



National Hospital Cost Data Collection

Independent Financial Review

Round 21 (Financial year 2016-17)

Independent Hospital Pricing Authority

Final Report – February 2019



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.

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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 and varied on 28 March 2018. 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.

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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). 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 21 independent financial review (IFR) of a sample of state and territory hospitals who supplied data to the Round 21 NHCDC (2016-17).

Findings and recommendations

Similar to findings outlined in the Round 20 IFR, jurisdictions continue to improve the processes and controls associated with the clinical costing process that underpins the NHCDC submission. This is largely driven by the increased emphasis on data quality, as costing data is increasingly being used by jurisdictions at the local hospital level to improve decision-making.

Key findings and observations include the following:

- The review of the data flow from the hospital/LHN to jurisdiction identified variances of less than \$600 for three of the 14 hospitals/LHNs sampled. These variances were not investigated further as they were considered minor. Three of the 14 hospital/LHNs sampled had a variance of greater than \$600, however this was less than 0.02 percent of the GL. Variances related to a discrepancy between the number of decimal places in the financial department and patient level of the costing system database, a PPM service date/time issue or costs associated with out of scope activity.
- The review of the data flow from the jurisdiction to IHPA identified no material variances.
- Feeder system information provided for all sampled hospitals/LHNs highlighted that the number of records linked from source to product was significant. A number of jurisdictional and Hospital/LHN stakeholders consulted indicated that they had emphasised greater data validation at feeder level. The majority of feeder systems in all hospitals had at least a 90 percent link or match.
- Common variances were noted in pharmacy and diagnostic imaging systems. These variances were consistent across jurisdictions and related to services unable to be linked to the hospital/LHN activity due to the provision of legitimate services to episodes outside the date range in the linking rules. Other issues for other feeder systems related to data quality at source.
- 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.

A summary of key findings by jurisdiction are provided below:

Table 1: Summary of observations and findings by jurisdiction

Jurisdiction	Participating LHN / Hospital	Initiatives implemented in Round 21	Reconciliation – GL to jurisdiction
ACT	Calvary Public Hospital, Bruce	No major changes	
NSW	Western Sydney LHD	No major changes	
NT	Alice Springs Hospital	<ul style="list-style-type: none"> Reviewed expenditure associated with outreach clinics to ensure costs are allocated to outreach clinics only Created two separate cost centres for theatre. 	
QLD	Children's Health Queensland HHS	<ul style="list-style-type: none"> Queensland Health revised the sign off process for HHS' as part of the Queensland Health cost data submission process such that the HHS signs off the GL reconciliation while Queensland Health signs off on the transformation process 	
	Wide Bay HHS		\$91,024 variance (0.02 percent of HHS expenditure)
	Townsville HHS		\$70,094 variance (0.01 percent of HHS expenditure)
SA	Whyalla Hospital and Health Service	<ul style="list-style-type: none"> Implementation of new patient security and patient transport feeders 	\$2,252 variance (0.01 percent of expenditure)
	Flinders Medical Centre		
TAS	Tasmanian Health Service	<ul style="list-style-type: none"> Ongoing development of Qlikview reporting Round 21 was the first year the fully merged Tasmanian Health Service was costed 	
VIC	Alfred Health	<ul style="list-style-type: none"> Continued development and update to the linking rules. Expanded and updated the data quality assurance checks Piloted, across selected sites, access to the IHPA portal data 	
	Bairnsdale Health Service		
WA	Fiona Stanley Hospital	No major changes	
	Princess Margaret Hospital	No major changes	
	Carnarvon Hospital	No major changes	

In recognition of the improvement over time in the reconciliation processes, linking of feeders and the utilisation of cost data for decision-making purposes, it is important the IFR also continues to deliver value for IHPA and jurisdictions. Feedback during the Round 21 site visits suggested that jurisdictions see the need for further enhancement of the IFR, to ensure it meets its intended objectives and that jurisdictions can extract value from the process. As such, recommendations are made in areas where opportunities for improvement were identified by jurisdictional representatives and the review team. The recommendations focus on improvements related to the NHCDC submission processes and IHPA processes in future rounds. The following recommendations have been identified during the Round 21 IFR:

Recommendation 1: Initial scoping workshop

The Round 21 IFR commenced with a Scoping Workshop which was attended by all jurisdictional representatives. It is recommended that this continues in future rounds, with the IFR consultant responsible for facilitating a workshop aimed at discussing and agreeing any proposed changes to the IFR. This forum should also be used to validate the IFR templates.

Recommendation 2: Peer review process

It is recommended that the peer review process continues in future IFR rounds as the process is still considered valuable. However, to assist jurisdictions participate in the peer review process, 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 scheduling and structure of site visits may also be revised, to allow peer reviewers to participate in two jurisdictional site visits. For example, by scheduling a large and small jurisdiction within the same week, such as NSW and ACT, a peer reviewer has the opportunity to attend two different site visits.

Recommendation 3: Broader LHN engagement – Peer review

One of the benefits of the IFR process has been consultation with LHN/hospital costing practitioners and other staff. While the consultations focussed heavily on the reconciliation templates and questions surrounding the AHPCS, costing practitioners also sought to better understand how their peers from other jurisdictions were handling particular costing issues. It is recommended that consideration be given to greater LHN/hospital costing practitioner participation to foster greater learnings across the costing continuum.

Recommendation 4: Broader LHN Engagement – Rethinking the Scope

A number of jurisdictions had in place a range of reconciliation frameworks which the LHN/hospitals were to comply with as part of their annual costing studies for local collections and those of the NHCDC. A number of costing practitioners commented that the IFR process could be of greater value if it included review of cost data across particular products, with emphasis on costing methodologies and approaches. It is recommended that future IFR rounds consider particular areas of interest to be reviewed for both cost content and approaches to costing. These areas of interest may be informed by areas of high cost variation both within and across jurisdictions or areas that may be subject to further policy development in the future.

Acronyms/Abbreviations

Acronym / Abbreviation	Description
ABF	Activity Based Funding
ABM	Activity Based Management
AHPCS	Australian Hospital Patient Costing Standards
CCU	Coronary Care Unit
HDU	High Dependency Unit
ICU	Intensive Care Unit
LHN	Local Health Network
MBS	Medical Benefits Scheme
MRN	Medical Record Number
NAC	NHCDC Advisory Committee
NAP	Non Admitted Patient
NEP	National Efficient Price
NHCDC	National Hospital Cost Data Collection
NICU	Neonatal Intensive Care Unit
RVU	Relative Value Unit
WIP	Work-In-Progress

1. Introduction

1.1 Overview and scope

The NHCDC is the annual collection of public hospital cost data, and is the primary data collection used to inform the NEP and the NEC. For the Round 21 NHCDC, cost data was submitted from 451 hospitals across all jurisdictions. The NHCDC provides an avenue for cost measurement across public hospitals. It is also the primary data collection that IHPA relies on to inform the NEP and NEC. 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 21 IFR of a sample of state and territory hospitals who supplied data to the Round 21 NHCDC (2016-17). The Round 21 IFR includes:

- Assessment of the accuracy and completeness of the NHCDC participating health services reconciliations provided for Round 21, 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.
- 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 as compared to the previous round of NHCDC and address any developments made in response to the findings in the Round 20 IFR Final Report.

Following a Scoping Workshop held at the commencement of the review, the Round 21 IFR also included the following items:

- a review of the cost allocation methodology utilised by different hospital sites for a sample of patients to improve the understanding of the differences in costed output between health services and jurisdictions.
- review of composition costs for a sample of patients using the cost centre/line item.

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 21. 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. The sample framework is provided in the *Round 21 IFR Report: Supplementary Information*.

Table 2 – Round 21 IFR participating hospitals/LHNs

Jurisdiction	Hospital
ACT	Calvary Public Hospital, Bruce
NSW	Western Sydney Local Health District (LHD)
NT	Alice Springs Hospital
QLD	Children's Health Queensland HHS incorporating Lady Cilento Children's Hospital;
	Townsville HHS incorporating Hughenden Health Service; and
	Wide Bay HHS incorporating Hervey Bay Hospital.
SA	Whyalla Hospital and Health Service
	Flinders Medical Centre
TAS	Tasmanian Health Service
VIC	Alfred Health
	Bairnsdale Regional Health Service
WA	Fiona Stanley Hospital
	Princess Margaret Hospital
	Carnarvon Hospital

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;
- *An episode level data collection template* distributed to jurisdictions and tailored to provide the required information to understand cost allocation methodology and composition of costs for a selected DRG;
- *Sample testing* of five patients at each hospital to test the transfer of patient cost data from the hospital to IHPA;
- *Sample testing of five episodes* to test at cost centre and line item level with reference back to source feeder systems;
- *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.

Details of the data collection templates are provided in the *Round 21 IFR Report: Supplementary Information*

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 NHCDC submissions. The remainder of the report is structured as follows:

Section	Description
Findings of the review	Provides a summary of the findings from the Round 21 IFR and improvements for future NHCDC rounds.
Jurisdiction chapters	Presents the costing and reconciliation process for each of the eight participating jurisdictions and their nominated hospitals.
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.
Appendices	<ul style="list-style-type: none"> A. Round 21 IFR Sampling Framework: Provides an overview of the criteria used to sample participating hospitals for the Round 21 IFR. B. Round 21 IFR detailed review process: Provides detailed information on the approach and methods used in the Round 21 IFR. C. The NHCDC and patient level costing: Provides an overview of patient level costing and how it applies in the NHCDC context. D. AHPCS Version 3.1 in scope: Provides a summary of the requirements of the AHPCS Version 3.1 selected for the Round 21 IFR. E. Site visit attended: Contains a list of all attendees at the site visits.

The *Round 21 IFR Report: Supplementary Information* should be read in conjunction with this report. It provides the detailed data tables for participating hospitals/health services and other supporting information.

2. Findings of the review

This section summarises the findings of the NHCDC Round 21 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

Similar to findings outlined in the Round 20 IFR, jurisdictions continue to improve the processes and controls associated with the clinical costing process that underpins the NHCDC submission. This is largely driven by the increased emphasis on data quality, as costing data is increasingly being used by jurisdictions at the local hospital level to inform better decision-making.

In recognition of the improvement over time in the 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 21 site visits suggested that jurisdictions see the need for further enhancement of the IFR, to ensure it meets its intended objectives and jurisdictions can extract value from the process. As such, recommendations are made in areas where opportunities for improvement were identified by jurisdictional representatives and the review team. The recommendations focus on improvements related to the NHCDC submission processes and IHPA processes in future rounds.

2.2 Observations from Round 21

2.2.1 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 were found to implement suitable financial reconciliation processes at the hospital/LHN level, and jurisdictional level.

Reconciliation hospital/LHNL to jurisdiction

The review of the data flow from the hospital/LHN to jurisdiction identified variances of less than \$600 for three 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 three 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 \$70,094 (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 Queensland, a variance of \$91,024 (0.02 percent of HHS expenditure) between the total HHS expenditure and the costs allocated to patients was noted for Wide Bay HHS. It related to a PPM service date/time issue. This variance is excluded from the NHCDC submission as there is no patient level data that can be mapped to submitted activity.
- In South Australia, a variance of \$2,252 (0.01 percent of expenditure) between the total Whyalla Hospital and Health Service expenditure and the costs allocated to patients. This related to activity in Z areas (i.e. excluded not in scope activity).

Reconciliation from jurisdiction to IHPA

The review of the data flow from the jurisdiction to IHPA identified no material variances.

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.

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 21.

2.2.2 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 system¹.

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. This high level of matching indicates that jurisdictions and hospitals continue to make improvements in data validation processes to ensure that the resources consumed can be identified by patient(or activity) , which supports greater precision in linking services to patient and consequently increased robustness in costed patient output.

Common variances were noted in pharmacy and diagnostic imaging systems, where the provision of services was outside the date range in the linking rules. Linking percentages of less than 90 percent were noted for the following hospitals:

- The unlinked records in the Pharmacy Dispensing feeder system at Children's Health Queensland HHS, Wide Bay HHS and Townsville HHS (QLD) (linking percentage of 89.53, 78.12 and 87.02 per cent respectively) related to activity falling outside a linking rule.

¹ 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.

- The unlinked records (17.50 per cent) in the Blood Products feeder system at Townsville HHS (QLD) related to the activity falling outside a linking rule.
- The unlinked records (65.90 per cent) in the Allied Health feeder system at Whyalla Hospital and Health Service (SA) related to the feeder including community health as well as hospital data resulting in a low matching rate.
- The unlinked records in the feeder systems (between 10.13 and 28.39 per cent) at Alfred Health (VIC) related to missing Unique Record numbers and tests conducted in-house that are unable to be linked to patient activity.

Costing practitioners are increasingly focused on improving the data collection process. The primary purpose of feeder systems are to support clinical and operational staff from a patient care perspective. Costing practitioners are secondary users of feeder data that are derived from these clinical systems. The consultation process identified that costing practitioners are adding value to LHN/hospital data through working closely with owners of clinical systems to improve the data collection and validation process.

2.2.3 Critical care

Ten of the hospitals/LHNs sampled had dedicated Intensive Care units (ICU's) in their facilities, with some having a range of observation units including High Dependency Units, Special Care Nurseries, Neonatal ICU's, Paediatric ICU, Psychiatric ICU and Coronary Care Units. Four 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. WA 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. New South Wales and Victoria 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

2.2.4 Private Patients

All participating 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.

In the majority of jurisdictions medical specialists in the sampled hospitals/LHNs are paid an allowance in lieu of private practice arrangements. It was noted in a number of consultations across most jurisdictions that where commercial arrangements existed with clinical staff such as

the Rights to Private Practice, that these arrangements were complex and knowledge of their content was generally held by a few in the LHN – not necessarily with the costing practitioner.

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.

2.2.5 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 NHCDC for Round 21:

- All jurisdictions submitted costs for hospitals for admitted and discharged patients in 2016-17.
- Costs for patients not discharged at 30 June 2017 were excluded by all jurisdictions.
- Costs for patients discharged in 2016-17 but incurred in prior years were submitted by all jurisdictions.

2.2.6 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 and ACT hospital submissions.
- *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 Victorian Cost Data Collection (VCDC), Victoria's own cost study, 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).

2.3 Recommendations

The IFR commenced in Round 14 and has since evolved significantly from a pure financial reconciliation exercise to a more detailed end-to-end financial reconciliation by including 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 21 site visits suggested that jurisdictions see the need for further evolution of the IFR, to ensure it remains valuable and meets its intended objectives.

Recommendations implemented in Round 21

The objectives of the Round 21 IFR are detailed in Section 1 of this report. This scope builds on incorporating a number of recommendations made in the Round 20 IFR Final Report. For Round 21, the IFR scope included the following items based on previous recommendations:

- Focusing on costing sites, rather than hospitals. In the Round 21 IFR, TAS, QLD and SA submitted data at the LHN level, rather than at the hospital level only. While this simplified the reconciliations required from jurisdictions, it also reflected the way in which costing is undertaken at the jurisdictional level.
- Revising the report structure by summarising findings and providing a Supplementary Report to the Final Report. The revised reporting of financial and activity data focuses on exceptions for each hospital/health service. A similar approach is adopted for reporting the application of the AHPCS.
- Incorporating a cost methodology review, which involved implementing a second data collection template designed to capture the cost allocation approaches within various health services for a particular DRG. The intent of this additional review was to:
 - Provide costing practitioners insight into the allocation approaches within other health services to promote dialogue and discussion.
 - Enable greater transparency as to how a health service costing approach aligns with the AHPCS.
 - Provide IHPA with some further systems intelligence as to which health services have more detailed feeders and their approach to cost allocation.
- Incorporating a review of a sample of like patients across health services to measure the underlying costs to understand the types of resources that comprise patient level costs.

Noting the changes and developments implemented for Round 21 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.

2.3.1 Initial scoping workshop

The Round 21 IFR commenced with a Scoping Workshop which was attended by all jurisdictional representatives. A key objective of the workshop was to identify enhancements to the IFR and agree proposed amendments to the current IFR. These objectives were met and a number of enhancements to the IFR were agreed and implemented in round 21. It is recommended that this continues in future rounds, with the IFR consultant responsible for facilitating a workshop aimed at discussing and agreeing any proposed changes to the IFR. This forum should also be used to validate the IFR templates.

