WIP activity, activity with no patient level data available and out of scope activity (Women's assessment unit).
- Adjustments made by IHPA related to admitted emergency reallocations are for reporting and analysis purposes (as discussed in Item J of the explanation of reconciliation items) and have no impact on the reported activity.

#### **7.2.4 Feeder data**

Table 48 reflects data associated with patient feeder data for the Women's and Children's Hospital.

Table 48 – Feeder data – Women’s and Children’s Hospital

Feeder Data	# Records from Source	# Records in costing system	Variance	# Records linked to Admitted	# Records linked to Emergency	# Records linked to Non-admitted	# Records linked to Syst-Gen patient	# Records linked to Other	Total Linking Process	# Unlinked records	% Linked	% to Syst-Gen patient
SAH Coding Diagnosis IP	101,023	101,023	-	101,023	-	-	-	-	101,023	-	100.00%	0.00%
SAH Coding Procedure IP	77,736	77,736	-	77,736	-	-	-	-	77,736	-	100.00%	0.00%
SAH Coding Diagnosis ED	61,745	61,745	-	-	61,745	-	-	-	61,745	-	100.00%	0.00%
SAH ED Medical	43,907	43,907	-	-	43,907	-	-	-	43,907	-	100.00%	0.00%
SAH ED Nursing	61,747	61,747	-	-	61,747	-	-	-	61,747	-	100.00%	0.00%
SAH Pharmacy	58,553	58,553	-	28,587	7,695	18,538	3,733	-	58,553	-	100.00%	6.38%
SAH Pharmacy S100	3	3	-	1	-	2	-	-	3	-	100.00%	0.00%
SAH Service Outpatient Manual	127	127	-	-	-	127	-	-	127	-	100.00%	0.00%
SAH Theatre Anaesthesia	13,955	13,955	-	13,952	-	1	-	-	13,953	2	99.99%	0.00%
SAH Theatre Nursing	10,517	10,517	-	10,515	-	-	-	-	10,515	2	99.98%	0.00%
SAH Theatre Recovery	13,401	13,401	-	13,399	-	1	-	-	13,400	1	99.99%	0.00%
SAH Theatre Surgeons	13,968	13,968	-	13,965	-	1	-	-	13,966	2	99.99%	0.00%
SAH Transfers	92,502	81,403	11,099	81,403	-	-	-	-	81,403	-	100.00%	0.00%
WCHN Pathology	266,949	266,529	420	107,244	79,700	68,544	11,041	-	266,529	-	100.00%	4.14%
WCHN Child Protection Consults	112	112	-	111	-	-	1	-	112	-	100.00%	0.89%
WCHN ED Mental Health	31	31	-	-	31	-	-	-	31	-	100.00%	0.00%
WCHN Allied Health	31,269	31,214	55	30,446	-	-	-	-	30,446	768	97.54%	0.00%
WCHN External Services	1	1	-	1	-	-	-	-	1	-	100.00%	0.00%
WCHN Imaging	50,388	50,388	-	15,863	14,371	16,764	3,390	-	50,388	-	100.00%	6.73%
WCHN ED Patient Minding	50	47	3	-	43	-	4	-	47	-	100.00%	8.51%
WCHN Spinal Implants	55	55	-	53	-	-	2	-	55	-	100.00%	3.64%



Feeder Data	# Records from Source	# Records in costing system	Variance	# Records linked to Admitted	# Records linked to Emergency	# Records linked to Non-admitted	# Records linked to Syst-Gen patient	# Records linked to Other	Total Linking Process	# Unlinked records	% Linked	% to Syst-Gen patient
WCHN Nursing Specials	9,888	8,829	1,059	8,666	-	-	-	-	8,666	163	98.15%	0.00%
WCHN Psych Med	922	922	-	843	-	-	-	-	843	79	91.43%	0.00%
WCHN Inpatient Patient Minding	89	87	2	81	-	-	6	-	87	-	100.00%	6.90%
WCHN Translation	10,537	10,537	-	2,239	305	7,128	865	-	10,537	-	100.00%	8.21%

Source: KPMG based on data supplied by the Women's and Children's Hospital and SA Health

The following should be noted about the feeder data in Table 48 for the Women's and Children's Hospital:

- There are 25 feeders used from a range of SA Health databases and hospital source systems and they appear to represent the major hospital departments providing resource activity.
- Source data is used as much as possible particularly from central databases, which are maintained by SA Health to ensure consistency e.g. Pharmacy, Emergency, Inpatients and Pathology. If data is unavailable from a central system then the LHN sources the feeder information e.g. external imaging providers etc.
- For all of the 25 feeders, the number of records linked to admitted patients, emergency, non-admitted or other patients had a greater than 99 percent link or match. This suggests that there is robustness in the level of feeder activity reported back to episodes.
- The Allied Health, Nursing Specials and Psych Med feeders had less than a 100 percent matching percentage this was due to the implementation of new standalone sub-systems which has led to a number of errors including incorrect patient identification numbers, service dates etc.
- System-generated encounters for Pharmacy (3,733), Translation Services (865), Imaging (3,390) and Pathology (11,041) are created and linked to System Generated records. Variances in the pathology feeder data were primarily related to dates outside the matching date parameters used and blank patient identification numbers.

## 7.2.5 Treatment of WIP

Table 14 demonstrates models for WIP and its treatment in the Women's and Children's Hospital's Round 20 NHCDC submission.

*Table 49 – WIP – Women's and Children's Hospital*

Model	Description	Submitted to Round 20 NHCDC
1	Cost for patients admitted and discharged in 2015-16 only	Submitted to Round 20 of the NHCDC
2	Costs for patients admitted prior to 2015-16 and discharged in 2015-16	Submitted to Round 20 of the NHCDC. Costs are submitted for 2014-15.
3	Costs for patients admitted prior to or in 2015-16 and remain admitted at 30 June 2016	Not submitted to Round 20 of the NHCDC

*Source: KPMG, based on the Women's and Children's Hospital templates and review discussions*

In summary, Women's and Children's Hospital submitted costs for admitted and discharged patients in 2015-16 and WIP costs for those patients admitted in 2014-15, but discharged, in 2015-16.

## 7.2.6 Critical care

There are two dedicated critical care units at the Women's and Children's Hospital, a Neonatal Intensive Care Unit (NICU) and a Paediatric Intensive Care Unit (PICU). The costs associated with these areas are captured in dedicated cost centres. The total GL amount for the two areas of \$22.21 million is adjusted for the costs associated with pathology and pharmacy costs. The costs associated with pathology and pharmacy are consolidated and then reallocated using the appropriate feeder system. After the post allocations, the total for the NICU is \$14.61 million and \$11.85 million for the PICU. All costs including medical expenses are captured in these cost centres. Critical care costs are captured in accordance with the applicable standard.

## 7.2.7 Costing public and private patients

The Women's and Children's Hospital does not make specific adjustments to the costing methodology, based on the financial classification of the patient. Applicable costs are allocated to private patients, including medical imaging and prosthesis, in the same manner as public patients. Pathology costs are only allocated to public patients as the Women's and Children's Hospital is not billed for private patient activity. Private patient revenue is not offset against any related expenditure.

Where medical consultants at the Women's and Children's Hospital use private patient generated revenue to supplement their employment costs, the portion of the salary generated through private patient revenue is not allocated to patients, public or private.

## 7.2.8 Treatment of specific items

A number of specific items were discussed during the consultation phase of the review to understand the manner in which they are treated in the costing process. These items are used to inform the NEP and specific funding model adjustments for particular patient cohorts. The Hospital's treatment of each of the items is summarised below.

*Table 50 – Treatment of specific items – Women’s and Children’s Hospital*

Item	Treatment
Research	Costs are allocated to Research using PFRACs however; these costs are excluded prior to submission of the NHCDC to IHPA.
Teaching and Training	Costs are allocated to Teaching and Training using PFRACs however, these costs are excluded prior to submission of the NHCDC to IHPA.
Shared/Other commercial entities	Any expenditure associated with these activities is excluded by the hospital for costing purposes.

Source: KPMG, based on IFR discussions

## 7.2.9 Sample patient data

IHPA selected a sample of five patients from the Women’s and Children’s Hospital for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. SA Health provided the patient level costs for all five patients and these reconciled to IHPA records (with the exception of a minor \$0.01 variance for one record). The results are summarised in Table 16.

*Table 51 – Sample patients – Women’s and Children’s Hospital*

#	Product	Jurisdiction Records	Received by IHPA	Variance
1	Acute	\$7,841.35	\$7,841.35	\$-
2	Non-Admitted	\$469.25	\$469.26	\$(0.01)
3	Admitted ED	\$1,074.97	\$1,074.97	\$-
4	Rehab	\$3,522.71	\$3,522.71	\$-
5	Acute	\$854.64	\$854.64	\$-

Source: KPMG, based on the Women’s and Children’s Hospital and IHPA data

## 7.3 Mount Gambier and Districts Health Service

### 7.3.1 Overview

The Mount Gambier and Districts Health Service (Mount Gambier Hospital) is a major regional health provider for the Lower, Mid and Upper South-East region of South Australia. Hospital services are also provided to patients from across the border in Western Victoria<sup>15</sup>. The Service is part of Country Health SA Local Health Network (CHSALHN). The CHSALHN oversees the rural public health system in South Australia it provides acute health services to over 100,000 people and a further 175,000 people annually at country emergency departments. The network incorporates 64 hospitals and approximately 220 health services sites, and employs over 8,000 people<sup>16</sup>.

The Mount Gambier Hospital provides acute services ranging from in-hospital care by local general practitioners to specialist surgical, obstetric, paediatric and anaesthetic services delivered by medical consultants. Service units at Mount Gambier and Districts Health Service include:

- Domiciliary care unit;
- Emergency department;
- Maintenance renal dialysis unit;
- Obstetric services;
- Oncology unit;
- Paediatric service; and
- Rehabilitation unit.<sup>17</sup>

The Service has 78 public beds, a 20 bed private hospital, as well as a 24-hour accident and emergency service and employs approximately 400 staff in a variety of roles.<sup>18</sup>

#### *Overview of the costing process*

The CHSALHN costing team feeds local feeder data into the central data warehouse and the SA Health funding models team retrieves activity information for Inpatients, Outpatients and Emergency Department, which is then reviewed by CHSALHN.

---

<sup>15</sup> <http://www.sahealth.sa.gov.au/wps/wcm/connect/public+content>. Accessed 22 June 2017

<sup>16</sup>

<http://www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/about+us/our+local+health+networks/country+health+sa+local+health+network/about+us/about+country+health+sa>. Accessed 22 June 2017

<sup>17</sup> <https://www.myhospitals.gov.au/hospital/41SE00163/mount-gambier-and-districts-health-service>. Accessed 22 June 2017

<sup>18</sup> <http://www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/health+services/hospitals+and+health+services/+country+south+australia/limestone+coast+hospitals+and+health+services/mount+gambier+and+districts+health+service/work+with+mount+gambier+and+districts+health+service>. Accessed 22 June 2017

The number of feeder sub-systems are not as extensive as the metropolitan sites. For example there is no theatre sub-system, however feeder files exist for Pathology, Pharmacy and Imaging. In regards to Imaging, CHSALHN has Quality Assurance (QA) processes in place for feeder data. This includes reviews of data provided from outsourced imaging service providers prior to submission to SA Health.

A recent product fractions (PFRAC) study for the 2015-16 data was undertaken which resulted in revised PFRACs. CHSALHN have recently commenced producing reports and outputs to compare its six ABF hospitals showing relative efficiencies at various levels e.g. Service Related Groups, which has helped improve the buy-in from regional directors into the costing process.

The costing team will provide advice to the CHSALHN via the CHSALHN Chief Financial Officer prior to final approval to the SA Health funding models team. The use of costing data is becoming more prevalent across CHSALHN, with an intranet portal that allows for ad-hoc costing queries, access to data for business cases and testing of relative efficiencies across the six ABF hospitals.

### **7.3.2 Financial data**

For the Round 20 IFR, the data collection templates were completed and submitted by SA Health's Finance and Corporate Services (Funding Models) unit on behalf of Mount Gambier Hospital. Representatives from the Funding Models Unit attended and participated in the consultation process during the review, as well as staff from CHSALHN. The costing process at the Mount Gambier Hospital is consistent with the approach at the Women's and Children's Hospital and across the other LHNs in SA Health.

Table 52 reflects a summary of Mount Gambier Hospital's costs, from the original extract from the GL through to the final NHCDC submission for Round 20. This table presents the financial reconciliation of expenditure for Round 20 for Mount Gambier Hospital and the transformation of this expenditure by the jurisdiction and IHPA for NHCDC submission. There are 11 items of reconciliation in the table. These items are labelled A to K. Items A to E relate to the expenditure submitted by the hospital/LHN, Items F to H relate to the costs submitted by the jurisdiction and Items I to K relate to the transformation of costs by IHPA. The following section in the report explains each item in more detail.

Table 52 – Round 20 NHCDC Reconciliation – Mount Gambier Hospital

Hospital			Jurisdiction			IHPA		
Item	Amount	% of GL	Item	Amount		Item	Amount	
<b>A</b> General Ledger (GL)	\$ 62,980,323		<b>F</b> Costed Products received by jurisdiction	\$ 69,358,320		<b>I</b> Total costed products received by IHPA	\$ 68,920,334	
			<i>Variance</i>	\$ -		<i>Variance</i>	\$ -	
<b>B</b> Adjustments to the GL			<b>G</b> Final Adjustments			<b>J</b> IHPA Adjustments		
<i>Inclusions</i>	\$ 7,130,308		<i>Prior year WIP - 2014-15</i>	\$ 657,929		<i>Admitted ED reallocations</i>	\$ 4,129,413	
<i>Exclusions</i>	\$ (155,381)		<i>Current year WIP - not fully costed</i>	\$ (54,391)		<b>Final NHCDC costs</b>	<b>\$ 73,049,747</b>	
<b>Total hospital expenditure</b>	<b>\$ 69,955,250</b>	111.07%	<i>Current year WIP</i>	\$ (1,041,524)				
<b>C</b> Allocation of Costs			<b>Total costs submitted to IHPA</b>	<b>\$ 68,920,333</b>				
<i>Post Allocation Direct amount</i>	\$ 49,306,706							
<i>Post Allocation Overhead amount</i>	\$ 20,648,550							
<b>Total hospital expenditure</b>	<b>\$ 69,955,256</b>	111.07%						
<i>Variance</i>	\$ 6	0.00%						
<b>D</b> Post Allocation Adjustments								
<i>Costs Shared with Activity Across Hosp</i>	\$ 43,438							
<i>Z Areas - out of scope</i>	\$ 6,077							
<i>Teaching</i>	\$ (104,209)							
<i>System-generated/Non-casemix</i>	\$ (542,241)							
<b>Total expenditure allocated to patients</b>	<b>\$ 69,358,320</b>	110.13%						
<b>E</b> Costed products submitted to jurisdiction			<b>H</b> Costed products submitted to IHPA			<b>K</b> Final NHCDC costed products		
<i>Acute and Newborns</i>	\$ 46,564,459		<i>Acute and Newborns</i>	\$ 46,292,829		<i>Acute^ and Newborns</i>	\$ 50,391,824	
<i>Non-admitted</i>	\$ 7,484,479		<i>Non-admitted</i>	\$ 7,484,479		<i>Non-admitted</i>	\$ 7,484,479	
<i>Emergency</i>	\$ 12,230,451		<i>Emergency</i>	\$ 12,225,010		<i>Emergency</i>	\$ 12,225,010	
<i>Sub Acute</i>	\$ 3,078,931		<i>Sub Acute</i>	\$ 2,918,017		<i>Sub Acute^</i>	\$ 2,948,435	
<i>Mental Health</i>	\$ -		<i>Mental Health</i>	\$ -		<i>Mental Health</i>	\$ -	
<i>Other</i>	\$ -		<i>Other</i>	\$ -		<i>Other</i>	\$ -	
<i>Research</i>	\$ -		<i>Research</i>	\$ -		<i>Research</i>	\$ -	
<i>Teaching &amp; Training</i>	\$ -		<i>Teaching &amp; Training</i>	\$ -		<i>Teaching &amp; Training</i>	\$ -	
<i>System-generated patients</i>	\$ -		<i>System-generated patients</i>	\$ -		<i>System-generated patients</i>	\$ -	
	<b>\$ 69,358,320</b>	110.13%		<b>\$ 68,920,334</b>			<b>\$ 73,049,748</b>	
<i>Variance</i>	\$ -		<i>Variance</i>	\$ 1		<i>Variance</i>	\$ 1	

Source: KPMG based on data supplied by Mount Gambier Hospital, jurisdiction and IHPA

^ These figures include admitted emergency costs.

### *Explanation of reconciliation items*

This section discusses each of the reconciliation items including adjustments, inclusions and exclusions to the financial data. The information is based on the templates submitted for Mount Gambier Hospital and face-to-face review discussions.

#### *Item A – General Ledger*

The final GL amount extracted by SA Health from the general ledger totalled \$857.52 million. This amount reflected the total expenditure for CHSALHN, which includes the Mount Gambier Hospital, however the total for CHSALHN did not reconcile to the total expenditure reported in the 2015-16 financial statements, there was a minor variance of \$267 due to rounding.

This amount was split in the template to identify the costs specifically related to the Mount Gambier Hospital. The final amount that related to the Mount Gambier Hospital was \$62.98 million.

#### *Item B – Adjustments to the GL*

A number of inclusions and exclusions were made to the GL data with a net impact (inclusion) of approximately \$6.97 million.

Inclusions made to the GL were approximately \$7.13 million, the significant portion of which were determined by SA Health and related to a range of centrally managed, state-wide services. The items are summarised below:

- Services paid by Central Adelaide LHN (CALHN) relating to Mount Gambier Hospital - \$3.34 million, relating to both SA Medical Imaging and SA Pharmacy costs which were recorded in CALHN cost centres.
- SA Health Procurement Services - \$645,179
- Centralised ICT Services - \$321,103
- Work Cover Levy - \$54,884
- SA Pathology Overhead Charges - \$612,786
- SA Pharmacy Overhead Charges – \$32,149
- Overhead Allocation - \$3.33 million
- Recharges added back – a negative adjustment of (\$1.21 million).

Exclusions made to the GL totalled approximately \$155,381, the majority of which are related to corporate costs defined as out of scope for patient costing by the AHPCS. The exclusions included:

- Bad and Doubtful Debts - \$61,089
- Costs excluded from the overhead allocation from Mount Gambier Hospital to other hospitals within CHSALHN - \$94,292

The basis of these adjustments appears reasonable. However, Blood products are not costed in SA hospitals as the expenditure is held in SA Health cost centres and not allocated to hospitals. The exclusion of this expenditure may impact on the completeness of the NHCD.

In addition, the AHPCS is silent on the specific inclusion or exclusion of bad and doubtful debts. Bad and doubtful debts expenditure relates to the provision for debts that are unrecoverable from patients/clients. It does not have an impact on the cost of patient services provided by the hospital.

The impact of these adjustments established an expenditure base for costing purposes of \$69.96 million. This was approximately 111.1 percent of total expenditure reported in the GL.

#### *Item C – Allocation of costs*

The Mount Gambier Hospital undertakes a process of reclass/transfers between cost centres. The CHSALHN has over 108,000 reclass rules entered into PPM2, primarily related to rules for product fractions. Approximately 4,000 rules related to Mount Gambier Hospital. PFRACs are used extensively to allocate costs for a range of products including acute admitted, non-admitted, teaching and training etc.

- It was observed that the total of all direct cost centres of \$49.31 million was allocated.
- It was observed that overheads of \$20.65 million were allocated to direct cost centres.

These amounted to \$69.96 million and reflected the total for the Mount Gambier Hospital. A minor variance of \$6 was identified between Item B and Item C.

#### *Item D – Post Allocation Adjustments*

A number of exclusions were made post allocation and included:

- Teaching – \$104,209
- System-generated/Non Casemix - \$542,241, this is predominantly made up of pathology costs that were unable to be matched.
- 'Z' Encounters - \$6,077 are related to out of scope encounters.
- Costs shared with activity across hospitals and removal of non-patient costing related items - \$43,438.

The basis of these adjustments appears reasonable. However, the exclusion of Teaching and Training may impact on the completeness of the NHCDC.

The total expenditure allocated to patients for Mount Gambier Hospital was \$69.36 million, which represented approximately 110.1 percent of the GL.

#### *Item E - Costed products submitted to jurisdiction*

Costs submitted to the jurisdiction and reported at product level totalled \$69.36 million. Costs were allocated to all products with the exception of Other, Research, Teaching and Training and System-generated patients. Mental Health costs are included in the other costed products. No variance was identified between Item D and Item E.

#### *Item F – Costed products received by the jurisdiction*

Costs by product received by the jurisdiction was \$69.36 million. No variance was noted between Items E and F.

#### *Item G – Final adjustments*

SA Health made a number of adjustments to the final data submitted by the hospital in relation to WIP. The adjustments made for Round 20 totalled \$437,987 and included:



- Included costs of \$657,929 related to WIP records for patients admitted prior to 2015-16 but discharged in 2015-16.
- Excluded costs of \$54,391 for patients admitted prior to 2015-16 that are not fully costed or matched
- Excluded costs of \$1.04 million related to WIP records for patients still admitted in 2015-16

The basis of these adjustments appear reasonable.

The total NHCDC costs submitted to IHPA by SA Health was \$68.92 million.

#### *Item H – Costed products submitted to IHPA*

Costs derived by the jurisdiction and reported at product level to IHPA totalled \$68.92 million. A minor \$1 variance was noted between Item G and Item H.

#### *Item I – Total products received by IHPA*

Costed products received by IHPA totalled \$68.92 million. No variance was noted between Item H and Item I.

#### *Item J – IHPA adjustments*

Upon receipt of cost data, IHPA allocates the admitted emergency costs back to admitted patients for the purposes of reporting and analysis. Within IHPA's reconciliation, this amount was a duplication of admitted emergency costs and not an additional cost. This amounted to \$4.13 million for Mount Gambier Hospital.

#### *Item K – Final NHCDC Costed Outputs*

The final NHCDC costed data for Mount Gambier Hospital that was loaded into the National Round 20 cost data set was \$73.05 million which included the admitted emergency cost of \$4.13 million. A minor \$1 variance was noted between Item J and Item K.

### **7.3.3 Activity data**

Table 53 presents patient activity data based on source and costing systems for the Mount Gambier Hospital. This activity data is then compared to Table 54 which highlights the transfer of activity data by NHCDC product from the Mount Gambier Hospital to SA Health and then through to IHPA submission and finalisation.

Table 53 – Activity data – Mount Gambier Hospital

Activity Data	# Records from Source	# Records in costing system	Variance	# Records linked to Admitted	# Records linked to Emergency	# Records linked to Non-admitted	# Records linked to Other	Total Linking Process	# Unlinked records
Inpatient	9,971	9,971	-	9,971	-	-	-	9,971	-
Emergency	19,601	19,601	-	-	19,601	-	-	19,601	-
Outpatients	25,124	25,124	-	-	-	25,124	-	25,124	-
<b>TOTAL</b>	<b>54,696</b>	<b>54,696</b>	<b>-</b>	<b>7,791</b>	<b>20,693</b>	<b>82,792</b>	<b>-</b>	<b>54,696</b>	<b>-</b>

Source: KPMG based on data supplied by Mount Gambier Hospital and SA Health

Table 54 – Activity data submission – Mount Gambier Hospital

Product	Activity related to 2015-16 Costs	Adjustments	Activity submitted to jurisdiction	Adjustments	Activity submitted to IHPA	Activity received by IHPA	Adjustments	Total Activity submitted for Round 20 NHCDC
Acute and Newborns	9,813	-	9,813	(8)	9,805	9,805	-	9,805
Non-admitted	25,123	-	25,123	-	25,123	25,123	-	25,123
Emergency	19,610	-	19,610	(18)	19,592	19,592	-	19,592
Sub Acute	158	-	158	(10)	148	148	-	148
Mental Health	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-
Research	-	-	-	-	-	-	-	-
Teaching and Training	-	-	-	-	-	-	-	-
<b>Total</b>	<b>54,704</b>	<b>-</b>	<b>54,704</b>	<b>(36)</b>	<b>54,668</b>	<b>54,668</b>	<b>-</b>	<b>54,668</b>

Source: KPMG based on data supplied by the Mount Gambier Hospital, SA Health and IHPA

The following should be noted about the transfer of activity data in Table 54 for the Mount Gambier Hospital:

- There was a variance between the number of records in the costing system for the Mount Gambier Hospital, detailed in Table 53 (54,696 records) and activity related to 2015-16 costs by NHCDC product for the Mount Gambier Hospital in Table 54 (54,704 records) of 8 records. This variance related to records where the ED presentation was prior to 30/06/2015 and was discharged after 01/07/2015. These records were removed.
- The Mount Gambier Hospital made no further adjustments to activity.
- Adjustments made by SA Health related to the activity associated with the excluded costs (refer to Item G above). These records relate to excluded WIP activity.
- Adjustments made by IHPA related to admitted emergency reallocations are for reporting and analysis purposes (as discussed in Item J of the explanation of reconciliation items) and have no impact on the reported activity.

#### **7.3.4 Feeder data**

Table 55 reflects data associated with patient feeder data for the Mount Gambier Hospital.

Table 55 – Feeder data – Mount Gambier Hospital

Feeder Data	# Records from Source	# Records in costing system	Variance	# Records linked to Admitted	# Records linked to Emergency	# Records linked to Non-admitted	# Records linked to Syst-Gen patient	# Records linked to Other	Total Linking Process	# Unlinked records	% Linked	% to Syst-Gen patient
SAH Coding Diagnosis IP	43,283	43,283	-	43,283	-	-	-	-	43,283	-	100.00%	0.00%
SAH Coding Procedure IP	16,252	16,252	-	16,252	-	-	-	-	16,252	-	100.00%	0.00%
SAH Coding Diagnosis ED	19,601	19,601	-	-	19,601	-	-	-	19,601	-	100.00%	0.00%
SAH ED Medical	16,550	16,550	-	-	16,550	-	-	-	16,550	-	100.00%	0.00%
SAH ED Nursing	19,159	19,159	-	-	19,159	-	-	-	19,159	-	100.00%	0.00%
SAH Pharmacy	17,160	17,160	-	8,178	3,728	4,207	1,047	-	17,160	-	100.00%	6.10%
SAH Transfers	16,608	16,608	-	16,608	-	-	-	-	16,608	-	100.00%	0.00%
Allied Health	28,467	28,467	-	13,292	593	-	-	-	13,885	14,852	48.78%	0.00%
Patient Transport	378	343	35	206	103	-	34	-	343	-	100.00%	9.91%
Fee For Service	2,271	2,271	-	2,108	-	163	-	-	2,271	-	100.00%	0.00%
Imaging	13,528	13,016	512	4,280	8,164	140	432	-	13,016	-	100.00%	3.32%
Pathology	61,382	61,143	239	21,062	33,700	3,014	3,367	-	61,143	-	100.00%	5.51%
Hip Knee Replacements	37	37	-	37	-	-	-	-	37	-	100.00%	0.00%
AN-SNAP	78	78	-	78	-	-	-	-	78	-	100.00%	0.00%

Source: KPMG based on data supplied by Mount Gambier Hospital and SA Health

The following should be noted about the feeder data represented in Table 55 at Mount Gambier Hospital:

- There are 14 feeders used from a range of SA Health databases and hospital source systems and they appear to represent the major hospital departments providing resource activity.
- Source data is used as much as possible particularly from central databases, which SA Health maintain to ensure consistency e.g. Pharmacy, Emergency, Inpatients and Pathology. If data is unavailable from a central system then the LHN sources the feeder information e.g. external imaging providers etc.

- For 13 of the 14 feeders, the number of records linked to admitted patients, emergency, non-admitted or other patients had a 100 percent link or match. This suggests that there is robustness in the level of feeder activity reported back to episodes.
- The Allied Health feeder data had a 48.78% matching percentage this was due to free text in the hospital field which resulted in incomplete data. Similarly, Community Allied Health was also embedded in the activity and hence removed.
- System-generated encounters for Pharmacy (1,047), Patient transport (34), Imaging (432) and Pathology (3,367) are created and linked to other. Variances in the pathology feeder data were primarily related to dates outside the matching date parameters used and blank patient identification numbers.
- The patient transport activity matched to system-generated patients, related to patient transport to community health centres which are out of scope.

### 7.3.5 Treatment of WIP

Table 56 demonstrates models for WIP and its treatment in Mount Gambier Hospital's Round 20 NHCDIC submission.

*Table 56 – WIP – Mount Gambier Hospital*

Model	Description	Submitted to Round 20 NHCDIC
1	Cost for patients admitted and discharged in 2015-16 only	Submitted to Round 20 of the NHCDIC
2	Costs for patients admitted prior to 2015-16 and discharged in 2015-16	Submitted to Round 20 of the NHCDIC. Costs are submitted for 2014-15.
3	Costs for patients admitted prior to or in 2015-16 and remain admitted at 30 June 2016	Not submitted to Round 20 of the NHCDIC

*Source: KPMG, based on the Mount Gambier Hospital's templates and review discussions*

In summary, Mount Gambier Hospital submitted costs for admitted and discharged patients in 2015-16 and WIP costs for those patients admitted in 2014-15, but discharged, in 2015-16.