2.3.2 Peer review process

During the Round 21 IFR, three jurisdictions nominated to participate in the peer review. This was down on previous Rounds of the IFR (four jurisdictions nominated to participate in Round 20). Feedback from jurisdictions indicates that the ability of all jurisdictions to participate in the peer review is constrained by a combination of timing, travel and cost constraints.

Notwithstanding the above, 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.

It is recommended that the peer review process continues in future IFR rounds as the process is still considered valuable. However, to assist jurisdictions participate in the peer review process, 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 scheduling and structure of site visits may also be revised, to allow peer reviewers to participate in two jurisdictional site visits. For example, by scheduling a large and small jurisdiction within the same week, such as NSW and ACT, a peer reviewer has the opportunity to attend two different site visits.

2.3.3 Broader LHN Engagement – Peer Review

One of the benefits of the IFR process has been consultation with LHN/hospital costing practitioner and other staff. Whilst the consultations focussed heavily on the reconciliation templates and questions surrounding the AHPCS, costing practitioners also sought to better understand how their peers from other jurisdictions were handling particular costing issues.

It is recommended that the peer review process continues in future IFR rounds as the process is still considered valuable. However, consideration should be given to greater LHN/hospital costing practitioner participation to foster greater learnings across the costing continuum.

2.3.4 Broader LHN Engagement – Rethinking the Scope

A number of jurisdictions had in place a range of reconciliation frameworks which the LHN/hospitals were to comply with as part of their annual costing studies for local collections and those of the NHCDC.

It was generally acknowledged by costing practitioners that these frameworks provided a basis for data quality reporting and a prerequisite to any cost data submission. Whilst it was understood that the IFR and the reconciliation templates were required to provide a basis of surety at the national level for the NHCDC, a number of costing practitioners commented that the IFR process could be of greater value if it included review of cost data across particular products, with emphasis on costing methodologies and approaches.

It is recommended that future IFR rounds consider particular areas of interest to be reviewed for both cost content and approaches to costing. These areas of interest may be informed by areas of high cost variation both within and across jurisdictions or areas that may be subject to further policy development in the future.

3. Australian Capital Territory

3.1 Summary of key findings

The findings of the ACT Round 21 IFR are summarised below:

- The financial reconciliation template illustrates the transformation of cost data for Calvary Public Hospital, Bruce (CPHB) based on the final General Ledger (GL). The final GL reconciled to the audited financial statements.
- The basis of the adjustments made by CPHB was explained. Exclusions were made for Non ABF reportable activity and teaching, training and research. These costs were removed and not reported to the NHCDC as the costs could not be aligned to patient activity.
- Similarly, total NHCDC activity data for the hospitals was adjusted by ACT Health staff in consultation with CPHB for the removal of records associated with excluded costs such as teaching and training, research, current year WIP and other system-generated patients associated with non-ABF or out of scope activity.
- Calvary Public Hospital complied with all in-scope Australian Hospital Patient Costing Standards (AHPCS) Version 3.1.

Subject to identified review limitations, CPHB has suitable reconciliation processes in place and the financial data is considered for NHCDC submission.

3.2 Jurisdictional overview

3.2.1 Management of NHCDC process

The Performance, Reporting and Data (PRD) Division of Australian Capital Territory (ACT) Health is responsible for the processing, reconciliation and submission of NHCDC data to the Independent Hospital Pricing Authority (IHPA) for all hospitals in the ACT. The Calvary Public Hospital was selected as the sample hospital in the ACT for the Round 21 IFR.

Key initiatives since Round 20 NHCDC

Key initiatives implemented by ACT Health since Round 20 include:

- Re-mapping all cost centres to align to the Australian Hospital Patient Costing Standards (AHPCS);
- Working closely with both Calvary Public Hospital and The Canberra Hospital to ensure the GL and cost centre mapping contains all relevant in-scope expenditure; and
- Reviewing and updating all allocation statistics used in the costing process.

3.3 Calvary Public Hospital, Bruce

3.3.1 Overview

CPHB's main campus is a 256 bed hospital providing acute care public health and hospital services, predominantly serving the communities of North Canberra, Belconnen and Gungahlin.

The Emergency Department is open 24 hours per day, seeing approximately 56,000 presentations per year². A second campus in Barton includes the 19-bed Clare Holland House Hospice, the Community Specialist Palliative Care Service and the Calvary Centre for Palliative Care Research. These inpatient, outpatient and in-home specialist palliative care services reach patients right across the ACT and in surrounding areas of NSW³. As a teaching hospital, Calvary Public Hospital is affiliated with the Australian Catholic University, the Australian National University and the University of Canberra, as well as providing clinical placements for a number of other tertiary providers.

3.3.2 Application of AHPCS Version 3.1

Based on the site visit and review templates, CPHB demonstrated application of all selected standards from Version 3.1 of the AHPCS in Calvary Public Hospital's Round 21 NHCDC submission. Application and commentary against each standard is provided in *Round 21 IFR Report: Supplementary Information*.

3.3.3 Financial data

For the Round 21 IFR, ACT Health staff in consultation with CPHB staff completed the IFR templates and participated in consultations during the review.

Table 1 presents a summary of the Calvary Public Hospital's costs, from the original GL extract through to the final NHCDC submission for Round 21.

This section discusses major variances in the reconciliation process. The information is based on the Calvary Public Hospital templates and review discussions. Detailed commentary against each of the reconciliation items, including adjustments, inclusions and exclusions to the GL, is provided in Round 21 IFR Report: Supplementary Information.

- The final GL reconciled to the audited financial statements as per advice from Calvary Public Hospital representatives and reported in the template. No separate financial statements are prepared by ACT Health for Calvary Public Hospital, Bruce (CPHB). CPHB prepares their own accounts and provides to ACT Health.
- At Item B adjustments were made for various out-of-scope expenditure items, including corporate expenses and clinical projects, which accounted for \$7.35 million. In addition, \$3.66 million of in-scope ACT Health corporate costs were included as part of the costing process.
- A range of post allocation exclusions were made by Calvary Public Hospital. These exclusions totalled \$10.12 million. The most significant items related to: depreciation (\$5.01 million), dummy encounters (\$2.11 million), teaching, training and research (\$1.96 million) and corporate costs out of scope for NHCDC (\$0.91 million). These adjustments appear reasonable. Further detail is provided in Round 21 IFR Report: Supplementary Information.

² Calvary (2018), *About us*, <https://www.calvarycare.org.au/public-hospital-bruce/about/>

³ Calvary (2018), *Calvary public hospital Bruce*, <https://www.calvarycare.org.au/public-hospital-bruce/>

Table 3 – Round 21 NHCDC Reconciliation – Calvary Public Hospital

Hospital			Jurisdiction		IHPA	
Item	Amount	% of GL	Item	Amount	Item	Amount
A General Ledger (GL)	\$ 225,868,000		F Costed Products received by jurisdiction	\$ 212,061,890	I Total costed products received by IHPA	\$ 212,061,890
			Variance	\$ -	Variance	\$ 0
B Adjustments to the GL			G Final Adjustments		J IHPA Adjustments	
Inclusions	\$ 3,664,260		Nil	\$ -	Admitted ED reallocations	\$ 12,382,311
Exclusions	\$ (7,348,000)		Total costs submitted to IHPA	\$ 212,061,890	Final NHCDC costs	\$ 224,444,201
Total hospital expenditure	\$ 222,184,260	98.35%				
C Allocation of Costs						
Post Allocation Direct amount	\$ 165,649,358					
Post Allocation Overhead amount	\$ 56,535,136					
Total hospital expenditure	\$ 222,184,494	98.37%				
Variance	\$ 234	0.00%				
D Post Allocation Adjustments			H Costed products submitted to IHPA		K Final NHCDC costed products	
Previous year WIP	\$ 573,120		Acute and Newborns	\$ 129,818,212	Acute^ and Newborns	\$ 142,200,523
Current year WIP	\$ (602,024)		Non-admitted	\$ 13,283,075	Non-admitted	\$ 13,283,075
Teaching and Research	\$ (1,951,506)		Emergency	\$ 35,174,968	Emergency	\$ 35,174,968
Corporate costs/out of scope for NHCDC	\$ (917,409)		Sub Acute	\$ 22,474,621	Sub Acute^	\$ 22,474,621
Negative costs	\$ (43,319)		Mental Health	\$ 11,303,552	Mental Health	\$ 11,303,552
Depreciation and Exclude Line items	\$ (5,070,291)		Other	\$ 7,462	Other	\$ 7,462
Dummy encounters/ created occasions of :	\$ (2,111,175)		Research	\$ -	Research	
Total expenditure allocated to patients	\$ 212,061,890	93.89%	Teaching & Training	\$ -	Teaching & Training	
E Costed products submitted to jurisdiction			System-generated patients	\$ -	System-generated patients	
Acute and Newborns	\$ 129,818,212		Variance	\$ -	Variance	\$ -
Non-admitted	\$ 13,283,075					
Emergency	\$ 35,174,968					
Sub Acute	\$ 22,474,621					
Mental Health	\$ 11,303,552					
Other	\$ 7,462					
Research	\$ -					
Teaching & Training	\$ -					
System-generated patients	\$ -					
Total expenditure allocated to patients	\$ 212,061,890	93.89%				
Variance	\$ (0)	0.000%				

Source: KPMG based on data supplied by Calvary Public Hospital, jurisdiction and IHPA

^ These figures include admitted emergency costs.

3.3.4 Activity data

Calvary Public Hospital was able to reconcile the activity from source data systems to that which was costed and included in the NHCDC submission. The review examined patient activity data based on source and costing systems for Calvary Public Hospital. This activity data was then compared to the transfer of activity data by NHCDC product from Calvary Public Hospital to ACT Health and then through to IHPA submission and finalisation.

The following should be noted about the activity reported:

- The variance of nine records between 'Records from source' and 'Records in costing system' relate to Did Not Wait patients.
- 2016-17 WIP activity (153 records) were included in the adjustments across product types and included in the 172,540 records costed in Round 21.
- Activity associated with costs that were excluded relating to teaching and training, research, current year WIP, and other system-generated patients associated with non-ABF or out-of-scope activity were also identified through the activity reconciliation process.

The *Round 21 IFR Report: Supplementary Information* contains the detailed activity data for Calvary Public Hospital.

3.3.5 Feeder data

Calvary Public Hospital was able to provide the independent review team with the feeder system information used in the cost allocation process.

Calvary Public Hospital indicated that the majority of the extracts used within the costing process are taken from the ACT Health data warehouse and feeder data is extracted from hospital source systems. Data cleansing, reconciling and reporting is undertaken by both ACT Health and CPHB staff and used for costing purposes. Activity data is also reconciled by ACT Health.

The *Round 21 IFR Report: Supplementary Information* presents the feeder data that ACT Health uses in the costing process. The following should be noted about the feeder data for Calvary Public Hospital:

- Across the health service there are 11 feeders which represent the major hospital departments that provide resources.
- All feeders had 100 per cent of records linked from source to hospital product. This suggests that there is robustness in the level of feeder activity reported back to episodes.
- A proportion of records are linked to system-generated patients. These records relate to all the feeder extracts where the linking rule cannot link records to activity.
- Calvary Public Hospital representatives noted that outpatient activity data remains a challenge, particularly for services in the community that is not recorded in the hospital PAS. Improving outpatient data collection is an ongoing piece of work.

3.3.6 Treatment of WIP

Calvary Public Hospital submitted costs for admitted and discharged patients in 2016-17 and WIP costs for those patients admitted in 2015-16 and discharged in 2016-17. Calvary Public Hospital representatives advised that there were no long-term patients from years prior to 2015-16. The accumulated costs for patients still admitted at 30 June 2017 were not submitted to the NHCDC.

3.3.7 Critical care

Calvary Public Hospital provides critical care services. This comprises an 11-bed Intensive Care Unit (ICU) and Coronary Care Unit (CCU) and a 12-bed Special Care Nursery (SCN). All direct costs associated with each of these critical care areas are recorded in dedicated cost centres. Critical care costs are captured in accordance with the applicable standard.

The hospital does not have any High Dependency Units or Close Observation Units located in wards in the hospital.

3.3.8 Costing public and private patients

Calvary Public Hospital uses the same costing methodology for medical costs for both public and private 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.

3.3.9 Treatment of specific items

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

Table 4 – Treatment of specific items – Calvary Public Hospital

Item	Treatment
Research	Not all research costs are able to be separately identified within cost centres, but these costs are allocated and contribute to the total patient cost.
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 they do not match an NHCDC activity line item. Embedded teaching and training costs are excluded using product fractions.
Shared/Other commercial entities	Commercial entities are all outsourced. Any expenditure associated with these activities is excluded by the hospital for costing purposes.

Source: KPMG, based on IFR discussions

3.3.10 Sample patient data

IHPA selected a sample of five patients from Calvary Public 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.

Table 5 – Sample patients – Calvary Public Hospital

#	Product	Jurisdiction Records	Received by IHPA	Variance
1	AC	\$4,066.65	\$4,066.65	\$-
2	AE	\$494.84	\$494.84	\$-
3	MA	\$5,339.18	\$5,339.18	\$-
4	OG	\$2,094.42	\$2,094.42	\$-
5	RH	\$28,635.39	\$28,635.39	\$-

Source: KPMG, based on Calvary Public Hospital and IHPA data

3.4 Conclusion

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, Calvary Public Hospital has suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission.

4. New South Wales

4.1 Summary of key findings

The findings of the NSW Round 21 IFR are summarised below:

- The financial reconciliation template illustrates the transformation of cost data for Western Sydney Local Health District (WSLHD) based on the final General Ledger (GL). The final GL reconciled to the audited financial statements.
- The basis of the adjustments made by WSLHD was explained. Inclusions were made for medical indemnity, as they are paid by NSW Health and not included as operating expenditure by WSLHD.
- Total NHCDC activity data was adjusted by WSLHD for the removal of records associated with excluded costs such as teaching and training, research, current year WIP and other system-generated patients associated with non-ABF or out of scope activity.
- WSLHD complied with all in-scope Australian Hospital Patient Costing Standards (AHPCS) Version 3.1.

Subject to identified review limitations, WSLHD has suitable reconciliation processes in place and the financial data is considered for NHCDC submission.

4.2 Jurisdictional overview

4.2.1 Management of NHCDC process

The Round 21 NHCDC submission review was a joint collaboration between WSLHD and NSW Health's ABM Team. The ABM Team at NSW Health includes a costing team and data acquisition team, which provide support to the LHD who prepare, process and submit the District and Network Return (DNR).

NSW nominated WSLHD to participate in the review for the Round 21 IFR.

Key initiatives since Round 20 NHCDC

During Round 21, NSW Health and WSLHD representatives indicated that there was an increased focus on improving the quality of costing data submissions, including emphasis on greater linking precision through improved data quality in feeders, as well as increased collaboration between NSW Health and LHD costing teams.

WSLHD representatives noted that it continues to invest in costing resources and a succession plan to ensure the LHD has staff in place to both maintain and improve the costing function.

NSW Health indicated that there were no material changes to the costing process since Round 20.

4.3 Western Sydney Local Health District

4.3.1 Overview

One of 15 local health districts (LHDs) in the NSW Health system, WSLHD delivers services from more than 70 sites including Westmead, Auburn, Cumberland, Blacktown and Mount Druitt hospitals. A network of comprehensive integrated care and community-based services are also provided by WSLHD. The District covers more than 120 suburbs spanning 780 square kilometres in the Blacktown, The Hills Shire, Cumberland and Parramatta local government areas (LGAs)⁴.

4.3.2 Application of AHPCS Version 3.1

Based on the site visit and review templates, WSLHD demonstrated application of all selected standards from Version 3.1 of the AHPCS in WSLHD's Round 21 NHCDC submission. Application and commentary against each standard is provided in Round 21 IFR Report: Supplementary Information.

4.3.3 Financial data

For the Round 21 IFR, WSLHD staff completed the IFR templates and participated in consultations during the review.

Table 1 presents a summary of the WSLHD's costs, from the original GL extract through to the final NHCDC submission for WSLHD for Round 21.

This section discusses major variances in the reconciliation process. The information is based on the WSLHD templates and review discussions. Detailed commentary against each of the reconciliation items including adjustments, inclusions and exclusions to the GL is provided in Round 21 IFR Report: Supplementary Information.

- The final GL amount of \$1.715 billion reconciled to the audited financial statements as per advice from WSLHD representatives and reported in the template.
- Inclusions made to the GL totalled \$22.30 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 \$1.737 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 LHD's GL such as medical indemnity insurance).

⁴ NSW Ministry of Health (2018), *About us*, <https://www.wslhd.health.nsw.gov.au/About-Us>

Table 6 – Round 21 NHCDC Reconciliation – Western Sydney Local Health District

Hospital			Jurisdiction			IHPA		
Item	Amount	% of GL	Item	Amount		Item	Amount	
A General Ledger (GL)	\$ 1,715,411,023		F Costed Products received by jurisdiction	\$ 1,737,711,542		I Total costed products received by IHPA	\$ 1,233,319,475	
			<i>Variance</i>	\$ -		<i>Variance</i>	\$ (0)	
B Adjustments to the GL			G Final Adjustments			J IHPA Adjustments		
<i>Inclusions</i>	\$ 22,300,519		<i>Non-patient products</i>	\$ (19,666,064)		<i>Admitted ED reallocations</i>	\$ 58,189,189	
<i>Exclusions</i>	\$ -		<i>WIP 2015-16</i>	\$ 27,860,742		Final NHCDC costs	\$ 1,291,508,664	
Total hospital expenditure	\$ 1,737,711,542	101.30%	<i>Aggregate NAP</i>	\$ (6,380,632)				
C Allocation of Costs			<i>Dummy Encounters</i>	\$ (29,711,086)				
<i>Post Allocation Direct amount</i>	\$ 1,310,740,290		<i>Restricted Fund Assets</i>	\$ (738,312)				
<i>Post Allocation Overhead amount</i>	\$ 426,971,252		<i>Validation and linking issues</i>	\$ (177,977,032)				
Total hospital expenditure	\$ 1,737,711,542	101.30%	<i>Z Encounters</i>	\$ (138,464,729)				
<i>Variance</i>	\$ 0	0.00%	<i>Teaching, Training and Research</i>	\$ (73,624,554)				
D Post Allocation Adjustments			<i>Block Funded Services</i>	\$ (85,690,399)				
<i>Non hospital programs</i>	\$ -		Total costs submitted to IHPA	\$ 1,233,319,476				
Total expenditure allocated to patients	\$ 1,737,711,542	101.30%						
E Costed products submitted to jurisdiction			H Costed products submitted to IHPA			K Final NHCDC costed products		
<i>Acute and Newborns</i>	\$ 893,315,960		<i>Acute and Newborns</i>	\$ 862,375,479		<i>Acute^ and Newborns</i>	\$ 933,403,024	
<i>Non-admitted</i>	\$ 327,750,301		<i>Non-admitted</i>	\$ 161,649,673		<i>Non-admitted</i>	\$ 161,649,673	
<i>Emergency</i>	\$ 135,104,277		<i>Emergency</i>	\$ 134,946,137		<i>Emergency</i>	\$ 134,946,137	
<i>Sub Acute</i>	\$ 88,490,240		<i>Sub Acute</i>	\$ 69,561,091		<i>Sub Acute^</i>	\$ 61,509,830	
<i>Mental Health</i>	\$ 17,983,982		<i>Mental Health</i>	\$ 4,787,095		<i>Mental Health</i>		
<i>Other</i>	\$ -		<i>Other</i>	\$ -		<i>Other</i>		
<i>Research</i>	\$ 27,526,399		<i>Research</i>	\$ -		<i>Research</i>		
<i>Teaching & Training</i>	\$ 56,419,991		<i>Teaching & Training</i>	\$ -		<i>Teaching & Training</i>		
<i>System-generated patients</i>	\$ 191,120,392		<i>System-generated patients</i>	\$ -		<i>System-generated patients</i>		
Total	\$ 1,737,711,542	101.30%	Total	\$ 1,233,319,475		Total	\$ 1,291,508,664	
<i>Variance</i>	\$ (0)	0.000%	<i>Variance</i>	\$ (1)		<i>Variance</i>	\$ 0	

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

^ These figures include admitted emergency costs.

4.3.4 Activity data

WSLHD was able to reconcile the activity from source data systems to data that was costed and included in the NHCDC submission. The review examined patient activity data based on source and costing systems for WSLHD. This activity data was then compared to the transfer of activity data by NHCDC product from WSLHD to NSW Health and then through to IHPA submission and finalisation.

The following should be noted about the activity reported:

- The variance of records between 'Records from source' and 'Records in costing system' for Inpatients (six records), Emergency (205 records) and WEBNAP (2,166 records) relate to:
 - encounters with end date before start date
 - encounters with a negative length of stay
 - encounters incorrectly included in the costing dataset.
- Variance (total linked to source) for Inpatients (30,982) relate to ED overlap and unqualified neonates.

The *Round 21 IFR Report: Supplementary Information* reports the detailed activity data for WSLHD.

4.3.5 Feeder data

WSLHD was able to provide the independent review team with the feeder system information used in the cost allocation process.

WSLHD indicated that the majority of the extracts used within the costing process are taken from hospital source systems. Data cleansing, reconciling and reporting is undertaken by WSLHD staff and used for costing purposes. Activity data is also reconciled by NSW Health and a reconciliation of feeders and linking is undertaken on an annual basis.

The *Round 21 IFR Report: Supplementary Information* presents the feeder data that WSLHD uses in the costing process. The following should be noted about the feeder data for WSLHD:

- Across the health service there are 34 feeders which represent the major hospital departments that provide health service resources. It should be noted that this number represents a significant number of feeders, which should provide greater costing granularity at the episode level.
- Records linked to admitted, emergency, non-admitted and system-generated patients had a greater than 97.3 percent link or match. This suggests that there is robustness in the level of feeder activity reported back to episodes.
- A proportion of records are linked to system-generated patients. These records relate to all the feeder extracts where the linking rule cannot link records to activity.
- 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 Costing Accounting Guidelines (CAG) wherever possible. This is consistent with Round 20.

4.3.6 Treatment of WIP

WSLHD submitted costs for admitted and discharged patients in 2016-17 and WIP costs for those patients admitted in 2015-16 and discharged in 2016-17. WSLHD representatives advised that there were no long-term patients in years prior to 2015-16. The accumulated costs for patients still admitted at 30 June 2017 were not submitted to the NHCDC.

4.3.7 Critical care

WSLHD provides critical care services comprising a combined Special Care Nursery (SCN) and Neonatal Intensive Care Unit (NICU). All direct costs associated with each of these critical care areas are recorded in one cost centre. Service codes are built in PPM2 for each critical care area incorporating the bed type details. For example, while the Neonatal ICU and SCN are co-located, the bed care can be identified. Defined RVUs for each area are used to allocate critical care costs based on activity. Critical care costs are captured in accordance with the applicable standard.

4.3.8 Costing public and private patients

WSLHD makes no specific adjustments to the way private patients are costed as compared to public patients. The costing methodology for medical costs is identical for both public and private 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.

4.3.9 Treatment of specific items

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

Table 7 – Treatment of specific items – WSLHD

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

Source: KPMG, based on IFR discussions

4.3.10 Sample patient data

IHPA selected a sample of five patients from Westmead Hospital for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. The Ministry of Health provided the patient level costs for all five patients and these reconciled to IHPA records

Table 8 – Sample patients – WSLHD

#	Product	Jurisdiction Records	Received by IHPA	Variance
1	AC	\$2,770.73	\$2,770.73	\$-
2	GM	\$24,739.03	\$24,739.03	\$-
3	GM	\$28,167.63	\$28,167.63	\$-
4	MA	\$25,032.72	\$25,032.72	\$-
5	MC	\$19,726.12	\$19,726.12	\$-

Source: KPMG, based on WSLHD and IHPA data

4.4 Conclusion

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, WSLHD has suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission.

5. Northern Territory

5.1 Summary of key findings

The key findings from the NT Round 21 IFR are summarised below:

- The financial reconciliation template illustrates the transformation of cost data for Alice Springs Hospital based on the final GL for NT Health. The final GL reconciled to the audited financial statements.
- The basis of the adjustments made by Alice Springs Hospital were explained. Exclusions were made for Non ABF reportable activity and teaching, training and research. Teaching & Training costs were reported to NHCDC as a separate item removed from in-scope activity.
- Similarly, total NHCDC activity data for the hospital was adjusted by Alice Springs Hospital to remove records associated with excluded costs such as teaching and training, research, current year WIP, and other system-generated patients associated with non-ABF or out of scope activity.
- Alice Springs Hospital complied with all in-scope Australian Hospital Patient Costing Standards (AHPCS) Version 3.1.

Subject to identified review limitations, Alice Springs Hospital has suitable reconciliation processes in place and the financial data is considered for NHCDC submission.

5.2 Jurisdictional overview

5.2.1 Management of NHCDC process

The Activity Based Funding Unit within NT Health is responsible for the processing, reconciliation and submission of the NHCDC data to IHPA for all Northern Territory hospitals. The System Manager Office works with each hospital regarding the costing process and areas of focus. A focus this year has been on mapping teaching, training and research costs into relevant cost areas.

Alice Springs Hospital was selected as the sample hospital for the NT for the Round 21 IFR.

Key initiatives since Round 20 NHCDC

The key initiatives since Round 20 included:

- Reviewed expenditure associated with outreach clinics to ensure costs are allocated to outreach clinics only. This reflects a change in process where historically, costs were allocated to all clinics, not just outreach.
- Created two separate cost centres for theatre to enable separate costing of theatre and recovery. Previously, theatre and recovery were contained within the same cost centre.

5.3 Alice Springs Hospital

5.3.1 Overview

Alice Springs Hospital (ASH) is the major acute hospital for Central Australia, with 186 beds, providing services to a population of approximately 60,000 people including visitors to the region. The hospital provides a range of specialist services, including general medicine, emergency medicine and intensive care. ASH is a teaching hospital and a campus of the Northern Territory Clinical School of the Flinders University of South Australia⁵.

5.3.2 Financial data

For the Round 21 IFR, Alice Springs Hospital staff completed the IFR templates in conjunction with the clinical costing system provider, and participated in consultations during the review.

Table 1 presents a summary of the Alice Springs Hospital costs, from the original extract from the NT Health GL through to the final NHCDC submission for Alice Springs Hospital's for Round 21.

This section discusses major variances in the reconciliation process. The information is based on the Alice Springs Hospital templates and review discussions. Detailed commentary against each of the reconciliation items including adjustments, inclusions and exclusions to the GL is provided in Round 21 IFR Report: Supplementary Information.

- The final GL extracted from NT Health's financial system includes expenditure for all of NT Health, incorporating Alice Springs Hospital. The final GL totalled \$1.34 billion.
- At Item B adjustments were made for various revenue offsets totalling \$5.07 million. These adjustments related to the provision of goods and services to non-health related facilities for which NT Health receives revenue.
- A range of post allocation exclusions were made by Alice Springs Hospital. These exclusions totalled \$1.09 billion. This reflected the exclusion of other NT hospitals and services.
- WIP patients for prior years and discharged in 2016-17 were included and totalled \$4.77 million. These adjustments appear reasonable. Further detail is provided in the Round 21 IFR Report: Supplementary Information.

⁵ NT government (2018), *Alice Springs Hospital*, <https://health.nt.gov.au/professionals/medical-officers/teaching-hospitals/alice-springs-hospital>

Table 9 – Round 21 NHCDC Reconciliation – Alice Springs Hospital

Hospital			Jurisdiction			IHPA		
Item	Amount	% of GL	Item	Amount		Item	Amount	
A General Ledger (GL)	\$ 1,346,121,571		F Costed Products received by jurisdiction	\$ 254,250,783		I Total costed products received by IHPA	\$ 254,250,783	
			Variance	\$ (0)		Variance	\$ (0)	
B Adjustments to the GL			G Final Adjustments			J IHPA Adjustments		
Inclusions	\$ -		Nil adjustments			Admitted ED reallocations	\$ 15,182,133	
Exclusions	\$ (5,066,952)		Total costs submitted to IHPA	\$ 254,250,783		Final NHCDC costs	\$ 269,432,916	
Total hospital expenditure	\$ 1,341,054,619	99.62%						
C Allocation of Costs								
Post Allocation Direct amount	\$ 1,073,582,827							
Post Allocation Overhead amount	\$ 267,471,793							
Total hospital expenditure	\$ 1,341,054,619	99.62%						
Variance	\$ (0)	0.00%						
D Post Allocation Adjustments								
Alice Springs Hospital (closing WIP)	\$ (3,831,428)							
Gove District Hospital	\$ (38,456,322)							
Katherine Hospital	\$ (54,538,552)							
Royal Darwin Hospital	\$ (582,450,931)							
Tennant Creek Hospital	\$ (26,266,641)							
Dummy Encounters not submitted to NHCDC	\$ (4,361,570)							
Z OUT OF SCOPE (including Aged Care, PHC & MH)	\$ (381,664,424)							
Alice Springs Hospital (opening WIP)	\$ 4,766,032							
Total expenditure allocated to patients	\$ 254,250,783	18.89%						
E Costed products submitted to jurisdiction			H Costed products submitted to IHPA			K Final NHCDC costed products		
Acute and Newborns	\$ 162,720,966		Acute and Newborns	\$ 162,720,966		Acute^ and Newborns	\$ 177,903,099	
Non-admitted	\$ 34,729,538		Non-admitted	\$ 34,729,538		Non-admitted	\$ 34,729,538	
Emergency	\$ 32,055,871		Emergency	\$ 32,055,871		Emergency	\$ 32,055,871	
Sub Acute	\$ 10,432,103		Sub Acute	\$ 10,432,103		Sub Acute^	\$ 10,432,103	
Mental Health	\$ 9,002,371		Mental Health	\$ 9,002,371		Mental Health	\$ 9,002,371	
Other	\$ -		Other	\$ -		Other		
Research	\$ -		Research	\$ -		Research		
Teaching & Training	\$ 5,309,933		Teaching & Training	\$ 5,309,933		Teaching & Training	\$ 5,309,933	
System-generated patients	\$ -		System-generated patients	\$ -		System-generated patients		
	\$ 254,250,783	18.89%		\$ 254,250,783			\$ 269,432,916	
Variance	\$ (0)	0.000%	Variance	\$ -		Variance	\$ 0	

Source: KPMG based on data supplied by Alice Springs Hospital, jurisdiction and IHPA

^ These figures include admitted emergency costs.

5.3.3 Activity data

Alice Springs Hospital reconciled the activity from source data systems to the data that was costed and included in the NHCDC submission. The review examined patient activity data based on source and costing systems for Alice Springs Hospital. This activity data is then compared to the transfer of activity data by NHCDC product from Alice Springs Hospital to NT Health and then through to IHPA submission and finalisation.

The following should be noted about the activity reported

- Alice Springs Hospital made adjustments for current year WIP prior to submission to the jurisdiction.
- Activity associated with costs which were excluded related to teaching and training, research, current year WIP, and other system-generated patients associated with non-ABF or out of scope activity were also identified through the activity reconciliation process.
- No adjustments to the activity data were made by the jurisdiction prior to submitting to IHPA.

The *Round 21 IFR Report: Supplementary Information* contains the detailed activity data for Alice Springs Hospital.

5.3.4 Feeder data

Alice Springs Hospital were able to provide the independent review team with the feeder system information used in the cost allocation process.

Alice Springs Hospital indicated that the majority of the extracts used within the costing process are taken from hospital source systems. Data cleaning, reconciling and reporting is undertaken by Alice Springs Hospital staff and used for costing purposes. Quality assurance and reconciliation processes are also undertaken by NT Health.

Across the health service there are 14 hospital specific feeders which represent the major hospital departments that provide resources. There are two travel feeders generic to NT Health that also provide information for Alice Spring Hospital activity.

The *Round 21 IFR Report: Supplementary Information* presents the feeder data that NT Health utilise in the costing process.

5.3.5 Treatment of WIP

Alice Springs Hospital submitted costs for admitted and discharged patients in 2016-17 and WIP costs for those patients admitted in 2015-16 and discharged in 2016-17. Alice Springs Hospital representatives advised that there were no long-term patients in years prior to 2015-16. For patients still admitted at the 30th June 2017, the accumulated costs for these patients are not submitted to the NHCDC.