### 7.3.6 Critical care

Mount Gambier Hospital does not have critical care units.

### 7.3.7 Costing public and private patients

The Mount Gambier Hospital does not make specific adjustments to the costing methodology, based on the financial classification of the patient. It should be noted that the hospital only has a small number of private patients as there is a private hospital co-located at Mount Gambier Hospital. Medical imaging and pathology costs are only allocated to public patients as the hospital is not billed for private patients by imaging and pathology provider. Any other applicable costs are allocated to private patients, i.e. prosthesis, in the same manner as public patients. Private patient revenue is not offset against any related expenditure.

### 7.3.8 Treatment of specific items

A number of items were discussed during the review to understand their treatment in the costing process as the cost data is used to inform the NEP and specific funding model adjustments for particular patient cohorts. Mount Gambier Hospital's treatment of each of the items is summarised below.

Table 57 – Treatment of specific items – Mount Gambier Hospital

Item	Treatment
Research	Mount Gambier Hospital has no research costs to report.
Teaching and Training	Costs are allocated to Teaching and Training using PFRACs however, these costs are excluded prior to submission of the NHCD to IHPA.
Shared/Other commercial entities	Any expenditure associated with these activities is excluded by the hospital for costing purposes.

Source: KPMG, based on IFR discussions

### 7.3.9 Sample patient data

IHPA selected a sample of five patients from the Mount Gambier Hospital for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. SA Health provided the patient level costs for all five patients and these reconciled to IHPA records. The results are summarised in Table 58.

Table 58 – Sample patients – Mount Gambier Hospital

#	Product	Jurisdiction Records	Received by IHPA	Variance
1	Acute	\$831.87	\$831.87	\$-
2	Non-Admitted	\$83.48	\$83.48	\$-
3	Non-Admitted ED	\$44.45	\$ 44.45	\$-
4	Palliative CD	\$2,439.57	\$2,439.57	\$-
5	Acute	\$10,842.78	\$ 10,842.78	\$-

Source: KPMG, based on the Mount Gambier Hospital and IHPA data

## **7.4 Application of AHPCS Version 3.1**

The following section summarises SA Health’s application of selected standards from Version 3.1 of the AHPCS (outlined in Appendix C) to the Round 20 NHCDC submission.

### **7.4.1 SCP 1.004 – Hospital Products in Scope**

SA Health representatives completed templates for this review for hospitals and demonstrated through the templates and interview process that costs are reported against admitted acute, emergency care, non-admitted and sub-acute products. Teaching and Research costs are costed using PFRACs, but are removed prior to submission to the jurisdiction.

### **7.4.2 SCP 2.003 – Product Costs in Scope**

The SA reconciliation process of financial data used for costing purposes was demonstrated through the interview process. It was also stated that all products are costed, which includes costs assigned to products in scope for the NHCDC, unlinked activity, and costs assigned to system-generated patients where there is no activity.

### **7.4.3 SCP 2B.002 - Research Costs**

Costs are allocated to Research using PFRACs however; these costs are excluded prior to submission of the NHCDC to IHPA.

### **7.4.4 SCP 3.001 - Matching Production and Cost**

Application of this standard was demonstrated during the site visit and an excel file was produced from the costing system which outlined all reclass rules.

### **7.4.5 SCP 3A.001 - Matching Production and Cost – Overhead Cost Allocation**

The jurisdiction was able to demonstrate that overhead costs were fully allocated to direct patient care areas via the pre allocation and post allocation data included in the templates.

### **7.4.6 SCP 3B.001 - Matching Production and Cost – Costing all Products**

The application of this standard was demonstrated in the template and SA Health provided an overview of their internal reconciliation process, which demonstrated the allocation of costs to products.

### **7.4.7 SCP 3C.001 - Matching Production and Cost – Commercial Business Entities**

Based on discussions with SA Health and hospital representatives during the review, in addition to an excel file produced, commercial business entity expenditure was excluded in accordance with the standard.

### **7.4.8 SCP 3E.001 - Matching Production and Cost – Offsets and Recoveries**

The application of this standard was demonstrated in the template and confirmed during the consultation process. Recoveries were excluded from the expenditure base for both hospitals. There were no offsets identified.

#### **7.4.9 SCP 3G.001 – Matching Production and Cost – Reconciliation to Source Data**

Based on discussions during the review, SA Health completes a final reconciliation of its costing system to source documentation.

#### **7.4.10 GL 2.004 - Account Code Mapping to Line Items**

SA Health mapped total costs to the standard specified line items except for Blood products. These costs are not allocated as part of the costing process and held by SA Health and not allocated to hospitals.

#### **7.4.11 GL 4A.002 – Critical Care Definition**

One of the hospitals reviewed has a dedicated NICU and PICU. The direct costs associated with ICU areas are allocated to a discrete cost centre and those costs are only applied to patients who used the respective ICU. Critical care costs are captured in accordance with the standard.

#### **7.4.12 COST 3A.002 – Allocation of Medical Costs for Private and Public Patients**

SA Health does not make specific adjustments to the costing methodology, based on the financial classification of the patient. Applicable costs are allocated to private patients, including pathology, medical imaging and prosthesis, in the same manner as public patients. Private patient revenue is not offset against any related expenditure.

Costs associated with medical imaging services, for public and private patients are reflected in the Hospital GL. These costs are distributed to all patients, public and private, based on the MBS item number for the service utilised by the patient. This approach aligns with the principles of the standard.

Where medical consultants use private patient generated revenue to supplement their employment costs, the portion of the salary generated through private patient revenue is not allocated to patients, public or private.

#### **7.4.13 COST 5.002 - Treatment of Work-In-Progress Costs**

Discussions revealed that patients are allocated costs based on their consumption of resources for that reporting period. Where costs are incurred in prior years, these are also included in the final costed data and NHCDC submission.

### **7.5 Conclusion**

The findings of the South Australian Round 20 IFR are summarised below:

- SA Health has not made any significant changes to the costing process since the Round 19 NHCDC submission.
- There were minor variances between the GL used for costing and the audited financial statements (based on the LHN data) for each hospital reviewed (\$25,986 for WCHN and \$267 for CHSALHN). These variances were due to reclassification of revenue to expenditure in the GL and rounding.
- The review of the financial reconciliation templates for the Women's and Children's Hospital and the Mount Gambier Hospital, demonstrated the transformation of cost data from the source LHN GL to the final NHCDC submission to IHPA. There were minor variances noted



through the reconciliation process however these were considered immaterial. The major inclusions to the original GL data related to costs centrally managed by SA Health (ICT and Procurement services) and state wide services overheads associated with Medical Imaging, Pathology and Pharmacy. Exclusions from the source GL data included costs associated with other hospitals and services in the LHN. Post allocation adjustments related mostly to teaching, research and out of scope activity. SA Health made adjustments predominantly for current and prior year WIP.

- The basis of the adjustments made by the hospitals and SA Health appears reasonable, with the exception of:
  - Women's and Children's Hospital excluded expenditure related to the disposal of capital assets. This expenditure should be included in accordance with the AHPCS Version 3.1.
  - Both hospitals excluded Teaching, Training and Research (no research recorded at Mount Gambier Hospital) prior to submission to the NHCDC. The exclusion of these costs may impact on the completeness of the NHCDC.
  - Blood products are not costed in SA hospitals as the expenditure is held in SA Health cost centres and not allocated to hospitals. The exclusion of this expenditure may impact on the completeness of the NHCDC.
  - Bad and Doubtful debts. The AHPCS is silent on the specific inclusion or exclusion of bad and doubtful debts. Bad and doubtful debts expenditure relates to the provision for debts that are unrecoverable from patient/clients. It does not have an impact on the cost of patient services provided by the hospital.
- The hospitals made no adjustments to activity prior to sending to the jurisdiction. The activity data submitted by the hospitals was adjusted by the jurisdiction for WIP, activity with patient level data unavailable and non-ABF activity e.g. Women's Assessment Unit.
- The number of records linked from source to product at both hospitals reviewed was significant. For both hospitals, the linking percentage for all feeders was greater than 91 percent, apart from the Allied Health feeder for the Mount Gambier Hospital. This suggests that there is robustness in the level of feeder activity reported back to episodes.
- WIP was treated in accordance with the COST 5.002 of the AHPCS Version 3.1.
- The five sample patients selected for review for Women's and Children's Hospital and the Mount Gambier Hospital reconciled to IHPA records (with the exception of a \$0.01 variance for one record at Women's and Children's Hospital).

The IFR is conducted in accordance with the review methodology detailed in Section 1.3 of this report. Based on this methodology and in accordance with the limitations identified in Section 1.1, SA Health has suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission. Furthermore, the data flow from the jurisdiction to IHPA demonstrated no unexplained variances.

## 8. Tasmania

### 8.1 Jurisdictional overview

#### 8.1.1 Management of NHCDC process

The Tasmanian Department of Health and Human Services (TAS-DHHS) through the Patient Level Costing team in Planning Purchasing and Performance is responsible for the processing, reconciliation and submission of National Hospital Cost Data Collection (NHCDC) data for the four major public hospitals in Tasmania.

This is consistent with the approach used in prior rounds of the NHCDC submission and ensures that there is a consistent approach applied to costing for all Tasmanian hospitals. TAS-DHHS utilises the User Cost costing system by Visasys to undertake patient level costing. TAS-DHHS has access to the relevant files/feeders to perform the costing function. The decision to undertake costing at the jurisdiction level was made to ensure cost data is created and is consistent across rounds of the NHCDC. It is also a decision made given costing workforce shortages in Tasmania. Further TAS-DHHS has implemented a new operating structure that has created a single Tasmania Health Organisation (THO) for the State to replace the three health organisations that previously existed.

A central Financial Management System (FMS) is maintained at the jurisdictional level which reports the financial information for all Tasmanian hospitals. The relevant expenditure data used for the costing process is extracted from this system. The GL is reconciled to final financial results for the hospital. Any adjustments made to the total operating expenditure used for costing are made by the Costing team as advised by TAS-DHHS Finance and hospital representatives.

The process of extracting activity data differs slightly depending on the data required. There is a central Patient Administration System (PAS) with slight configuration differences depending upon the hospital. For example, hospitals have the ability to configure beds according to their needs. Some feeders may be configured across two hospitals, some may be independent and for others such as Pharmacy, the data is stored in a central data warehouse.

The preparation and loading of the activity and feeder data uses combined sources. The PAS provides activity data for inpatients, outpatients, and theatres. Third party systems provide data for pharmacy, imaging, and allied health. Data is also extracted from the nurse rostering systems directly into the costing system. The data is formatted to the requirements of User Cost and linking occurs through a scripted process. Where possible, all feeder linking rules are reviewed on an individual feeder basis. Once linking has occurred, a series of internal quality checks are undertaken for both format and data quality. Where variations occur, these are reviewed for data quality issues or to inform linking rule updates.

The initial costing methodology is based on the prior year allocation metrics. TAS-DHHS staff and the hospital Finance Managers meet to discuss the methodology and adjust it where necessary. For example, from year-to-year, clinicians may vary business units (cost centres) in which they work, which requires allocation metrics to be adjusted. Once the methodology is finalised, TAS-DHHS costing staff process expenditure through the User Cost costing software.

TAS-DHHS staff noted that all hospital cost centres are mapped to the Australian Hospital Patient Costing Standards (AHPCS) cost centre and line items and these are used for costing purposes. This process is undertaken in User Cost.

All patient data and patient feeder system data is loaded into a data warehouse. A staging database is then utilised to overlay this feeder data from source systems and to produce a final reporting database. A series of reports are created in the database as a means of internal checks for data quality and reconciliation purposes.

The costed output is then reviewed based on a number of internal checks such as the cost per unit and average cost per bucket compared to prior year costing. Hospital representatives are able to access a series of costing reports to review. Adjustments are made where required and once TAS-DHHS deems the data to be fit for submission, it is submitted to IHPA. There is no official sign off process in place prior to the initial submission to IHPA. Subject to acceptance of the data submission by IHPA there is formal sign-off by the Secretary of the Department. TAS-DHHS will address any further checks or queries that may arise from the IHPA data validation process.

TAS-DHHS has implemented a new reporting tool, Qlikview, to facilitate improved reporting and use of clinical costing results across the hospitals. A number of reporting dashboards have been developed and made available to hospital executive, business managers and clinicians. TAS-DHHS is focussed on increasing the level of data reported and the number of users accessing and using the data.

Tasmania nominated the Royal Hobart Hospital to participate in the Round 20 NHCDC IFR.

#### *Key initiatives since Round 19 NHCDC*

The key initiatives since Round 19 related to the roll-out of Qlikview and the governance changes to the structure of the Tasmanian Health Organisation. The governance changes will not impact on the number of hospitals submitting data to the NHCDC.

## **8.2 Royal Hobart Hospital**

### **8.2.1 Overview**

The Royal Hobart Hospital, located in Hobart, is Tasmania's largest hospital and its major referral centre. The Royal Hobart Hospital provides acute, sub-acute, mental health and aged care inpatient and ambulatory services to a population of about 250,000 people in the southern region of Tasmania<sup>19</sup> and has approximately 465 beds. The Royal Hobart Hospital has 2,800 full time equivalent staff or a paid headcount of 3,690<sup>20</sup>. The hospital is currently undergoing a major redevelopment that may impact on the number and composition of available beds during the year.

The Royal Hobart Hospital provides a comprehensive range of general and specialty medical and surgical services including many state-wide services such as cardiac surgery, neurosurgery, extensive burns treatment, hyperbaric medicine, neonatal and paediatric intensive care and high

---

<sup>19</sup> <http://www.dhhs.tas.gov.au/hospital/royal-hobart-hospital> – Accessed 9 April 2017.

<sup>20</sup> [https://www.dhhs.tas.gov.au/\\_\\_data/assets/pdf\\_file/0004/34654/Royal\\_Hobart\\_Hospital\\_2015\\_final.pdf](https://www.dhhs.tas.gov.au/__data/assets/pdf_file/0004/34654/Royal_Hobart_Hospital_2015_final.pdf) - Accessed 12 April 2017.

risk obstetrics. As the major clinical teaching and research centre, it works closely with the University of Tasmania and other institutions<sup>21</sup>.

### **8.2.2 Financial data**

For the Round 20 IFR, TAS-DHHS staff completed the IFR templates and participated in consultations during the review.

Table 59 presents a summary of the Royal Hobart Hospital's costs, from the original extract from the General Ledger (GL) through to the final NHCDC submission for the Royal Hobart Hospital for Round 20. This table presents the financial reconciliation of expenditure for Round 20 for Royal Hobart Hospital and the transformation of this expenditure by the jurisdiction and IHPA for NHCDC submission. There are 11 items of reconciliation in the table. These items are labelled A to K. Items A to E relate to the expenditure submitted by the hospital/LHN, Items F to H relate to the costs submitted by the jurisdiction and Items I to K relate to the transformation of costs by IHPA. The following section in the report explains each item in more detail

---

<sup>21</sup><http://www.dhhs.tas.gov.au/hospital/royal-hobart-hospital> – Accessed 9 April 2017.

Table 59 – Round 20 NHCDC Reconciliation – Royal Hobart Hospital

Hospital			Jurisdiction		IHPA	
Item	Amount	% of GL	Item	Amount	Item	Amount
<b>A</b> General Ledger (GL)	\$ 708,101,730		<b>F</b> Costed Products received by jurisdiction	\$ 708,101,767	<b>I</b> Total costed products received by IHPA	\$ 449,175,763
			<i>Variance</i>	\$ -	<i>Variance</i>	\$ (25,567)
<b>B</b> Adjustments to the GL			<b>G</b> Final Adjustments		<b>J</b> IHPA Adjustments	
<i>Inclusions</i>	\$ 59		Current year WIP	\$ (9,726,804)	Admitted ED reallocations	\$ 23,461,222
<i>Exclusions</i>	\$ -		Dental	\$ (35,186,723)	<b>Final NHCDC costs</b>	<b>\$ 472,636,985</b>
<b>Total hospital expenditure</b>	<b>\$ 708,101,789</b>	100.00%	Rural Hospitals not submitted to NHCDC	\$ (10,964,612)		
<b>C</b> Allocation of Costs			Mental Health	\$ (50,684,512)		
Post Allocation Direct amount	\$ 572,742,488		Rison Prison	\$ (21,209,630)		
Post Allocation Overhead amount	\$ 135,359,282		Outside referred patients (ORP)	\$ (34,680,258)		
<b>Total hospital expenditure</b>	<b>\$ 708,101,769</b>	100.00%	Interstate Charging	\$ (12,051,436)		
<i>Variance</i>	\$ (20)	0.00%	Community and HACC services	\$ (21,513,423)		
<b>D</b> Post Allocation Adjustments			Teaching and training	\$ (24,872,178)		
Nil	\$ -		Research	\$ (1,330,498)		
<b>Total expenditure allocated to patients</b>	<b>\$ 708,101,769</b>	100.00%	Unmatched records	\$ (10,549,744)		
			Other exclusions	\$ (35,223,296)		
			Prior year WIP	\$ 8,173,661		
			Accounting adjustment for nursing pool	\$ 919,017		
			<b>Total costs submitted to IHPA</b>	<b>\$ 449,201,330</b>		
<b>E</b> Costed products submitted to jurisdiction			<b>H</b> Costed products submitted to IHPA		<b>K</b> Final NHCDC costed products	
Acute and Newborns	\$ 327,687,058		Acute and Newborns	\$ 285,796,345	Acute^ and Newborns	\$ 323,285,066
Non-admitted	\$ 84,768,033		Non-admitted	\$ 79,389,692	Non-admitted	\$ 79,456,432
Emergency	\$ 40,341,554		Emergency	\$ 40,276,520	Emergency	\$ 40,272,793
Sub Acute	\$ 24,436,853		Sub Acute	\$ 22,114,363	Sub Acute^	\$ 22,118,540
Mental Health	\$ 50,684,512		Mental Health	\$ -	Mental Health	\$ -
Other	\$ 24,544,187		Other	\$ 21,624,411	Other	\$ 7,504,154
Research	\$ 1,330,498		Research	\$ -	Research	\$ -
Teaching & Training	\$ 24,872,178		Teaching & Training	\$ -	Teaching & Training	\$ -
Virtual patients	\$ 129,436,893		Virtual patients	\$ -	Virtual patients	\$ -
<b>Variance</b>	<b>\$ (2)</b>		<b>Variance</b>	<b>\$ -</b>	<b>Variance</b>	<b>\$ -</b>

Source: KPMG based on Royal Hobart Hospital IFR templates

^ These figures include admitted emergency costs.

### *Explanation of reconciliation items*

This section discusses each of the reconciliation items including adjustments, inclusions and exclusions to the GL. The information is based on the Royal Hobart Hospital templates and review discussions.

#### *Item A - General Ledger*

The final GL data extracted from the FMS for Royal Hobart Hospital indicates expenditure of \$708.10 million. The final GL reconciled to the audited financial statements as per advice from TAS-DHHS representatives. It should be noted that audited financial statements are not prepared at the Local Health Network (LHN) or hospital level in Tasmania and therefore, the audited financial statement amount for RHH could not be verified.

#### *Item B - Adjustments to the GL*

A small adjustment of \$59 was made to the GL which related to UserCost system cost centres that were created as part of the costing process. Each cost centre was allocated a \$1 balance due configuration in the software. The basis of this inclusion appears reasonable.

These adjustments established an expenditure base for costing of \$708.10 million. This was approximately 100 percent of total expenditure reported in the GL.

#### *Item C - Allocation of Costs*

Royal Hobart Hospital undertook a process of reclass/transfers/offsets between direct cost centres. Reclass/transfers/offsets are determined based on discussions with cost centre managers.

- It was observed that the total for all direct cost centres of \$572.74 million were allocated.
- It was observed that overheads of \$135.36 million were allocated.

These amounts reconciled to \$708.10 million. A minor \$20 variance between Item B and Item C was noted.

#### *Item D - Post Allocation Adjustments*

No post allocation adjustments were made at the hospital level.

The total expenditure allocated to patients for Royal Hobart Hospital was \$708.10 million, which represented approximately 100 percent of the total hospital expenditure.

#### *Item E - Costed Products Submitted to jurisdiction*

Costs derived and reported at product level reconcile to \$708.10 million. Royal Hobart Hospital included acute, non-admitted, emergency care, subacute, mental health, other, research and teaching and training costed products. A minor \$2 variance between Item D and Item E was noted.

#### *Item F – Costed Products received by jurisdiction*

As TAS-DHHS performs costing for both the hospital and the jurisdiction, there is no variance between Items E and F.

### *Item G - Final Adjustments*

The jurisdiction made adjustments to the cost data prior to submission to IHPA. These adjustments related to the exclusion of WIP and activity data and associated costs. Excluded expenditure totalled \$267.98 million and related to:

- WIP costs (Patients admitted in 2015-16, but not discharged in 2015-16) - \$9.73 million
- Dental health - \$35.19 million
- Rural hospitals not submitted to the NHCDC - \$10.96 million
- Statewide and Mental Health services – \$50.68 million
- Rison Prison not in scope - \$21.21 million
- Outside Referred Patients (ORP) - \$34.68 million
- Interstate charging for services - \$12.05 million
- Community and HACC services - \$21.51 million
- Teaching and Training costs - \$24.87 million
- Research - \$1.33 million
- Unmatched records not matched to a patient episode - \$10.55 million
- Other - \$35.22 million, comprising:
  - Cancer screening services – \$6.67 million
  - Meals on wheels provided to external clients - \$6.35 million
  - Forensic pathology services - \$1.95 million
  - Holman clinic (cancer services) - \$5.44 million
  - Patient Assistance Travel services - \$2.33 million
  - Outreach services - \$2.14 million
  - Organ donation promotion - \$1.83 million
  - Sexual Health services - \$2.08 million
  - Other - \$6.43 million

The basis of these exclusions appears reasonable with the exception of Teaching and Training and Research, which may impact on the completeness of the NHCDC. In addition, TAS-DHHS should continue to investigate reasons for unmatched activity to ensure appropriate treatment in future rounds.

Included expenditure related to a financial accounting adjustment of \$919,017 for the allocation of nursing pool costs to cost centres and WIP from 2014-15 totalling \$8.17 million.

### *Item H - Costed Products submitted to IHPA*

Costs derived by the jurisdiction and reported at product level totalled \$449.20 million. TAS-DHHS included acute, non-admitted, emergency, subacute and other costed products.

*Item I – Total products received by IHPA*

Costed products received by IHPA totalled \$449.18 million. A variance of \$25,567 was noted between Item H and Item I. Royal Hobart Hospital was the pilot site visit for the Round 20 IFR. TAS-DHHS resubmitted NHCDC data for Royal Hobart Hospital post the completion of the templates and the site visit due to an identified error in allied health data. The variance is 0.002 percent of the total NHCDC submission for Tasmania and is considered immaterial by IHPA.

*Item J – IHPA adjustments*

- *Admitted emergency*

Upon receipt of cost data, IHPA allocates the admitted emergency costs back to admitted patients for the purposes of reporting and analysis. Within IHPA's reconciliation, this amount was a duplication of admitted emergency costs and not an additional cost. This amounted to \$23.46 million for Royal Hobart Hospital.

- *Unqualified Baby Adjustment*

Upon receipt of cost data, IHPA redistributes the unqualified baby cost to the mother separation to provide a complete delivery cost. Within IHPA's reconciliation this was not an additional cost but a movement between patients.

- *Product group redistribution*

IHPA redistributed the submitted costs of admitted mental health in the Other product type to the Acute product group. This did not result in increased total costed products for Royal Hobart Hospital.

*Item K – Final NHCDC Costed Outputs*

The final NHCDC costed data for Royal Hobart Hospital that was loaded into the National Round 20 cost data set was \$472.64 million which included the admitted emergency cost of \$23.46 million.

### **8.2.3 Activity data**

Table 60 presents patient activity data based on source and costing systems for Royal Hobart Hospital. This activity data is then compared to Table 61 which highlights the transfer of activity data by NHCDC product from Royal Hobart Hospital to TAS-DHHS and then through to IHPA submission and finalisation.



Table 60 – Activity data – Royal Hobart Hospital

Activity Data	# Records from Source	# Records in costing system	Variance	# Records linked to Admitted	# Records linked to Emergency	# Records linked to Non-admitted	# Records linked to Syst-gen patient	# Records linked to Other	Total Linking Process	# Unlinked records
Acute	66,925	66,925	-	66,340	-	-	-	585	66,925	-
Boarder	220	220	-	218	-	-	-	2	220	-
Geriatric Maintenance	3	3	-	3	-	-	-	-	3	-
Maintenance	794	794	-	735	-	-	-	59	794	-
Newborn	2,164	2,164	-	2,164	-	-	-	-	2,164	-
Other Admitted	1,835	1,835	-	1,822	-	-	-	13	1,835	-
Organ Procurement	10	10	-	10	-	-	-	-	10	-
Palliative Care	595	595	-	548	-	-	-	47	595	-
Rehab	303	303	-	290	-	-	-	13	303	-
Admitted Emergency	20,898	20,898	-	-	20,864	-	-	34	20,898	-
Non-Admitted Emergency	39,559	39,559	-	-	38,756	-	-	803	39,559	-
Outpatients	213,741	213,741	-	-	-	213,741	-	-	213,741	-
Holman Clinic (subset of OP)	25,407	25,407	-	-	-	-	-	25,407	25,407	-
System-generated Community	47	47	-	-	-	-	47	-	47	-
System-generated Mental Health	24	24	-	-	-	-	24	-	24	-
System-generated Other	74	74	-	-	-	-	74	-	74	-
<b>TOTAL</b>	<b>372,598</b>	<b>372,598</b>	<b>-</b>	<b>72,130</b>	<b>59,620</b>	<b>213,741</b>	<b>145</b>	<b>26,963</b>	<b>372,599</b>	<b>-</b>

Source: KPMG based on data supplied by Royal Hobart Hospital and TAS-DHHS

Table 61 – Activity data submission – Royal Hobart Hospital

Product	Activity related to 2015-16 Costs	Adjustments	Activity submitted to jurisdiction	Adjustments	Activity submitted to IHPA	Activity received by IHPA	Adjustments	Total Activity submitted for Round 20 NHCDC
Acute and Newborns	69,089	-	69,089	(19,368)	49,721	49,721	(136)	49,585
Non-admitted	239,148	-	239,148	(25,407)	213,741	213,739	-	213,739
Emergency	60,457	-	60,457	(837)	59,620	59,620	-	59,620
Sub Acute	1,695	-	1,695	(165)	1,530	1,530	-	1,530
Mental Health	-	-	-	-	-	-	-	-
Other	2,064	-	2,064	(64)	2,000	2,000	(1,481)	519
Research	-	-	-	-	-	-	-	-
Teaching and Training	-	-	-	-	-	-	-	-
System-generated patients	145	-	145	(145)	-	-	-	-
<b>Total</b>	<b>372,598</b>	<b>-</b>	<b>372,598</b>	<b>(45,986)</b>	<b>326,612</b>	<b>326,610</b>	<b>(1,617)</b>	<b>324,993</b>

Source: KPMG based on data supplied by Royal Hobart Hospital, TAS-DHHS and IHPA

The following should be noted about transfer of activity data for Royal Hobart Hospital:

- Records linked to 'other' related to patients at rural hospitals which were not submitted to the NHCDC.
- TAS-DHHS staff noted that the 2014-15 WIP cost data was loaded into User Cost in the 2015-16 costing configuration as a utilisation feeder. The 2014-15 costs were then attached to the relevant patients. The WIP activity (454 records) is already included across product types in the 372,598 records costed in Table 61, and as such does not get represented as an activity adjustment.
- Adjustments made by the jurisdiction related to the activity associated with the exclusion of costs (at Item G in the reconciliation) such as mental health, teaching and training, research, current year WIP, outside referred patients and other system-generated patients associated with non-ABF or out of scope activity.
- A variance of two records was noted between the Non-admitted activity submitted to IHPA by TAS-DHHS and the activity received by IHPA. This variance related to the resubmission of data post the completion of the site visit.

- The adjustments made by IHPA to the Acute and Newborns and Other product groups related to the UQB adjustment (exclusion of 1,617 records) and the redistribution of activity associated with admitted mental health (1,481 records) as discussed in Item J of the explanation of reconciliation items.
- Adjustments made by IHPA related to admitted emergency reallocations are for reporting and analysis purposes (as discussed in Item J of the explanation of reconciliation items) and have no impact on the reported activity.

#### **8.2.4 Feeder data**

Table 6 presents patient feeder data for Royal Hobart Hospital.