5.3.6 Critical care

Alice Springs Hospital provides critical care services. These services are comprised of a combined 8-bed Intensive Care Unit (ICU) and High Dependency Unit (HDU). No weighting is applied in costing process ICU:HDU patients to reflect the differences in resource utilisation;

HDU patients are costed in the same way as ICU patients. All direct costs associated with these critical care areas are recorded in a dedicated ICU/HDU cost centre. Critical care costs are captured in accordance with the applicable standard.

The hospital does not have any High Dependency Units or Close Observation Units located in wards in the hospital.

5.3.7 Costing public and private patients

Alice Springs Hospital makes no specific adjustments to the way private patients are costed compared to public patients. The costing methodology for medical costs is identical for both public and private 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.

5.3.8 Treatment of specific items

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

Table 10 – Treatment of specific items – Alice Springs 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	Alice Springs Hospital operates other commercial entities including a kiosk. Any expenditure associated with these activities are excluded by the hospital for costing purposes.

Source: KPMG, based on IFR discussions

5.3.9 Sample patient data

IHPA selected a sample of five patients from Alice Springs 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 and these reconciled to IHPA records.

Table 11 – Sample patients – Alice Springs Hospital

#	Product	Jurisdiction Records	Received by IHPA	Variance
1	AC	\$246.39	\$246.39	\$-
2	MC	\$6,412.79	\$6,412.79	\$-
3	MC	\$71,275.82	\$71,275.82	\$-
4	MC	\$15,993.80	\$15,993.80	\$-
5	NB	\$622.76	\$622.76	\$-

Source: KPMG, based on Alice Springs Hospital and IHPA data

5.4 Application of AHPCS Version 3.1

Based on the site visit and review templates, Alice Springs Hospital demonstrated application of all selected standards from Version 3.1 of the AHPCS in Alice Springs Hospital's Round 21 NHCDC submission. Application and commentary against each standard is provided in Round 21 IFR Report: Supplementary Information.

5.5 Conclusion

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, Alice Springs Hospital has suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission.

6. Queensland

6.1 Summary of key findings

The Queensland Department of Health (Queensland Health) selected the following Hospital and Health Services (HHS's) for review: Children's Health Queensland HHS incorporating Lady Cilento Children's Hospital, Wide Bay HHS incorporating Hervey Bay Hospital and Townsville HHS incorporating Hughenden Health Service.

The findings of the Queensland Round 21 IFR are summarised below:

Children's Health Queensland HHS incorporating Lady Cilento Children's Hospital

- The Lady Cilento Children's Hospital was opened in 2014 and is the third site to implement the Power Performance Manager (PPM) costing system in Queensland. The hospital has a dedicated Costing and Performance Unit that performs the costing function on site. This replaces the previous model where the costing function had been outsourced to costing staff at the Royal Brisbane Hospital.
- The financial reconciliation template illustrates the transformation of cost data for Children's Health Queensland HHS based on the final General Ledger (GL). A variance of \$6.78 million was noted between the final GL and the audited financial statements (total expenditure as reported in the financial statement of \$704.86 million was greater than the GL amount of \$698.07 million). The variance was caused by difference in accounting treatments of building revaluations treated as revenue and inter-HHS capital adjustments not being included in operational reporting, but included in financial statements.
- The majority of feeders had a 100 percent link or match (nine out of 13 feeders), and of the remaining four feeders, the lowest matching level to an admitted episode, and emergency presentation or an outpatient service event was 89.53 percent⁶.
- Children's Health Queensland HHS complied with all in-scope Australian Hospital Patient Costing Standards (AHPCS) Version 3.1.

Subject to identified review limitations, Children's Health Queensland HHS has suitable reconciliation processes in place and the financial data is consider for NHCDC submission.

Wide Bay HHS incorporating Hervey Bay Hospital

- Wide Bay HHS has a dedicated Clinical Costing and Funding Unit that undertakes the costing function and uses the Power Performance Manager. Costing is undertaken on a monthly basis and a final submission is made to Queensland Health for reporting purposes.

⁶ Queensland Health representatives indicated during the review process that in the Queensland environment, an ancillary clinical system (Pathology, Pharmacy or Diagnostic Imaging) record that falls outside the encounter matching rules are still attached to a valid costing system patient level episode which is created in the encounter matching process from interfacing the ancillary system record and matching it to the PMI registration for that patient who has still received a valid health care treatment, service or interaction. These interactions are fully costed at intermediate product level and are readily identifiable with the string pattern of the encounter record containing the feeder system code in the string. This approach is relatively consistent with other Jurisdictions should they extract these costed intermediate products in this manner.

- A variance of \$0.97 million was noted between the final GL and the audited financial statements as per advice from Queensland Health representatives and reported in the template (i.e. total expenditure as reported in the financial statement of \$563.56 million was greater than the GL amount of \$562.58 million). The variance was caused by difference in reporting hierarchy structures for capital project cost centres previously managed centrally by Queensland Health which are not reported as part of the Wide Bay GL. These cost centres have been moved to the Hospital and Health Service and are included in their audited return but have not yet been moved in the financial system reporting tool DSS from the Corporate office hierarchy to the HHS Hierarchy. A report over the HHS GL just utilizing the HHS hierarchy will not show these cost centres. These hierarchies are to be updated with a new Version of SAP being implemented in the 2018 2019 fiscal year. It is noted that these costs are outside the scope of NHCDC and would be excluded. There is no impact on the reported patient cost.
- The majority of feeders had a 100 percent link or match (14 out of 21 feeders). Of the remaining seven feeders, four had at least 96 percent linkage to an admitted episode, and emergency presentation or an outpatient service event and the linkage for the remaining feeders ranged from 78.1 percent to 91.4 percent.
- Wide Bay HHS complied with all in-scope Australian Hospital Patient Costing Standards (AHPCS) Version 3.1.

Subject to identified review limitations, Wide Bay HHS has suitable reconciliation processes in place and the financial data is considered for NHCDC submission.

Townsville HHS incorporating Hughenden Health Service

- 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.
- A variance of \$0.90 million was noted between the final GL and the audited financial statements as per advice from Queensland Health representatives and reported in the template (total expenditure as reported in the financial statement of \$897.66 million was greater than the GL amount of \$896.72 million). The variance was caused by differences in accounting treatments. In building the reconciliation spreadsheet that formed the basis of the IFR the local costing team advised that Expenditure recorded in cost centres owned by Capital Works that sit above the Alt 7 hierarchy but still are included in Townsville as a Business Area on the AFS. In AFS shown as expenditure offset by Revenue line. (CC codes 988000, 988112, 988929, 0988999)
- The AFS is compiled using the Operating Statement (Fammis Data) which is balance at a Business Area level which includes transactions recorded down to cost centre level - these are Business area costs that are not linked to a cost centre in FAMMIS (The current SAP General Ledger product used in Queensland Health during the reference year). It is noted that these hierarchy mapping issues impacting GL reporting are to be addressed in the revised GL being implemented in the 2018 2019 fiscal year.

- The majority of feeders had a 100 percent link or match (nine out of 13 feeders). Of the remaining four feeders, the linkages ranged between 82.5 to 99.4 percent to an admitted episode, and emergency presentation or an outpatient service event.
- Townsville HHS complied with all in-scope Australian Hospital Patient Costing Standards (AHPCS) Version 3.1.

Subject to identified review limitations, Townsville HHS has suitable reconciliation processes in place and the financial data is considered for NHCDC submission.

6.2 Jurisdictional overview

6.2.1 Management of NHCDC process

The Queensland NHCDC process is a shared responsibility between both the Queensland Health and the organisations that support the provision of public health services throughout Queensland. These organisations include 16 Local Hospital Networks or HHS, and the Mater Adult and Mater Mothers' Public Hospitals in Brisbane.

At the time of this review, Queensland Health representatives indicated that Queensland is undergoing a period of significant change in costing. This most significant change relates to changing the costing model from a model where all sites are on the same Queensland Health-nominated and supported costing system (Transition II), to one where each HHS can select a costing system based on its own business needs that also meets Queensland Health's internal and external reporting requirements.

Queensland Health selected the following HHS's for review:

- Children's Health Queensland HHS incorporating Lady Cilento Children's Hospital;
- Townsville HHS incorporating Hughenden Health Service; and
- Wide Bay HHS incorporating Hervey Bay Hospital.

Key initiatives since Round 20 NHCDC

Since the Round 20 NHCDC submission, Queensland Health has revised the sign off process for HHS as part of the Queensland Health cost data submission process such that the HHS signs off the GL reconciliation while Queensland Health signs off on the transformation process.

Previously, HHSs were required to sign off at the end of the cost data submission process. However, this is no longer practical for the following reasons:

- Due to the differences in the Queensland Costing file format vs NHCDC format, HHSs are unable to review the NHCDC output results; without duplication of the departments NHCDC data transformation process. On discussion with sites this was seen as an unnecessary duplication of effort, with the DOH team being required to provide the HHS costing teams and the CFO are detailed data transformation process reconciliation. Note that there is a greater granularity of cost types and cost categories in the baseline Queensland data - this requires mapping to the NHCDC data elements which is managed as part of the jurisdictional NHCDC data transformation process. The Jurisdictional NHCDC data transformation process includes running the data element audit and validation processes.

This would require the HHS teams to have access to SQL server management studio and have a copy of the scripts.

- As the health cost data transformation process is undertaken centrally at Queensland Health, there are time constraints to undertake the review at the HHS level between transformation completion and submission; and
- In previous reviews, Queensland Health indicated that the NHCDC IFR templates were to be incorporated into the costing reconciliation process. A review of the HHS reconciliation process was undertaken following feedback from costing teams. A more extensive step by step reconciliation process was seen by teams to be of more value in their understanding of the jurisdictional data transformation process than was made visible in the IFR template, for this reason the IFR template was only used for sites undertaking the review and was completed in addition to the whole of Queensland reconciliation process.

6.3 Children's Health Queensland Hospital and Health Service

6.3.1 Overview

Children's Health Queensland HHS is a specialist state-wide HHS dedicated to caring for children and young people from across Queensland and northern New South Wales⁷. The HHS provides an integrated network of services through:

- The Lady Cilento Children's Hospital
- The Child and Youth Community Health Service
- The Child and Youth Mental Health Service
- State-wide services and programs, including specialist outreach and telehealth services
- Partnerships with other hospital and health services and non-government organisations.

The Lady Cilento Children's Hospital is a tertiary-level teaching hospital and offers the full range of specialist services for children and adolescents. The hospital brings together the staff and services of the Royal Children's Hospital and Mater Children's Hospital into one purpose-built facility. As the only specialist children's hospital for the state, the facility provides care for children from all over Queensland and northern New South Wales, as well as general health services for those living in the inner-Brisbane community.⁸

Opened in late 2014, the Lady Cilento Children's Hospital is the third site in Queensland to implement the Power Performance Manager (PPM) costing system. While the hospital now has a dedicated Costing and Performance Unit, the costing was previously outsourced to Royal Brisbane Hospital. Since the implementation of PPM, the Costing and Performance Unit has targeted improvements to the costing process each year. Queensland Health indicated that there are initiatives underway to replace the legacy GL system which will include a revised state-wide chart of accounts.

⁷ <https://www.childrens.health.qld.gov.au/chq/about-us/our-hospital-and-health-service/>

⁸ <https://www.childrens.health.qld.gov.au/lcch/about-us/hospital-catchments/>

6.3.2 Application of AHPCS Version 3.1

Based on the site visit and review templates, Queensland Health demonstrated application of selected standards from Version 3.1 of the AHPCS in the Children's Health Queensland HHS's Round 21 NHCDC submission. Application and commentary against each standard is provided in Round 21 IFR Report: Supplementary Information.

6.3.3 Financial data

Data collection templates for Round 21 were completed and submitted by Queensland Health's HHS Costing and Funding Unit on behalf of Children's Health Queensland HHS at the LHN level. Representatives from the Queensland Health HHS Costing and Funding Unit, as well as the costing staff from the hospital, attended and participated in the consultation process during the review.

Table 12 presents a summary of Children's Health Queensland HHSs costs, from the original extract from the GL through to the final NHCDC submission for Children's Health Queensland HHS for Round 21.

Table 12 – Round 21 NHCDC Reconciliation – Children’s Health Queensland HHS

Hospital			Jurisdiction		IHPA	
Item	Amount	% of GL	Item	Amount	Item	Amount
A General Ledger (GL)	\$ 698,072,475		F Costed Products received by jurisdiction	\$ 721,308,301	I Total costed products received by IHPA	\$ 531,006,054
			<i>Variance</i>	\$ -	<i>Variance</i>	\$ 15
B Adjustments to the GL			G Final Adjustments		J IHPA Adjustments	
<i>Inclusions</i>	\$ -		<i>Nil</i>	\$ (190,302,262)	<i>Admitted ED reallocations</i>	\$ 21,036,896
<i>Exclusions</i>	\$ -		Total costs submitted to IHPA	\$ 531,006,039	Final NHCDC costs	\$ 552,042,950
Total hospital expenditure	\$ 698,072,475	100.00%				
C Allocation of Costs						
<i>Post Allocation Direct amount</i>	\$ 536,175,650					
<i>Post Allocation Overhead amount</i>	\$ 161,896,804					
Total hospital expenditure	\$ 698,072,453	100.00%				
<i>Variance</i>	\$ (22)	0.00%				
D Post Allocation Adjustments						
<i>Previous year WIP</i>	\$ 23,235,863					
<i>Current year WIP</i>	\$ -					
<i>Teaching</i>						
<i>Research</i>						
<i>Non-ABF activity</i>						
Total expenditure allocated to patients	\$ 721,308,316	103.33%				
E Costed products submitted to jurisdiction			H Costed products submitted to IHPA		K Final NHCDC costed products	
<i>Acute and Newborns</i>	\$ 363,570,110		<i>Acute and Newborns</i>	\$ 351,699,998	<i>Acute^ and Newborns</i>	\$ 372,528,213
<i>Non-admitted</i>	\$ 124,617,141		<i>Non-admitted</i>	\$ 106,925,293	<i>Non-admitted</i>	\$ 106,925,293
<i>Emergency</i>	\$ 46,976,996		<i>Emergency</i>	\$ 46,761,616	<i>Emergency</i>	\$ 46,761,616
<i>Sub Acute</i>	\$ 14,158,750		<i>Sub Acute</i>	\$ 13,650,185	<i>Sub Acute^</i>	\$ 13,657,400
<i>Mental Health</i>	\$ 8,213,602		<i>Mental Health</i>	\$ 8,076,019	<i>Mental Health</i>	\$ 8,273,456
<i>Other</i>	\$ 3,894,925		<i>Other</i>	\$ 3,892,944	<i>Other</i>	\$ 3,896,973
<i>Research</i>	\$ -		<i>Research</i>	\$ -	<i>Research</i>	
<i>Teaching & Training</i>	\$ -		<i>Teaching & Training</i>	\$ -	<i>Teaching & Training</i>	
<i>System-generated patients</i>	\$ 159,876,777		<i>System-generated patients</i>		<i>System-generated patients</i>	
	\$ 721,308,301	103.33%		\$ 531,006,054		\$ 552,042,950
<i>Variance</i>	\$ (15)	0.000%	<i>Variance</i>	\$ 15	<i>Variance</i>	\$ -

Source: KPMG based on data supplied by Children’s Health Queensland HHS, jurisdiction and IHPA

^ These figures include admitted emergency costs.

6.3.4 Explanation of reconciliation items

This section discusses variances in the reconciliation process. The information is based on Children's Health Queensland HHS templates and review discussions. Detailed commentary against each of the reconciliation items including adjustments, inclusions and exclusions to the GL is provided in Round 21 IFR Report: Supplementary Information.

- A variance of \$6.78 million was noted between the final GL and the audited financial statements (total expenditure as reported in the financial statement of \$704.86 million was greater than the GL amount of \$698.07 million). The variance was caused by difference in accounting treatments of building revaluations treated as revenue and inter-HHS capital adjustments not being included in operational reporting, but included in financial statements. This consisted of net building revaluation increment (\$4.92 million) and cash balance sheet adjustment (\$1.86 million).
- A minor \$22 variance between Item B and Item C (GL amount vs. post cost allocation direct and indirect amounts) was noted and as per advice from Queensland Health representatives this was a result of multiple conversions of data type during allocation.
- Item D Post Allocation Adjustments relating to previous year WIP appeared reasonable.
- A minor variance of \$15 was also noted between total expenditure allocated to patients under Item D and costed products submitted to the jurisdiction.