Table 62 – Feeder data – Royal Hobart Hospital

Feeder Data	# Records from Source	# Records in costing system	Variance	# Records linked to Admitted	# Records linked to Emergency	# Records linked to Non-admitted	# Records linked to Syst-gen patient	# Records linked to Other	Total Linking Process	# Unlinked records	% Linked	% to Syst-gen patient
Pharmacy	82,069	82,069	-	55,564	607	17,569	8,197	132	82,069	-	100.00%	9.99%
Pathology	1,947,907	1,947,907	-	1,303,687	141,288	231,471	269,771	1,690	1,947,907	-	100.00%	13.85%
Imaging	92,402	92,402	-	49,696	11,020	25,426	5,929	331	92,402	-	100.00%	6.42%
Blood	13,123	13,123	-	11,503	169	802	646	3	13,123	-	100.00%	4.92%
Theatre	101,068	101,068	-	101,068	-	-	-	-	101,068	-	100.00%	0.00%
Ward Minutes	263,147	263,147	-	263,147	-	-	-	-	263,147	-	100.00%	0.00%
Specialty Minutes	440,996	440,996	-	266,562	96	174,181	-	157	440,996	-	100.00%	0.00%
Emergency Location Minutes	144,036	144,036	-	-	144,036	-	-	-	144,036	-	100.00%	0.00%
Waiting List Patients	6,700	6,700	-	6,700	-	-	-	-	6,700	-	100.00%	0.00%
Outpatients	501,012	501,012	-	167,708	3,714	292,456	34,039	3,095	501,012	-	100.00%	6.79%
Holman Clinic	57,676	57,676	-	7	-	404	-	57,265	57,676	-	100.00%	0.00%
Interpreter Services	2,973	2,973	-	481	8	2,483	-	1	2,973	-	100.00%	0.00%

Source: KPMG based on data supplied by Royal Hobart Hospital and TAS-DHHS

The following should be noted about the feeder data for Royal Hobart Hospital:

- There are 12 feeders utilised by Royal Hobart Hospital and they appear to represent major hospital departments providing resource activity.
- 100 percent of records linked from source to hospital product for each of the 12 feeders. This suggests that there is robustness in the level of feeder activity reported back to episodes.
- Records linked to 'other' related to patients at rural hospitals which were not submitted to the NHCDC and those patients accessing the Holman Clinic.
- Data linked to system-generated patients in the pharmacy and pathology feeders related to services provided to private or Risdon prison patients or unmatched data.
- Data linked to system-generated patients in the outpatients feeder related to community patients for which there was no episode data.

## 8.2.5 Treatment of WIP

Table 63 demonstrates models for WIP and what was included in the Royal Hobart Hospital Round 20 NHCDC submission.

Table 63 – WIP – Royal Hobart Hospital

Model	Description	Submitted to Round 20 NHCDC
1	Cost for patients admitted and discharged in 2015-16 only	Submitted to Round 20 of the NHCDC
2	Costs for patients admitted prior to 2015-16 and discharged in 2015-16	Submitted to Round 20 of the NHCDC. WIP costs were submitted for 2014-15 only.
3	Costs for patients admitted prior to or in 2015-16 and remain admitted at 30 June 2016	Not submitted to Round 20 of the NHCDC

Source: KPMG, based on Royal Hobart Hospital templates and review discussions

In summary, Royal Hobart Hospital submitted costs for admitted and discharged patients in 2015-16 and WIP costs for those patients admitted in 2014-15, and discharged in 2015-16.

## 8.2.6 Critical care

Royal Hobart Hospital operates a standalone adult Intensive Care Unit (ICU), a Neonatal Intensive Care Unit (NICU), a Psychiatric ICU, a Coronary Care Unit (CCU) and a High Dependency Unit (HDU). All direct costs associated with each of these critical care areas are recorded in dedicated cost centres, with the exception of the Psychiatric ICU. The critical care costs could not be separated from the psychiatric ward cost centre.

The CCU and HDU are attached to the ICU. There are 18 beds in total and the bed classification varies based on the clinical classification of the patient. TAS-DHHS applies transfer rules to these direct cost centres to move costs such as pharmacy, nursing costs and patient transport for allocation via direct utilisation feeder. The hospital does not have any dedicated close observation units.

Critical care costs are captured in accordance with the applicable standard, with the exception of the Psychiatric ICU.

## 8.2.7 Costing public and private patients

TAS-DHHS makes no specific adjustments to the way private patients are costed compared to public patients at the Royal Hobart Hospital. Private patients receive an allocation of applicable costs including pathology, medical imaging and prosthesis, in the same manner as public patients.

The costing methodology for medical costs is identical for both public and private patients. Medical salaries paid from Special Purpose Funds are included in patient costs. Private patient revenue, including prosthesis rebates, is treated as revenue and is not offset against expenditure.

## 8.2.8 Treatment of specific items

A number of items were discussed during the review to understand their treatment in the costing process as the cost data is used to inform the NEP and specific funding model

adjustments for particular patient cohorts. Royal Hobart Hospital's treatment of each of the items is summarised in Table 64.

*Table 64 – Treatment of other specific cost items – Royal Hobart Hospital*

Item	Treatment
Research	Not all research costs are able to be separately identified within cost centres, but costs are allocated and contribute to the total patient cost. Direct research costs in specified cost centres are excluded by TAS-DHHS.
Teaching and Training	Teaching and Training is reported at product level but is not submitted to IHPA. Direct teaching and training costs in specified cost centres are excluded as it does not match an NHCD activity line item. Embedded teaching and training costs are excluded using product fractions.
Shared/Other commercial entities	For shared service arrangements, inpatient fractions are applied to expenditures to ensure the relevant expenditures are assigned to the appropriate hospital for costing purposes. There were no commercial entities reported.

Source: KPMG

## 8.2.9 Sample patient data

IHPA selected a sample of five patients each from Royal Hobart Hospital for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. TAS-DHHS provided the patient level costs for all five patients that were reconciled to IHPA records. The results are summarised in Table 65.

*Table 65 – Sample patients – Royal Hobart Hospital*

#	Product	Jurisdiction Records	Received by IHPA	Variance
1	Acute	\$667.87	\$667.87	-
2	Non-Admitted	\$472.24	\$472.24	-
3	Non-Admitted ED	\$211.96	\$211.96	-
4	Rehab	\$36,826.06	\$36,826.06	-
5	Acute	\$1,061.57	\$1,061.57	-

Source: KPMG, based on Royal Hobart Hospital and IHPA data

## **8.3 Application of AHPCS Version 3.1**

The following section summarises TAS-DHHS's application of selected standards from version 3.1 of the AHPCS (outlined in Appendix TBC) to the Royal Hobart Hospital Round 20 NHCDC submission.

### **8.3.1 SCP 1.004 – Hospital Products in Scope**

Costs are allocated to all products by TAS-DHHS. This was demonstrated through the templates submitted and interview process. TAS-DHHS staff noted that the AHPCS Version 3.1 is used as the basis for costing. Teaching and training, research and mental health costs are allocated to a system-generated patient and are not submitted to the NHCDC.

### **8.3.2 SCP 2.003 – Product Costs in Scope**

The TAS reconciliation process for financial data used for costing purposes was demonstrated through the interview process. It was also stated that all products are costed, which includes costs assigned to products in scope for the NHCDC, unlinked activity assigned to a system-generated patient, and costs assigned to system-generated patients where there is no activity.

### **8.3.3 SCP 3.001 - Matching Production and Cost**

The application of this standard was demonstrated during the interview and an excel file was produced from the costing system which outlined all transfers and offsets utilised.

### **8.3.4 SCP 3A.001 - Matching Production and Cost – Overhead Cost Allocation**

The jurisdiction was able to demonstrate that overhead costs were fully allocated to direct patient care areas via the pre allocation and post allocation data included in the templates. TAS-DHHS staff also indicated in the interview that the order of preference listed in the AHPCS version 3.1 is applied to allocated overhead costs. Where possible, TAS-DHHS will use direct allocation of overhead costs where a feeder is available such as meals and linen.

### **8.3.5 SCP 3B.001 - Matching Production and Cost – Costing all Products**

The application of this standard was demonstrated in the templates. TAS-DHHS also provided an overview of their internal reconciliation process which demonstrated the allocation of costs to products.

### **8.3.6 SCP 3C.001 - Matching Production and Cost – Commercial Business Entities**

No commercial entities were reported. TAS-DHHS Finance staff make adjustments to the GL for some shared service arrangements by hospital. TAS-DHHS costing staff make further adjustments for shared service arrangements through the use of inpatient fractions. Based on discussions during the review, adherence with the standard was demonstrated.

### **8.3.7 SCP 3E.001 - Matching Production and Cost – Offsets and Recoveries**

During the interview, TAS-DHHS staff confirmed that no revenue offsetting was undertaken.

### **8.3.8 SCP 3G.001 – Matching Production and Cost – Reconciliation to Source Data**

TAS-DHHS staff demonstrated during the interview that the Tasmanian reconciliation for financial and activity is robust through the use of the templates.

### **8.3.9 GL 2.004 - Account Code Mapping to Line Items**

The purpose of this standard is to ensure that all cost data can be mapped to standardised line items for both NHCDIC collection and comparative purposes, with the exception of imaging costs. Imaging consumables are not separately identified and are recorded in the medical and surgical supplies. TAS-DHHS staff demonstrated (in the templates) that costs reconciled by NHCDIC line item

### **8.3.10 GL 4A.002 – Critical Care Definition**

Royal Hobart Hospital operates a standalone adult Intensive Care Unit (ICU), a Neonatal Intensive Care Unit (NICU), a Psychiatric ICU, a Coronary Care Unit (CCU) and a High Dependency Unit (HDU). All direct costs associated with each of these critical care areas are recorded in dedicated cost centres, with the exception of the Psychiatric ICU. The critical care costs could not be separated from the psychiatric ward cost centre.

The CCU and HDU are attached to the ICU. There are 18 beds in total and the bed classification varies based on the clinical classification of the patient. TAS-DHHS applies transfer rules to these direct cost centres to move costs such as pharmacy, nursing costs and patient transport for allocation via direct utilisation feeder. The hospital does not have any dedicated close observation units.

Critical care costs are captured in accordance with the applicable standard, with the exception of the Psychiatric ICU.

### **8.3.11 .COST 3A.002 – Allocation of Medical Costs for Private and Public Patients**

TAS-DHHS staff indicated that costs are allocated to public and private patients in the same manner at all hospitals within Tasmania. This includes costs associated with nursing salaries and wages, pathology, medical imaging and prosthesis.

Medical expenditure is handled in a similar way for both public and private patients. Medical salaries paid from special purpose funds are included in the costing process. Private patient revenue is not offset against the expenditure.

### **8.3.12 COST 5.002 - Treatment of Work-In-Progress Costs**

Patients are allocated costs based on their consumption of resources for that reporting period. Royal Hobart Hospital submitted costs for admitted and discharged patients in 2015-16 and WIP costs for those patients admitted in 2014-15, and discharged in 2015-16.

## **8.4 Conclusion**

The findings of the Tasmania Round 20 IFR are summarised below:



- TAS-DHHS staff that Tasmania will be merging its hospitals into one costing study for future rounds, however, will continue to submit costs to the NHCDC for the four hospitals separately.
- The financial reconciliations demonstrated the transformation of cost data for Royal Hobart Hospital based on the final GL. The final GL reconciled to the audited financial statements as per advice from TAS-DHHS representatives. It should be noted that audited financial statements are not prepared at the Local Health Network (LHN) level in Tasmania and therefore, the audited financial statement amount could not be verified. Minor variances were noted for the Royal Hobart Hospital between the hospital expenditure and the costs allocated to patients.
- The basis of the adjustments made by TAS-DHHS appears reasonable with the exception of the exclusion of Teaching and Training and Research, which may impact on the completeness of the NHCDC. In addition, TAS-DHHS should continue to investigate reasons for unmatched activity to ensure appropriate treatment in future rounds.
- A variance of \$25,567 was noted between the costs submitted to IHPA by TAS-DHHS and the costs received by IHPA. Royal Hobart Hospital was the pilot site visit for the Round 20 IFR. TAS-DHHS resubmitted NHCDC data post the completion of the templates and the site visit due to an identified error in allied health data. The variance is 0.002 percent of the total NHCDC submission for Tasmania and is considered immaterial by IHPA.
- Total NHCDC activity data for the hospitals was adjusted by TAS-DHHS for the removal of records associated with excluded costs such as mental health, teaching and training, research, current year WIP, outside referred patients and other system-generated patients associated with non-ABF or out of scope activity.
- A variance of two records was noted between the Non-admitted activity submitted to IHPA by TAS-DHHS and the activity received by IHPA. This variance related to the resubmission of data post the completion of the site visit.
- The number of records linked from source to product was significant with all feeders having a 100 percent link or match. This suggests that there is robustness in the level of feeder activity reported back to episodes.
- WIP was treated in accordance with the COST 5.002 of the AHPCS Version 3.1.
- The five sample patients selected for review for Royal Hobart Hospital reconciled to IHPA records.

The IFR is conducted in accordance with the review methodology detailed in Section 1.3 of this report. Based on this methodology and in accordance with the limitations identified in Section 1.1, TAS-DHHS has suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission. Furthermore, the data flow from the jurisdiction to IHPA demonstrated no unexplained variances.

## 9. Victoria

### 9.1 Jurisdictional overview

#### 9.1.1 Management of NHCDC process

The Victorian Department of Health and Human Services (VIC Health) is responsible for the collation, review and submission of data to the NHCDC. All major Victorian health services are required to operate and maintain patient level costing systems to determine accurate patient level costs. This is specified within VIC Health's annual Victorian Policy and Funding Guidelines.

The Victorian patient level costing process is supported by the Victorian Clinical Costing User Group (VCCUG). The VCCUG is a public health service led group, supported by VIC Health. It is comprised of costing staff from Victorian health services, a number of costing vendor representatives and departmental staff. This group meets on a monthly basis to discuss and action jurisdictional and where relevant national costing issues. Currently a member of the VCCUG holds a position on Independent Hospital Pricing Authority's NHCDC Advisory Committee (NAC).

VIC Health conducts an annual costing collection known as the Victorian Cost Data Collection (VCDC) that collects patient level costed data from metropolitan, regional and sub-regional Health Services. The VCDC is used to support the development of Victoria's annual funding model, to support the analysis of cost data for budget and benchmarking purposes and to meet the NHCDC requirements.

Victorian health services submit cost data to the VCDC ensuring they adhere to the specifications and Business Rule documentation. The cost data is then mapped to the NHCDC data specification. The VCDC Business Rules and VCDC file specification documentation are reviewed and updated annually.

VIC Health is responsible for transforming the VCDC data into the format required for the NHCDC file specification. Upon receipt of the health service submission to the VCDC, VIC Health staff undertake a three stage validation process. The first validates the structure and content of the file specification. The second links the cost data to the existing activity datasets that have been submitted to the department. Examples of these include the Victorian Admitted Episodes Dataset (VAED), Victorian Emergency Minimum Dataset (VEMD) and the Victorian Non-Admitted Health Minimum Dataset (VINAH). The third maps to the Victorian cost buckets. Following this process a series of reports are provided to the health service for review. Health services are then offered the opportunity to resubmit their reviewed data. VIC Health does not adjust any costing record submitted by the health service (for inclusions, exclusions or validity).

Following the completion of this validation process, a series of quality assurance (QA) checks are undertaken to test the data for a range of cost quality controls, including low and high cost episodes and comparisons over a period of time. These are again reviewed by health services who advise on the validity of the costed record to finalise the number of costed records for the Victorian cost data set. To accompany the validation and quality assurance checks, a series of reconciliation templates are submitted as part of the VCDC process. These are submitted five days post the health services final VCDC submission. These templates are of a similar format to the current IFR templates and include a Director's attestation sign-off.

The dataset provided through the VCDC submission informs the NHCDC submission. The format of the VCDC allows the VCDC output to be mapped to the NHCDC file specification. VIC Health undertakes this mapping. VIC Health reviews the specification each year and performs a number of data checks against the NHCDC specifications to enable submission to IHPA.

Prior to the final NHCDC submission to IHPA, a brief is provided to the Deputy Secretary of VIC Health demonstrating the type and number of activity and the associated costs to be submitted to IHPA for NHCDC purposes. This brief is first approved by the Assistant Director, Funding Policy and System Development and Director, Policy and Planning, and the Deputy Secretary, Health Service Policy & Commissioning.

VIC Health nominated three hospitals to participate in the IFR for Round 20 based on the hospital sampling criteria provided. The hospitals selected to participate included, The Royal Women's Hospital, Austin Health and Swan Hill District Health.

### *Key initiatives since Round 19 NHCDC*

VIC Health implemented a number of initiatives since the Round 19 NHCDC submission. These have been summarised below:

- Revised the 2014-15 VCDC documentation to be clearer and less ambiguous for implementation, including:
  - Expanded sections to include clear definitions, guidance and actions/outcomes for costing and reporting data to the VCDC.
  - Updated and expanded on reference files, such as Chart of Account mapping and lists of classifications e.g. Diagnosis Related Group (DRG), Urgency Related Group (URG), Tier2, Australian National Subacute and Non-Acute Patient (ANSNAP).
  - Incorporated other documents for information such as methodologies for determining and allocating specific costs including:
    - Medical Indemnity;
    - National Blood Authority;
    - Health Purchasing Victoria;
    - Home based Non-Admitted Services; and
    - North Western Mental Health reporting arrangements.
- Updated validation rules for files and streamlined the file expectations including the rules surrounding the creation and submission of the files.
- Expanded and defined the scope of the collection for activity and expenditure including guidance on episode matching and linking to patients and how costs are to be identified and submitted.
- Provided specific guidance on the reporting requirements for Non-Admitted Services and Mental Health.
- Revised and updated the linking rules of the cost data to the relevant activity datasets including linking to VAED, VEMD, and incorporating new rules for VINAH (including

preparation for the move to patient level data for non-admitted patients) and Client Management Interface (CMI) for Mental Health (MH).

- Defined clear rules on cross matching algorithms that redirect costs such as admitted emergency and radiotherapy costs to admitted patients, and incorporating new rules for mental health consultation liaison services to emergency or admitted patients and unqualified newborn costs redirected to the mother DRG.
- Developed and incorporated the submission of the cost data for each phase of care for palliative care patients.
- Revised and updated the cost bucket matrix to better reflect the types of costs to be analysed at a service cost group level. For example, medical costs will now map to the medical costs bucket and not the nursing costs bucket.
- Expanded and updated the data quality assurance checks to be performed on final submissions for admitted, emergency and non-admitted services and included new checks for mental health and subacute services. These QA reports are sent to the health services and require feedback regarding the exclusion of records.
- Revised and updated the financial reconciliation templates to be more user-friendly and elaborated on the content to be provided.
- Included the communication details provided to Health services' at each stage of the process.<sup>22</sup>

In addition, VIC Health has implemented cost data review forums, where comparative data is presented for the benchmarking of health services. These forums involve both costing and operational staff from the health services. Cost data is now also available in the benchmarking tool for admitted, emergency and non-admitted patients.

## 9.2 The Royal Women's Hospital

### 9.2.1 Overview

The Royal Women's Hospital is a public, specialist women's hospital. It was established in 1856 and is Australia's first and largest specialist public hospital dedicated to improving the health and wellbeing of women and newborns. Providing care across two campuses, the Women's provides general maternity and gynaecology care at Parkville and Sandringham, and tertiary care at Parkville for women and newborns who require specialist care<sup>23</sup>.

The Royal Women's Hospital is a major teaching hospital with approximately 200 beds and has links to the University of Melbourne and La Trobe University. In 2015-16, The Royal Women's

---

<sup>22</sup> *Victorian Cost Data Collection: Data request specification and business rules.*

<https://www2.health.vic.gov.au/about/publications/policiesandguidelines/victorian-cost-data-collection-2015-16>. Accessed on 29 June 2017

<sup>23</sup> <https://thewomens.r.worldssl.net/images/uploads/general-downloads/reports-publications/rwh-annual-report-2016.pdf>. Accessed 21 June 2017

Hospital employed 1,339.5 full time equivalent staff<sup>24</sup>. Some of the public health services offered by The Royal Women's Hospital includes:

- Alcohol and drug unit
- Clinical genetics unit
- Diabetes unit
- Domiciliary care unit
- Emergency department
- In vitro fertilisation unit
- Infectious diseases unit
- Neonatal intensive care unit
- Obstetric services
- Oncology unit
- Paediatric service.<sup>25</sup>

### *Overview of the costing process*

The Royal Women's Hospital uses the Power Performance Manager 2 (PPM2) costing system and has done so for the past six years. Patient level costing is undertaken on an annual basis for both The Royal Women's Hospital and the maternity and gynaecology units at Sandringham Hospital, which are managed by The Royal Women's Hospital under contract with Alfred Health.

Activity and feeder data is derived from the Patient Administration System (PAS) which is the iPM patient management system. The activity data extracted from the PAS is reviewed for data quality and where relevant, reconciled against the VAED, VEMD, and VINAH. This happens on a monthly basis (with emergency data being reconciled quarterly). Each feeder is tested for data quality to ensure records can be linked to the appropriate activity. Following the linking process, a review of unlinked activity is undertaken in accordance with The Royal Women's Hospital "Clinical Costing Guideline and Procedure" - Item 3.2.2.1 Data Load reconciliation. This ensures that any errors in records are amended to enable further linking.

At the completion of the costing process, the Business & Performance Analyst (Clinical Costing) presents a number of reports to the Manager of Business Performance Reporting and the Director and Executive Director of Finance & Corporate Services to review the costing data. This review includes comparisons of top DRGs with historical data and between the two sites. The Executive Director of Finance & Corporate Services is the signatory to the final VCDC submission to VIC Health. The health service relies on both the validation and quality checks required as part of the VCDC process to inform the robustness of its submission to VIC Health.

Historical costing data and live activity data is held in a data warehouse. The Business & Performance Analyst (Clinical Costing) responds to ad hoc requests for costing data analysis.

---

<sup>24</sup> *ibid*

<sup>25</sup> <https://www.myhospitals.gov.au/hospital/210A01230/royal-womens-hospital-parkville>. Accessed 21 June 2017

Costing data has been extensively sourced for external research projects, and business cases within the hospital for decision making purposes.

During 2015-16, The Royal Women's Hospital made changes to the weighting applied to unqualified babies. Previously there was no weighting applied to the allocation of costs of unqualified babies to the mother. For 2015-16, costs are allocated to unqualified babies at 30 percent of the mother's costs. In addition, The Royal Women's Hospital improved the governance arrangements for its VCDC submission which included formal sign off and documentation of the VCDC submission process.

### **9.2.2 Financial data**

For the Round 20 IFR, VIC Health completed the IFR data collection templates on behalf of The Royal Women's Hospital. VIC Health utilised similar reconciliation templates submitted by the hospital to do this. A representative from VIC Health attended and participated in the consultation process during the review, as well as costing staff from The Royal Women's Hospital.

Table 10 reflects a summary of The Royal Women's Hospital's costs, from the original extract from the GL through to the final NHCDC submission for The Royal Women's Hospital for Round 20. This table presents the financial reconciliation of expenditure for Round 20 for The Royal Women's Hospital and the transformation of this expenditure by the jurisdiction and IHPA for NHCDC submission. There are 11 items of reconciliation in the table. These items are labelled A to K. Items A to E relate to the expenditure submitted by the hospital/LHN, Items F to H relate to the costs submitted by the jurisdiction and Items I to K relate to the transformation of costs by IHPA. The following section in the report explains each item in more detail.

Table 66 – Round 20 NHCDC Reconciliation – The Royal Women’s Hospital

Hospital			Jurisdiction			IHPA		
Item	Amount	% of GL	Item	Amount		Item	Amount	
<b>A</b> General Ledger (GL)	\$ 281,653,417		<b>F</b> Costed Products received by jurisdiction	\$ 223,989,273		<b>I</b> Total costed products received by IHPA	\$ 220,657,883	
			<i>Variance</i>	\$ (3)		<i>Variance</i>	\$ -	
<b>B</b> Adjustments to the GL			<b>G</b> Final Adjustments			<b>J</b> IHPA Adjustments		
<i>Inclusions</i>	\$ 7,419,153		<i>Records that fail the QA check</i>	\$ (404,572)		<i>Admitted ED reallocations</i>	\$ 2,828,180	
<i>Exclusions</i>	\$ (64,143,960)		<i>Outpatient - Non Tier 2 clinics</i>	\$ (394,683)		<b>Final NHCDC costs</b>	<b>\$ 223,486,063</b>	
<b>Total hospital expenditure</b>	<b>\$ 224,928,610</b>	79.86%	<i>Other admitted out of scope activity</i>	\$ (36,250)				
			<i>Other out of scope non-admitted activity</i>	\$ (2,495,885)				
<b>C</b> Allocation of Costs			<b>Total costs submitted to IHPA</b>	<b>\$ 220,657,883</b>				
<i>Post Allocation Direct amount</i>	\$ 161,200,843							
<i>Post Allocation Overhead amount</i>	\$ 63,727,767							
<b>Total hospital expenditure</b>	<b>\$ 224,928,610</b>	79.86%						
<i>Variance</i>	\$ -	0.00%						
<b>D</b> Post Allocation Adjustments								
<i>Current year WIP</i>	\$ (4,561,352)							
<i>Prior year WIP</i>	\$ 3,622,018							
<b>Total expenditure allocated to patients</b>	<b>\$ 223,989,275</b>	78.24% *						
<b>E</b> Costed products submitted to jurisdiction			<b>H</b> Costed products submitted to IHPA			<b>K</b> Final NHCDC costed products		
<i>Acute and Newborns</i>	\$ 165,446,688		<i>Acute and Newborns</i>	\$ 165,005,869		<i>Acute^ and Newborns</i>	\$ 167,834,049	
<i>Non-admitted</i>	\$ 46,744,818		<i>Non-admitted</i>	\$ 46,350,133		<i>Non-admitted</i>	\$ 46,350,133	
<i>Emergency</i>	\$ 9,301,884		<i>Emergency</i>	\$ 9,301,881		<i>Emergency</i>	\$ 9,301,881	
<i>Sub Acute</i>	\$ -		<i>Sub Acute</i>	\$ -		<i>Sub Acute</i>	\$ -	
<i>Mental Health</i>	\$ -		<i>Mental Health</i>	\$ -		<i>Mental Health</i>	\$ -	
<i>Other</i>	\$ 2,495,886		<i>Other</i>	\$ -		<i>Other</i>	\$ -	
<i>Research</i>	\$ -		<i>Research</i>	\$ -		<i>Research</i>	\$ -	
<i>Teaching &amp; Training</i>	\$ -		<i>Teaching &amp; Training</i>	\$ -		<i>Teaching &amp; Training</i>	\$ -	
<i>System-generated patients</i>	\$ -		<i>System-generated patients</i>	\$ -		<i>System-generated patients</i>	\$ -	
	<b>\$ 223,989,275</b>	78.24% *		<b>\$ 220,657,883</b>			<b>\$ 223,486,063</b>	
<i>Variance</i>	\$ -		<i>Variance</i>	\$ -		<i>Variance</i>	\$ -	

Source: KPMG based on data supplied by The Royal Women’s Hospital, jurisdiction and IHPA

\* As WIP from prior years expenditure relates to prior year costs, this percentage excludes the \$3.62 million from the calculation

^ These figures include admitted emergency costs.

### *Explanation of reconciliation items*

This section discusses each of the reconciliation items including adjustments, inclusions and exclusions to the financial data. The information is based on the templates submitted for The Royal Women's Hospital and face-to-face review discussions.

#### *Item A – General Ledger*

The final GL amount extracted for The Royal Women's Hospital totalled \$281.65 million. This amount reflected the total expenditure for The Royal Women's Hospital and the maternity and gynaecology units at Sandringham Hospital. There was a variance of \$1.19 million between the expenditure reported in the 2015-16 audited financial statements of \$280.46 million and the final GL which related to:

- Special Purpose Funds in the Royal Women's Hospital Foundation which were eliminated upon consolidation of financial data – \$1.03 million
- Contributions to the Victorian Comprehensive Cancer Centre Joint Venture which were eliminated upon consolidation of financial data – \$146,000
- Recharges in the Royal Women's Hospital Foundation which were eliminated upon consolidation of financial data – \$13,000.

These costs are excluded from the GL prior to loading into the costing system.

#### *Item B – Adjustments to the GL*

Inclusions made to the GL totalled \$7.42 million which are summarised below:

- National Blood Authority allocation which is allocated/managed by VIC Health on behalf of health services – \$1.33 million
- Health Purchasing Victoria costs relating to The Royal Women's Hospital's share of the administrative costs of VIC Health's centralised procurement function – \$146,616
- Public Private Partnership (PPP) related expenditure for facilities management services provided to the hospital under the PPP arrangements, which commenced in 2008. Services provided by the PPP operator include security, car parking, portering, cleaning, engineering etc. This amount is recorded as negative grant revenue from VIC Health, but has the effect of increasing the operating expenditure for patient costing in this adjustment - \$6.45 million
- Workcover Recoveries of \$0.50 million were reclassified to a negative-expense for costing.

The basis of these adjustments appears reasonable.

Exclusions from the GL totalled \$64.14 million and related to

- Expenditure eliminated upon consolidation of financial data as detailed in Item A - \$1.19 million
- Special Purpose Funds linked to research – \$5.32 million
- Special Purpose Funds quarantined for specific donations - \$3.23 million
- Controlled entity cost centres in the GL relating to the Royal Women's Hospital Foundation and the Victorian Comprehensive Cancer Centre Joint Venture - \$569,193
- Depreciation, amortisation and other capital expenditure - \$35.11 million



- Expenditure associated with the PPP redevelopment project at The Royal Women's Hospital which commenced in 2008. This expenditure includes interest expense, lifecycle costs, service costs and other costs such as contingent rent. It has previously been reported as capital expenditure, however is now reported as operating expenses per VIC Health instructions. Expenses are partially off-set by a non-cash grant revenue reported under Government Grants detailed in the exclusions above - \$16.38 million
- Commonwealth funded Centre Against Sexual Assault - \$2.11 million
- Genetics services provided by Western Health for which there is no activity at The Royal Women's Hospital - \$255,397
- Cost centre associated with the child care centre provided at the hospital (note this is a negative expense) – (\$23,984)

The basis of these adjustments appears reasonable, with the exception of the exclusion of depreciation, amortisation and other capital expenditure. This expenditure is deemed out of scope under the VCDC Business Rules and is therefore, not included in the costs submitted by hospitals to VIC Health. The exclusion of this expenditure may impact on the completeness of the NHCDC.

In addition, the AHPCS Version 3.1 does not provide specific guidance for the treatment of PPP expenditure (both capital related and operating). Capital related expenditure is deemed out of scope under the VCDC Business Rules and is therefore, not included in the costs submitted by hospitals to VIC Health. The exclusion of PPP capital related expenditure may impact on the completeness of the NHCDC.

These adjustments established an expenditure base for costing of \$224.93 million. This was approximately 79.86 percent of total expenditure reported in the GL.

#### *Item C – Allocation of costs*

The Royal Women's Hospital undertakes a process of reclass/transfers between cost centres.

- It was observed that the total of all direct cost centres of \$161.20 million was allocated.
- It was observed through the templates that overheads of \$63.73 million were allocated to direct cost centres.

These amounted to \$224.93 million. No variance was identified between Item B and Item C.

#### *Item D – Post Allocation Adjustments*

The Royal Women's Hospital adjusted post allocation expenditure for the exclusion of WIP patients not discharged at 30 June 2016 (\$4.56 million) and the inclusion of prior year WIP (\$3.62 million). The basis of these adjustments appears reasonable.

The total expenditure allocated to patients for The Royal Women's Hospital was \$223.99 million, which represented approximately 78.24 percent of the GL (note this percentage calculation excludes WIP from prior years as do not form part of the current year GL).

#### *Item E - Costed products submitted to jurisdiction*

Costs derived by The Royal Women's Hospital and reported at product level were equal to \$223.99 million. Costs were allocated to the VCDC Program categories. However, when mapped to the NHCDC product types, costs were allocated to Acute, Non-admitted, Emergency and Other.

*Item F – Costed products received by the jurisdiction*

Costed by product received by the jurisdiction was \$223.99 million. No variance was noted between Items E and F.

*Item G – Final adjustments*

VIC Health transformed The Royal Women's Hospital's VCDC data for NHCDC submission to IHPA. The adjustments made for Round 20 totalled \$3.33 million and included:

- Records that fail VIC Health's quality assurance checks - \$404,572
- Out of scope Tier 2 clinic patients - \$394,683
- Other admitted out of scope activity – \$36,250
- Unlinked records associated with diagnostic services or other services that could not be linked to the VAED or the VMD of \$2.50 million were excluded. These records were assigned to system-generated patients in the costing system.

The basis of these adjustments appears reasonable. The Royal Women's Hospital investigates the reasons for unlinked activity to the VCDC to ensure appropriate treatment in future rounds. It should be noted that VIC Health did not exclude National Blood Authority costs following submission of The Royal Women's Hospital VCDC. This addresses the recommendation included in the Round 19 report.

The total NHCDC costs submitted to IHPA by VIC Health was \$220.66 million.

*Item H – Costed products submitted to IHPA*

Costs derived by the jurisdiction and reported at product level to IHPA totalled \$220.66 million.

*Item I – Total products received by IHPA*

Costed products received by IHPA totalled \$220.66 million. No variance was noted between Item H and Item I.

*Item J – IHPA adjustments*

- *Admitted emergency*

Upon receipt of cost data, IHPA allocates the admitted emergency costs back to admitted patients for the purposes of reporting and analysis. Within IHPA's reconciliation, this amount was a duplication of admitted emergency costs and not an additional cost. This amounted to \$2.83 million for The Royal Women's Hospital.

- *Unqualified Baby Adjustment*

Upon receipt of cost data, IHPA redistributes the unqualified baby cost to the mother separation to provide a complete delivery cost. Within IHPA's reconciliation this was not an additional cost but a movement between patients.

*Item K – Final NHCDC Costed Outputs*

The final NHCDC costed data for The Royal Women's Hospital that was loaded into the National Round 20 cost data set was \$223.49 million which included the admitted emergency cost of \$2.83 million.

### **9.2.3 Activity data**

Table 11 presents patient activity data based on source and costing systems for The Royal Women's Hospital. This activity data is then compared to Table 68 which highlights the transfer of activity data by NHCDC product from The Royal Women's Hospital to VIC Health and then through to IHPA submission and finalisation.

Table 67 – Activity data – The Royal Women’s Hospital

Activity Data	# Records from Source	# Records in costing system	Variance	# Records linked to Admitted	# Records linked to Emergency	# Records linked to Non-admitted	# Records linked to Syst-Gen patient	# Records linked to Other	Total Linking Process	# Unlinked records
Patient Admission System	36,358	36,358	-	36,358	-	-	-	-	36,358	-
Emergency System	28,038	55,531	27,493	-	55,531	-	-	-	55,531	-
Outpatient Booking System	180,202	180,201	(1)	-	-	180,201	-	-	180,201	-
<b>TOTAL</b>	<b>244,598</b>	<b>272,090</b>	<b>27,492</b>	<b>36,358</b>	<b>55,531</b>	<b>180,201</b>	<b>-</b>	<b>-</b>	<b>272,090</b>	<b>-</b>

Source: KPMG based on data supplied by The Royal Women’s Hospital and VIC Health

The following should be noted about the activity data provided by The Royal Women’s Hospital:

- The variance between the emergency system records from source and the records for costing in Table 67 of 27,493 records related to the creation of duplicate records for the purposes of allocating medical and nursing costs separately to these episodes.
- The variance between the outpatient booking system records from source and the records for costing in Table 67 of 1 record related to a data error from a 2016-17 patient.

Table 68 – Activity data submission – The Royal Women’s Hospital

Product	Activity related to 2015-16 Costs	Adjustments	Activity submitted to jurisdiction	Adjustments	Activity submitted to IHPA	Activity received by IHPA	Adjustments	Total Activity submitted for Round 20 NHCDC
Acute and Newborns	36,358	(250)	36,108	(122)	35,986	35,986	(8,211)	27,775
Non-admitted	180,120	-	180,120	(217)	179,903	179,903	-	179,903
Emergency	28,038	(6)	28,032	-	28,032	28,032	-	28,032
Sub Acute	-	-	-	-	-	-	-	-
Mental Health	-	-	-	-	-	-	-	-
Other	7,983	-	7,983	(7,983)	-	-	-	-
Research	-	-	-	-	-	-	-	-
Teaching and Training	-	-	-	-	-	-	-	-
<b>Total</b>	<b>252,499</b>	<b>(256)</b>	<b>252,243</b>	<b>(8,322)</b>	<b>243,921</b>	<b>243,921</b>	<b>(8,211)</b>	<b>235,710</b>

Source: KPMG based on data supplied by The Royal Women’s Hospital, VIC Health and IHPA

The following should be noted about the transfer of activity data in Table 68 for The Royal Women’s Hospital:

- The Royal Women’s Hospital submits data to VIC Health in accordance with the VCDC guidelines in relation to product type. VIC Health reallocated activity data to align with NHCDC product types.
- There was a variance between the number of records from source systems, detailed in Table 11 (272,090 records) and activity related to 2015-16 costs by NHCDC product in Table 68 (252,499 records) of 19,591 records. The majority of the variance related to the net effect of system-generated encounters created when episode data does not link to a VCDC activity file of 7,983 records, and removal of duplicate records (totalling 27,493 records) in the emergency system. The remaining 81 records variance related to patients that attended the outpatient clinic WHREMH – Women’s Health Research-Martha Hickey. This is a clinical trials research clinic funded through a Special Purpose Fund cost centre, which is excluded from costing. The 81 episodes were therefore allocated zero cost.
- The Royal Women’s Hospital made adjustments for current year WIP prior to sending to the jurisdiction.
- Adjustments made by VIC Health related to the mapping of VCDC products to NHCDC products and the exclusion of records that failed validation tests, out of scope tier 2 clinics, other non-admitted activity and other admitted activity (detailed in Item G of the reconciliation).

- The adjustments made by IHPA to the Acute and Newborns product group related to the UQB adjustment as discussed in Item J of the explanation of reconciliation items.
- Adjustments made by IHPA related to admitted emergency reallocations are for reporting and analysis purposes (as discussed in Item J of the explanation of reconciliation items) and have no impact on the reported activity.

#### **9.2.4 Feeder data**

Table 69 reflects data associated with patient feeder data for The Royal Women's Hospital.

Table 69 – Feeder data – The Royal Women’s Hospital

Feeder Data	# Records from Source	# Records in costing system	Variance	# Records linked to Admitted	# Records linked to Emergency	# Records linked to Non-admitted	# Records linked to Syst-Gen patient	# Records linked to Other	Total Linking Process	# Unlinked records	% Linked	% to Syst-Gen patient
Interpreters	20,502	20,502	-	2,091	2,054	16,357	-	-	20,502	-	100.00%	0.00%
Domiciliary	16,794	16,792	(2)	16,470	-	-	-	-	16,470	322	98.08%	0.00%
Pathology	196,731	196,731	-	80,746	35,309	74,898	-	-	190,953	5,778	97.06%	0.00%
Blood Products	6,101	6,101	-	3,478	157	1,505	-	-	5,140	961	84.25%	0.00%
Pharmacy	38,335	29,915	(8,420)	17,465	552	10,463	-	-	28,480	1,435	95.20%	0.00%
Radiology - General	11,095	11,093	(2)	4,972	615	3,256	-	-	8,843	2,250	79.72%	0.00%
Radiology - MRI	1,165	1,165	-	229	8	725	-	-	962	203	82.58%	0.00%
Ultrasound	23,280	20,107	(3,173)	2,078	510	17,431	-	-	20,019	88	99.56%	0.00%
Operating Theatre System	11,702	48,117	36,415	48,110	-	-	-	-	48,110	7	99.99%	0.00%
Prosthesis	3,380	620	(2,760)	620	-	-	-	-	620	-	100.00%	0.00%
Sandringham - Allied Health	1,959	1,959	-	818	-	1,136	-	-	1,954	5	99.74%	0.00%
Sandringham - Pathology	15,885	15,885	-	7,021	-	8,864	-	-	15,885	-	100.00%	0.00%
Sandringham - Pharmacy	130	130	-	73	-	50	-	-	123	7	94.62%	0.00%
Sandringham - Radiology - General	690	690	-	300	-	379	-	-	679	11	98.41%	0.00%
Sandringham - Operating Theatre System	1,270	1,270	-	1,270	-	-	-	-	1,270	-	100.00%	0.00%
Sandringham - Prosthesis	65	65	-	65	-	-	-	-	65	-	100.00%	0.00%

Source: KPMG based on data supplied by The Royal Women’s Hospital and VIC Health

The following should be noted about the feeder data in Table 13 for The Royal Women’s Hospital:

- There are currently 16 feeders used from a range of hospital source systems that represent major hospital departments providing resource activity.
- The variance between the source and costing system records for domiciliary care (post natal care in the home) related to records with incorrect dates.
- The variance between the source and costing system records for pharmacy related to dispenses for patients from the Francis Perry Private Hospital (which co-locates with The Royal Women's Hospital).

- The variance between the source and costing system records for radiology related to a record with an incorrect date and a record with an invalid Unique Record (UR) number.
- The variance between the source and costing system records for ultrasound related to referrals for patients from other hospitals.
- The variance between the source and costing system records for the operating theatre system related to the creation of duplicate records for costing anaesthetist costs separately to other medical costs.
- The variance between the source and costing system records for the prosthesis feeder related to the capture of other medical supplies that were not categorised as prostheses.
- The number of records linked to admitted, emergency and non-admitted patients had a greater than 82 percent link or match. This suggests that there is robustness in the level of feeder activity reported back to episodes.
- The unlinked records in the domiciliary feeder system related to patients not in the PAS.
- The unlinked records in the Blood Products feeder system related to missing UR numbers.
- The unlinked records in the Pharmacy, Pathology and Radiology feeder systems related to the provision of services outside the date range within The Royal Women's Hospital's linking rules. This applies to date ranges for both admitted and non-admitted patients.

### 9.2.5 Treatment of WIP

Table 14 demonstrates models for WIP and its treatment in The Royal Women's Hospital's Round 20 NHCDRC submission.

*Table 70 – WIP – The Royal Women's Hospital*

Model	Description	Submitted to Round 20 NHCDRC
1	Cost for patients admitted and discharged in 2015-16 only	Submitted to Round 20 of the NHCDRC
2	Costs for patients admitted prior to 2015-16 and discharged in 2015-16	Submitted to Round 20 of the NHCDRC. Costs are submitted for patients admitted in 2014-15.
3	Costs for patients admitted prior to or in 2015-16 and remain admitted at 30 June 2016	Not submitted to Round 20 of the NHCDRC

*Source: KPMG, based on The Royal Women's Hospital templates and review discussions*

In summary, The Royal Women's Hospital submitted costs for admitted and discharged patients in 2015-16 and WIP costs for those patients admitted in 2014-15, but discharged, in 2015-16.

### 9.2.6 Critical care

The Royal Women's Hospital indicated that they have a co-located Neonatal Intensive Care Unit (NICU) and a Special Care Nursery (SCN). The NICU/SCN is located in one ward and the bed changes depending on the patient classification. Expenditure is reported in a critical care cost group for the co-located NICU/SCN, in accordance with the applicable standard. The Royal Women's Hospital applies no weighting between the bed classifications. The process described by The Royal Women's Hospital for costing critical areas indicates that intensive care (the NICU)



and high dependency unit (the SCN) areas can be separately identified from 2016-17 onwards. Critical care costs are captured in accordance with the applicable standard.

### 9.2.7 Costing public and private patients

The Royal Women's Hospital does not adjust costing specific patients based on their financial classification, i.e. whether they are a public or a privately insured patient. Applicable costs are allocated to private patients, including a share of pathology, radiology, prosthesis and medical costs, in the same manner as public patients.

Private patient revenue is not offset against any related expenditure.

Private practice arrangements for medical officers are accounted for in special purpose funds and are excluded from the costing process.

### 9.2.8 Treatment of specific items

A number of specific items were discussed during the consultation phase of the review to understand the manner in which they are treated in the costing process. These items are used to inform the NEP and specific funding model adjustments for particular patient cohorts. The Royal Women's Hospital's treatment of each of the items is summarised below.

*Table 71 – Treatment of specific items – The Royal Women's Hospital*

Item	Treatment
Research	<p>VCDC Business Rules were applied. Research expenditure embedded within operational cost centres is spread across patients and not assigned to the Research product.</p> <p>Where research expenditure is allocated within special purpose funds, it is separately identified and not submitted to the NHCDC.</p>
Teaching and Training	<p>Direct Teaching and Training expenditure is treated as an overhead and spread across patients. This expenditure is not assigned to the Teaching and Training product.</p> <p>Embedded teaching is not identified.</p>
Shared/Other commercial entities	<p>Expenditure associated with the Royal Women's Hospital Foundation and the Victorian Comprehensive Cancer Centre Joint Venture is excluded prior to costing via special purpose funds.</p> <p>The Royal Women's Hospital has a PPP redevelopment project which commenced in 2008. These expenses comprise interest, lifecycle costs, service costs and other costs such as contingent rent. The expenditure has previously been reported below the line as capital expenses. It is now reported as operating expenditure</p>

Item	Treatment
	<p>per VIC Health instructions based on a revised accounting treatment. Expenses are off-set by a non-cash grant revenue reported under Government Grants which relates to security, car parking, portering expenses etc. The net adjustment is excluded in the financial reconciliation</p> <p>The Royal Women's Hospital indicated that it operates a childcare facility. This expenditure is excluded via special purpose funds.</p>

Source: KPMG, based on IFR discussions

## 9.2.9 Sample patient data

IHPA selected a sample of five patients from The Royal Women's Hospital for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. VIC Health provided the patient level costs for all five patients and these reconciled to IHPA records. The results are summarised in Table 16.

Table 72 – Sample patients – The Royal Women's Hospital

#	Product	Jurisdiction Records	Received by IHPA	Variance
1	Acute	\$1,902.61	\$1,902.61	\$ -
2	Non-Admitted	\$149.22	\$149.22	\$ -
3	Non-Admitted ED	\$324.06	\$324.06	\$ -
4	Acute	\$5,088.91	\$ 5,088.91	\$ -
5	Acute	\$1,951.96	\$1,951.96	\$ -

Source: KPMG, based on The Royal Women's Hospital and IHPA data

## 9.3 Austin Health

### 9.3.1 Overview

Austin Health is located in north-east of Melbourne and includes three facilities:

- Austin Hospital;
- Heidelberg Repatriation Hospital; and
- The Royal Talbot Rehabilitation Centre.

Austin Health operates 980 beds with 5,345 FTE and provides acute, sub-acute and mental health services, tertiary health services, health professional education and research. It is renowned for its specialist work in cancer, liver transplantation, spinal cord injuries, neurology, endocrinology, mental health and rehabilitation including a number of state-wide services.

Austin Health is a clinical teaching and training, affiliated with eight universities. In addition, it is the largest Victorian provider of training for specialist physicians and surgeons.

#### *Overview of the costing process*

Austin Health uses the Power Performance Manager 2 (PPM2) costing system. Patient level costing is undertaken on a bi-annual basis for the three hospitals included in the health group. The clinical costing team consists of one employee who is responsible for processing the activity and financial data through PPM2.

Activity and feeder data is derived from the Patient Administration System (PAS). The Business Intelligence team is responsible for extracting the data. The activity data extracted from the PAS is reviewed for data quality and where relevant reconciled against the VAED, VEMD and VINAH. Each feeder is tested for data quality to ensure records can be linked to the appropriate activity. Following the linking process, a review of unlinked activity is undertaken to ensure that any errors in records are amended to enable further linking.

At the completion of the costing process, the Clinical Costing Manager undertakes a comparison of DRGs for identifying outliers. Where outliers are identified, a decision is made with the service areas whether to change the data for the current submission, or recommend for changes to a subsequent submission. The Clinical Costing Manager maintains a permanent record of service area approval of their cost data and any confirmed changes for the current submission. Once the service areas have approved their cost data, the submission is forward to the Chief Executive Officer for approval and sign off. Austin Health relies on both the validation and quality checks required as part of the VCDC process to inform the robustness of its submission to VIC Health.

The Clinical Costing Manager responds to ad hoc requests for costing data analysis, however, the costing data is not used extensively by business unit managers within the hospital for decision making purposes. The Business Intelligence team is currently investigating a tool called Power BI in order to provide data analytics to Austin Health.

### 9.3.2 Financial data

For the Round 20 IFR, VIC Health completed the IFR data collection templates on behalf of Austin Health. VIC Health utilised similar reconciliation templates submitted by the hospital to do this. A

representative from VIC Health attended and participated in the consultation process during the review, as well as costing staff from Austin Health.

Table 52 reflects a summary of Austin Health's costs, from the original extract from the GL through to the final NHCDC submission for Austin Health for Round 20. This table presents the financial reconciliation of expenditure for Round 20 for Austin Health and the transformation of this expenditure by the jurisdiction and IHPA for NHCDC submission. There are 11 items of reconciliation in the table. These items are labelled A to K. Items A to E relate to the expenditure submitted by the hospital/LHN, Items F to H relate to the costs submitted by the jurisdiction and Items I to K relate to the transformation of costs by IHPA. The following section in the report explains each item in more detail.

Table 73 – Round 20 NHCDC Reconciliation – Austin Health

Hospital Item	Amount	% of GL	Jurisdiction Item	Amount	IHPA Item	Amount
<b>A</b> General Ledger (GL)	\$ 922,378,338		<b>F</b> Costed Products received by jurisdiction	\$ 808,185,162	<b>I</b> Total costed products received by IHPA	\$ 684,816,272
			<i>Variance</i>	\$ -	<i>Variance</i>	\$ -
<b>B</b> Adjustments to the GL			<b>G</b> Final Adjustments		<b>J</b> IHPA Adjustments	
Inclusions	\$ 12,540,386		Records that fail the QA check	\$ (1,694,875)	Admitted ED reallocations	\$ 32,012,737
Exclusions	\$ (111,491,693)		Records not linkable to activity	\$ (625,874)	<b>Final NHCDC costs</b>	<b>\$ 716,829,009</b>
<b>Total hospital expenditure</b>	<b>\$ 823,427,031</b>	<b>89.27%</b>	Outpatient - Non Tier 2 clinics	\$ (52,313,008)		
<b>C</b> Allocation of Costs			Mental Health	\$ (30,717,982)		
Post Allocation Direct amount	\$ 681,681,474		Boarders	\$ (9,155,928)		
Post Allocation Overhead amount	\$ 141,745,557		Other out of scope non-admitted activity	\$ (28,861,224)		
<b>Total hospital expenditure</b>	<b>\$ 823,427,031</b>	<b>89.27%</b>	<b>Total costs submitted to IHPA</b>	<b>\$ 684,816,272</b>		
<i>Variance</i>	\$ -	<b>0.00%</b>				
<b>D</b> Post Allocation Adjustments						
Current year WIP	\$ (33,609,523)					
Contracted services to external organisations	\$ (10,867,314)					
Unlinked records	\$ (62,592)					
Statewide Poison Centre	\$ (1,136,056)					
Records with VCDC mapping issues	\$ (386,514)					
Prior year WIP	\$ 30,820,129					
<b>Total expenditure allocated to patients</b>	<b>\$ 808,185,161</b>	<b>84.28% *</b>				
<b>E</b> Costed products submitted to jurisdiction			<b>H</b> Costed products submitted to IHPA		<b>K</b> Final NHCDC costed products	
Acute and Newborns	\$ 531,641,830		Acute and Newborns	\$ 472,223,767	Acute^ and Newborns	\$ 504,234,449
Non-admitted	\$ 143,698,539		Non-admitted	\$ 101,974,989	Non-admitted	\$ 101,974,989
Emergency	\$ 53,507,288		Emergency	\$ 52,881,405	Emergency	\$ 52,881,405
Sub Acute	\$ -		Sub Acute	\$ 57,665,830	Sub Acute^	\$ 57,667,885
Mental Health	\$ 30,717,982		Mental Health	\$ -	Mental Health	\$ -
Other	\$ 48,619,523		Other	\$ 70,281	Other	\$ 70,281
Research	\$ -		Research	\$ -	Research	\$ -
Teaching & Training	\$ -		Teaching & Training	\$ -	Teaching & Training	\$ -
System-generated patients	\$ -		System-generated patients	\$ -	System-generated patients	\$ -
	<b>\$ 808,185,162</b>	<b>84.28% *</b>		<b>\$ 684,816,272</b>		<b>\$ 716,829,009</b>
<i>Variance</i>	\$ 1		<i>Variance</i>	\$ -	<i>Variance</i>	\$ -

Source: KPMG based on data supplied by Austin Health, jurisdiction and IHPA

\* As WIP from prior years expenditure relates to prior year costs, this percentage excludes the \$30.82 million from the calculation

^ These figures include admitted emergency costs.

### *Explanation of reconciliation items*

This section discusses each of the reconciliation items including adjustments, inclusions and exclusions to the financial data. The information is based on the templates submitted for Austin Health and face-to-face review discussions.

#### *Item A – General Ledger*

The final GL amount extracted for Austin Health totalled \$922.38 million. This amount reflected the total expenditure for the three hospitals included in the Austin Health group. There was no variance between the expenditure reported in the 2015-16 audited financial statements and the final GL.

#### *Item B – Adjustments to the GL*

Inclusions made to the GL totalled \$12.54 million which are summarised below:

- National Blood Authority allocation which is purchased by VIC Health on behalf of health services – \$12.11 million
- Health Purchasing Victoria costs relating to Austin Health's share of the administrative costs of VIC Health's centralised procurement function – \$857,338
- Community dialysis medical equipment hire revenue is included and offsets expenditure. This relates to revenue received from other hospitals under a hub and spoke arrangement (activity is recorded at other hospitals) and is a negative adjustment – (\$423,776)

The basis of these adjustments appears reasonable.

Exclusions from the GL totalled \$111.49 million and related to

- Depreciation, amortisation and other capital expenditure - \$66.95 million
- Special purpose funds and other specific out of scope projects - \$13.03 million
- Commercial venture - \$12.66 million
- Contracted services to other agencies - \$5.36 million
- Departmental (internal) funds - \$8.60 million
- Fund raising activities considered out of scope - \$4.50 million
- Grants received on behalf of and paid to other agencies - \$1.12 million
- Transactions related to transfer pricing between entities (note this is a negative adjustment – (\$834,558)
- Other account errors - \$116,984

The basis of these adjustments appears reasonable, with the exception of capital expenditure. This expenditure is deemed out of scope by the VCDC Business Rules and is therefore, not included in the costs submitted by hospitals to VIC Health. The exclusion of this expenditure may impact on the completeness of the NHCDC.

These adjustments established an expenditure base for costing of \$823.43 million. This was approximately 89.27 percent of total expenditure reported in the GL.

#### *Item C – Allocation of costs*

Austin Health undertakes a process of reclass/transfers between cost centres, to ensure activity is aligned with expenditure.

- It was observed that the total of all direct cost centres of \$681.68 million was allocated.
- It was observed through the templates that overheads of \$141.75 million were allocated to direct cost centres.

These amounted to \$823.43 million. No variance was identified between Item B and Item C.

#### *Item D – Post Allocation Adjustments*

Costs were excluded after the allocation of costs in Item C and related to:

- WIP patients not discharged - \$33.61 million
- Contracted services provided to external organisations - \$10.87 million
- State-wide Poison Centre - \$1.14 million
- Records with VCDC mapping issues - \$386,514
- Unlinked records - \$62,592

Austin Health also included WIP from prior years totalling \$30.82 million.

The basis of these adjustments appears reasonable. Austin Health should continue to investigate reasons for unlinked/unmapped activity.

The total expenditure allocated to patients for Austin Health was \$808.19 million which represented approximately 84.28 percent of the GL (note this percentage calculation excludes WIP from prior years and WIP data errors as they are not part of the current year GL).

#### *Item E - Costed products submitted to jurisdiction*

Costs derived by Austin Health and reported at product level were equal to \$808.19 million. Costs were allocated to the VCDC Program categories. However, when mapped to the NHCDC product types, costs were allocated to Acute, Non-admitted, Emergency, Mental Health and Other. A minor variance of \$1 was identified between Item D and Item E.

#### *Item F – Costed products received by the jurisdiction*

Costed by product received by the jurisdiction was \$808.19 million. No variance was noted between Items E and F.

#### *Item G – Final adjustments*

VIC Health transformed Austin Health's VCDC data for NHCDC submission to IHPA. The exclusions made for Round 20 totalled \$123.37 million and related to:

- Records that fail VIC Health's quality assurance checks - \$1.69 million
- Records not linkable to activity - \$625,874
- Out of scope Tier 2 clinic patients - \$52.31 million
- Out of scope Mental health activity - \$30.72 million
- Boarders (external accommodation that is not ABD related) - \$9.16 million

- Other non-admitted activity such as home based aged care services, private patient clinics operated by the health service, services that could not be linked to a patient episode - \$28.86 million.

The basis of these adjustments appears reasonable. Austin Health should investigate the reasons for unlinked activity to the VCDC to ensure appropriate treatment in future rounds. It should be noted that VIC Health did not exclude National Blood Authority costs following submission of Austin Health's VCDC. This addresses the recommendation included in the Round 19 report.

The total NHCDC costs submitted to IHPA by VIC Health was \$684.82 million.

#### *Item H – Costed products submitted to IHPA*

Costs derived by the jurisdiction and reported at product level to IHPA totalled \$684.82 million. There was no variance between Item G and Item H.

#### *Item I – Total products received by IHPA*

Costed products received by IHPA totalled \$684.82 million. No variance was noted between Item H and Item I.

#### *Item J – IHPA adjustments*

Upon receipt of cost data, IHPA allocates the admitted emergency costs back to admitted patients for the purposes of reporting and analysis. Within IHPA's reconciliation, this amount was a duplication of admitted emergency costs and not an additional cost. This amounted to \$32.01 million for Austin Health.

#### *Item K – Final NHCDC Costed Outputs*

The final NHCDC costed data for Austin Health that was loaded into the National Round 20 cost data set was \$716.83 million which included the admitted emergency cost of \$32.01 million.