6.3.5 Activity data

Children's Health Queensland HHS was able to reconcile the activity from source data systems to that which was costed and included in the NHCDC submission. The review examined patient activity data based on source and costing systems for the HHS. This activity data was then compared to the transfer of activity data by NHCDC product from the Children's Health Queensland HHS to Queensland Health and then through to IHPA submission and finalisation.

The following should be noted:

- There was no variance recorded between the number of records from source systems and activity related to 2016-17 costs by NHCDC product (353,653 records in total).
- No adjustments were made by Queensland Health to the activity associated with the 2016-17 costs prior to submission to IHPA.

Round 21 IFR Report: Supplementary Information presents patient activity data based on source and costing systems for Children's Health Queensland HHS. The transfer of activity data by NHCDC product from Children's Health Queensland HHS to Queensland Health and then through to IHPA is also provided in Round 21 IFR Report: Supplementary Information.

6.3.6 Feeder data

In the costing process adopted in Queensland, all feeder system data is linked to an encounter and there are no orphaned unlinked records (i.e. records without a valid patient registration). Unlinked records are where data from an ancillary system falls outside the date time encounter matching window for all inpatient emergency presentations or outpatient clinic visits. These unlinked records are costed and linked to the virtual patient. These are then excluded from the

NHCCDC during the data transformation process as there are no activity records submitted to IHPA for this type of unlinked activity.

The *Round 21 IFR Report: Supplementary Information* presents the feeder data that Queensland Health uses in the costing process and the following should be noted about the feeder data for Children's Health Queensland HHS:

- There are 13 feeders used by Children's Health Queensland HHS and they appear to represent the major hospital departments providing resource activity.
- Nine of the 13 feeders had 100 percent of their records linked from source to hospital product. This suggests that there is robustness in the level of feeder activity reported back to episodes.
- Four of the 13 feeders registered a linkage percentage of between 89.5%-99%. The largest amount of unlinked records was found in the Pharmacy Dispensing feeder (10,581) and generally related to over-the-counter dispensing. All valid Hospital scripts will be filled for patients registered with the Hospital and health service (that is having a valid PMI record). As scripts can be written with repeats the date and time of a repeat may fall outside the encounter matching window from the initial consultation and thus becomes an unlinked record.

6.3.7 Treatment of WIP

Children's Health Queensland HHS submitted costs for admitted and discharged patients in 2016-17 and WIP costs for those patients admitted in 2015-16 and discharged in 2016-17.

6.3.8 Critical care

Children's Health Queensland HHS has one Intensive Care Unit (ICU) located at Lady Cilento Children's 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.

6.3.9 Costing public and private patients

Children's Health 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 as per the standard.

The majority of medical officers are salaried medical officers at Children's Health Queensland 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 intent and principles of the AHPCS Version 3.1 for costs allocated to public and private patients treated by the HHS.

6.3.10 Treatment of specific items

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

Table 13 – Treatment of specific items – Children's Health Queensland HHS

Item	Treatment
Research	<p>Research costs are captured in specific, separate cost centres and allocated to a system-generated patient. For Round 21 these costs were excluded and not submitted as part of the NHDC submission.</p> <p>They will be reported separately to IHPA. Queensland Health advised that there is no corresponding patient level record in the activity submission with the current design of the activity data set specifications.</p>
Teaching and Training	<p>Direct teaching and training costs are allocated to a system-generated patient and are excluded.</p> <p>Embedded teaching and training costs are not separately identified.</p> <p>Teaching and Training costs are captured but not at the patient level. These costs will be separately submitted to IHPA by the jurisdiction.</p>
Shared/Other commercial entities	Any expenditure associated with these activities excluded by the hospital for costing purposes.

Source: KPMG, based on IFR discussions

6.3.11 Sample patient data

IHPA selected a sample of five patients from Children's Health Queensland HHS for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. QLD Health provided the patient level costs for all five patients and these reconciled to IHPA records.

Table 14 – Sample patients – Children's Health Queensland HHS

#	Product	Jurisdiction Records	Received by IHPA	Variance
1	AC	\$448.43	\$448.43	\$-
2	AE	\$1,159.80	\$1,159.80	\$-
3	MC	\$2,109.47	\$2,109.47	\$-
4	OP	\$333.73	\$333.73	\$-
5	PC	\$44,598.72	\$44,598.72	\$-

Source: KPMG, based on Children's Health Queensland HHS and IHPA data

6.4 Wide Bay Hospital and Health Service

6.4.1 Overview

Wide Bay HHS provides an integrated network of services through the following facilities⁹:

- Biggenden MPHS
- Bundaberg Hospital
- Childers Hospital
- Eidsvold MPHS
- Gayndah Health Service
- Gin Gin Hospital
- Hervey Bay Hospital
- Maryborough Hospital
- Monto Health Service
- Mt Perry Health Service
- Mundubbera MPHS.

Hervey Bay Hospital provides a broad range of acute services to the Fraser Coast community. The clinical services provided by the hospital include: Emergency Medicine, General Outpatients, General Surgery, ICU/CCU, Internal Medicine, Medical Imaging, Obstetrics and Gynaecology, Orthopaedics, Paediatrics, Palliative Care, Pathology, Perioperative, Pharmacy and Renal Unit (Haemodialysis)¹⁰. Allied and community health, oral health and outreach services are also provided,

Wide Bay HHS has a dedicated Clinical Costing and Funding Unit that undertakes the costing function and uses the Power Performance Manager. 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.

In addition to the NHCDC reporting purposes, the cost data is used by the HHS to inform development of business cases and critical decision making such as in house vs outsourcing.

6.4.2 Application of AHPCS Version 3.1

Based on the site visit and review templates, Queensland Health demonstrated application of selected standards from Version 3.1 of the AHPCS in Wide Bay HHS's Round 21 NHCDC submission. Application and commentary against each standard is provided in Round 21 IFR Report: Supplementary Information.

6.4.3 Financial data

Data collection templates for Round 21 were completed and submitted by Queensland Health's HHS Costing and Funding Unit on behalf of Wide Bay HHS at the LHN level. Representatives

⁹ <https://www.health.qld.gov.au/widebay/hospital-profiles/facility-herveybay/>

¹⁰ <https://www.health.qld.gov.au/services/widebay/wb-herveybay>

from the Queensland Health HHS Costing and Funding Unit, as well as the costing staff from the hospital, attended and participated in the consultation process during the review.

It was noted during the review that for the first time in 2016-17 the hospital submitted live data to Queensland Health using Power Performance Manager.

This section discusses major variances in the reconciliation process. The information is based on Wide Bay HHS templates and review discussions. Detailed commentary against each of the reconciliation items including adjustments, inclusions and exclusions to the GL is provided in Round 21 IFR Report: Supplementary Information.

- A variance of \$0.97 million was noted between the final GL and the audited financial statements as per advice from Queensland Health representatives and reported in the template (i.e. total expenditure as reported in the financial statement of \$563.56 million was greater than the GL amount of \$562.58 million). The variance was caused by difference in reporting hierarchy structures for capital project cost centres previously managed centrally by Queensland Health which are not reported as part of the Wide Bay GL. These cost centres have been moved to the Hospital and Health Service and are included in their audited return but have not yet been moved in the financial system reporting tool DSS from the Corporate office hierarchy to the HHS Hierarchy. A report over the HHS GL just utilizing the HHS hierarchy will not show these cost centres. These hierarchies are to be updated with a new Version of SAP being implemented in the 2018/2019 fiscal year. It is noted that these costs are outside the scope of NHCDC and would be excluded. There is no impact on the reported patient cost.
- A \$91,024 variance between Item B and Item C (GL amount vs. post cost allocation direct and indirect amounts) was noted. As per advice from Queensland Health representatives this was due to a PPM service date/time issue noted in the HHS reconciliation for \$91,031. This was identified as a programmatic error in assigning the date to the fiscal year in the code to produce the output file required by the Queensland Health costing data repository data set specification. This scripting error has since been corrected, and a summation error of \$8 due to exclusion of two low cost records with no matching facility code during the data transformation process.
- Item D Post Allocation Adjustments relating to previous year WIP appeared reasonable.
- A minor variance of \$8 was also noted between total expenditure allocated to patients under Item D and costed products submitted to the jurisdiction. As per advice from Queensland Health representatives, this was due to rounding errors.

Table 15 presents a summary of Wide Bay HHS costs, from the original extract from the GL through to the final NHCDC submission for Wide Bay HHS for Round 21.

Table 15 – Round 21 NHCDC Reconciliation – Wide Bay HHS

Hospital			Jurisdiction		IHPA	
Item	Amount	% of GL	Item	Amount	Item	Amount
A General Ledger (GL)	\$ 562,588,643		F Costed Products received by jurisdiction	\$ 579,007,760	I Total costed products received by IHPA	\$ 448,016,886
			Variance	\$ -	Variance	\$ 1,683
B Adjustments to the GL			G Final Adjustments		J IHPA Adjustments	
Inclusions	\$ -		Nil	\$ (130,992,557)	Admitted ED reallocations	\$ 26,497,018
Exclusions	\$ -		Total costs submitted to IHPA	\$ 448,015,203	Final NHCDC costs	\$ 474,513,904
Total hospital expenditure	\$ 562,588,643	99.99%				
C Allocation of Costs						
Post Allocation Direct amount	\$ 480,227,429					
Post Allocation Overhead amount	\$ 82,270,190					
Total hospital expenditure	\$ 562,497,619	99.98%				
Variance	\$ (91,024)	-0.02%				
D Post Allocation Adjustments						
Previous year WIP	\$ 16,510,149					
Total expenditure allocated to patients	\$ 579,007,768	102.92%				
E Costed products submitted to jurisdiction			H Costed products submitted to IHPA		K Final NHCDC costed products	
Acute and Newborns	\$ 279,834,273		Acute and Newborns	\$ 266,141,301	Acute^ and Newborns	\$ 292,105,239
Non-admitted	\$ 118,711,928		Non-admitted	\$ 63,008,629	Non-admitted	\$ 63,008,629
Emergency	\$ 52,359,475		Emergency	\$ 52,149,256	Emergency	\$ 52,149,256
Sub Acute	\$ 46,418,439		Sub Acute	\$ 44,042,992	Sub Acute^	\$ 44,120,511
Mental Health	\$ 23,344,304		Mental Health	\$ 22,170,873	Mental Health	\$ 22,628,110
Other	\$ 15,758,089		Other	\$ 502,160	Other	\$ 502,160
Research	\$ 120,715		Research	\$ -	Research	
Teaching & Training	\$ 5,170,982		Teaching & Training	\$ -	Teaching & Training	
System-generated patients	\$ 37,289,555		System-generated patients	\$ -	System-generated patients	
	\$ 579,007,760	102.92%		\$ 448,015,210		\$ 474,513,904
Variance	\$ (8)	0.000%	Variance	\$ 8	Variance	\$ 0

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

^ These figures include admitted emergency costs.

6.4.4 Activity data

Wide Bay HHS were able to reconcile the activity from source data systems to that which was costed and included in the NHCDC submission. The review examined patient activity data based on source and costing systems for the HHS. This activity data was then compared to the transfer of activity data by NHCDC product from the Wide Bay HHS to Queensland Health and then through to IHPA submission and finalisation.

The following should be noted about the Wide Bay HHS reported activity:

- There was no variance between the number of records from source systems and activity related to 2016-17 costs by NHCDC product (596,238 records in total).
- No adjustments were made by Queensland Health to the activity associated with the 2016-17 costs prior to submission to IHPA.

The *Round 21 IFR Report: Supplementary Information* presents patient activity data based on source and costing systems for Wide Bay HHS. The transfer of activity data by NHCDC product from Wide Bay HHS to Queensland Health and then through to IHPA is also provided in Round 21 IFR Report: Supplementary Information.

6.4.5 Feeder data

In the costing process adopted in Queensland, all feeder system data is linked to an encounter and there are no orphaned unlinked records (i.e. records without a valid patient registration). Unlinked records are those where data from an ancillary system falls outside the date time encounter matching window for all inpatient emergency presentations or outpatient clinic visits. These unlinked records are costed to the patient but are excluded from the NHCDC during the data transformation process as there are no activity records submitted to IHPA for this type of unlinked activity. All unlinked encounters are for outpatients and have been mapped accordingly for Round 21 submission.

As part of the Service Level Agreement that exists between the HHS and Queensland Health, encounter feeders are loaded weekly while other service feeders are loaded monthly thus facilitating a monthly costing process.

The following should be noted regarding the feeder data that Queensland Health uses in the costing process for Wide Bay HHS:

- There are 21 feeders used by Wide Bay HHS and they appear to represent the major hospital departments providing resource activity.
- Seven of the 21 feeders did not have 100 percent of their records linked from source to hospital product. Of these feeders, four had at least 96 percent linkage and the linkage for the remaining feeders ranged from 78.1 percent to 91.4 percent. This suggests that there is robustness in the level of feeder activity reported back to episodes. The largest number of unlinked records was found in the Pharmacy Dispensing feeder (24,682) and related to pharmacy services supplied to persons (for example, after their stay) which may fall outside the linking criteria 'All Valid Hospital' scripts will be filled for patients registered with the HHS (that is, having a valid PMI record). As scripts can be written with repeats the date and time of a repeat may fall outside the encounter matching window from the initial consultation and thus becomes an unlinked record.

- Data linked to system-generated patients related to the Virtual Patient feeders. Typically, cost and activity relating to community health, oral health and offender health are attributed to system-generated patients.

6.4.6 Treatment of WIP

Wide Bay HHS submitted costs for admitted and discharged patients in 2016-17 and WIP costs for those patients admitted in 2015-16 and discharged in 2016-17.

6.4.7 Critical care

Wide Bay HHS has one Intensive Care Unit (ICU) located at Hervey Bay 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 and the time within the ICU is captured by patient, allowing enabling ICU activity to drive ICU costs. Critical care costs are captured in accordance with the applicable standard.

6.4.8 Costing public and private patients

Wide Bay 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 Wide Bay 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 intent and principles of the AHPCS Version 3.1 for costs allocated to public and private patients treated by the HHS.

6.4.9 Treatment of specific items

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

Table 16 – Treatment of specific items – Wide Bay HHS

Item	Treatment
Research	<p>Research costs are captured in specific, separate cost centres and allocated to a system-generated patient. For Round 21 these costs were excluded and not submitted as part of the NHCDC submission.</p> <p>They will be reported separately to IHPA. Queensland Health advised that there is no corresponding patient level record in the activity submission with the current design of the activity data set specifications.</p>

Item	Treatment
Teaching and Training	<p>Direct teaching and training costs are allocated to a system-generated patient and excluded. Embedded teaching and training costs are not separately identified.</p> <p>Teaching and Training costs are captured but not at the patient level. These costs will be separately submitted to IHPA by the jurisdiction.</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

6.4.10 Sample patient data

IHPA selected a sample of five patients from Wide Bay HHS for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. QLD Health provided the patient level costs for all five patients and these reconciled to IHPA records.

Table 17 – Sample patients – Wide Bay HHS

#	Product	Jurisdiction Records	Received by IHPA	Variance
1	GM	\$9,566.74	\$9,566.74	\$-
2	MA	\$17,029.89	\$17,029.89	\$-
3	NB	\$11,417.04	\$11,417.04	\$-
4	OP	\$115.58	\$115.58	\$-
5	RH	\$2,573.88	\$2,573.88	\$-

Source: KPMG, based on Wide Bay HHS and IHPA data

6.5 Townsville Hospital and Health Service

6.5.1 Overview

Townsville HHS comprises 18 hospitals and community health campuses and two residential aged care facilities in the area north to Cardwell and Ingham, west to Charters Towers, Hughenden and Richmond, south to Ayr and Home Hill and east to Magnetic Island and Palm Island¹¹.

The health service has a population of more than 230,000 and employs a workforce of around 5,000 dedicated staff. The health service has five clinical service groups that are supported by the Commercial Services Group: Surgical, Mental Health, Rural Hospitals, Medical, and Health and Wellbeing¹².