### **9.3.3 Activity data**

Table 74 presents patient activity data based on source and costing systems for Austin Health. This activity data is then compared to Table 75 which highlights the transfer of activity data by NHCDC product from the Austin Health to VIC Health and then through to IHPA submission and finalisation.



Table 74 – Activity data – Austin Health

Activity Data	# Records from Source	# Records in costing system	Variance	# Records linked to Admitted	# Records linked to Emergency	# Records linked to Non-admitted	# Records linked to Syst-Gen patient	# Records linked to Other	Total Linking Process	# Unlinked records
Admitted	103,729	103,729	-	103,729	-	-	-	-	103,729	-
Boarders	1,333	1,333	-	1,333	-	-	-	-	1,333	-
Emergency	83,902	83,902	-	-	83,902	-	-	-	83,902	-
Non-admitted	331,909	331,909	-	-	-	331,909	-	-	331,909	-
Other non-admitted (virtual patients)	51,660	51,660	-	-	-	-	-	51,660	51,660	-
Radiotherapy	64,210	64,210	-	-	-	-	-	64,210	64,210	-
Mental Health	94,870	94,870	-	-	-	-	-	94,870	94,870	-
<b>TOTAL</b>	<b>731,613</b>	<b>731,613</b>	<b>-</b>	<b>105,062</b>	<b>83,902</b>	<b>331,909</b>	<b>-</b>	<b>210,740</b>	<b>731,613</b>	<b>-</b>

Source: KPMG based on data supplied by the Austin Health and VIC Health

Table 75 – Activity data submission – Austin Health

Product	Activity related to 2015-16 Costs	Adjustments	Activity submitted to jurisdiction	Adjustments	Activity submitted to IHPA	Activity received by IHPA	Adjustments	Total Activity submitted for Round 20 NHCDC
Acute and Newborns	103,729	-	103,729	(3,752)	99,977	99,977	99,977	-
Non-admitted	331,909	-	331,909	(76,311)	255,598	255,598	255,598	-
Emergency	83,902	-	83,902	(3,306)	80,596	80,596	80,596	-
Sub Acute	-	-	-	3,295	3,295	3,295	3,295	-
Mental Health	94,870	-	94,870	(94,870)	-	-	-	-
Other	117,203	-	117,203	(117,192)	11	11	11	-
Research	-	-	-	-	-	-	-	-
Teaching and Training	-	-	-	-	-	-	-	-
<b>Total</b>	<b>731,613</b>	<b>-</b>	<b>731,613</b>	<b>(292,136)</b>	<b>439,477</b>	<b>439,477</b>	<b>439,477</b>	<b>-</b>

Source: KPMG based on data supplied by Austin Health, VIC Health and IHPA

The following should be noted about the transfer of activity data in Table 75 for Austin Health:

- Austin Health submits data to VIC Health in accordance with the VCDC guidelines in relation to product type. VIC Health reallocated activity data to align with NHCDC product types.
- The total activity related to 2015-16 costs in Table 75 (731,613 records) reconciled with the activity data loaded into the costing system in Table 74 Table 53.
- Austin Health made no adjustments to activity prior to sending to the jurisdiction.
- Adjustments made by VIC Health related to the mapping of VCDC products to NHCDC products and the exclusion of records that failed validation tests, out of scope tier 2 clinics, mental health activity and other non-admitted activity (detailed in Item G of the reconciliation).
- Adjustments made by IHPA related to admitted emergency reallocations are for reporting and analysis purposes (as discussed in Item J of the explanation of reconciliation items) and have no impact on the reported activity.

#### **9.3.4 Feeder data**

Table 76 reflects data associated with patient feeder data for Austin Health.

Table 76 – Feeder data – Austin Health

Feeder Data	# Records from Source	# Records in costing system	Variance	# Records linked to Admitted	# Records linked to Emergency	# Records linked to Non-admitted	# Records linked to Syst-Gen patient	# Records linked to Other	Total Linking Process	# Unlinked records	% Linked	% to Syst-Gen patient
Ambulance	12,945	12,945	-	8,349	1,019	2,381	1,194	2	12,945	-	100.00%	9.22%
Blood	27,112	27,112	-	26,734	29	-	349	-	27,112	-	100.00%	1.29%
Cath Lab	35,844	35,844	-	21,713	-	7,304	6,827	-	35,844	-	100.00%	19.05%
Chemo Pharmacy	67,815	67,815	-	46,822	231	19,566	1,126	70	67,815	-	100.00%	1.66%
Consult Liaison Mental Health	1,172	1,172	-	1,141	-	-	-	-	1,141	31	97.35%	0.00%
Diabetes Educator	1,147	1,147	-	416	731	-	-	-	1,147	-	100.00%	0.00%
Dummy	21	21	-	-	-	-	-	21	21	-	100.00%	0.00%
Emergency	228,857	228,857	-	-	228,857	-	-	-	228,857	-	100.00%	0.00%
Imaging	172,408	172,408	-	63,552	51,953	36,729	20,147	27	172,408	-	100.00%	11.69%
Interpreters	23,976	23,976	-	3,758	387	17,374	2,457	-	23,976	-	100.00%	10.25%
Mental Health	105,653	105,653	-	-	-	-	-	105,653	105,653	-	100.00%	0.00%
Met Call and Code Blue	3,021	3,021	-	2,983	26	4	8	-	3,021	-	100.00%	0.26%
NPS	4,449	4,449	-	1,133	16	2,389	911	-	4,449	-	100.00%	20.48%
Nuc Med&PET	14,951	14,951	-	3,336	139	5,445	6,028	3	14,951	-	100.00%	40.32%
Nursing	1,096,232	1,096,232	-	1,096,232	-	-	-	-	1,096,232	-	100.00%	0.00%
Orthotics	4,265	4,265	-	4,065	200	-	-	-	4,265	-	100.00%	0.00%
Outpatients	260,307	260,307	-	-	-	260,307	-	-	260,307	-	100.00%	0.00%
Pathology	1,373,653	1,373,653	-	547,998	186,862	292,114	345,212	1,467	1,373,653	-	100.00%	25.13%
Pharmacy	257,276	257,276	-	207,457	3,799	34,337	11,202	481	257,276	-	100.00%	4.35%
Phase of Care	4,635	4,635	-	4,635	-	-	-	-	4,635	-	100.00%	0.00%
Radiotherapy	65,396	65,396	-	-	-	-	-	65,396	65,396	-	100.00%	0.00%
Resp Med	24,696	24,696	-	3,418	-	8,030	13,248	-	24,696	-	100.00%	53.64%
Surgery Centre	360,213	360,213	-	349,632	-	149	10,432	-	360,213	-	100.00%	2.90%

TCM	87,061	87,061	-	87,061	-	-	-	-	87,061	-	100.00%	0.00%
Theatre Anaesth	33,530	33,530	-	33,368	-	-	162	-	33,530	-	100.00%	0.48%
Theatre Mins	90,091	90,091	-	89,089	-	-	1,002	-	90,091	-	100.00%	1.11%
Theatre-Prostheses	13,896	13,896	-	13,892	-	-	4	-	13,896	-	100.00%	0.03%
VPIC	40,990	40,990	-	-	-	-	-	40,990	40,990	-	100.00%	0.00%

Source: KPMG based on data supplied by Austin Health and VIC Health

The following should be noted about the feeder data in Table 55 for Austin Health:

- There are currently 28 feeders used from a range of hospital source systems that represent major hospital departments providing resource activity.
- The number of records linked to admitted, emergency, non-admitted, other and system-generated patients had a greater than 97 percent link or match. This suggests that there is robustness in the level of feeder activity reported back to episodes.
- Records were linked to system-generated patients within the costing process for a number of feeders. The major reasons for this are summarised below:
  - Ambulance feeder - related to records that could not be linked to the VAED.
  - Cath lab feeder - related to outpatient data not recorded properly in the external cardiac cath lab system.
  - Imaging, interpreters, met call and code blue, and pharmacy feeders - related to records that did not match the date ranges in the linking rules.
  - Nuc Med&PET feeder – related to data quality issues associated with the use of an external system.
  - Pathology feeder – related to the provision of in-house pathology services to external patients (Mercy Hospital and Northern Health).
  - Resp Med feeder – related to the provision of sleep lab services to externally referred patients. Sleep lab patients are not admitted to the hospital.

### 9.3.5 Treatment of WIP

Table 56 demonstrates models for WIP and its treatment in Austin Health’s Round 20 NHCDC submission.

Table 77 – WIP – Austin Health

Model	Description	Submitted to Round 20 NHCDC
1	Cost for patients admitted and discharged in 2015-16 only	Submitted to Round 20 of the NHCDC
2	Costs for patients admitted prior to 2015-16 and discharged in 2015-16	Submitted to Round 20 of the NHCDC. Costs are submitted for patients admitted in 2014-15.
3	Costs for patients admitted prior to or in 2015-16 and remain admitted at 30 June 2016	Not submitted to Round 20 of the NHCDC

Source: KPMG, based on Austin Health templates and review discussions

In summary, Austin Health submitted costs for admitted and discharged patients in 2015-16 and WIP costs for those patients admitted in 2014-15, but discharged, in 2015-16.

### 9.3.6 Critical care

Austin Health indicated that they have a co-located Intensive Care Unit (ICU) and a High Dependency Unit (HDU). The ICU/HDU is located in one ward and the bed changes depending on the patient classification. Expenditure is reported in one cost centre for the co-located HDU/ICU. Austin Health does not apply any weighting between the bed classifications, i.e. ICU and HDU patients receive the same allocation of costs. Austin Health also has HDU beds throughout the hospital which are classified by the bed acuity system in place at the hospital, these beds are included in the relevant ward costs and allocated to all patients who occupied that ward.

Austin Health also has a Coronary Care located in a ward of the hospital. Coronary Care expenditure can be separately identified.

The process described by Austin Health for costing critical areas indicates that costs are captured in accordance with the applicable standard.

### 9.3.7 Costing public and private patients

Austin Health does not adjust costing specific patients based on their financial classification, i.e. whether they are a public or a privately insured patient. Applicable costs are allocated to private patients, including a share of pathology, radiology and medical costs, in the same manner as public patients. Prosthesis costs are allocated directly to the patient.

Private patient revenue is not offset against any related expenditure.

Private practice arrangements for medical officers are accounted for in special purpose funds and are excluded from the costing process.

### 9.3.8 Treatment of specific items

A number of items were discussed during the review to understand their treatment in the costing process as the cost data is used to inform the NEP and specific funding model adjustments for particular patient cohorts. Austin Health's treatment of each of the items is summarised below.

*Table 78 – Treatment of specific items – Austin Health*

Item	Treatment
Research	<p>VCDC Business Rules were applied. Research expenditure embedded within operational cost centres is spread across patients and not assigned to the Research product.</p> <p>Where research expenditure is allocated within special purpose funds, it is separately identified and not submitted to the NHCD.</p>
Teaching and Training	<p>Direct Teaching and Training expenditure is treated as an overhead and spread across patients. This expenditure is not assigned to the Teaching and Training product.</p> <p>Embedded teaching is not identified.</p>
Shared/Other commercial entities	<p>Austin Health has a food production facility and provides food to the Austin as well as other hospitals, for which it receives revenue. The revenue and expenditure of this facility is isolated to special purpose funds and applicable food costs for the Austin are not excluded from the costing process.</p> <p>Other commercial entities such as car parking and cafes are outsourced to external parties. The revenue received via lease agreements is not offset against any expenditure.</p>

Source: KPMG, based on IFR discussions

### 9.3.9 Sample patient data

IHPA selected a sample of five patients from the Austin Health for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. VIC Health provided the patient level costs for all five patients and these reconciled to IHPA records. The results are summarised in Table 79.

Table 79 – Sample patients – Austin Health

#	Product	Jurisdiction Records	Received by IHPA	Variance
1	Acute	\$936.82	\$936.82	\$ -
2	Non-Admitted	\$159.31	\$159.31	\$ -
3	Non-Admitted ED	\$1,031.29	\$1,031.29	\$ -
4	Organ PD	\$6,732.71	\$6,732.71	\$ -
5	Acute	\$1,620.90	\$1,620.90	\$ -

Source: KPMG, based on the Austin Health and IHPA data



## 9.4 Swan Hill District Health

### 9.4.1 Overview

Swan Hill District Health is a rural public health service, located on the Murray River in rural Victoria, servicing an area of approximately 100km radius, with a population of 35,000 people. Swan Hill District Health has 143 beds, of which 75 are aged care beds and employs 470 staff (approximately 400 FTE)<sup>26</sup>. A sample of the services provided by Swan Hill District Health includes:

- Aged Care Services
- Alcohol and Other Drug Services
- Breast Care Nurse
- Cancer Resource Centre
- Chemotherapy
- Community Care
- Day Procedure Unit
- Dental Services
- Diabetes Services
- Emergency Department
- headspace Swan Hill
- Hospital Admission Risk Program (HARP) Men
- Occupational Therapy
- Palliative Care Services
- Physiotherapy
- Podiatry
- Pregnancy and Birth
- Radiology Services
- Renal Dialysis Unit
- Rural Outreach Program
- Specialist Clinics
- Speech Pathology
- Surgical Services.<sup>27</sup>

---

<sup>26</sup> <http://www.shdh.org.au/about-us>. Accessed 22 June 2017

<sup>27</sup> <http://www.shdh.org.au/programs-and-services/>. Accessed 22 June 2017

### Overview of the costing process

Swan Hill District Health uses the SyRis Adaptive Costing system. The costing function is outsourced to SyRis Consulting who works with the health service to obtain data and define the costing methodology for input into the costing system. Patient level costing at Swan Hill District Health is undertaken on an annual basis. Swan Hill District Health is in the process of changing its costing systems to CostPro Plus which will enable more regular costing.

Activity and feeder data is derived from the Patient Administration System (PAS). The activity data extracted from the PAS is reviewed for data quality and where relevant reconciled against the VAED, VEMD and VINAH. Each feeder is tested for data quality to ensure records can be linked to the appropriate activity. Feeder records are compared to prior years for significant movements that require further investigation.

At the completion of the costing process, the Health Service Chief Financial Officer (CFO) and SyRis Consulting undertake a comparison of DRGs for significant variances. Once both the CFO and SyRis Consulting are satisfied with the data, the data is approved for submission. It should be noted that the CFO was responsible for preparation and approval of the submission for Round 20, due to significant staffing changes. Swan Hill District Health are considering the need for Chief Executive Officer approval in the future.

#### 9.4.2 Financial data

For the Round 20 IFR, VIC Health completed the IFR data collection templates on behalf of Swan Hill District Health. VIC Health utilised similar reconciliation templates submitted by the hospital (completed by SyRis Consulting) to do this. A representative from VIC Health attended and participated in the consultation process during the review, as well as the CFO and SyRis Consulting from Swan Hill District Health.

Table 80 reflects a summary of Swan Hill District Health's costs, from the original extract from the GL through to the final NHCDC submission for Swan Hill District Health for Round 20. This table presents the financial reconciliation of expenditure for Round 20 for Swan Hill District and the transformation of this expenditure by the jurisdiction and IHPA for NHCDC submission. There are 11 items of reconciliation in the table. These items are labelled A to K. Items A to E relate to the expenditure submitted by the hospital/LHN, Items F to H relate to the costs submitted by the jurisdiction and Items I to K relate to the transformation of costs by IHPA. The following section in the report explains each item in more detail.

Table 80 – Round 20 NHCDC Reconciliation – Swan Hill District Health

Hospital			Jurisdiction			IHPA		
Item	Amount	% of GL	Item	Amount		Item	Amount	
<b>A</b> General Ledger (GL)	\$ 54,863,458		<b>F</b> Costed Products received by jurisdiction	\$ 47,181,641		<b>I</b> Total costed products received by IHPA	\$ 28,404,052	
			<i>Variance</i>	\$ -		<i>Variance</i>	\$ -	
<b>B</b> Adjustments to the GL			<b>G</b> Final Adjustments			<b>J</b> IHPA Adjustments		
<i>Inclusions</i>	\$ 396,330		<i>Records that fail the QA check</i>	\$ (870,317)		<i>Admitted ED reallocations</i>	\$ 1,336,140	
<i>Exclusions</i>	\$ (4,373,601)		<i>Records not linkable to activity</i>	\$ (100,975)		<b>Final NHCDC costs</b>	<b>\$ 29,740,192</b>	
<b>Total hospital expenditure</b>	<b>\$ 50,886,187</b>	92.75%	<i>Aged Care</i>	\$ (8,980,517)				
<b>C</b> Allocation of Costs			<i>Community Health Care</i>	\$ (1,392,934)				
<i>Post Allocation Direct amount</i>	\$ 38,898,340		<i>Other out of scope non-admitted activity</i>	\$ (7,432,846)				
<i>Post Allocation Overhead amount</i>	\$ 11,987,846		<b>Total costs submitted to IHPA</b>	<b>\$ 28,404,052</b>				
<b>Total hospital expenditure</b>	<b>\$ 50,886,187</b>	92.75%						
<i>Variance</i>	\$ -	0.00%						
<b>D</b> Post Allocation Adjustments								
<i>Current year WIP</i>	\$ (173,897)							
<i>Special purpose funds</i>	\$ (3,704,537)							
<i>Prior year WIP</i>	\$ 173,645							
<b>Total expenditure allocated to patients</b>	<b>\$ 47,181,397</b>	85.68% *						
<b>E</b> Costed products submitted to jurisdiction			<b>H</b> Costed products submitted to IHPA			<b>K</b> Final NHCDC costed products		
<i>Acute and Newborns</i>	\$ 22,771,050		<i>Acute and Newborns</i>	\$ 20,794,919		<i>Acute^ and Newborns</i>	\$ 22,131,060	
<i>Non-admitted</i>	\$ 6,216,353		<i>Non-admitted</i>	\$ -		<i>Non-admitted</i>	\$ -	
<i>Emergency</i>	\$ 6,604,293		<i>Emergency</i>	\$ 6,503,318		<i>Emergency</i>	\$ 6,503,318	
<i>Sub Acute</i>	\$ -		<i>Sub Acute</i>	\$ 1,105,815		<i>Sub Acute</i>	\$ 1,105,815	
<i>Mental Health</i>	\$ -		<i>Mental Health</i>	\$ -		<i>Mental Health</i>	\$ -	
<i>Other</i>	\$ 11,589,944		<i>Other</i>	\$ -		<i>Other</i>	\$ -	
<i>Research</i>	\$ -		<i>Research</i>	\$ -		<i>Research</i>	\$ -	
<i>Teaching &amp; Training</i>	\$ -		<i>Teaching &amp; Training</i>	\$ -		<i>Teaching &amp; Training</i>	\$ -	
<i>System-generated patients</i>	\$ -		<i>System-generated patients</i>	\$ -		<i>System-generated patients</i>	\$ -	
	<b>\$ 47,181,641</b>	85.68% *		<b>\$ 28,404,052</b>			<b>\$ 29,740,192</b>	
<i>Variance</i>	\$ 244	0.00%	<i>Variance</i>	\$ -		<i>Variance</i>	\$ -	

Source: KPMG based on data supplied by Swan Hill District Health, jurisdiction and IHPA

\* As WIP from prior years expenditure relates to prior year costs, this percentage excludes the \$173,645 from the calculation

^ These figures include admitted emergency costs.

### *Explanation of reconciliation items*

This section discusses each of the reconciliation items including adjustments, inclusions and exclusions to the financial data. The information is based on the templates submitted for Swan Hill District Health and face-to-face review discussions.

#### *Item A – General Ledger*

The final GL amount extracted for Swan Hill District Health totalled \$54.86 million. There was no variance between the expenditure reported in the 2015-16 audited financial statements and the final GL.

#### *Item B – Adjustments to the GL*

Inclusions made to the GL totalled \$396,330 which are summarised below:

- National Blood Authority allocation which is managed/allocated by VIC Health on behalf of health services – \$359,855
- Health Purchasing Victoria costs relating to Swan Hill's share of the administrative costs of VIC Health's centralised procurement function – \$36,475

The basis of these adjustments appears reasonable.

Exclusions from the GL totalled \$4.37 million and related to

- Depreciation and amortisation - \$4.15 million
- Non-operating costs associated with capital cost centres - \$216,710
- Salary recoveries paid to other organisations - \$3,828

The basis of these adjustments appears reasonable, with the exception of depreciation, amortisation and non-operating costs in capital cost centres. This expenditure is deemed out of scope by the VCDC Business Rules and is therefore, not included in the costs submitted by hospitals to VIC Health. The exclusion of this expenditure may impact on the completeness of the NHCDC.

These adjustments established an expenditure base for costing of \$50.89 million. This was approximately 92.75 percent of total expenditure reported in the GL.

#### *Item C – Allocation of costs*

Swan Hill District Health undertakes a process of reclass/transfers between cost centres.

- It was observed that the total of all direct cost centres of \$38.90 million was allocated.
- It was observed through the templates that overheads of \$11.99 million were allocated to direct cost centres.

These amounted to \$50.89 million. No variance was identified between Item B and Item C.

#### *Item D – Post Allocation Adjustments*

Costs were excluded after the allocation of costs in Item C and related to:

- WIP patients not discharged - \$173,897
- Special purpose funds related to private medical activities - \$3.70 million

Swan Hill District Health also included WIP from prior years totalling \$173,645.

The basis of these adjustments appears reasonable.

The total expenditure allocated to patients for Swan Hill District Health was \$47.18 million which represented approximately 85.68 percent of the GL (note this percentage calculation excludes WIP from prior years and WIP data errors as they are not part of the current year GL).

*Item E - Costed products submitted to jurisdiction*

Costs derived by Swan Hill District Health and reported at product level were equal to \$47.18 million. Costs were allocated to the VCDC Program categories. However, when mapped to the NHCDC product types, costs were allocated to Acute, Non-admitted, Emergency and Other. A minor variance of \$244 was identified between Item D and Item E.

*Item F – Costed products received by the jurisdiction*

Costed by product received by the jurisdiction was \$47.18 million. No variance was noted between Items E and F.

*Item G – Final adjustments*

VIC Health transformed Swan Hill District Health's VCDC data for NHCDC submission to IHPA. The adjustments made for Round 20 totalled \$18.78 million and included:

- Records that fail VIC Health's quality assurance checks - \$870,317
- Records not linkable to activity - \$100,975
- Aged Care - \$8.98 million
- Community Health Care - \$1.39 million
- Other non-admitted activity such as home based aged care services, General Practice clinics operated by the health service, services that could not be linked to a patient episode - \$7.43 million.

The basis of these adjustments appears reasonable. Swan Hill District Health should investigate the reasons for unlinked activity to the VCDC to ensure appropriate treatment in future rounds. It should be noted that VIC Health did not exclude National Blood Authority costs following submission of Swan Hill District Health's VCDC. This addresses the recommendation included in the Round 19 report.

The total NHCDC costs submitted to IHPA by VIC Health was \$28.40 million.

*Item H – Costed products submitted to IHPA*

Costs derived by the jurisdiction and reported at product level to IHPA totalled \$28.40 million. No variance was noted between Items G and H.

*Item I – Total products received by IHPA*

Costed products received by IHPA totalled \$28.40 million. No variance was noted between Item H and Item I.

*Item J – IHPA adjustments*

- *Admitted emergency*

Upon receipt of cost data, IHPA allocates the admitted emergency costs back to admitted patients for the purposes of reporting and analysis. Within IHPA's reconciliation, this amount was a duplication of admitted emergency costs and not an additional cost. This amounted to \$1.34 million for Swan Hill District Health.

- *Unqualified Baby Adjustment*

Upon receipt of cost data, IHPA redistributes the unqualified baby cost to the mother separation to provide a complete delivery cost. Within IHPAs reconciliation this was not an additional cost but a movement between patients.

*Item K – Final NHCDC Costed Outputs*

The final NHCDC costed data for Swan Hill District Health that was loaded into the National Round 20 cost data set was \$29.74 million which included the admitted emergency cost of \$1.34 million.

### **9.4.3 Activity data**

Table 81 presents patient activity data based on source and costing systems for Swan Hill District Health. This activity data is then compared to Table 82 which highlights the transfer of activity data by NHCDC product from the Swan Hill District Health to VIC Health and then through to IHPA submission and finalisation.

Table 81 – Activity data – Swan Hill District Health

Activity Data	# Records from Source	# Records in costing system	Variance	# Records linked to Admitted	# Records linked to Emergency	# Records linked to Non-admitted	# Records linked to Syst-Gen patient	# Records linked to Other	Total Linking Process	# Unlinked records
Patient Admission System	7,334	7,334	-	7,334	-	-	-	-	7,334	-
Emergency System	13,495	13,495	-	-	13,495	-	-	-	13,495	-
<b>TOTAL</b>	<b>20,829</b>	<b>20,829</b>	-	<b>7,334</b>	<b>13,495</b>	-	-	-	<b>20,829</b>	-

Source: KPMG based on data supplied by Swan Hill District Health and VIC Health

Table 82 – Activity data submission – Swan Hill District Health

Product	Activity related to 2015-16 Costs	Adjustments	Activity submitted to jurisdiction	Adjustments	Activity submitted to IHPA	Activity received by IHPA	Adjustments	Total Activity submitted for Round 20 NHCDC
Acute and Newborns	7,334	-	7,334	(272)	7,062	7,062	(275)	6,787
Non-admitted	1	-	1	(1)	-	-	-	-
Emergency	13,495	-	13,495	(203)	13,292	13,292	-	13,292
Sub Acute	-	-	-	167	167	167	-	167
Mental Health	-	-	-	-	-	-	-	-
Other	3	-	3	(3)	-	-	-	-
Research	-	-	-	-	-	-	-	-
Teaching and Training	-	-	-	-	-	-	-	-
<b>Total</b>	<b>20,833</b>	-	<b>20,833</b>	<b>(312)</b>	<b>20,521</b>	<b>20,521</b>	<b>(275)</b>	<b>20,246</b>

Source: KPMG based on data supplied by Swan Hill District Health, VIC Health and IHPA

The following should be noted about the transfer of activity data in Table 82 for Swan Hill District Health:

- There was a variance between the number of records from source systems, detailed in Table 81 (20,829 records) and activity related to 2015-16 costs by NHCDC product in Table 82 (20,833 records) of four records. The variance related to system-generated encounters created for other costed activity not submitted to the NHCDC.
- Swan Hill District Health did not adjust the activity data prior to sending to the jurisdiction.
- Adjustments made by VIC Health related to the mapping of VCDC products to NHCDC products and the exclusion of records that failed validation tests, aged care, community care and other non-admitted activity (detailed in Item G of the reconciliation).
- The adjustments made by IHPA to the Acute and Newborns product group related to the UQB adjustment as discussed in Item J of the explanation of reconciliation items.
- Adjustments made by IHPA related to admitted emergency reallocations are for reporting and analysis purposes (as discussed in Item J of the explanation of reconciliation items) and have no impact on the reported activity.

#### **9.4.4 Feeder data**

Table 83 reflects data associated with patient feeder data for Swan Hill District Health.



Table 83 – Feeder data – Swan Hill District Health

Feeder Data	# Records from Source	# Records in costing system	Variance	# Records linked to Admitted	# Records linked to Emergency	# Records linked to Non-admitted	# Records linked to Syst-Gen patient	# Records linked to Other	Total Linking Process	# Unlinked records	% Linked	% to Syst-Gen patient
Ward Transfers System	15,001	5,625	(9,376)	5,625	-	-	-	-	5,625	-	100.00%	0.00%
Operating Theatre System	2,507	2,479	(28)	2,479	-	-	-	-	2,479	-	100.00%	0.00%
VMO, Anaesthetists	15,193	15,193	-	15,116	76	1	-	-	15,193	-	100.00%	0.00%
Pharmacy	917	917	-	916	-	1	-	-	917	-	100.00%	0.00%
Patient Transport	325	325	-	226	99	-	-	-	325	-	100.00%	0.00%
Pathology	22,527	22,159	(368)	8,366	13,793	-	-	-	22,159	-	100.00%	0.00%
Prostheses	396	396	-	396	-	-	-	-	396	-	100.00%	0.00%

Source: KPMG based on data supplied by Swan Hill District Health and VIC Health

The following should be noted about the feeder data in Table 83 for Swan Hill District Health:

- There are currently 7 feeders used from a range of hospital source systems that represent major hospital departments providing resource activity at Swan Hill District Health.
- The variance between the records from source and the records in the costing system for the ward transfer system of 9,376 records related to aged care bed data quality issues contained within the iPM management system.
- The variance between the records from source and the records in the costing system for the operating theatre system (28 records) and the pathology system (368 records) related to data errors.
- The number of records linked to admitted, emergency and non-admitted patients had a 100 percent link or match. This suggests that there is robustness in the level of feeder activity linked back to episodes.
- The records linked to the non-admitted episodes were system-generated patients.

### 9.4.5 Treatment of WIP

Table 84 demonstrates models for WIP and its treatment in the Swan Hill District Health's Round 20 NHCDC submission.

Table 84 – WIP – Swan Hill District Health

Model	Description	Submitted to Round 20 NHCDC
1	Cost for patients admitted and discharged in 2015-16 only	Submitted to Round 20 of the NHCDC
2	Costs for patients admitted prior to 2015-16 and discharged in 2015-16	Submitted to Round 20 of the NHCDC. Costs are submitted for patients admitted in 2014-15.
3	Costs for patients admitted prior to or in 2015-16 and remain admitted at 30 June 2016	Not submitted to Round 20 of the NHCDC

Source: KPMG, based on the Swan Hill District Health templates and review discussions

In summary, Swan Hill District Health submitted costs for admitted and discharged patients in 2015-16 and WIP costs for those patients admitted in 2014-15, but discharged, in 2015-16.

### 9.4.6 Critical care

Swan Hill District Health had no critical care units.

### 9.4.7 Costing public and private patients

Swan Hill District Health does not adjust costing specific patients based on their financial classification, i.e. whether they are a public or a privately insured patient. Applicable costs are allocated to private patients, including visiting medical officer costs, in the same manner as public patients. Prosthesis costs are allocated directly to the patient. Costs such as medical costs, pathology, and anaesthetist costs are billed directly to the patient and so private patients receive zero share of these costs in the costing system. Radiology is provided in-house and there is no cost allocated to private patients because of the revenue generated.

Private patient revenue is not offset against any related expenditure.

### 9.4.8 Treatment of specific items

A number of specific items were discussed during the consultation phase of the review to understand the manner in which they are treated in the costing process. These items are used to inform the NEP and specific funding model adjustments for particular patient cohorts. Swan Hill District Health's treatment of each of the items is summarised below.

Table 85 – Treatment of specific items – Swan Hill District Health

Item	Treatment
Research	Swan Hill District Health does not undertake Research.
Teaching and Training	Direct Teaching and Training expenditure is treated as an overhead and spread across patients. This

Item	Treatment
	expenditure is not assigned to the Teaching and Training product.  Embedded teaching is not identified.
Shared/Other commercial entities	Swan Hill District Health did not identify any shared/commercial entities. The staff cafeteria is allocated as part of corporate costs.

Source: KPMG, based on IFR discussions

### 9.4.9 Sample patient data

IHPA selected a sample of five patients from Swan Hill District Health for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. VIC Health provided the patient level costs for all five patients and these reconciled to IHPA records. The results are summarised in Table 86.

Table 86 – Sample patients – Swan Hill District Health

#	Product	Jurisdiction Records	Received by IHPA	Variance
1	Acute	\$742.53	\$742.53	\$-
2	Non-Admitted ED	\$398.84	\$398.84	\$-
3	Maintenance	\$6,180.26	\$6,180.26	\$-
4	Acute	\$792.75	\$792.75	\$-
5	Non-Admitted ED	\$635.66	\$635.66	\$-

Source: KPMG, based on Swan Hill District Health and IHPA data

## 9.5 Application of AHPCS Version 3.1

The following section summarises the VIC Health's application of selected standards from Version 3.1 of the AHPCS (outlined in Appendix C) to the Round 20 NHCDC submission.

### 9.5.1 SCP 1.004 – Hospital Products in Scope

The three Victorian health services reviewed report against all products, with the exception of Teaching, Training and Research which is costed but not identified by product. This was demonstrated through the templates submitted and interview process. It was noted that health services cost according to the VCDC Business Rules.

System-generated records are created from unlinked feeder data and are allocated costs. The generation of system-generated records is specific to the feeder. These system-generated records with costs are not submitted to the NHCDC.

### 9.5.2 SCP 2.003 – Product Costs in Scope

The health services and VIC Health representatives demonstrated the reconciliation process for financial data used for costing purposes. Discussions indicated that all products are costed, including costs assigned to products in scope for the NHCDC, unlinked activity and costs

assigned to system-generated patients where there is no activity. Unlinked activity and system-generated patients are not submitted to the NHCDC.

Teaching, Training and Research costs that can be identified as direct costs and identifiable in dedicated costs centres are spread across all costed activity. Embedded TTR is included within the expenses allocated to patients as it is not separately identified. Health service representatives in all interviews stated they are guided by the VCDC Business Rules. These costs are submitted to the NHCDC, but are not identified by product.

Depreciation and other capital related expenditure is not costed in accordance with the VCDC Business Rules.

### **9.5.3 SCP 3.001 - Matching Production and Cost**

All three health services provided reclass and transfer detail in the templates. The application of this standard was demonstrated during the interview process including discussion of examples.

### **9.5.4 SCP 3A.001 - Matching Production and Cost – Overhead Cost Allocation**

All three health services demonstrated that overhead costs were fully allocated to direct patient care areas via the pre allocation and post allocation data included in the templates.

Jurisdiction and health service personnel indicated that the order of preference for overhead allocation is based on the former clinical costing guidance from Clinical Costing Standards Association of Australia and the AHPCS Version 3.1.

### **9.5.5 SCP 3B.001 - Matching Production and Cost – Costing all Products**

The application of this standard was demonstrated in the templates for each of the three health services. VIC Health also provided an overview of their internal reconciliation process, which demonstrated the allocation of costs to products.

Again, it should be noted that Victorian health services cost to the VCDC Business Rules and whilst costs for teaching, training and research were not reported by product, these costs are spread across other products.

### **9.5.6 SCP 3C.001 - Matching Production and Cost – Commercial Business Entities**

Commercial entities exist at all three health services. These costs were excluded from the costing system via special purpose funds.

The Royal Women's Hospital has a PPP for the financing and infrastructure maintenance of the new hospital which was completed in 2008. The capital related expenditure of this PPP is excluded by The Royal Women's Hospital in accordance with the VIC Health instructions, and costs such as security, car parking, portering, cleaning, engineering etc. are added to the GL for allocation to patients. The exclusion of the capital related expenditure may impact on the completeness of the NHCDC.

### **9.5.7 SCP 3E.001 - Matching Production and Cost – Offsets and Recoveries**

Victorian health services are advised not to offset revenue against costs as per the applicable standard. All three health services indicated that they did not offset revenue where the activity occurred at the relevant health service.

Community dialysis medical equipment hire revenue offsets expenditure at Austin Health. This relates to revenue received from other hospitals under a hub and spoke arrangement, where the activity sits outside the hospital and therefore should be offset against the expenditure of Austin Health.

### **SCP 3G.001 – Matching Production and Cost – Reconciliation to Source Data**

VIC Health representatives outlined the reconciliation process for financial and activity data used for costing purposes. All three health services were able to produce statements that reconcile the activity and cost data outputs used in their patient level costing processes. These statements are submitted to VIC Health as part of the VCDC in a form of reconciliation templates including a Director's attestation sign-off. The process has been improved in Round 20 and appears robust.

### **9.5.8 GL 2.004 - Account Code Mapping to Line Items**

The purpose of this standard is to ensure that all cost data can be mapped to standardised line items for both NHCDC collection and comparative purposes.

All three health services indicated that they costed according to the VCDC Business Rules and specifications, including associated cost centre mappings and account codes. VIC Health representatives indicated that these cost centres and account codes enabled mapping to both the VCDC and NHCDC requirements.

VIC Health undertook the mapping of the cost data submitted by participating health services. This mapping demonstrated that total costs were mapped to the standard specified line items and reconciled.

National Blood Authority products are reported in the pathology line item for Austin Health and Swan Hill District Health.

### **9.5.9 GL 4A.002 – Critical Care Definition**

The Royal Women's Hospital and Austin Health indicated that they had critical care areas comprising dedicated ICU's and HDU's (NICU and SCN at The Royal Women's Hospital). The expenditure is reported in a critical care cost centre (HDU/ICU) at Austin Health and The Royal Women's Hospital. Each hospital can identify the patients based on bed classifications. Both hospitals apply no weighting between the bed classifications.

Austin Health also has HDU beds throughout the hospital which are classified by the bed acuity system in place, these beds are included in the relevant ward costs and allocated to all patients who occupied that ward. Austin Health also has a Coronary Care located in a ward of the hospital. Coronary Care expenditure can be separately identified.

Critical care costs are captured in accordance with the applicable standard.

### **9.5.10 COST 3A.002 – Allocation of Medical Costs for Private and Public Patients**

All three health services do not adjust costing specific patients based on their financial classification, i.e. whether they are a public or a privately insured patient. Applicable costs are allocated to private patients, including a share of a share of any associated costs such as pathology, radiology etc., in the same manner as public patients. Private patient revenue is not offset against any related expenditure.

At Swan Hill District Health Service, costs such as medical costs, pathology, and anaesthetist costs are billed directly to the patient and so private patients receive zero share of these costs in the costing system.

Private practice arrangements for medical officers are accounted for in special purpose funds and are excluded from the costing process.

#### **9.5.11 COST 5.002 - Treatment of Work-In-Progress Costs**

Patients are allocated costs based on their consumption of resources for that reporting period. Where costs are incurred in prior years, only the costs for patients admitted in 2014-15 are included in the final costed data and NHCDC submission.

### **9.6 Conclusion**

The findings of the VIC Round 20 IFR are summarised below:

- VIC Health implemented a number of initiatives since the Round 19 NHCDC submission including significant improvements to the VCDC documentation, processes and documentation and the way in which the cost data is presented back to health services.
- There was a variance of \$1.19 million between the expenditure reported in the 2015-16 audited financial statements of \$280.46 million and the final GL for The Royal Women's Hospital (\$281.65 million) which related to special purpose funds, contributions to the Victorian Comprehensive Cancer Centre Joint Venture and recharges which were all eliminated upon consolidation of financial data. This expenditure was removed from the GL by the hospital prior to loading into PPM2.
- The financial reconciliation demonstrates the transformation of cost data from the original GL extract through to the final NHCDC submission for the respective hospitals. Major inclusions to the original GL data include National Blood Authority costs, Health Purchasing Victoria costs and PPP operating expenditure. Major exclusions from the original GL data include the removal of Depreciation and amortisation (including PPP capital related expenditure), special purpose funds, services provided to external organisation and salary recoveries between services.
- VIC Health adjusts the submission including removal of unlinked records; out of scope tier 2 clinics, community mental health activity, other non-admitted activity and other admitted activity before submission to the NHCDC.
- The basis of the adjustments made by hospitals and VIC Health appears reasonable, with the exception of:
  - Depreciation, amortisation and other capital related expenditure (all hospitals). This expenditure is deemed out of scope by the VCDC Business Rules and is therefore, not included in the costs submitted by hospitals to VIC Health. The exclusion of this expenditure may impact on the completeness of the NHCDC.
  - PPP capital related expenditure (The Royal Women's Hospital). The exclusion of this expenditure may impact on the completeness of the NHCDC.
  - Reasons for unlinked activity to the VCDC to ensure appropriate treatment in future rounds.

- It should be noted that VIC Health did not exclude National Blood Authority costs following submission of the three hospitals VCDC. This addresses the recommendation included in the Round 19 report.
- At hospital level, the number of records linked from source to product was significant with the majority of feeders having a greater than 82 percent link or match. This suggests that there is robustness in the level of feeder activity reported back to episodes.
- WIP was treated in accordance with the COST 5.002 of the AHPCS Version 3.1.
- The five sample patients selected for review for The Royal Women's Hospital, Austin Health and Swan Hill District Health Service reconciled to IHPA records.

The IFR is conducted in accordance with the review methodology detailed in Section 1.3 of this report. Based on this methodology and in accordance with the limitations identified in Section 1.1, VIC Health has suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission. Furthermore, the data flow from the jurisdiction to IHPA demonstrated no unexplained variances.

## 10. Western Australia

### 10.1 Jurisdictional overview

#### 10.1.1 Management of NHCDC process

The Western Australian NHCDC process is a shared responsibility between both Area Health Services (AHS) and the Health System Economic Modelling Directorate, Purchasing and System Performance team at WA Department of Health (WA Health). There are costing teams across a number of WA Area Health Services, where the AHS is responsible for the preparation of their own cost data to WA Health based on the Accrued Operating Expenditure data contained in the Audited Financial Statements. WA Health is responsible for the review and final submission of all NHCDC data to IHPA.

AHS's use the Power Performance Manager 2 (PPM2) software to prepare the NHCDC submission. Costing staff within the AHS undertake costing at the AHS level and report costs to WA Health at the hospital level. AHS costing staff undertake a series of data validation and quality assurance (QA) checks prior to submitting to WA Health. There is executive level sign-off for the cost data at the AHS level prior to submission to WA Health.

Upon receipt of the AHS cost data submission, WA Health staff review the submission. Adjustments are made to map the data to NHCDC product types, incorporate Work in Progress and remove teaching, training and research (TTR) and aggregate outpatient activity costs. Finally, a QA process is undertaken and all critical warnings are addressed before the data is regarded as fit for submission to IHPA. For NHCDC purposes, WA Health staff address any further checks or queries that may arise from the IHPA data validation process.

WA Health nominated Royal Perth Hospital (a part of the South Metropolitan AHS) and Hedland Health Campus (a part of the WA Country Health Service) to participate in the Round 20 Independent Financial Review (IFR).

#### *Key initiatives since Round 19 NHCDC*

WA Health indicated that there had been a major change to the NHCDC process and submission since Round 19, regarding the reporting of Emergency Department Encounters separately to the inpatient episode. In previous rounds, total costs for emergency and subsequent inpatient admissions were reported within the single inpatient episode. This change has been made possible through improved activity systems and costs can now be assigned separately to each product type.

### 10.2 Royal Perth Hospital

#### 10.2.1 Overview

Royal Perth Hospital is located in Perth central business district and is part of the South Metropolitan AHS. It is a 450-bed facility, employing 4,700 staff and provides emergency department services and services to public and private inpatients and outpatients. Royal Perth Hospital provides a range of tertiary-level services for adults across a various clinical fields (excluding Obstetrics). Services include:

- adult major trauma



- complex and elective surgery
- highly specialised surgical services
- tertiary mental health
- specialist medical services
- a range of same-day clinical support services.<sup>28</sup>

### *Overview of the costing process*

The South Metropolitan AHS undertakes costing on a quarterly basis. There are a range of costing reports prepared for Royal Perth Hospital and these reports are published through its Business Intelligence (BI) tool, to which all sites in the AHS have access. The BI tool presents data mapped to NHCDC product types. The NHCDC data is reviewed and signed off by the Executive Director of Finance before being submitted to WA Health.

### **10.2.2 Financial data**

For the Round 20 IFR, representatives from South Metropolitan AHS completed the IFR templates, with assistance from a representative of the Health System Economic Modelling Directorate from WA Health. These representatives attended and participated in consultations for the Round 20 IFR.

Table 10 presents a summary of Royal Perth Hospital's costs, from the original General Ledger (GL) extract for the South Metropolitan AHS through to Royal Perth Hospital's final NHCDC submission for Round 20. This table presents the financial reconciliation of expenditure for Round 20 for The Royal Perth Hospital and the transformation of this expenditure by the jurisdiction and IHPA for NHCDC submission. There are 11 items of reconciliation in the table. These items are labelled A to K. Items A to E relate to the expenditure submitted by the hospital/LHN, Items F to H relate to the costs submitted by the jurisdiction and Items I to K relate to the transformation of costs by IHPA. The following section in the report explains each item in more detail.

---

<sup>28</sup> <http://www.rph.wa.gov.au/About-us>. Accessed 22 June 2017; <http://www.rph.wa.gov.au/Work-for-us>. Accessed 22 June 2017

Table 87 – Round 20 NHCDC Reconciliation – Royal Perth Hospital

Hospital			Jurisdiction			IHPA		
Item	Amount	% of GL	Item	Amount		Item	Amount	
<b>A</b> General Ledger (GL)	\$ 2,712,688,931		<b>F</b> Costed Products received by jurisdiction	\$ 652,205,489		<b>I</b> Total costed products received by IHPA	\$ 597,803,829	
			Variance	\$ -		Variance	\$ -	
<b>B</b> Adjustments to the GL			<b>G</b> Final Adjustments			<b>J</b> IHPA Adjustments		
Inclusions	\$ 67,583,406		System-generated records	\$ (18,269,182)		Admitted ED reallocations	\$ 41,102,434	
Exclusions	\$ (23,171,838)		ED removed from WIP	\$ (31,908)		<b>Final NHCDC costs</b>	<b>\$ 638,906,263</b>	
<b>Total hospital expenditure</b>	<b>\$ 2,757,100,500</b>	101.64%	Closing WIP	\$ (8,579,141)				
			WIP 2014-15	\$ 10,249,822				
<b>C</b> Allocation of Costs			Unmatched Outpatients	\$ (3,463,978)				
Post Allocation Direct amount	\$ 455,194,657		Unmatched Inpatients	\$ (350,029)				
Post Allocation Overhead amount	\$ 215,543,250		Duplicate records	\$ (1,665)				
<b>Total hospital expenditure</b>	<b>\$ 670,737,907</b>	24.73%	Teaching, Training and Research	\$ (33,955,581)				
Variance	\$ (2,086,362,593)	-76.91%	<b>Total costs submitted to IHPA</b>	<b>\$ 597,803,828</b>				
<b>D</b> Post Allocation Adjustments								
Non Hospital Programs	\$ (18,591,796)							
<b>Total expenditure allocated to patients</b>	<b>\$ 652,146,111</b>	24.04%						
<b>E</b> Costed products submitted to jurisdiction			<b>H</b> Costed products submitted to IHPA			<b>K</b> Final NHCDC costed products		
Acute and Newborns	\$ 422,503,412		Acute and Newborns	\$ 424,033,948		Acute^ and Newborns	\$ 476,240,411	
Non-admitted	\$ 90,288,135		Non-admitted	\$ 86,949,252		Non-admitted	\$ 86,949,252	
Emergency	\$ 67,937,407		Emergency	\$ 67,906,219		Emergency	\$ 67,906,219	
Sub Acute	\$ 7,177,245		Sub Acute	\$ 7,136,387		Sub Acute^	\$ 7,136,387	
Mental Health	\$ 11,278,480		Mental Health	\$ 11,104,029		Mental Health	\$ -	
Other	\$ 753,343		Other	\$ 673,994		Other	\$ 673,994	
Research	\$ 6,740,586		Research	\$ -		Research	\$ -	
Teaching & Training	\$ 27,497,393		Teaching & Training	\$ -		Teaching & Training	\$ -	
System-generated patients	\$ 18,029,488		System-generated patients	\$ -		System-generated patients	\$ -	
	<b>\$ 652,205,489</b>	24.04%		<b>\$ 597,803,829</b>			<b>\$ 638,906,263</b>	
Variance	\$ 59,379		Variance	\$ 1		Variance	\$ -	

Source: KPMG based on data supplied by Royal Perth Hospital, jurisdiction and IHPA

^ These figures include admitted emergency costs.

### *Explanation of reconciliation items*

This section discusses each of the reconciliation items including adjustments, inclusions and exclusions to the financial data. The information is based on the templates submitted for Royal Perth Hospital and face-to-face review discussions.

#### *Item A – General Ledger*

The final GL extracted from the financial system was for the South Metropolitan AHS, which includes Royal Perth Hospital. This expenditure totalled \$2.713 billion. The amount reported in the audited financial statement was \$2.715 billion. A variance of \$2.55 million was associated with expenditure that should be reported as revenue (\$2.55 million) in the financial statements.

#### *Item B – Adjustments to the GL*

South Metropolitan AHS adjusted the GL for costing purposes, prior to excluding other facilities within the health service. Included expenditure totalled \$67.58 million and related to services provided to the AHS and funded centrally by WA Health including the Health Corporate Network, Health Information Network, software licensing fees, HR Services and parking.

South Metropolitan AHS also excluded items from the GL, which related to

- Special purpose funds expenditure - \$4.92 million
- External and internal purchasing recoups - \$18.25 million. South Metropolitan AHS offsets these revenue items against the related expenditure amounts in the GL by applying both internal and external service recoups.

The basis of these adjustments appears reasonable.

These adjustments established an expenditure base for costing of \$2.757 billion. This expenditure related to South Metropolitan AHS and was approximately 101.64 percent of total expenditure reported in the GL for South Metropolitan AHS.

#### *Item C – Allocation of costs*

- It was observed that the total of all direct cost centres of \$455.20 million was allocated.
- It was observed through the templates that all overheads of \$215.54 million were allocated to direct cost centres.

These amounts reconciled to \$670.74 million and related to Royal Perth Hospital only (24.04 percent of the South Metropolitan AHS GL) as reported in the templates. The allocation of costs occurs in South Metropolitan PPM2 system at a whole of AHS level, which has resulted in a variance of \$2.086 billion between Item B and Item C. This variance related to other facilities within South Metropolitan AHS summarised below:

- Fiona Stanley Hospital - \$1.110 billion
- Fremantle Hospital – \$263.39 million
- Armadale Kelmscott Memorial Hospital - \$233.89 million
- Rockingham Hospital – \$226.87 million
- Peel Health Campus – \$127.13 million
- Bentley Health Service - \$121.15 million

- South Metropolitan AHS corporate costs - \$3.42 million

*Item D – Post Allocation Adjustments*

A further \$18.59 million was excluded for non-hospital programs relating to Royal Perth Hospital only. The non-hospital programs related to non-ABF or deemed out of scope activity, including out of scope programs:

- Community Health - \$14.61 million
- Community Mental Health – \$1.32 million
- Non ABF programs (Home Care Packages) - \$2.17 million
- Non-recurrent costs - \$490,999

The basis of these exclusions appears reasonable.

The total expenditure allocated to patients for Royal Perth Hospital was \$652.21 million.

*Item E - Costed products submitted to jurisdiction*

Costs derived by Royal Perth Hospital and reported at product level were equal to \$652.21 million. This represents approximately 24.04 percent of the total GL expenditure for South Metropolitan AHS. Costs were allocated to Acute, Non-admitted, Emergency, Sub-Acute, Other, Research and Teaching and Training. A variance of \$59,379 between Item D and Item E was identified. This variance is considered immaterial.

*Item F – Costed products received by the jurisdiction*

Costs by product received by the jurisdiction was \$625.21 million. No variance was noted between Items E and F.

*Item G – Final adjustments*

WA Health made the following exclusions from Royal Perth Hospital's cost data before submission to IHPA:

- Removal of system generated costs that could not be allocated to a specific patient episode - \$18.27 million
- Removal of Emergency Department costs that were associated with inpatient WIP activity for 2014-15 which could now be identified following improvements in reporting of activity data - \$31,908
- Removal of WIP patients not discharged in 2015-16 - \$8.58 million
- Addition of WIP from Round 19 - \$10.25 million
- Removal of cost records that could not be linked to non-admitted activity - \$3.46 million
- Removal of cost records that could not be linked to admitted activity - \$350,029
- Removal of duplicate records - \$1,665
- Removal of Teaching, Training and Research costs - \$33.96 million.

The basis of these adjustments appears reasonable. However, the exclusion of Teaching, Training and Research (TTR) costs may affect the completeness of the NHCDC.

WA Health and South Metropolitan AHS should continue to investigate the reasons for unlinked/unmatched activity to patient episodes in future rounds.

The total NHCDC costs submitted to IHPA by WA Health was \$597.80 million.

*Item H – Costed products submitted to IHPA*

Costs derived by the jurisdiction and reported at product level to IHPA totalled \$597.80 million. A minor \$1 variance was noted between Item G and Item H.

*Item I – Total products received by IHPA*

Costed products received by IHPA totalled \$597.80 billion. No variance was noted between Item H and Item I.

*Item J – IHPA adjustments*

- *Admitted emergency*

Upon receipt of cost data, IHPA allocates the admitted emergency costs back to admitted patients for the purposes of reporting and analysis. Within IHPA's reconciliation, this amount was a duplication of admitted emergency costs and not an additional cost. This amounted to \$41.10 million for Royal Perth Hospital.

- *Product group redistribution*

IHPA redistributed the submitted costs of admitted mental health in the Mental Health product type to the Acute product group. This did not result in increased total costed products for Royal Perth Hospital.

*Item K – Final NHCDC Costed Outputs*

The final NHCDC costed data for Royal Perth Hospital that was loaded into the National Round 20 cost data set was \$638.91 million which included the admitted emergency cost of \$41.10 million.

### **10.2.3 Activity data**

Table 11 presents patient activity data based on source and costing systems for Royal Perth Hospital. This activity data is then compared to Table 12 which highlights the transfer of activity data by NHCDC product from Royal Perth Hospital to WA Health and then through to IHPA submission and finalisation.

Table 88 – Activity data – Royal Perth Hospital

Activity Data	# Records from Source	# Records in costing system	Variance	# Records linked to Admitted	# Records linked to Emergency	# Records linked to Non-admitted	# Records linked to Other	Total Linking Process	# Unlinked records
Encounters	391,624	391,624	-	64,212	69,811	257,121	480	-	391,624
<b>TOTAL</b>	<b>391,624</b>	<b>391,624</b>	<b>-</b>	<b>64,212</b>	<b>69,811</b>	<b>257,121</b>	<b>480</b>	<b>-</b>	<b>391,624</b>

Source: KPMG based on data supplied by Royal Perth Hospital and WA Health

Table 89 – Activity data submission – Royal Perth Hospital

Product	Activity related to 2015-16 Costs	Adjustments	Activity submitted to jurisdiction	Adjustments	Activity submitted to IHPA	Activity received by IHPA	Adjustments	Total Activity submitted for Round 20 NHCDC
Acute and Newborns	62,898	-	62,898	(353)	62,545	62,545	666	63,211-
Non-admitted	218,131	-	218,131	(9,961)	208,170	208,170	-	208,170
Emergency	69,681	-	69,681	(21)	69,660	69,660	-	69,660
Sub Acute	651	-	651	(14)	637	637	-	637
Mental Health	684	-	684	(18)	666	666	(666)	-
Other	956	-	956	(100)	856	356	-	356
Research	-	-	-	-	-	-	-	-
Teaching and Training	-	-	-	-	-	-	-	-
Virtual Patients	1	-	1	(1)	-	-	-	-
<b>Total</b>	<b>353,002</b>	<b>-</b>	<b>353,002</b>	<b>(10,468)</b>	<b>342,534</b>	<b>342,034</b>	<b>-</b>	<b>342,034</b>

Source: KPMG based on data supplied by Royal Perth Hospital, WA Health and IHPA

The following should be noted about the transfer of activity data for Royal Perth Hospital:

- The variance of 38,622 records between the records from source detailed in Table 11 (391,624 records) and activity related to 2015-16 costs by NHCDC product in Table 12 (353,502 records) related to non-admitted patients as their outcome codes (attendance reasons) do not meet the guidelines for costing purposes e.g. patient did not attend.
- Royal Perth Hospital made no further adjustments to activity.
- Adjustments made by WA Health related to the activity associated with the exclusion of costs (at Item G in the reconciliation) such as WIP, system-generated patients and unmatched records.
- The adjustments made by IHPA to the Acute and Newborns and Mental Health product groups related to the redistribution of activity associated with admitted mental health (666 records) as discussed in Item J of the explanation of reconciliation items.
- Adjustments made by IHPA related to admitted emergency reallocations are for reporting and analysis purposes (as discussed in Item J of the explanation of reconciliation items) and have no impact on the reported activity.

#### **10.2.4 Feeder data**

Table 48 reflects data associated with patient feeder data for Royal Perth Hospital.

Table 90 – Feeder data – Royal Perth Hospital

Feeder Data	# Records from Source	# Records in costing system	Variance	# Records linked to Admitted	# Records linked to Emergency	# Records linked to Non-admitted	# Records linked to Syst-Gen patient	# Records linked to Other	Total Linking Process	# Unlinked records	% Linked	% to Syst-Gen patient
Diagnosis	345,076	345,076	-	345,076	-	-	-	-	345,076	-	100.00%	0.00%
Procedure	134,415	134,415	-	134,415	-	-	-	-	134,415	-	100.00%	0.00%
Radiology	213,060	213,060	-	69,052	96,366	33,918	13,724	-	213,060	-	100.00%	6.44%
Pharmacy	127,209	127,209	-	89,347	5,517	18,948	13,397	-	127,209	-	100.00%	10.53%
Pathology	548,065	548,065	-	267,637	147,674	103,009	29,745	-	548,065	-	100.00%	5.43%
Allied Health	577,462	577,462	-	455,684	24,249	91,294	6,235	-	577,462	-	100.00%	1.08%
Theatre	54,755	54,755	-	54,755	-	-	-	-	54,755	-	100.00%	0.00%
Cardiology	8,258	8,258	-	8,245	-	-	13	-	8,258	-	100.00%	0.16%
Palliative Care	636	636	-	612	6	12	6	-	636	-	100.00%	0.94%

Source: KPMG based on data supplied by Royal Perth Hospital and WA Health

The following should be noted about the feeder data in Table 48 for Royal Perth Hospital:

- There are nine feeders reported from hospital source systems and they appear to represent major hospital departments providing resource activity.
- The number of records linked to admitted patients, emergency, non-admitted or system generated patients had a 100 percent link or match.



## 10.2.5 Treatment of WIP

Table 14 demonstrates models for WIP and its treatment in Royal Perth Hospital's Round 20 NHCDC submission.