The Hughenden Multipurpose Health Service is a 24-hour accident and emergency hospital with a 15-bed acute facility, general medical and six multipurpose beds through its multipurpose

¹¹ <https://www.health.qld.gov.au/townsville/about-us>

¹² <https://www.health.qld.gov.au/townsville/about-us>

service. The Hughenden Multipurpose Health Service provides visiting services, including dental, women's health, allied health and mental health. Community-based staff provide school based health support and child health services¹³.

Townsville HHS has a dedicated Clinical Costing and Funding Unit that performs 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.

A range of checks and balances are undertaken throughout the costing process to ensure data is validated. Some checks include reconciliation of feeder data, ensuring that Department costs reconcile with the GL and final results are reviewed.

In addition to the NHCDC reporting purposes, the cost data is used by the HHS to inform development of business cases and is intended to be used to improve the Department's engagement within the HHS.

6.5.2 Application of AHPCS Version 3.1

Based on the site visit and review templates, Queensland Health demonstrated application of selected standards from Version 3.1 of the AHPCS in Townsville HHSs NHCDC submission. Application and commentary against each standard is provided in Round 21 IFR Report: Supplementary Information.

6.5.3 Financial data

Data collection templates for Round 21 were completed and submitted by Queensland Health's HHS Costing and Funding Unit on behalf of Townsville HHS at the LHN level. Representatives from the Queensland Health HHS Costing and Funding Unit attended and participated in consultation process during the review, as well as the costing staff from the hospital.

This section discusses major variances in the reconciliation process. The information is based on Townsville HHS templates and review discussions. Detailed commentary against each of the reconciliation items including adjustments, inclusions and exclusions to the GL, is provided in Round 21 IFR Report: Supplementary Information.

- A variance of \$0.90 million was noted between the final GL and the audited financial statements as per advice from Queensland Health representatives and reported in the template (total expenditure as reported in the financial statement of \$897.66 million was greater than the GL amount of \$896.72 million). The variance was caused by differences in accounting treatments. This was made up of the following:
 - a) Expenditure recorded in cost centres of Capital Works that sit above the 'Townsville HHS Cost Centre Reporting' hierarchy but still are included in Townsville as a Business Area in the audited financial statements of \$917,984;

¹³ <https://www.health.qld.gov.au/townsville/facilities/hughenden>

- b) Business area costs of \$12,719 that are not linked to a cost centre in FAMMIS database which is used to compile the operating statement as part of the audited financial statements; and
 - c) Rounding error of \$2,513.
- A variance of \$70,094 between Item B and Item C was noted and as per advice from Queensland Health representatives this was a result of the following:
 - a) Direct CTC extract rounding variance of \$17,823 and overhead CTC extract rounding variance of \$548 due to differences in decimal places between the legacy system's tables used to create the file. Queensland Health noted that this issue will be resolved for the future NHCDC submissions; and
 - b) Multi-mapped department budget build nodes of \$51,723. With the legacy costing system it is possible with the multiple mapped departments to cost centres that duplicate cost nodes may have occurred at any time during the costing process or during any reprocessing. These nodes will cause the sum of the costing file to be greater than the source GL data. In a complex legacy system they are very difficult to find and given the very small impact as a percent of total cost it was not considered to have any impact on cost outcomes but is noted in the reconciliation as a variance.
- Item D Post Allocation Adjustments relating to previous year WIP appeared reasonable.

Table 18 presents a summary of Townsville HHS' costs, from the original extract from the GL through to the final NHCDC submission for Townsville HHS for Round 21.

Table 18 – Round 21 NHCDC Reconciliation – Townsville HHS

Hospital			Jurisdiction			IHPA		
Item	Amount	% of GL	Item	Amount		Item	Amount	
A General Ledger (GL)	\$ 896,723,784		F Costed Products received by jurisdiction	\$ 896,793,879		I Total costed products received by IHPA	\$ 645,391,142	
			Variance	\$ -		Variance	\$ (1)	
B Adjustments to the GL			G Final Adjustments			J IHPA Adjustments		
Inclusions	\$ -		Nil	\$ (251,402,736)		UQB removals	\$ (4,776)	
Exclusions	\$ -		Total costs submitted to IHPA	\$ 645,391,143		Admitted ED reallocations	\$ 32,844,535	
Total hospital expenditure	\$ 896,723,784	100.00%				Final NHCDC costs	\$ 678,230,901	
C Allocation of Costs								
Post Allocation Direct amount	\$ 783,179,331							
Post Allocation Overhead amount	\$ 113,614,547							
Total hospital expenditure	\$ 896,793,878	100.01%						
Variance	\$ 70,094	0.01%						
D Post Allocation Adjustments								
Nil	\$ -							
Total expenditure allocated to patients	\$ 896,793,878	100.01%						
E Costed products submitted to jurisdiction			H Costed products submitted to IHPA			K Final NHCDC costed products		
Acute and Newborns	\$ 394,330,368		Acute and Newborns	\$ 386,278,609		Acute^ and Newborns	\$ 417,901,962	
Non-admitted	\$ 141,161,786		Non-admitted	\$ 83,327,928		Non-admitted	\$ 83,327,928	
Emergency	\$ 67,629,049		Emergency	\$ 66,462,017		Emergency	\$ 66,462,017	
Sub Acute	\$ 61,157,600		Sub Acute	\$ 50,549,233		Sub Acute^	\$ 50,620,119	
Mental Health	\$ 72,923,503		Mental Health	\$ 58,706,279		Mental Health	\$ 59,849,801	
Other	\$ 1,809,336		Other	\$ 67,076		Other	\$ 69,074	
Research	\$ 1,833,033		Research	\$ -		Research		
Teaching & Training	\$ 1,151,172		Teaching & Training	\$ -		Teaching & Training		
System-generated patients	\$ 154,798,032		System-generated patients	\$ -		System-generated patients		
	\$ 896,793,879	100.01%		\$ 645,391,142			\$ 678,230,901	
Variance	\$ 1	0.000%	Variance	\$ (1)		Variance	\$ (0)	

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

^ These figures include admitted emergency costs.

6.5.4 Activity data

Townsville HHS was able to reconcile the activity from source data systems to that which was costed and included in the NHCDC submission. The review examined patient activity data based on source and costing systems for the HHS. This activity data was then compared to the transfer of activity data by NHCDC product from the Townsville HHS to Queensland Health and then through to IHPA submission and finalisation.

The following should be noted about the activity reported for Townsville HHS:

- There was no variance recorded between the number of records from source systems and activity related to 2016-17 costs by NHCDC product (835,523 records in total).
- No adjustments were made by Queensland Health to the activity associated with the 2016-17 costs prior to submission to IHPA.

The *Round 21 IFR Report: Supplementary Information* presents patient activity data based on source and costing systems for Townsville HHS. The transfer of activity data by NHCDC product from Townsville HHS to Queensland Health and then through to IHPA is also provided in Round 21 IFR Report: Supplementary Information.

6.5.5 Feeder data

In the costing process adopted in Queensland, all feeder system data is linked to an encounter and there are no orphaned unlinked records (i.e. records without a valid patient registration). Unlinked records are where data from an ancillary system falls outside the date time encounter matching window for all inpatient emergency presentations or outpatient clinic visits. These unlinked records are costed to the patient but are excluded from the NHCDC during the data transformation process as there are no activity records submitted to IHPA for this type of unlinked activity. All unlinked encounters are outpatients and have been mapped accordingly for Round 21 submission.

The *Round 21 IFR Report: Supplementary Information* presents the feeder data that Queensland Health utilises in the costing process and the following should be noted about the feeder data for Townsville HHS:

- There are 13 feeders used by Townsville HHS and they appear to represent major hospital departments providing resource activity.
- Four of the 13 feeders did not have 100 percent of their records linked from source to hospital product and their linkages to an admitted episode, and emergency presentation or an outpatient service event ranged between 82.5 to 99.4 percent. There is robustness in the level of feeder activity reported back to episodes. The largest number of unlinked records in the Diagnostic Imaging feeder (31,835 records).

As is the case for all clinical ancillary systems every valid clinical feeder system record has a valid matching PMI encounter and a patient level costing system record is produced by the encounter matching engine with costing undertaken at intermediate product level.

The model of care for the management of diagnostic image reporting that is undertaken at Hughenden Multipurpose Health Service is the same model undertaken in all small remote facilities where the procedure is undertaken by clinical staff within the treating location, but

the review of the images produced may occur elsewhere within the Hospital and Health service. As both the procedure and the report are separately entered into the ancillary system, the time date stamp for the report may fall out of the encounter matching window.

- Data linked to system-generated patients related to the Virtual Patient feeders. Typically cost and activity relating to community health, patient transit, nursing homes, breast screening and oral health are attributed to system-generated patients.

6.5.6 Treatment of WIP

Townsville HHS submitted costs for admitted and discharged patients in 2016-17 and WIP costs for those patients admitted in 2015-16 and discharged in 2016-17.

6.5.7 Critical care

Hughenden Health Service does not provide critical care services.

6.5.8 Costing public and private patients

Townsville HHS does not adjust costing based on the patient's 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 for Hughenden Health Service cost data.

The majority of medical officers are salaried medical officers across the 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 intent and principles of the AHPCS Version 3.1 for costs allocated to public and private patients treated by the HHS.

6.5.9 Treatment of specific items

A number of items were discussed during the review to understand their treatment in the costing process. The cost data is 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 19 – Treatment of specific items – Townsville HHS

Item	Treatment
Research	<p>Research costs are captured in specific, separate cost centres and allocated to a system-generated patient. For Round 21 these costs were excluded and not submitted as part of the NHCDC submission.</p> <p>They will be reported separately to IHPA. Queensland Health advised that there is no corresponding patient level record in the activity submission with the current design of the activity data set.</p>

Item	Treatment
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

6.5.10 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. QLD Health provided the patient level costs for all five patients and these reconciled to IHPA records.

Table 20 – Sample patients – Townsville HHS

#	Product	Jurisdiction Records	Received by IHPA	Variance
1	AC	\$1,575.44	\$1,575.44	\$-
2	AC	\$2,246.08	\$2,246.08	\$-
3	BD	\$592,.67	\$592,.67	\$-
4	OP	\$374.02	\$374.02	\$-
5	PC	\$2,300.18	\$2,300.18	\$-

Source: KPMG, based on Townsville HHS and IHPA data

6.6 Conclusion

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 is considered fit for NHCDC submission.

7. South Australia

7.1 Summary of key findings

The findings of the South Australia Round 21 IFR are summarised below:

- The financial reconciliation template illustrates the transformation of cost data for the two represented hospitals (Whyalla Hospital and Health Service and the Flinders Medical Centre) based on the final GL. The process was consistent across both hospitals with the centralised nature of SA Health contributing the bulk of the adjustments to the GL.
- One aspect of the costing for 2016-17 which departed from last year was the re-structure of the centralised Medical Imaging service. Adjustments were made to the costing process to incorporate cross charging arrangements from the restructure. These changes required changes to the costing methodology including adjustments to the allocation process and this continues to be a work in progress requiring on going refinement.
- SA Health excluded Non ABF reportable activity and Teaching, Training and Research from the NHCDC submission.
- Total NHCDC activity data for the hospitals was adjusted by SA Health for the removal of records associated with excluded costs such as aggregated non-admitted patient data not maintained at patient level, current year WIP, and other system-generated patients associated with non-ABF or out of scope activity.
- The number of records linked from source to product was significant for both hospitals. The large number of feeder files (43) for the Flinders Medical Centre demonstrates that there is significant costing refinement by taking activity from a variety of departments.
- The majority of feeders had a 100 percent link or match. The lowest linking percentage was the Allied Health feeder for the Whyalla Hospital and Health Service (30,986 unlinked). This related to the feeder including community health as well as hospital data which contributed to a low matching rate. The information above 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.

Subject to identified review limitations, Flinders Medical Centre and Whyalla Hospital and Health Service has suitable reconciliation processes in place and the financial data is considered for NHCDC submission.

7.2 Jurisdictional overview

7.2.1 Management of NHCDC process

The South Australian Department of Health and Wellbeing (SA Health), through the Funding Models Unit, is responsible for the preparation and submission of South Australia's NHCDC submission. The approach for Round 21 is consistent with the approach used for the previous year's submission, where SA Health including Country Health SA LHN (CHSALHN) (which performs the costing for SA rural hospitals) prepared and submitted the Round 21 submission in consultation with the relevant hospitals and Local Health Networks (LHNs).

SA Health has a single instance of Power Performance Management 2 (PPM2), as its corporate clinical costing solution. The use of a single instance, coordinated by the funding Models Unit (a central SA Health 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) as part of their admission process. For costing purposes, this hospital activity data is uploaded to a state-wide data warehouse. Quality assurance processes are conducted by both 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 and then use for costing purposes.

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 costing purposes, SA Health provides the LHN with financial information on a range of services that they manage, which is 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.

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 and the CFO of the respective organisation is copied into the correspondence.

The Whyalla Hospital and Health Service and the Flinders Medical Centre were nominated to participate in the IFR for Round 21. These hospitals are each within separate LHNs: CHSALHN and SALHN respectively.

Key initiatives since Round 20 NHCDC

The key initiatives since Round 20 related to new patient security and patient transport feeders. This enabled the costing of these specific services which could then be matched to activity.

7.3 Whyalla Hospital and Health Service

7.3.1 Overview

The Whyalla Hospital and Health Service is part of the Flinders and Upper North Region Services. Whyalla provides a wide range of services using local general practitioners, resident specialists, visiting specialists and telemedicine for people in the surrounding areas.

Services provided at the Whyalla Hospital and Health Service include:

- 24-hour accident and emergency services
- General medical and specialist surgical care
- Anaesthetic, cardiac, obstetric and neonatal services
- Chemotherapy and renal dialysis services

- Regional cancer resource centre
- Rehabilitation services
- Tele-rehabilitation service
- Integrated mental health services
- Stroke services.

A major redevelopment of the hospital was undertaken in 2012 and 2013, with new facilities including the Regional Cancer Centre, Integrated Mental Health Inpatient Unit, specialist rehabilitation unit, new surgical services and 48 single patient rooms.

Since 2014, the Whyalla Hospital team has delivered more than 138,000 treatments, consultations, surgeries and procedures. Around 87,000 people in Whyalla and the surrounding area have had greater access to a range of new services closer to home, as well as providing on site accommodation for out-of-town patients.¹⁴

7.3.2 Financial data

For the Round 21 IFR, the data collection templates were completed and submitted by SA Health's Finance and Corporate Services (Funding Models Unit) on behalf of the Whyalla Hospital and Health Service. Representatives from the Funding Models Unit, as well as staff from CHSALHN, attended and participated in the consultation process during the review. The costing process at the Whyalla Hospital and Health Service is consistent with the approach across the other LHNs in SA Health.

Table 1 presents a summary of the Whyalla Hospital and Health Service's costs, from the original extract from the GL through to the final NHCDC submission for Round 21.

This section discusses major variances in the reconciliation process. The information is based on the Whyalla Hospital and Health Service templates and review discussions. Detailed commentary against each of the reconciliation items including adjustments, inclusions and exclusions to the GL is provided in Round 21 IFR Report: Supplementary Information.

- The final GL amount extracted for the Whyalla Hospital and Health Service indicates expenditure of \$850.53 million. This amount reflected the total expenditure for CHSALHN, which includes the Whyalla Hospital and Health Service. This amount was split in the template to identify the costs specifically related to the Whyalla Hospital and Health Service. The final amount that related to the Whyalla Hospital and Health Service was \$43.21 million.

¹⁴ SA Health, Overview of Whyalla Hospital and Health Service, <http://www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/health+services/hospitals+and+health+services+country+south+australia/eyre+peninsula+western+hospitals+health+services/whyalla+hospital+and+health+services>, accessed 23 July 2018.