Table 91 – WIP – Royal Perth Hospital

Model	Description	Submitted to Round 20 NHCDC
1	Cost for patients admitted and discharged in 2015-16	Submitted to Round 20 of the NHCDC.
2	Costs for patients admitted prior to 2015-16 and discharged in 2015-16	Submitted to Round 20 of the NHCDC. Costs are submitted for patients admitted in 2014-15 only.
3	Costs for patients admitted prior to or in 2015-16 and remain admitted at 30 June 2016	Not submitted to Round 20 of the NHCDC

Source: KPMG, based on Royal Perth Hospital templates and review discussions

In summary, Royal Perth Hospital submitted costs for admitted and discharged patients in 2015-16 and WIP costs for those patients admitted in 2014-15, but discharged, in 2015-16.

## 10.2.6 Critical care

Royal Perth Hospital operates a standalone Intensive Care Unit (ICU) and standalone Coronary Care Unit (CCU). All direct costs associated with the ICU and CCU are recorded in dedicated cost centres and activity for each is separately identifiable for costing purposes. Critical care costs are captured in accordance with the applicable standard.

## 10.2.7 Costing public and private patients

Royal Perth Hospital does not make any specific adjustments to the way private patients are costed compared to public patients. Applicable costs are allocated to both public and private patients, including pathology, medical imaging and prosthesis, in the same manner. Private patient revenue is not offset against any related expenditure.

Costs associated with pathology and medical imaging for public patients are reflected in the AHS GL. These costs are distributed to all patients (public and private), based on the MBS item number which is used as the relativity to drive the cost of the service utilised by the patient. This is consistent with the principles of the applicable standard which indicates that the true patient level data cost incurred for public and private patients should be reflected.

Medical officers at Royal Perth Hospital are paid an allowance in-lieu of private practice arrangements, i.e. there is limited use of private practice funds to supplement the employment costs. These employment costs are allocated to public and private patients.

## 10.2.8 Treatment of specific items

A number of specific items were discussed during the consultation phase of the review to understand the manner in which they are treated in the costing process. These items are used to inform the NEP and specific funding model adjustments for particular patient cohorts. The Hospital's treatment of each of the items is summarised below.

*Table 92 – Treatment of specific items – Royal Perth Hospital*

Item	Treatment
Research	Research costs are assigned to a product and excluded by the jurisdiction prior to submission of the NHCDC to IHPA.
Teaching and Training	Teaching and Training costs are assigned to a product and excluded by the jurisdiction prior to submission of the NHCDC to IHPA.
Shared/Other commercial entities	Royal Perth Hospital does not have shared services or commercial entities.

Source: KPMG, based on IFR discussions

## 10.2.9 Sample patient data

IHPA selected a sample of five patients from Royal Perth Hospital for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. WA Health provided the patient level costs for all five patients and these reconciled to IHPA records. The results are summarised in Table 16.

*Table 93 – Sample patients – Royal Perth Hospital*

#	Product	Jurisdiction Records	Received by IHPA	Variance
1	Acute	\$788.55	\$788.55	\$-
2	Non-Admitted	\$354.44	\$354.44	\$-
3	Non-Admitted ED	\$868.78	\$868.78	\$-
4	Border	\$308.73	\$308.73	\$-
5	Acute	\$7,899.23	\$7,899.23	\$-

Source: KPMG, based on Royal Perth Hospital and IHPA data

## 10.3 Hedland Health Campus

### 10.3.1 Overview

Hedland Health Campus is a small public hospital, and is the regional resource centre for the Pilbara region. Opening in 2010, Hedland Health Campus is a relatively new public health campus that replaced the old Port Hedland Hospital. Hedland Health Campus is located in South and Port Hedland, Western Australia. The Pilbara is Western Australia's second most northern region, covering a total area of 507,896 square kilometres.

Hedland Health Campus is a part of the WA Country Health Service (WACHS). WACHS is currently organised into seven regions to deliver quality healthcare to residents and visitors in country Western Australia.

Hedland Health Campus provides a range of inpatient and outpatient facilities and primary health services including:

- Domiciliary care unit
- Emergency department
- Geriatric assessment unit
- Maintenance renal dialysis unit
- Nursing home care unit
- Obstetric services
- Paediatric service<sup>29</sup>

#### *Overview of the costing process*

The WACHS utilises the PPM2 costing system and relies on both a series of reclass rules and product fractions to allocate costs, due to the limited number of patient level feeders. Length of stay is used as a cost driver for cost allocation. The main feeder utilised is from the theatre and it undergoes a QA process based on dates. If an error is discovered, theatre staff are responsible for updating the system.

Costing is undertaken on an annual basis and each facility reviews its data. The NHCDC data is reviewed and signed off by the Executive Director of Corporate Services, accompanied by a letter of authorisation from the Chief Executive Officer, prior to submission to WA Health.

Costing data is also utilised by WACHS in business cases e.g. outsourcing decisions or implementation of a new service and for submissions to IHPA e.g. for unavoidable cost framework analysis and appropriateness.

---

<sup>29</sup> <http://www.wacountry.health.wa.gov.au/index.php?id=436>. Accessed 23 June 2017;  
<https://www.myhospitals.gov.au/hospital/510500240/hedland-health-campus>. Accessed 23 June 2017

### **10.3.2 Financial data**

For the Round 20 IFR, representatives from WACHS completed the IFR templates, with assistance from a representative of the Health System Economic Modelling Directorate from WA Health. These representatives attended and participated in consultations for the Round 20 IFR.

Table 52 reflects a summary of Hedland Health Campus' costs, from the original extract from the GL through to the final NHCDC submission for Round 20. This table presents the financial reconciliation of expenditure for Round 20 for Hedland Health Campus and the transformation of this expenditure by the jurisdiction and IHPA for NHCDC submission. There are 11 items of reconciliation in the table. These items are labelled A to K. Items A to E relate to the expenditure submitted by the hospital/LHN, Items F to H relate to the costs submitted by the jurisdiction and Items I to K relate to the transformation of costs by IHPA. The following section in the report explains each item in more detail.

Table 94 – Round 20 NHCDC Reconciliation – Hedland Health Campus

Hospital			Jurisdiction		IHPA	
Item	Amount	% of GL	Item	Amount	Item	Amount
<b>A</b> General Ledger (GL)	\$ 1,592,988,959		<b>F</b> Costed Products received by jurisdiction	\$ 66,838,457	<b>I</b> Total costed products received by IHPA	\$ 63,089,218
			Variance	\$ -	Variance	\$ -
<b>B</b> Adjustments to the GL			<b>G</b> Final Adjustments		<b>J</b> IHPA Adjustments	
Inclusions	\$ 12,998,343		WIP FY 2014-15 Total	\$ 230,375	Admitted ED reallocations	\$ 5,037,828
Exclusions	\$ (16,381,200)		ED removed from WIP	\$ (21,154)	<b>Final NHCDC costs</b>	<b>\$ 68,127,046</b>
<b>Total hospital expenditure</b>	<b>\$ 1,589,606,102</b>	99.79%	Closing WIP	\$ (186,669)		
			Unmatched OP	\$ (1,005,840)		
<b>C</b> Allocation of Costs			Teaching, Training and Research	\$ (2,765,951)		
Post Allocation Direct amount	\$ 41,924,957		<b>Total costs submitted to IHPA</b>	<b>\$ 63,089,218</b>		
Post Allocation Overhead amount	\$ 23,503,907					
<b>Total hospital expenditure</b>	<b>\$ 65,428,864</b>	4.11%				
Variance	\$ (1,624,177,237)	-95.68%				
<b>D</b> Post Allocation Adjustments						
WIP - beginning	\$ (61,551)					
WIP - ending	\$ 205,461					
Pharmacy PBS	\$ 284,203					
Hedland costs in Pilbara Regional GL	\$ 993,898					
<b>Total expenditure allocated to patients</b>	<b>\$ 66,850,876</b>	4.20%				
<b>E</b> Costed products submitted to jurisdiction			<b>H</b> Costed products submitted to IHPA		<b>K</b> Final NHCDC costed products	
Acute and Newborns	\$ 35,832,484		Acute and Newborns	\$ 35,872,715	Acute^ and Newborns	\$ 40,904,533
Non-admitted	\$ 7,793,917		Non-admitted	\$ 6,833,497	Non-admitted	\$ 6,833,497
Emergency	\$ 20,021,702		Emergency	\$ 20,001,525	Emergency	\$ 20,001,525
Sub Acute	\$ 367,336		Sub Acute	\$ 367,336	Sub Acute^	\$ 373,346
Mental Health	\$ -		Mental Health	\$ -	Mental Health	\$ -
Other	\$ 13,919		Other	\$ 14,146	Other	\$ 14,146
Research	\$ 498,687		Research	\$ -	Research	\$ -
Teaching & Training	\$ 2,310,413		Teaching & Training	\$ -	Teaching & Training	\$ -
System-generated patients	\$ -		System-generated patients	\$ -	System-generated patients	\$ -
	<b>\$ 66,838,457</b>	4.20%		<b>\$ 63,089,218</b>		<b>\$ 68,127,046</b>
Variance	\$ (12,419)	-0.001%	Variance	\$ -	Variance	\$ -

Source: KPMG based on data supplied by Hedland Health Campus, jurisdiction and IHPA

### *Explanation of reconciliation items*

This section discusses each of the reconciliation items including adjustments, inclusions and exclusions to the financial data. The information is based on the templates submitted for the Hedland Health Campus and face-to-face review discussions.

#### *Item A – General Ledger*

The final GL extracted from the financial system was for the WACHS, which includes Hedland Health Campus. This expenditure totalled \$1.593 billion and reconciled to the audited financial statement, with the exception of an immaterial variance of \$5,767.

#### *Item B – Adjustments to the GL*

WACHS adjusted the GL for costing purposes, prior to excluding other facilities within AHS. WACHS included expenditure related to Services provided to the AHS and funded centrally by WA Health including the Health Corporate Network, Health Information Network, software licensing fees and HR Services totalling \$13.00 million.

WACHS also excluded a total of \$16.38 million related to:

- External (\$14.28 million) and internal (\$967,508) purchasing recoups from the GL. WACHS offsets these revenue items against the related expenditure amounts in the GL - \$15.25 million
- Corporate overhead reversal - \$1.14 million

The basis of these adjustments appears reasonable.

These adjustments established an expenditure base for costing of \$1.590 billion. This expenditure related to WACHS and was approximately 99.79 percent of total expenditure reported in the GL for WACHS.

#### *Item C – Allocation of costs*

- It was observed that the total of all direct cost centres of \$41.92 million was allocated.
- It was observed that all overheads of \$23.50 million were allocated to direct cost centres.

These amounts reconciled to \$65.43 million and related to Hedland Health Campus only (4.11 percent of the WACHS GL) as reported in the templates. The allocation of costs occurs in WACHS PPM2 system at a whole of WACHS level, which has resulted in a variance of \$1.524 billion between Item B and Item C. This variance related to the following:

- Other regions and expenditure within WACHS totalling \$1.461 billion summarised below:
  - Goldfields - \$145.77 million
  - South West - \$328.35 million
  - Kimberley – \$258.60 million
  - Midwest – \$203.77 million
  - Great Southern - \$180.55 million
  - Wheatbelt - \$176.61 million
  - Other facilities in the Pilbara – \$55.88 million

- WACHS capital related expenditure - \$6.89 million
- WACHS head office expenditure - \$104.57 million
- Non-hospital products across all facilities within the Pilbara including Hedland Health Campus - \$52.21 million
- Patient Assisted Transport across all facilities within the Pilbara including Hedland Health Campus - \$9.46 million
- Administrative costs across all facilities within the Pilbara including Hedland Health Campus - \$85,893

The remaining variance of \$1.42 million related to the post allocation adjustments for Hedland Health Campus that are described in Item D.

The above exclusions from the costing process for Hedland Health Campus appear reasonable.

#### *Item D – Post Allocation Adjustments*

Inclusions and exclusions were made post allocation relating to Hedland Health Campus only and included:

- Excluded WIP at beginning of financial year – \$61,551
- Included WIP at end of financial year - \$205,461
- Included Pharmacy PBS prescriptions - \$284,203
- Included costs held at regional level relating to the Hedland Health Campus - \$993,898

The basis of these adjustments appears reasonable.

The total expenditure allocated to patients for the Hedland Health Campus was \$66.85 million, which represented approximately 4.20 percent of the WACHS GL.

#### *Item E - Costed products submitted to jurisdiction*

Costs submitted to the jurisdiction and reported at product level totalled \$66.84 million. Costs were allocated to all products with the exception of Mental Health and System-generated patients. A small variance was identified between Item D and Item E of \$12,419 (0.001 percent of the WACHS GL).

#### *Item F – Costed products received by the jurisdiction*

Costs by product received by the jurisdiction was \$66.84 million. No variance was noted between Items E and F.

#### *Item G – Final adjustments*

WA Health made the following adjustments to the Hedland Health Campus' cost data before submission to IHPA:

- Included WIP from Round 19 - \$230,375
- Excluded Emergency Department costs that were associated with inpatient WIP activity for 2014-15 which could now be identified following improvements in reporting of activity data - \$21,154
- Excluded WIP patients not discharged in 2015-16 - \$186,619

- Excluded cost records that could not be linked to non-admitted activity - \$1.01 million
- Excluded Teaching, Training and Research costs - \$2.77 million.

The basis of these adjustments appears reasonable. However, the exclusion of TTR costs may affect the completeness of the NHCDC.

*Item H – Costed products submitted to IHPA*

Costs derived by the jurisdiction and reported at product level to IHPA totalled \$63.09 million. No variance was noted between Item G and Item H.

*Item I – Total products received by IHPA*

Costed products received by IHPA totalled \$63.09 million. No variance was noted between Item H and Item I.

*Item J – IHPA adjustments*

- *Admitted emergency*

Upon receipt of cost data, IHPA allocates the admitted emergency costs back to admitted patients for the purposes of reporting and analysis. Within IHPA's reconciliation, this amount was a duplication of admitted emergency costs and not an additional cost. This amounted to \$5.04 million for Hedland Health Campus.

- *Unqualified Baby Adjustment*

Upon receipt of cost data, IHPA redistributes the unqualified baby cost to the mother separation to provide a complete delivery cost. Within IHPA's reconciliation this was not an additional cost but a movement between patients.

*Item K – Final NHCDC Costed Outputs*

The final NHCDC costed data for Hedland Health Campus that was loaded into the National Round 20 cost data set was \$68.13 million which included the admitted emergency cost of \$5.04 million.

### **10.3.3 Activity data**

Table 53 presents patient activity data based on source and costing systems for the Hedland Health Campus. This activity data is then compared to Table 96 which highlights the transfer of activity data by NHCDC product from the Hedland Health Campus to WA Health and then through to IHPA submission and finalisation.



Table 95 – Activity data – Hedland Health Campus

Activity Data	# Records from Source	# Records in costing system	Variance	# Records linked to Admitted	# Records linked to Emergency	# Records linked to Non-admitted	# Records linked to Other	Total Linking Process	# Unlinked records
Patient Admission System	10,815	10,734	(81)	10,775	-	-	-	10,775	(41)
Emergency	20,459	20,464	5	-	20,464	-	-	20,464	-
Outpatients	26,212	26,212	-	-	-	14,480	-	14,480	11,732
<b>TOTAL</b>	<b>57,486</b>	<b>57,410</b>	<b>(76)</b>	<b>10,775</b>	<b>20,464</b>	<b>14,480</b>	<b>-</b>	<b>45,719</b>	<b>11,691</b>

Source: KPMG based on data supplied by Hedland Health Campus and WA Health

The following should be noted about the activity data in Table 53 for the Hedland Health Campus:

- The unlinked outpatient records in Table 53 (11,732 records) related to the population and community health staff entering data into the patient administration system as non admitted data that is then classified into Outpatient, Community and Population Health activity according to established business rules.
- The initial variance of 81 records and the 41 unlinked records in the patient admission system related to timing differences between publication of final data and re-extraction of data for audit purposes.

Table 96 – Activity data submission – Hedland Health Campus

Product	Activity related to 2015-16 Costs	Adjustments	Activity submitted to jurisdiction	Adjustments	Activity submitted to IHPA	Activity received by IHPA	Adjustments	Total Activity submitted for Round 20 NHCDC
Acute and Newborns	10,630	-	10,630	(26)	10,604	10,604	(304)-	10,300
Non-admitted	14,480	-	14,480	(1,627)	12,853	12,853	-	12,853
Emergency	20,465	-	20,465	(11)	20,454	20,454	-	20,454
Sub Acute	6	-	6	-	6	6	-	6
Mental Health		-	-	-	-	-	-	-
Other	124	-	124	-	124	124	-	124
Research		-	-	-	-	-	-	-
Teaching and Training		-	-	-	-	-	-	-
<b>Total</b>	<b>45,705</b>	<b>-</b>	<b>45,705</b>	<b>(1,664)</b>	<b>44,041</b>	<b>44,041</b>	<b>(304)-</b>	<b>43,737</b>

Source: KPMG based on data supplied by the Hedland Health Campus, WA Health and IHPA

The following should be noted about the transfer of activity data in Table 54 for the Hedland Health Campus:

- There was a variance between the number of records in the costing system for the Hedland Health Campus, detailed in Table 53 (45,719 records) and activity related to 2015-16 costs by NHCDC product for the Hedland Health Campus in Table 54 (45,705 records) of 14 records. This variance related to timing differences and was deemed immaterial for further investigation.
- The Hedland Health Campus made no further adjustments to activity.
- Adjustments made by WA Health related to the activity associated with the exclusion of costs (at Item G in the reconciliation) such as WIP and unmatched records.
- The adjustments made by IHPA to the Acute and Newborns product group related to the UQB adjustment as discussed in Item J of the explanation of reconciliation items.
- Adjustments made by IHPA related to admitted emergency reallocations are for reporting and analysis purposes (as discussed in Item J of the explanation of reconciliation items) and have no impact on the reported activity.

#### **10.3.4 Feeder data**

Table 55 reflects data associated with patient feeder data for the Hedland Health Campus.

Table 97 – Feeder data – Hedland Health Campus

Feeder Data	# Records from Source	# Records in costing system	Variance	# Records linked to Admitted	# Records linked to Emergency	# Records linked to Non-admitted	# Records linked to Syst-Gen patient	# Records linked to Other	Total Linking Process	# Unlinked records	% Linked	% to Syst-Gen patient
Theatre	4,740	4,740	-	4,740	-	-	-	-	4,740	-	100.00%	0.00%
Coding Procedure	11,917	11,917	-	11,917	-	-	-	-	11,917	-	100.00%	0.00%
Coding Diagnosis	24,526	24,526	-	24,526	-	-	-	-	24,526	-	100.00%	0.00%

Source: KPMG based on data supplied by Hedland Health Campus and WA Health

The following should be noted about the feeder data presented in Table 55 at Hedland Health Campus:

- There are three feeders reported from hospital source systems representing theatre and coding systems. The small number of feeders is expected from a remotely located hospital/health service that relies on the use of product fractions in its costing system.
- The number of records linked to admitted patients had a 100 percent link or match. This suggests that there is robustness in the feeder activity reported back to episodes.

### 10.3.5 Treatment of WIP

Table 56 demonstrates models for WIP and its treatment in the Hedland Health Campus' Round 20 NHCDC submission.

Table 98 – WIP – Hedland Health Campus

Model	Description	Submitted to Round 20 NHCDC
1	Cost for patients admitted and discharged in 2015-16	Submitted to Round 20 of the NHCDC.
2	Costs for patients admitted prior to 2015-16 and discharged in 2015-16	Submitted to Round 20 of the NHCDC. Costs are submitted for patients admitted in 2014-15 only.
3	Costs for patients admitted prior to or in 2015-16 and remain admitted at 30 June 2016	Not submitted to Round 20 of the NHCDC

Source: KPMG, based on the Hedland Health Campus' templates and review discussions

In summary, Hedland Health Campus submitted costs for admitted and discharged patients in 2015-16 and WIP costs for those patients admitted in 2014-15, but discharged, in 2015-16.

### 10.3.6 Critical care

The Hedland Health Campus does not have critical care units.

### 10.3.7 Costing public and private patients

The Hedland Health Campus does not make any specific adjustments to the way private patients are costed compared to public patients. Applicable costs are allocated to private patients, including pathology, medical imaging and prosthesis, in the same manner as public patients. Private patient revenue is not offset against any related expenditure.

Any costs associated with pathology and medical imaging, for public and private patients are reflected in the AHS general ledger. These costs are distributed to all patients (public and private), based on the MBS item number for the service utilised by the patient. This is consistent with the principles of the AHPCS Version 3.1, which indicates that the true patient level data cost incurred for public and private patients treated by the AHS should be reflected.

### 10.3.8 Treatment of specific items

A number of items were discussed during the review to understand their treatment in the costing process as the cost data is used to inform the NEP and specific funding model adjustments for particular patient cohorts. The Hedland Health Campus' treatment of each of the items is summarised below.

Table 99 – Treatment of specific items – Hedland Health Campus

Item	Treatment
Research	Research costs are assigned to a product and excluded by the jurisdiction prior to submission of the NHCDC to IHPA.
Teaching and Training	Teaching and Training costs are assigned to a product and excluded by the jurisdiction prior to submission of the NHCDC to IHPA.

Item	Treatment
Shared/Other commercial entities	Hedland Health Campus does not have shared services or commercial entities.

Source: KPMG, based on IFR discussions

### 10.3.9 Sample patient data

IHPA selected a sample of five patients from the Hedland Health Campus for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. WA Health provided the patient level costs for all five patients and these reconciled to IHPA records. The results are summarised in Table 58.

Table 100 – Sample patients – Hedland Health Campus

#	Product	Jurisdiction Records	Received by IHPA	Variance
1	Acute	\$707.45	\$707.45	\$-
2	Non-Admitted	\$590.62	\$590.62	\$-
3	Non-Admitted ED	\$824.68	\$824.68	\$-
4	Border	\$112.25	\$112.25	\$-
5	Acute	\$4,323.71	\$4,323.71	\$-

Source: KPMG, based on the Hedland Health Campus and IHPA data

## 10.4 Application of AHPCS Version 3.1

The following section summarises WA Health's application of selected standards from Version 3.1 of the AHPCS (outlined in Appendix C) to the Round 20 NHCDC submission.

### 10.4.1 SCP 1.004 – Hospital Products in Scope

The selected hospitals demonstrated through the templates and interview process that costs are reported against admitted acute, emergency, sub-acute, non-admitted, and other products.

It was noted that costs are also created for non-patient products (such as unlinked records) and TTR products. These records with costs are not submitted to the NHCDC.

### 10.4.2 SCP 2.003 – Product Costs in Scope

The WA reconciliation process for financial data used for costing purposes was demonstrated through the interview process. It was also demonstrated that all products are costed, which includes costs assigned to products in scope for the NHCDC, unlinked activity, and costs assigned to system-generated patients where there is no activity.

Blood products are not included in the costing process, as they are centrally held by WA Health and not allocated to AHSs.

### 10.4.3 SCP 3.001 - Matching Production and Cost

The application of this standard was demonstrated during the interview and an excel file was produced from the costing system which outlined all transfers and offsets utilised.

### 10.4.4 SCP 3A.001 - Matching Production and Cost – Overhead Cost Allocation

The selected hospitals were able to demonstrate that overhead costs were fully allocated to direct patient care areas via the pre allocation and post allocation data included in the templates. Overhead statistics are applied in accordance with the AHPCS Version 3.1 where possible.

### 10.4.5 SCP 3B.001 - Matching Production and Cost – Costing all Products

The application of this standard was demonstrated in the templates. Both WA Health and the selected hospitals provided an overview and documentation of their internal reconciliation process, which demonstrated the allocation of costs to products.

### 10.4.6 SCP 3C.001 - Matching Production and Cost – Commercial Business Entities

Discussions with representatives from the selected hospitals demonstrated that commercial business entities and shared services did not exist.

### 10.4.7 SCP 3E.001 - Matching Production and Cost – Offsets and Recoveries

There was no offsetting of costs with revenue with the exception of salaries and wages recoups from internal and external clients.

### 10.4.8 SCP 3G.001 – Matching Production and Cost – Reconciliation to Source Data

Based on discussions during the review, WA Health and the selected hospitals complete a final reconciliation of its costing system to source documentation. The process appears robust. A variance of \$12,419 was noted in the reconciliation of Hedland Health Campus. This variance was 0.001 percent of the total GL for WACHS.

#### **10.4.9 GL 2.004 - Account Code Mapping to Line Items**

WA Health representatives indicated that total costs were mapped to the standard specified line items; this was reflected in the hospital templates submitted.

Blood products are not included in the costing process, and are therefore not mapped to the specific line item.

#### **10.4.10 GL 4A.002 – Critical Care Definition**

Royal Perth Hospital as a major tertiary provider operates a standalone Intensive Care Unit (ICU) and standalone Coronary Care Unit (CCU). All direct costs associated with the ICU and CCU are recorded in dedicated cost centres and activity for each is separately identifiable for costing purposes. Critical care costs are captured in accordance with the applicable standard.

#### **10.4.11 COST 3A.002 – Allocation of Medical Costs for Private and Public Patients**

Costs are allocated to public and private patients in the same manner. This includes costs associated with pathology, medical imaging and prosthesis. Private patient revenue is not offset against any related expenditure.

Costs associated with pathology and medical imaging, for public and private patients are reflected in the AHS GL. These costs are distributed to all patients (public and private) based on the MBS item number for the service utilised by the patient. This is consistent with the principles of the standard which indicates that the true patient level data cost incurred for public and private patients treated by the AHS should be reflected.

Medical officers are paid an allowance in-lieu of private practice arrangements, i.e. there is limited use of private practice funds to supplement the employment costs. These employment costs are allocated to public and private patients.

#### **10.4.12 COST 5.002 - Treatment of Work-In-Progress Costs**

Patients are allocated costs based on their consumption of resources for that reporting period. Where costs are incurred in prior years, only the costs for patients admitted in 2014-15 are included in the final costed data and NHCDC submission.

### **10.5 Conclusion**

The findings of the Western Australian Round 20 IFR are summarised below:

- WA Health made a major change to the costing process since the Round 19 NHCDC submission. Emergency Department encounters can now be reported separately to the inpatient episode. In previous rounds of the NHCDC total costs for emergency and subsequent inpatient admissions were reported as single episodes.
- There were variances between the GL used for costing and the audited financial statements for each AHS. South Metropolitan AHS (Royal Perth Hospital) had a \$2.54 million variance related to reclassification of revenue to expenditure in the GL. WACHS (Hedland Health Campus) had a minor variance of \$5,767.
- The financial reconciliation demonstrates the transformation of cost data from the original GL extract for each AHS through to the final NHCDC submission for the respective hospitals. Major inclusions to the original GL include costs related to services provided to the AHS and funded centrally by WA Health (such as shared services, licensing fees, HR services, parking etc.). Major



exclusions from the original GL data include the removal of other hospitals and services in the respective AHS, internal and external purchasing recoups and special purpose accounts.

- WA Health excluded expenditure related to WIP, system-generated patients, unmatched records and teaching, training and research. The largest exclusion related to teaching, training and research for both hospitals.
- The basis of the adjustments made by the hospitals and WA Health appears reasonable, with the exception of:
  - Teaching, Training and Research (all hospitals). The exclusion of these costs may affect the completeness of the NHCDC.
  - Blood products are not costed at WA sites as the expenditure is held in WA Health cost centres and not allocated to AHSs. The exclusion of this expenditure may affect the completeness of the NHCDC.
  - WA Health and South Metropolitan AHS should continue to investigate the reasons for unlinked/unmatched activity to patient episodes in future rounds.
- A variance of \$12,419 was noted in the reconciliation of Hedland Health Campus. This variance was 0.001 percent of the total GL for WACHS.
- The number of records linked from source to product at both hospitals reviewed was significant. For both hospitals, the linking percentage for all feeders was 100 percent. This suggests that there is robustness in the level of feeder activity reported back to episodes.
- WIP was treated in accordance with the COST 5.002 of the AHPCS Version 3.1.
- The five sample patients selected for review for Royal Perth Hospital and Hedland Health Campus reconciled to IHPA records.

The IFR is conducted in accordance with the review methodology detailed in Section 1.3 of this report. Based on this methodology and in accordance with the limitations identified in Section 1.1, WA Health has suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission. Furthermore, the data flow from the jurisdiction to IHPA demonstrated no unexplained variances.

## 11. Peer Review

### 11.1 The peer review process

The Round 20 IFR involved a peer review process so that costing representatives could participate in site visits at other jurisdictions. The peer review allowed NHCDC peers to share information, processes, challenges and solutions, and provided a valuable opportunity to have costing staff and costing representatives visit other jurisdictions.

#### 11.1.1 Participation in site visits

Jurisdictions were asked to nominate relevant personnel to participate in the peer review from either the hospital costing level or the jurisdiction level. Jurisdictions in New South Wales, Queensland, South Australia and Tasmania nominated peers (all peers were jurisdiction representatives). The remaining jurisdictions were unable to send representatives due to capacity, funding and timing constraints. Peer review participants attended the Tasmania, Northern Territory, Western Australia and South Australia reviews. Appendix C contains a list of the peer review participants.

The peer review nominees selected their preferred locations and the host site was informed of the peer review selection. The nominees attended the meetings together with the KPMG review team and IHPA representatives, and were encouraged to ask questions and actively participate during the site visits.

#### 11.1.2 Survey

Following the site visits, KPMG sent a survey to peer review participants to gather their feedback on the peer review process. The survey requested feedback on the following two questions:

- 1 Please provide details and/or examples of key learnings that you have taken away from your recent site visit.
- 2 Can you please provide any ideas or suggestions for how the peer review may continue to add value to the IFR process in future rounds? This can be aimed at the actual peer review process or the types of information that you would like to see incorporated into the IFR.

### 11.2 Summary of feedback on the peer review process

During the Round 20 IFR, the ability of all jurisdictions to participate has been limited compared to previous rounds, with only four jurisdictions nominating representatives for the peer review. Despite this, participating peers reported that they received substantial value from attending the site visits and see the opportunity as a useful learning tool. One participant reported:

*"I found that the opportunity to participate in the peer review is excellent. I always learn something new that I then implement in [State/Territory] from participating."*

#### 11.2.1 Key learnings from the peer review

A key learning for most participants was the ability to compare health services with that in their own jurisdiction, including common issues/challenges, costing methodologies, costing frequency, maintenance of general ledgers, and costing system capacity. Peers recognised that the process allows them to share information across jurisdictions.

Another key learning included the importance of the continuing discussion regarding the costing of private patients in public hospitals. At present there are a number of different methods adopted by jurisdictions/hospitals/LHNs, and further work is required to better understand the area so these patients can be costed appropriately.

### **11.2.2 Suggestions for improving the peer review or IFR process in future rounds**

The following suggestions were made by participants regarding both the peer review and the IFR process for future rounds:

- Reducing the need for peer reviewers to travel by limiting the site visits to two hours per hospital/LHN and offering video conferencing where possible. This is in recognition of the current scope and testing in the IFR process is well established.
- Improve the scope of the IFR to include more detailed consideration of costing processes. For example, examining the costing process for a service that crosses the continuum of NHCDC classification products. Chronic Disease is an example where in any given year, a patient will have non-admitted, emergency and admitted episodes.
- Consider whether the current scope and testing of the IFR is adequate in meeting its objectives and provides value to all jurisdictions. The financial and activity reconciliation processes embedded within the IFR are well established across hospitals/LHNs/jurisdictions. This means there is scope to expand the testing during the IFR to consider other specific hospital costing issues and methodologies in more detail.

## **11.3 Recommendation for future rounds of the IFR**

KPMG recommends that the peer review process continues in its current form in future IFR rounds as the process is still considered valuable. IHPA, jurisdictions and the IFR consultant should seek to confirm site visits earlier during the project, to ensure peer reviewers have adequate time for travel approvals within their State/Territory Departments. The use of video conferencing should also be considered as a viable alternative for peer reviewers, where facilities are available.

## 12. IHPA Process

### 12.1 Overview

KPMG reviewed IHPA's process for compiling the Round 20 NHCDC and followed the data flow of the 14 participating sites from submission to Jurisdictions, through to the recording of their NHCDC data in the national data set.

The review objectives of the IHPA NHCDC data submission process were to:

- understand IHPA's processes for receiving data;
- determine IHPA's processes for validating and performing Quality Assurance (QA) procedures;
- identify and understand any adjustments to the data; and
- reconcile the data against the national data set.

The KPMG review team met with IHPA representatives to discuss the data management, validation and QA processes that IHPA applied in handling the Round 20 NHCDC submissions. During the meeting, the review team viewed the supporting reconciliations, validation and QA outputs relating to the participating hospital/LHNs. This information was subsequently provided to KPMG, which was used to complete the IHPA component of the NHCDC reconciliations for each participating hospital/LHN. Additional clarification of reconciliation items was sought during and after the meeting with the relevant IHPA representatives.

#### *Key initiatives since Round 19 NHCDC*

IHPA noted the following improvements to the NHCDC and processes since Round 19:

- IHPA developed a data submission portal in a move towards using a cloud-based system for data submission by Jurisdictions. This was in response to the limitations of the Enterprise Data Warehouse (EDW) and the feedback received from Jurisdictions regarding facilitating a simple and efficient data transmission process. This first stage roll out focused upon ease of submission with emphasis on the front end of the portal. The next stage is to use the portal to shape and drive the analytical process, including a new QA reporting feature.
- In response to the recommendations in Round 19, a signed declaration as part of the data quality statements was required from Jurisdictions. The declaration required jurisdictions to confirm that they have applied the AHPCS, or identify the underlying reasons where the standards were not applied. The consistency of application of the AHPCS is important for ensuring the NHCDC is comparable across a range of factors such as jurisdictions, DRGs, and hospital settings.
- In response to the recommendations in Round 19, IHPA is currently piloting a financial reconciliation template to accompany the NHCDC submission with three volunteer jurisdictions (NSW, VIC and TAS). The template is similar to the summary NHCDC reconciliations included for each sampled hospital/LHN in this report. Any feedback obtained from the jurisdictions will be incorporated in Round 21.
- IHPA, in conjunction with the Australian Commission on Safety and Quality in Health Care, is committed to develop "a comprehensive, risk adjusted model to integrate quality and safety into hospital pricing and funding". This is in response to a Heads of Agreement between the Commonwealth and the States and Territories on Public Hospital Funding. During the discussions with IHPA it was noted that, in light of this commitment to move to pricing for safety and quality,

the data submission process and the QA procedures will continue to be refined going forward from a safety and quality perspective, supported by the new capabilities of the new data submission portal.

## 12.2 IHPA NHCDC data submission process

The below NHCDC timeframes are published in IHPA's Three Year Data Plan, covering the period 2016-17 to 2018-19. The milestones reflect a process, which involves submission to the NHCDC through the data submission portal, validation and quality assurance of submitted data and finalisation of the costing database for the publication of national cost weights by 31 May each year.

*Table 101: NHCDC submission timeline*

NHCDC Round	Data reporting period	Data request sent	Submission date	IHPA to validate data by	Final dataset created
<b>20</b>	2015-16	29 Jul 16	28 Feb 17	28 April 17	31 May 17
<b>21</b>	2016-17	31 Jul 17	28 Feb 18	30 April 18	31 May 18
<b>22</b>	2017-18	31 Jul 18	28 Feb 19	30 April 19	31 May 19

*Source: IHPA's Three Year Data Plan, covering the period 2016-17 to 2018-19*

IHPA oversees the NHCDC with continuous involvement of Jurisdictional and Hospital Costing Staff as represented through the NHCDC Advisory Committee. During the NHCDC study period, IHPA staff hold internal meetings to discuss the progress of the NHCDC. These meetings are chaired by the IHPA CEO on a weekly basis, with representation of staff from IHPA Directorates including Policy, Data Acquisition and Pricing.

Following its introduction in Round 20, the data submission portal enables automated validation and linking checks with activity data submitted by Jurisdictions as part of their Activity Based Funding requirements for NHCDC purposes. As part of the portal User Acceptance Testing undertaken, IHPA consulted with Jurisdictions regarding the design features of the portal via workshops and trials. IHPA also provided a portal user guide, with input from Jurisdictions, and other forms of support to assist jurisdictions when using the new portal. It was noted during the consultation that the portal user guide would be updated annually based on feedback received from Jurisdictions.

During Round 20, the focus of the technical development of this portal was on the front end for seamless and secure data submission. However, going forward it is anticipated that further work will be undertaken by IHPA on the portal's back end to improve data analytics and reporting. Whilst IHPA noted that the establishment of the portal was well-received by Jurisdictions and IHPA's internal stakeholders, the Round 20 data submission process was subject to delays due to lack of familiarity of Jurisdictions with the new portal. This form of data slippage combined with Jurisdictions resubmitting data led to timeframes in the 3-year data plan not being met.

IHPA's process can be separated into various phases, with several tasks performed during each phase. Throughout the NHCDC process, IHPA communicated with jurisdictions to keep them informed of the progress of their submission. IHPA published the Data Request Specifications (DRS), which contained the format of data items to be submitted, the validation rules for the CostA (activity) and CostC (cost) files, and validation rules for linking checks to activity files, as well as reference files such as NHCDC hospital identifiers. The DRS is used by jurisdictions to guide data submission for the NHCDC round.

Each phase of the process described below applies to all data submitted by Jurisdictions at either the hospital, Local Health Network or Jurisdictional level.

## 12.2.1 Phase 1: Portal Data Collection

Phase 1 involved collection of all jurisdictions data submitted via the data submission portal to the IHPA's drop box function, which provides a secure system for users to upload and download data in all file formats. Various automated cross-validation and linking checks occurred. The output of cross validation checks are provided to Jurisdictions and following review, Jurisdictions are able to validate data multiple times, update for critical errors and resubmit.

During this phase, there were various checks undertaken including whether:

- the CostA and CostC files met the data requirements, as set out in the NHCDC DRS.
- all episodes recorded in the CostA file were present in the CostC file and vice versa.
- the CostA data matched against the ABF data submission. Here IHPA encourages "single submission, multiple use"<sup>30</sup>.
- Other logical tests, such as whether admitted Emergency Department (ED) patients have a corresponding admitted separation recorded.

During this phase, IHPA received emails detailing the status of each submission in the process of validation. The portal also contained a number reports for IHPA to monitor the consolidated submission which detailed errors, and summaries of expenditure and activity. The portal data tables were updated every time a data file was resubmitted to the portal.

## 12.2.2 Phase 2: Data transformation

Once jurisdictions confirmed that their submitted data was absent of critical errors and they were satisfied with the validation reports, the Extract, Transform and Load (ETL) process was conducted by the IHPA's data acquisition team.

The majority of the data provided at a patient-level data by Jurisdictions is in csv format, i.e. CostA (activity) and CostC (cost) data, is extracted and transformed into SAS datasets.

### *Cost Bucket creation*

The first step in the ETL process was to create cost buckets using the cost centre and line item information submitted by each hospital. The AHPCS contains the cost bucket matrix, clearly identifying the allocation of cost bucket for each combination of cost centre and line item.

At this point, costs were grouped in to cost buckets and adjustments for unqualified babies (UQB) and admitted ED were made. These adjustments are described below.

### *Unqualified baby adjustment*

The UQB allocation process followed the creation of cost buckets from line items and cost centres, and the linking of the ABF and NHCDC datasets. UQBs were identified through METeOR definition

---

<sup>30</sup> "Single submission multiple use" is the process where data sets submitted for the purpose of reporting are used for other collections to remove the duplication of data submission. This also removes the burden on the stakeholder submitting data and the stakeholder receiving data and generally ensures linking is made to a reconciled source. Data submission through Australian Institute of Health and Welfare (AIHW) allows IHPA to take advantage of AIHW's established data validation and submission management capability and infrastructure. See <https://www.ihipa.gov.au/what-we-do/data-submission-portal>.

327254 or CareType 7.3. Mother separations are those with Care Type 1 and Diagnosis Codes Array (diag01-30) in ("Z37.0","Z37.2","Z37.5","Z37.6","Z37.9").

The UQB adjustment combines the costs of a UQB separation to a mother separation. This is not an additional cost but a movement of costs between patients. IHPA makes this adjustment using the following methodology:

- Where a mother separation was directly linked with a UQB separation (using a mother episode identifier and establishment identifier submitted with the UQB record), the costs of that UQB separation are allocated to the mother. The activity and the costs are removed from the newborn (NB) care type. The total cost remains the same however; the total count of activity reduces.
- Any unallocated UQB separations are linked to remaining mother separations at the same establishment, using dates to attempt to match the mother and baby record and using a 1:1 ratio (only one UQB separation per mother separation).
- If there are remaining UQB separations after following this process, and all mother separations have been allocated costs from a UQB separation, these remaining UQB costs are excluded from the NHCDC. In Round 20, less than 15 records from the sampled hospitals/LHNs met this criterion.

#### *Admitted ED costs*

If an admitted patient is admitted through the hospital emergency department then the full cost of treatment for that patient includes resources utilised during the patients ED presentation and while subsequently admitted. In order to attribute the full cost, admitted patients who were admitted through ED had their ED costs attached to their admitted separation. These reallocated costs are located in the ED cost bucket of the admitted separation.

It is important to note that:

- These reallocated ED costs are not used in the National Efficient Price or the National Efficient Cost. The ED costs are considered when developing the national weighted activity unit for ED.
- This results in duplication of admitted ED costs in the NHCDC datasets.

IHPA linked ED presentations that were subsequently admitted to the corresponding separation. This enables reporting of admitted separations with the related ED costs. The purpose of this is to identify the cost of treatment from presentation to the hospital admitted separation. IHPA made this adjustment using the following methodology:

- Admitted ED presentations are linked to admitted separations using the admitted episode identifier, which is supplied in the CostA file of the admitted ED record. The total cost of the admitted ED presentation, excluding any costs that are in the exclude cost bucket, is added to the ED pro cost bucket of the admitted separation.
- Remaining costs were evenly distributed across admitted separations, where:
  - The admitted separations did not have a directly linked ED presentation;
  - The admitted separations were admitted via ED (i.e. Urgency of admission = 1); and
  - The Establishment identifier matches (i.e. the ED presentation and the admitted separation are from the same hospital).

### Product type

The final stage of the ETL process confirmed that the product type submitted in the NHCDC is correct. At this step, neither the total cost nor activity submitted changes however; the distribution by product may change.

#### 12.2.3 Phase 3: Quality assurance reports

Once the ETL process was completed, QA reports were generated by the data acquisition team. The QA reports were subject to internal review by IHPA's policy, pricing & analytics teams to assess for reasonableness. Some of the QA checks included:

- Change in DRG costs and activity levels between NHCDC Rounds 19 and 20
- Change in ICU hours and costs
- Compliance with the DRS specifications (given the changes to the DRS between Round 19 and 20)

The above checks during the QA process do not include a data linkage review as the data validation and linking checks are undertaken through the portal. This places the responsibility on Jurisdictions to submit valid data. It was noted during the discussions with IHPA that whilst there are no agreed thresholds to assess the completeness of linkage, the actual linkage levels varied across the products depending upon the breadth and depth of activity costed and submitted. For example for some Jurisdictions they were able to provide more granular episode level mental health activity; whilst others provided cost data in more aggregate activity forms

The QA process produced a set of QA reports that operated as interactive tools to allow jurisdictions to investigate specific areas or correct errors. These were provided to jurisdictions to review and action should material errors be found or provide clarification to IHPA on any issues highlighted in the QA reports. The data sets were re-submitted by Jurisdictions as appropriate to correct any issues.

To support the timely completion of this QA process, internal weekly meetings are held between IHPA's policy, pricing & analytics and data acquisition teams to discuss the status of the QA process and provide updates to the executive team. At the time of the discussions with IHPA, it was noted that there were no specific items of interest under review in Round 20. IHPA staff also noted in the consultation that combined with QA reporting and their own internal checks, they believed that they had sufficient tools to enable cost data review and comparison.

After all issues are resolved, the final datasets are created.

#### 12.2.4 Phase 4: Retrieve Data from EDW Operational Data Storage

Once jurisdictions were satisfied with their QA reports, IHPA retrieved each jurisdiction data set from the portal and placed it on the IHPA server ready for preparation of the national dataset.

During the consultations, it was also noted that the cost data is also used for the purposes of the National Benchmarking Portal, which is a secure web, based application that provides access to compare costs and activity data from public hospitals across the country.

#### 12.2.5 Phase 5: Reconciliation between submitted data and the national database

IHPA conducted a reconciliation from data submitted to the national dataset. This included all steps listed above from accessing data in its raw form from the ODS in the EDW to the data which is included in the QA reports. The summary of this reconciliation is presented in Table 102.



Table 102 – IHPA Round 20 NHCDC reconciliation

State	Hospital	Activity submitted	UQB activity	UQB removals	Total NHCDC activity	Cost submitted	UQB costs removed	Admitted ED reallocations cost	Total NHCDC cost
ACT	The Canberra Hospital	1,159,811	-	-	1,159,811	\$966,372,617	-	\$43,713,891	\$1,010,086,507
NSW	Hunter New England LHD	1,326,645	-	-	1,326,645	\$1,439,751,997	-	\$65,101,373	\$1,504,853,370
NT	Royal Darwin Hospital	287,705	-	-	287,705	\$518,568,452	-	\$25,503,497	\$544,071,948
QLD	Central Queensland HHS	332,605	(2,069)	(12)	330,524	\$332,323,070	(\$12,285)	\$22,048,990	\$354,359,775
QLD	Townsville HHS	421,935	(2,214)	(3)	419,718	\$608,821,616	(\$4,865)	\$29,829,389	\$638,646,140
QLD	NorthWest HHS	68,898	(325)	-	68,573	\$85,843,954	-	\$3,123,397	\$88,967,352
SA	Women's and Children's Hospital	276,197	-	-	276,197	\$299,345,221	-	\$11,145,642	\$310,490,863
SA	Mount Gambier and Districts Health Service	54,668	-	-	54,668	\$68,920,334	-	\$4,129,413	\$73,049,747
TAS	Royal Hobart Hospital	326,610	(1,617)	-	324,993	\$449,175,763	-	\$23,461,222	\$472,636,985
VIC	Austin Health	439,477	-	-	439,477	\$684,816,272	-	\$32,012,737	\$716,829,009
VIC	Royal Women's Hospital	243,921	(8,211)	-	235,710	\$220,657,883	-	\$2,828,180	\$223,486,063
VIC	Swan Hill District Health	20,521	(275)	-	20,246	\$28,404,052	-	\$1,336,140	\$29,740,192
WA	Hedland Health Campus	44,041	(304)	-	43,737	\$63,089,218	-	\$5,037,828	\$68,127,046
WA	Royal Perth Hospital	342,034	-	-	342,034	\$597,803,829	-	\$41,102,434	\$638,906,263

Source: IHPA participating site reconciliation from the national NHCDC dataset

The following should be noted about the reconciliation in Table 102:

- A minimal variance of \$52 was observed between costed products submitted for the Women's and Children's Hospital in South Australia and that received by IHPA.
- A variance was observed between the costs submitted by Royal Hobart Hospital per the reconciliation and that received by IHPA of \$25,567. Royal Hobart Hospital was the pilot site visit for the Round 20 IFR. TAS-DHHS resubmitted NHCDC data for Royal Hobart Hospital post the completion of the templates and the site visit due to an identified error in allied health data. The variance is 0.002 percent of the total NHCDC submission for Tasmania and is considered immaterial by IHPA.

## **Appendix A: : The NHCDC and patient level costing**

### **A.1. The NHCDC**

The cost data submitted to the National Hospital Cost Data Collection (NHCDC) is at the patient level. That is, each admitted, emergency presentation, non-admitted service event and other patient group is submitted with a cost identifying the resources consumed over their stay, appointment or transaction with a hospital or health service.

Where possible, hospitals apply a cost methodology according to the Australian Hospital Patient Costing Standards (AHPCS). These standards provide a guide to costing for NHCDC purposes, as well as providing consistency in interpreting results. For example, they prescribe: the products in scope for costing; how to define and select a preferred methodology for deriving overhead and direct care costs; how to treat teaching, training and research costs; and how to reconcile to source data.

### **A.2. Patient level costing process**

Patient level costing is the process of determining the resource costs of health care products which are consumed by patients on their clinical journey. In the Australian hospital setting, patient level costing is undertaken across all 'streams' such as admitted (acute and subacute), emergency care, non-admitted, mental health and a range of other services at the patient level. Each stream has a series of products identifying its respective output.

#### **A.2.1 Input data**

The patient level costing process requires source data across a large range of hospital systems to enable the creation of intermediate products and total patient costs. There are two main input components:

#### **A.2.2 The General Ledger**

The general ledger (GL) is used by the hospital to record the level of expenditure by its own departments over a fiscal period, such as a financial year, or a quarter (if undertaking quarterly costing).

#### **A.2.3 Activity and Feeder data**

Activity data is used by the hospital to register the type of patient accessing services from their facility (such as admitted patients or emergency department administration systems and non-admitted registration or booking systems).

Feeder data describes the type of service offered to the patient. Examples include: minutes on a ward; minutes in the operating room; minutes the surgical team are in the operating room; or the type and quantity of a drug test, imaging or pathology test. This data is extracted from standalone hospital departmental systems (such as the operating room, pathology and imaging).

### **A.3. The costing process**

The costing process generally takes the following steps:

#### **A.3.1 Step 1: Extraction of expenditure data and its alignment to hospital areas or departments**

During this process, costing staff examine the cost centres and the account codes within the GL and map them to the appropriate NHCDC cost centre line items. Costing staff will also define what areas are in scope to cost and determine if any offsets or expenditure transfers across cost centres are required.

Furthermore, costing staff will assess which cost areas should be deemed an overhead or a direct care cost, and assign the appropriate allocation statistic, activity or cost driver (see Step 3: Allocating costs to patients) to enable costing.

#### **A.3.2 Step 2: Extraction of activity and feeder data**

This stage requires costing staff to identify the types of activity to be costed. Data is extracted from the Patient Administration Systems (PAS) for admitted patients, emergency administration systems for emergency department presentations, and non-admitted booking systems for non-admitted presentations (which would become service events). These datasets are reviewed (this review could be against reported activity to jurisdictions or to ensure there are no duplicate records which require merging) and loaded into the costing system. This data only specifies the level of activity undertaken and further data (referred to as intermediate products) is required to attach the type of resources consumed by that activity.

This data (or what is described as feeder data) is obtained from departmental systems within hospitals or health services. It can include: ward data, such as the patient time in the ward; pathology and imaging data, such as the volume and type of tests (such as a full blood evaluation performed in pathology); operating suite data, such as the time a patient is in the operating room; and data reflecting the type of goods and services consumed in the theatre or pharmacy such as the type, quantity and unit, drug or purchase price. Central to these feeders is the episode number and date of service the resource was utilised, which is instrumental in linking these resources back to the relevant activity.

#### **A.3.3 Step 3: Allocating costs to patients**

This process maps the relevant expenditure data to the activity and feeder data where costs are derived for each resource (such as a pathology full blood evaluation). This is undertaken for each department.

These costs incorporate both an overhead cost and a direct (or final care) cost. Overhead costs typically accumulate costs for services (e.g. payroll) that are provided to organisational units in the hospital rather than to producing end-products (e.g. patients)<sup>31</sup>. The costing process redistributes all overhead costs across the final cost centres according to the allocation

---

<sup>31</sup> AHPCS Version 3.1 SCP 3A.001

methodology defined for each overhead such as floor space for cleaning or the number of medical records for Health Information Services<sup>32</sup>.

The direct care costs relate to services that directly relate to patient care. These costs are allocated to patients using the most relevant cost driver such as the number of tests or patient ward time.<sup>33</sup>

These resources are then attached to each patient activity using defined linking criteria. A date and time algorithm is used to attach each relevant episode number in each of the feeders. For example, for admitted patients each feeder is examined to find if there is a matching episode number in the feeder, then the date of service of the resource. If there is an episode number match and the date of service of the resource is between the admission and discharge date of the patient, then this resource is attached to the episode number (or patient). This process also occurs for emergency presentations and non-admitted episodes, with the matching criteria defined for each. Finally, a sum of the resources at each episode number will deliver a total patient cost.

---

<sup>32</sup> AHPCS Version 3.1 Attachment D; AHPCS Version 3.1 COST 1.002

<sup>33</sup> AHPCS Version 3.1 COST 3.004; AHPCS Version 3.1 Attachment E

## Appendix B: AHPCS Version 3.1 in scope

Table 103 – Application of Costing Standards – Round 20

No.	Title	Standard
SCP 1.004	Hospital Products in Scope	<p>Hospitals will allocate costs to all hospital products grouped into the categories:</p> <ul style="list-style-type: none"> <li>• Admitted patient products;</li> <li>• Non-Admitted patient products;</li> <li>• Emergency Department patient products;</li> <li>• Teaching, Training and Research products; and</li> <li>• Non-Patient products.</li> </ul>
SCP 2.003	Product Costs in Scope	<p>Include, in the product costing process, all costs incurred by, or on behalf of the hospital, that are necessarily incurred in the production of patient and non-patient products, subject to the specific exclusion that the costs of time provided by medical specialists to treat private patients that are not directly met by the hospital, are not to be imputed.</p>
SCP 3.001	Matching Production and Cost	<p>For the purposes of product costing, the costs taken from the general ledger and other sources will be manipulated so as to achieve the best match of production to cost measures at the levels of the whole hospital, each product category, each cost centre within a product category, and each end-class within a product category.</p>
SCP 3A.001	Matching Production and Cost – Overhead Cost Allocation	<p>All costs accumulated in overhead cost centres should be allocated to final cost centres before any partitioning of costs into product categories is undertaken.</p>
SCP 3B.001	Matching Production and Cost – Costing all Products	<p>All costs should be accounted for in the costing process and allocated, as appropriate, across all patient and non-patient products generated by the hospital in the costing (fiscal) period.</p>
SCP 3C.001	Matching Production and Cost – Commercial Business Entities	<p>Commercial business entities should be treated as non-patient products for the purposes of product costing.</p>

No.	Title	Standard
SCP 3E.001	Matching Production and Cost – Offsets and Recoveries	Hospitals will not offset revenue against costs but cost recoveries may be offset against cost where appropriate.
SCP 3G.001	Matching Production and Cost – Reconciliation to Source Data	Hospitals will produce a statement that reconciles the activity and cost data outputs of the product costing process to the activity and costs that were captured in the source data.
GL 2.004	Account Code Mapping to Line Items	Hospitals will map all in-scope costs to the standard list of line items.
GL 4A.002	Critical Care Definition	<p>For product costing purposes the following units will be included in critical care: Intensive Care, Coronary Care, Cardiothoracic Intensive Care, Psychiatric Intensive Care, Paediatric Intensive and Neonatal Intensive Care.</p> <p>High dependency, special care nurseries and other close observation units either located within general wards or stand alone will be costed as general wards.</p>
COST 3A.002	Allocation of Medical Costs for Private and Public Patients	All costs that relate to patients are allocated based on consumption regardless which cost centres contain the medical salaries expenses
COST 5.002	Treatment of Work-In-Progress Costs	Each patient is allocated their proportion of costs in the reporting period regardless of whether the service event is completed or commenced and that the cost and activity is reported in each period.

Source: Australian Hospital Patient Costing Standards Version 3.1

## Appendix C: Site visit attendees

Jurisdiction	IHPA Representative	Jurisdictional and hospital / LHN representatives	Peer representative	KPMG
Australian Capital Territory	Sheldon Le	Prathima Karri (ACT Health)	-	David Debono Luigi Viscariello
New South Wales	Sheldon Le Sam Webster Iman Mehdi	Alfa D'Amato (ABM Team) Julia Heberle (ABM Team) Renee Droguett (ABM Team) Suellen Fletcher (ABM Team) Janardan Gollada (ABM Team) Sireesha Adari (ABM Team) Ivan Koprivic (ABM Team) Grantly Hunt (Hunter New England LHD) Carolyn Young (Hunter New England LHD) Belinda McLachlan (Hunter New England LHD)	-	David Debono Lisa Strickland Gire Ganesharaja
Northern Territory	Flairy Caragay	Abdullah Soufan, DoH - NT Garth Barnett, PowerHealth Solutions	Phillip Battista (SA)	John O'Connor Matthew Wright
Queensland	Will Andrews	Colin McCrow (Queensland Health) Chris Watts (North West HHS) Paul Davis (Central Queensland HHS) Peter Dennis (Central Queensland HHS) Kirsten Saxby (Townsville HHS) Chad Farrell (Townsville HHS) Kaylene Gibb (Townsville HHS)	-	David Debono Matthew Wright

<b>Jurisdiction</b>	<b>IHPA Representative</b>	<b>Jurisdictional and hospital / LHN representatives</b>	<b>Peer representative</b>	<b>KPMG</b>
South Australia	Iman Mehdi	Phillip Battista (SA Health) Silvana Di Ciocco (SA Health) Scott Bean (SA Health) Chris Onderstal (SA Health) Eloise Gelston (SA Health) Peter Casey (WCHN) Steve Brown (CHSALHN) Shamus Cogan (CHSALHN)	Barry Hagan (TAS)	John O'Connor Luigi Viscariello
Tasmania	Neill Jones Iman Mehdi	Ian Jordan Matthew Green Daniel Davies Barry Hagan	Colin McCrow (QLD)	John O'Connor Lisa Strickland
Victoria	Iman Mehdi	Joanne Siviloglou (VIC Health) Caleb Stewart (VIC Health) Henry Wan (The Royal Women's Hospital) Rosemarie Chetcuti (The Royal Women's Hospital) Ronald Ma (Austin Health) Alec Peterson (Austin Health) Ragul Karun (Swan Hill District Health) Simon Rush (Swan Hill District Health)	-	John O'Connor Lisa Strickland
Western Australia	Aaron Balm	Kevin Frost (WA Health) Rinaldo Ienco (South Metro AHS) Judy Choi (South Metro AHS) David Bratovich (WA Country Health Service) Lindsay Adams (WA Country Health Service)	Alfa D'Amato (NSW)	David Debono Luigi Viscariello
IHPA Review	Neill Jones Iman Mehdi Sheldon Le	-	-	David Debono Matthew Wright Gire Ganesharaja

Source: KPMG