Table 21 – Round 21 NHCDC Reconciliation – Whyalla Hospital and Health Service

Hospital			Jurisdiction			IHPA		
Item	Amount	% of GL	Item	Amount		Item	Amount	
A General Ledger (GL)	\$ 43,214,627		F Costed Products received by jurisdiction	\$ 51,299,371		I Total costed products received by IHPA	\$ 51,196,370	
			<i>Variance</i>	\$ -		<i>Variance</i>	\$ (2)	
B Adjustments to the GL			G Final Adjustments			J IHPA Adjustments		
<i>Inclusions</i>	\$ 8,958,192		<i>WIP 15-16</i>	\$ 743,119		<i>Admitted ED reallocations</i>	\$ 1,925,155	
<i>Exclusions</i>	\$ (19,811)		<i>WIP 16-17</i>	\$ (791,767)		Final NHCDC costs	\$ 53,121,526	
Total hospital expenditure	\$ 52,153,008	120.60%	<i>No match to ABF</i>	\$ (54,350)				
			Total costs submitted to IHPA	\$ 51,196,373				
C Allocation of Costs								
<i>Post Allocation Direct amount</i>	\$ 30,662,969							
<i>Post Allocation Overhead amount</i>	\$ 21,487,787							
Total hospital expenditure	\$ 52,150,756	120.68%						
<i>Variance</i>	\$ (2,252)	-0.01%						
D Post Allocation Adjustments								
<i>GL to Z costed Areas</i>	\$ 2,267							
<i>Teaching</i>	\$ (88,645)							
<i>Non-ABF activity</i>	\$ (765,008)							
Total expenditure allocated to patients	\$ 51,299,370	118.71%						
E Costed products submitted to jurisdiction			H Costed products submitted to IHPA			K Final NHCDC costed products		
<i>Acute and Newborns</i>	\$ 32,232,669		<i>Acute and Newborns</i>	\$ 32,194,313		<i>Acute^ and Newborns</i>	\$ 34,097,566	
<i>Non-admitted</i>	\$ 5,680,165		<i>Non-admitted</i>	\$ 5,626,519		<i>Non-admitted</i>	\$ 5,626,519	
<i>Emergency</i>	\$ 4,876,458		<i>Emergency</i>	\$ 4,874,710		<i>Emergency</i>	\$ 4,874,710	
<i>Sub Acute</i>	\$ 5,505,051		<i>Sub Acute</i>	\$ 5,628,735		<i>Sub Acute^</i>	\$ 5,650,637	
<i>Mental Health</i>	\$ 3,005,028		<i>Mental Health</i>	\$ 2,872,092		<i>Mental Health</i>	\$ 2,872,092	
<i>Other</i>	\$ -		<i>Other</i>	\$ -		<i>Other</i>		
<i>Research</i>	\$ -		<i>Research</i>	\$ -		<i>Research</i>		
<i>Teaching & Training</i>	\$ -		<i>Teaching & Training</i>	\$ -		<i>Teaching & Training</i>		
<i>System-generated patients</i>	\$ -		<i>System-generated patients</i>	\$ -		<i>System-generated patients</i>		
	\$ 51,299,371	118.71%		\$ 51,196,370			\$ 53,121,526	
<i>Variance</i>	\$ 1	0.000%	<i>Variance</i>	\$ (2)		<i>Variance</i>	\$ -	

Source: KPMG based on data supplied by the Whyalla Hospital and Health Service, jurisdiction and IHPA.

^ These figures include admitted emergency costs

7.3.3 Activity data

SA Health staff were able to reconcile the activity from source data systems to that which was costed and included in the NHCDC submission. The review examined patient activity data based on source and costing systems for the Whyalla Hospital and Health Service. This activity data is then compared to the transfer of activity data by NHCDC product from Whyalla Hospital and Health Service to SA Health and then through to IHPA submission and finalisation.

The following should be noted about the activity reported:

- All records in the costing system were matched to the submitted product types (Acute and Newborns, Non-admitted, Emergency, Sub Acute and Mental Health) and submitted to the jurisdiction.
- Activity associated with costs that were excluded by the jurisdiction related to current year WIP (71) or not matched to the ABF submission (364). These were identified through the activity reconciliation process.

The *Round 21 IFR Report: Supplementary Information* contains the detailed activity data for the Whyalla Hospital and Health Service.

7.3.4 Feeder data

SA Health representatives were able to provide the independent review team with the feeder system information used in the cost allocation process.

SA Health indicated that the majority of the records used within the costing process are taken from the SA Health state-wide data warehouse (Inpatient, Emergency, Pharmacy and Transfers). 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. This activity then forms the basis for costing.

Across the Whyalla Hospital and Health Service there are 16 feeders which represent the major hospital departments that provide patient related resources. The Allied Health feeder file did not have 100 per cent linking of records from the source system to the hospital product, with a matching rate of only 34.1 percent. This related to the feeder including community health as well as hospital data which contributed to a low matching rate. The remaining 15 feeders have 100 percent matching, suggesting that there is robustness in the level of feeder activity reported back to episodes.

As per the costing process, there are a small number of system generated patients created where blank UR numbers were registered or transaction dates were outside the costing period.

Round 21 IFR Report: Supplementary Information presents the feeder data that the Whyalla Hospital and Health Service uses in the costing process.

7.3.5 Treatment of WIP

The Whyalla Hospital and Health Service submitted costs for admitted and discharged patients in 2016-17 and WIP costs for those patients admitted in 2015-16 and discharged in 2016-17, CHSALHN representatives advised that there were no long-term patients in years prior to 2015-

16. The accumulated costs for patients still admitted on 30 June 2017 are not submitted to the NHCDC.

7.3.6 Critical care

The Whyalla Hospital and Health Service does not have critical care units.

7.3.7 Costing public and private patients

The Whyalla Hospital and Health Service does not adjust costs for 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 as per the standard.

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.

7.3.8 Treatment of specific items

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

Table 22 – Treatment of specific items – Whyalla Hospital and Health Service

Item	Treatment
Research	No research costs to report, CHSALHN hasn't been funded for research.
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

7.3.9 Sample patient data

IHPA selected a sample of five patients from Whyalla Hospital and Health Service 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.

Table 23 – Sample patients – Whyalla Hospital and Health Service

#	Product	Jurisdiction Records	Received by IHPA	Variance
1	NE	\$239.99	\$239.99	\$-
2	AE	\$1,112.52	\$1,112.52	\$-
3	RH	\$25,688.82	\$25,688.82	\$-
4	PC	\$17,812.47	\$17,812.47	\$-
5	MC	\$12,520.72	\$12,520.72	\$-

Source: KPMG, based on the Whyalla Hospital and Health Service and IHPA data

7.4 Flinders Medical Centre

7.4.1 Overview

The Flinders Medical Centre is the southern area's largest hospital providing medical services for the southern population of Adelaide and major regional rural centres, with approximately 590 beds. The Flinders Medical Centre is a public teaching hospital co-located with the Flinders University and Flinders Private Hospital.¹⁵

The Southern Adelaide Local Health Network (SALHN) provides care for more than 350,000 people living in the southern metropolitan area of Adelaide, as well as providing a number of statewide services, and services to those in regional areas. More than 7,000 skilled staff provide high quality patient care, education, research and health-promoting services.¹⁶

Services provided by the Flinders Medical Centre include, but are not limited to:

- Maternity Services;
- Emergency and Perioperative Medicine;
- Neurosurgery;
- Medical Oncology;
- Mental Health;
- Aboriginal Health; and
- Rehabilitation services.

7.4.2 Financial data

For the Round 21 IFR, the data collection templates were completed and submitted by SA Health's Finance and Corporate Services (Funding Models Unit) on behalf of the Flinders Medical Centre. Representatives from the Funding Models Unit, as well as staff from the Flinders Medical Centre, attended and participated in the consultation process during the review. The costing process at the Flinders Medical Centre is consistent with the approach across the other LHNs in SA Health.

¹⁵ SA Health overview of Flinders Medical Centre, <https://www.sahealth.sa.gov.au/wps/wcm/connect/Public+Content/SA+Health+Internet/Health+services/Hospitals+and+health+services+Metropolitan+Adelaide/Flinders+Medical+Centre/>, accessed 23 July 2018.

¹⁶ Southern Adelaide Local Health Network, Annual Report 2016-17, <https://www.sahealth.sa.gov.au/wps/wcm/connect/46c6f02a-37d7-4680-b34e-149fbc094c3/Annual+Report+SALHN+2016-2017.pdf>, Accessed 23 July 2018.

Table 24 presents a summary of the Flinders Medical Centre's costs, from the original extract from the GL through to the final NHCDC submission for Round 21.

This section discusses major variances in the reconciliation process. The information is based on the Flinders Medical Centre templates and review discussions.

- The final GL amount extracted for the Flinders Medical Centre indicates expenditure of \$981.55 million. This amount reflected the total expenditure for SALHN, which includes the Flinders Medical Centre. This amount was split in the template to identify the costs specifically related to the Flinders Medical Centre. The final amount that related to the Flinders Medical Centre was \$591.21 million.
- Exclusions made to the GL at Step B totalled \$13.91 million. These related to corporate costs defined as out of scope for patient costing by the AHPCS, specifically centralised SA Medical Imaging costs which were restructured part-way through 2016-17 and costed at the hospital level (\$14.34 million), and Bad and Doubtful Debts (-\$426,690).

Table 24 – Round 21 NHCDC Reconciliation – Flinders Medical Centre

Hospital			Jurisdiction		IHPA	
Item	Amount	% of GL	Item	Amount	Item	Amount
A General Ledger (GL)	\$ 591,212,556		F Costed Products received by jurisdiction	\$ 647,787,423	I Total costed products received by IHPA	\$ 639,640,400
			<i>Variance</i>	\$ -	<i>Variance</i>	\$ (30)
B Adjustments to the GL			G Final Adjustments		J IHPA Adjustments	
<i>Inclusions</i>	\$ 100,975,285		WIP 15-16	\$ 13,939,538	<i>Admitted ED reallocations</i>	\$ 32,853,491
<i>Exclusions</i>	\$ (13,911,178)		WIP 16-17	\$ (14,180,072)	Final NHCDC costs	\$ 672,493,891
Total hospital expenditure	\$ 678,276,663	114.72%	Aggregate Activity	\$ (6,392,326)		
			WIP removed	\$ (47,800)		
C Allocation of Costs			No match to ABF	\$ (1,007,747)		
<i>Post Allocation Direct amount</i>	\$ 519,755,656		Negative cost encounter	\$ -		
<i>Post Allocation Overhead amount</i>	\$ 158,521,058		<i>Excluding Tier 2</i>	\$ (458,585)		
Total hospital expenditure	\$ 678,276,714	114.73%	Total costs submitted to IHPA	\$ 639,640,430		
<i>Variance</i>	\$ 51	0.00%				
D Post Allocation Adjustments						
<i>GL to Z costed Areas</i>	\$ 5,568,220					
<i>Teaching</i>	\$ (13,662,156)					
<i>Research</i>	\$ (5,912,803)					
<i>Non-ABF activity</i>	\$ (16,482,547)					
Total expenditure allocated to patients	\$ 647,787,428	109.57%				
E Costed products submitted to jurisdiction			H Costed products submitted to IHPA		K Final NHCDC costed products	
<i>Acute and Newborns</i>	\$ 458,213,246		<i>Acute and Newborns</i>	\$ 458,097,443	<i>Acute^ and Newborns</i>	\$ 490,949,771
<i>Non-admitted</i>	\$ 99,908,163		<i>Non-admitted</i>	\$ 92,508,499	<i>Non-admitted</i>	\$ 92,508,499
<i>Emergency</i>	\$ 54,885,403		<i>Emergency</i>	\$ 54,791,911	<i>Emergency</i>	\$ 54,791,911
<i>Sub Acute</i>	\$ 5,985,665		<i>Sub Acute</i>	\$ 5,423,749	<i>Sub Acute^</i>	\$ 5,424,912
<i>Mental Health</i>	\$ 28,794,945		<i>Mental Health</i>	\$ 28,818,797	<i>Mental Health</i>	\$ 28,818,797
<i>Other</i>	\$ -		<i>Other</i>		<i>Other</i>	
<i>Research</i>	\$ -		<i>Research</i>		<i>Research</i>	
<i>Teaching & Training</i>	\$ -		<i>Teaching & Training</i>		<i>Teaching & Training</i>	
<i>System-generated patients</i>	\$ -		<i>System-generated patients</i>		<i>System-generated patients</i>	
	\$ 647,787,423	109.57%		\$ 639,640,400		\$ 672,493,891
<i>Variance</i>	\$ (6)	0.00%	<i>Variance</i>	\$ (30)	<i>Variance</i>	\$ -

Source: KPMG based on data supplied by the Flinders Medical Centre, jurisdiction and IHPA.

^ These figures include admitted emergency costs

7.4.3 Activity data

SA Health staff reconciled the activity from source data systems to that which was costed and included in the NHCDC submission. The review examined patient activity data based on source and costing systems for the Flinders Medical Centre. This activity data was then compared to the transfer of activity data by NHCDC product from the Flinders Medical Centre to SA Health and then through to IHPA submission and finalisation.

The following should be noted about the activity reported:

- All records in the costing system were matched to the submitted product types (Acute and Newborns, Non-admitted, Emergency, Sub Acute and Mental Health) and submitted to the jurisdiction.
- Activity associated with costs which were excluded by the jurisdiction related to current year WIP (655), those not matched to the ABF submission (518) or aggregated activity (169). These were identified through the activity reconciliation process.

The *Round 21 IFR Report: Supplementary Information* contains the detailed activity data for the Flinders Medical Centre.

7.4.4 Feeder data

SA Health representatives were able to provide the independent review team with the feeder system information used in the cost allocation process.

SA Health indicated that the majority of the records used within the costing process are taken from the SA Health state-wide data warehouse (Inpatient, Emergency, Pharmacy and Transfers). 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.

Across the Flinders Medical Centre there are 43 feeders which represent the major hospital departments that provide resources, 32 of which have 100 per cent linking. The lowest linked record percentage (94.24%) related to the Patient Security feeder, where possible costing staff attempt to match instances of security requests to the patient record. This is not possible in every instance. As 32 feeders have 100 percent matching this suggests that there is robustness in the level of feeder activity reported back to episodes.

As per the costing process, there are a small number of system generated patients created where blank UR numbers were registered or transaction dates were outside the costing period.

The *Round 21 IFR Report: Supplementary Information* presents the feeder data that the Flinders Medical Centre uses in the costing process.

7.4.5 Treatment of WIP

The Flinders Medical Centre submitted costs for admitted and discharged patients in 2016-17 and WIP costs for those patients admitted in 2015-16 and discharged in 2016-17. SA Health representatives advised that they also pick up costs for patients in up to four years prior to 2015-16. The accumulated costs for patients still admitted on 30 June 2017 are not submitted to the NHCDC.

7.4.6 Critical care

There are two dedicated critical care units at the Flinders Medical Centre, an Adult Intensive Care Unit (ICU) and a Neonatal Intensive Care Unit (NICU) in addition to a dedicated High Dependency Unit (HDU) which is in a separate physical location. The costs associated with these areas are captured in dedicated cost centres, and any identified expenditure is allocated in PPM by patient and by ICU hours. The total GL amount for the two areas of \$43.88 million is then adjusted for various overhead costs e.g. 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 ICU is \$48.04 million and \$7.05 million for the NICU. All costs including medical expenses are captured in these cost centres. Critical care costs are captured in accordance with the applicable standard.

7.4.7 Costing public and private patients

The Flinders Medical Centre does not adjust costs for 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 as per the standard.

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 Flinders Medical Centre.

7.4.8 Treatment of specific items

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

Table 25 – Treatment of specific items – Flinders Medical Centre

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, e.g. car parking or café.

Source: KPMG, based on IFR discussions

7.4.9 Sample patient data

IHPA selected a sample of five patients from FMC 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.

Table 26 – Sample patients – Flinders Medical Centre

#	Product	Jurisdiction Records	Received by IHPA	Variance
1	NE	\$777.39	\$777.39	\$-
2	OP	\$160.58	\$160.58	\$-
3	OP	\$216.08	\$216.08	\$-
4	AC	\$6,246.66	\$6,246.66	\$-
5	NB	\$4,214.72	\$4,214.72	\$-

Source: KPMG, based on the Flinders Medical Centre and IHPA data

7.5 Application of AHPCS Version 3.1

Based on the site visit and review templates, SA Health demonstrated application of all selected standards from Version 3.1 of the AHPCS in the Flinders Medical Centre's Round 21 NHCD submission. Application and commentary against each standard is provided in Round 21 IFR Report: Supplementary Information.

7.6 Conclusion

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 NHCD submission.

8. Tasmania

8.1 Summary of key findings

The findings of the Tasmania Round 21 IFR are summarised below:

- On 1 July 2015, the Tasmanian Government established the Tasmanian Health Service (THS) by amalgamating the three Tasmanian Health Organisations. The THS has been established to improve patient outcomes by delivering better health services to Tasmanians. The establishment of a single state wide service delivery structure aims to improve the coordination of services and reduce duplication in administrative overheads and clinical support services. Round 21 is the first year the Tasmanian Department of Health and Human Services (DHHS) costed the fully merged THS.
- The financial reconciliation template illustrates the transformation of cost data for the Tasmanian Health Service based on the final GL. A variance of \$10.16 million was noted between the final GL and the audited financial statements variance as per advice from the DHHS representatives and reported in the templates. However DHHS were able to demonstrate that the variance comprised the following items: Salary and Wages recoveries (\$14.76 million), Workers Compensation Recoveries (\$2.79 million) and included Other Corporate Services which support the THS (-\$7.40 million). Minor variances were noted for the THS between the hospital expenditure and the costs allocated to patients.
- The basis of the adjustments made by DHHS were explained. Exclusions were made for Non ABF reportable activity and Teaching, Training and Research. These costs were removed and not reported to the NHCDC as these costs could not be aligned to activity.
- Total NHCDC activity data for the hospitals was adjusted by DHHS for the removal of records associated with excluded costs such as teaching and training, research, current year WIP, and other system-generated patients associated with non-ABF or out of scope activity.
- The number of records linked from source to product was significant with the majority of feeders having a 100 percent link or match, only two feeders out of the thirteen had a matching level below 100 percent, the lowest being 96.65 per cent. 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.

Subject to identified review limitations, THS has suitable reconciliation processes in place and the financial data is consider for NHCDC submission..

8.2 Jurisdictional overview

8.2.1 Management of NHCDC process

In 2015-16, DHHS implemented a new operating structure that created a single THS for the State to replace the three Tasmanian Health Organisations that previously existed. The DHHS Patient Level Costing team in the Planning, Purchasing and Performance group, is responsible for the preparation of the general ledger, activity and feeder data and the costing methodology

and results. DHHS are also responsible for the cost data validation and reconciliation process and sign off of the costing data submitted to the NHCDC. Prior to sign off, DHHS also engage the THS for a cost data review.

Key initiatives since Round 20 NHCDC

The key initiatives since Round 20 related to the ongoing development of Qlikview reporting, governance changes to the structure of the Tasmanian Health Organisation and the adjustment of the costing model to reflect these changes. Round 21 was the first year the Tasmanian Department of Health and Human Services DHHS costed the fully merged THS.

8.3 Tasmanian Health Service (THS)

8.3.1 Overview

On 1 July 2015, the Tasmanian Government established the Tasmanian Health Service (THS) by amalgamating the three Tasmanian Health Organisations. The THS has been established to improve patient outcomes by delivering better health services to Tasmanians. The establishment of a single state wide service delivery structure aims to improve the coordination of services and reduce duplication in administrative overheads and clinical support services.

The THS provides a comprehensive range of general and specialty health services. The THS has four major hospitals and 19 small rural hospitals. The THS also provides mental health and community services through Statewide Mental Health and other community based health services. The THS provide acute, subacute, mental health and ambulatory services to a population of approximately 515,000, utilising 1,304 beds which include 224 same day beds and 89 psychiatric beds. The THS has approximately 8,352 full time equivalent staff¹⁷.

8.3.2 Financial data

For the Round 21 IFR, DHHS staff completed the IFR templates and participated in consultations during the review.

Table 1 presents a summary of the Tasmanian Health Service's costs, from the original extract from the GL through to the final NHCDC submission for the Tasmanian Health Service for Round 21.

This section discusses major variances in the reconciliation process. The information is based on the Tasmanian Health Service templates and review discussions. Detailed commentary against each of the reconciliation items including adjustments, inclusions and exclusions to the GL is provided in Round 21 IFR Report: Supplementary Information.

- A variance of \$10.16 million was noted between the final GL and the audited financial statements variance as per advice from the DHHS representatives and reported in the templates. The variance consisted of adjustments for Salary and Wages recoveries (\$14.76 million), Workers Compensation Recoveries (\$2.79 million) and included Other Corporate Services which support the THS (-\$7.40 million).

¹⁷ 2016-17 Public Hospital Establishments national minimum data sets

- At Item B adjustments were made for various revenue items, such as patient revenue, reimbursements and refunds, which accounted for \$309,494. In addition a small adjustment of \$141 was made relating to User Cost system cost centres that were created as part of the costing process.
- Item D Post Allocation Adjustments appeared reasonable as the bulk of the costs adjusted (\$566.5 million) relate to Non ABF activity (\$504.7 million) e.g. Bulk Billed Outpatients, Outside Referred Patients, Dental and Prison costs. Whilst costs related to Teaching, Training and Research are required; these are excluded as these cannot be assigned to the appropriate activity.

Table 27 – Round 21 NHCDC Reconciliation – Tasmanian Health Service

Hospital			Jurisdiction		IHPA	
Item	Amount	% of GL	Item	Amount	Item	Amount
A General Ledger (GL)	\$ 1,514,977,001		F Costed Products received by jurisdiction	\$ 948,148,906	I Total costed products received by IHPA	\$ 948,147,039
			<i>Variance</i>	\$ (0)	<i>Variance</i>	\$ (1,867)
B Adjustments to the GL			G Final Adjustments		J IHPA Adjustments	
<i>Inclusions</i>	\$ (309,352)		<i>Nil</i>	\$ -	<i>Admitted ED reallocations</i>	\$ 60,054,469
<i>Exclusions</i>	\$ -		Total costs submitted to IHPA	\$ 948,148,906	Final NHCDC costs	\$ 1,008,201,508
Total hospital expenditure	\$ 1,514,667,649	99.98%				
C Allocation of Costs						
<i>Post Allocation Direct amount</i>	\$ 1,235,897,106					
<i>Post Allocation Overhead amount</i>	\$ 278,770,426					
Total hospital expenditure	\$ 1,514,667,531	99.98%				
<i>Variance</i>	\$ (118)	0.00%				
D Post Allocation Adjustments						
<i>Previous year WIP</i>	\$ 22,955,804					
<i>Current year WIP</i>	\$ (27,739,530)					
<i>Teaching and Training</i>	\$ (54,286,929)					
<i>Research</i>	\$ (2,747,317)					
<i>Non ABF activity</i>	\$ (504,700,653)					
Total expenditure allocated to patients	\$ 948,148,906	62.59%				
E Costed products submitted to jurisdiction			H Costed products submitted to IHPA		K Final NHCDC costed products	
<i>Acute and Newborns</i>	\$ 624,730,635		<i>Acute and Newborns</i>	\$ 624,730,635	<i>Acute^ and Newborns</i>	\$ 682,216,975
<i>Non-admitted</i>	\$ 116,705,409		<i>Non-admitted</i>	\$ 116,705,409	<i>Non-admitted</i>	\$ 116,914,219
<i>Emergency</i>	\$ 114,819,479		<i>Emergency</i>	\$ 114,819,479	<i>Emergency</i>	\$ 114,819,479
<i>Sub Acute</i>	\$ 57,603,391		<i>Sub Acute</i>	\$ 57,603,391	<i>Sub Acute^</i>	\$ 57,707,346
<i>Mental Health</i>	\$ 33,578,173		<i>Mental Health</i>	\$ 33,578,173	<i>Mental Health</i>	\$ 36,036,444
<i>Other</i>	\$ 711,819		<i>Other</i>	\$ 711,819	<i>Other</i>	\$ 507,046
<i>Research</i>	\$ -		<i>Research</i>	\$ -	<i>Research</i>	
<i>Teaching and Training</i>	\$ -		<i>Teaching and Training</i>	\$ -	<i>Teaching and Training</i>	
<i>System-generated patients</i>	\$ -		<i>System-generated patients</i>	\$ -	<i>System-generated patients</i>	
	\$ 948,148,906	62.59%		\$ 948,148,906		\$ 1,008,201,508
<i>Variance</i>	\$ 0	0.000%	<i>Variance</i>	\$ -	<i>Variance</i>	\$ -

Source: KPMG based on data supplied by the Tasmanian Health Service, jurisdiction and IHPA

^ These figures include admitted emergency costs.

8.3.3 Activity data

DHHS were able to reconcile the activity from source data systems to that which was costed and included in the NHCDC submission. The review examined patient activity data based on source and costing systems for the THS. This activity data is then compared to the transfer of activity data by NHCDC product from the THS to DHHS and then through to IHPA submission and finalisation.

The following should be noted about the activity reported

- Activity related to patients which were not submitted to the NHCDC was linked to 'other'.
- 2016-17 WIP activity (1,073 records) were included in the adjustments across product types and included in the 664,003 records costed in Round 21.
- Activity associated with costs which were excluded relating to teaching and training, research, current year WIP, outside referred patients and other system-generated patients associated with non-ABF or out of scope activity were also identified through the activity reconciliation process.

The *Round 21 IFR Report: Supplementary Information* presents the detailed activity data for the THS.

8.3.4 Feeder data

DHHS were able to provide the independent review team with the feeder system information used in the cost allocation process.

DHHS indicated that the majority of the extracts used within the costing process (with the exception of interpreters, community care and a private ophthalmology clinic) are taken from their DHS Health Central Department. This group is tasked with the responsibility of extracting data from hospital systems, validating and reconciling it for both Jurisdictional and national reporting requirements.

Given this process of data cleaning, reconciling and reporting, DHHS use the data from Health Central for costing purposes. Feeders outside of the Health Central process are checked to ensure they can be loaded to the costing system and data is linked according to the appropriate linking logic.

Across the health service there are 13 feeders which represent the major hospital departments that provide resources. The Imaging and specialties feeder systems did not have 100 per cent linking of records from the source system to the hospital product. The largest amount of unlinked records in the Specialties feeder (34,587) relate to a combination of outpatient emergency records, as well as outpatient events that are already matched to another episode. This suggests that there is robustness in the level of feeder activity reported back to episodes.

System generated patients are created to link pharmacy and pathology feeders when the service was provided to a private non-hospital patient, Risdon prison patients or unmatched data. System generated patients were also used to link outpatient feeder records where community patients had no episode information.

The *Round 21 IFR Report: Supplementary Information* presents the feeder data that DHHS utilise in the costing process.

Some activity data in the Tasmanian costing process is created or derived directly from feeder data, where it is difficult to obtain source data from a system. This process was undertaken for The Holman Clinic, the collective name for Tasmania's oncology service to ensure costs could be linked to the activity of that service.

Another source of feeder activity is Pharmacy prescriptions that do not link directly to an episode of care. Since the patient identifier is known, these records are transformed into standalone episodes to track patient costs for internal reporting purposes.

8.3.5 Treatment of WIP

The THS submitted costs for admitted and discharged patients in 2016-17 and WIP costs for those patients admitted in 2015-16 and discharged in 2016-17, DHHS representatives advised that there were no long-term patients in years prior to 2015-16. For patients still admitted at the 30th June 2017, the accumulated costs for these patients are not submitted to the NHCDC.

8.3.6 Critical care

The THS, which incorporates all hospitals in Tasmania, provides all critical care services, with the majority at either the Royal Hobart Hospital or the Launceston General Hospital. This includes 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. Critical care costs could not be separated from the psychiatric ward cost centre.

DHHS are able to define the appropriate critical care areas and assign expenditures to these areas through transfer rules. Some of these expenditures include medical staff, nursing staff and hospital equipment. A set of Relative Value Units (RVUs) are created for each area to account for the resources (such as nursing) allocated in critical care unit each unit. These RVUs are a combination of data including the resource (nursing), location (ICU) and severity (Patient Clinical Complexity Level or PCCL).

ICU costs are distributed using the nurse roster modelling system to determine the number of nurses on duty and their combined pay rate for the given period of care. This is combined with the existing ward stay information such as bed category, ward, hours of mechanical ventilation (HMF), and Patient Clinical Complexity Level (PCCL) score to calculate a relative value unit (RVU). This RVU is used to distribute the ICU cost centres.

In summary, critical care costs are captured in accordance with the applicable standard.

8.3.7 Costing public and private patients

DHHS makes no specific adjustments to the way private patients are costed compared to public patients at any of the hospitals within the THS. 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 patients receive an allocation of applicable costs including pathology, medical imaging and prosthesis, in the same manner as public patients.

Private patient revenue, including prosthesis rebates, is treated as revenue and is not offset against expenditure.

8.3.8 Treatment of specific items

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

Table 28 – Treatment of specific items – Tasmanian Health Service

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.
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 NHCDC 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, based on IFR discussions

8.3.9 Sample patient data

IHPA selected a sample of five patients from THS for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. DHHS provided the patient level costs for all five patients and there were minor variances to IHPA records. The largest variance was (\$35.84).

Table 29 – Sample patients – Tasmanian Health Service

#	Product	Jurisdiction Records	Received by IHPA	Variance
1	NB	\$776.09	\$776.08	\$0.01
2	OG	\$28,375.74	\$28,389.22	(\$13.48)
3	OG	\$6,911.07	\$6,946.91	(\$35.84)
4	MC	\$29,671.47	\$29,673.23	(\$1.76)
5	AE	\$2,333.40	\$2,333.30	\$0.10

Source: KPMG, based on The Tasmanian Health Service and IHPA data

8.4 Application of AHPCS Version 3.1

Based on the site visit and review templates, DHHS demonstrated application of all selected standards from Version 3.1 of the AHPCS in the THS Round 21 NHCDC submission. Application and commentary against each standard is provided in Round 21 IFR Report: Supplementary Information.

8.5 Conclusion

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, the DHHS has suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission.

9. Victoria

9.1 Summary of key findings

The findings of the Victorian Round 21 IFR are summarised below:

- The Victorian Department for Health and Human Services (DHHS) continues to revise and update the linking rules for the cost data to the relevant activity datasets, including linking to Victorian Admitted Episodes Dataset (VAED), Victorian Emergency Minimum Dataset (VEMD), and incorporating new rules for the Victorian Non-Admitted Health Minimum Dataset (VINAH).
- The report explains the basis of the adjustments made by DHHS. DHHS excluded Non ABF reportable activity, quality assurance (QA) checks defined by DHHS, costs not linking to Tier 2 activity and costs not linked to VAED activity.
- The number of records linked from source to product was significant for both hospitals. The large number of feeder files (33) for Alfred Health demonstrates that there is significant costing refinement by taking activity from a variety of departments.
- WIP was treated in accordance with the COST 5.002 of the AHPCS Version 3.1.

Subject to identified review limitations, Alfred Health and Bairnsdale Health Service has suitable reconciliation processes in place and the financial data is consider for NHCDC submission.

9.2 Jurisdictional overview

9.2.1 Management of NHCDC process

DHHS is responsible for the collation, review and submission of data to the NHCDC. Victorian health services are required to submit costing data to the Victorian Cost Data Collection (VCDC), which collects patient-level costed data from metropolitan, regional and sub-regional health services. The VCDC is used for 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.

Consistent with previous years, Victorian health services do not submit cost data in the format of the NHCDC data specification. While Victorian health services are responsible for the preparation of the costing data, the cost data submission to the VCDC must comply with the VCDC Business Rules and VCDC file specification documentation, which are reviewed and updated annually.

DHHS is responsible for transforming the VCDC data into the format required for the NHCDC submission. Upon receipt of the health service submission to the VCDC, DHHS staff undertake a three stage validation process. The first stage validates the structure and content of the file specification for VCDC purposes. The second stage links the cost data to the existing activity datasets that have been submitted to the Department. Examples of these include the VAED, VEMD and VINAH. The third stage maps the cost data to the Victorian cost buckets. Following this process, DHHS sends a series of reports to the health service for review. Health services are then offered the opportunity to resubmit their reviewed data. DHHS does not adjust any costing record submitted by the health service (for inclusions, exclusions or validity).

Following the completion of this validation process, DHHS undertakes a series of QA checks to test the data for a range of cost quality controls, including low and high cost episodes and comparisons over a period of time. Health services review these again, and 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, DHHS submits a series of reconciliation templates as part of the VCDC process. These are submitted five days after 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. DHHS undertakes this mapping. DHHS 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 DHHS, summarising the type and volume 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 then the Deputy Secretary, Health Service Policy & Commissioning.

DHHS nominated two hospitals to participate in the IFR for Round 21 based on the hospital sampling criteria provided. The hospitals selected to participate were Alfred Health and Bairnsdale Regional Health Service.

Key initiatives since Round 20 NHCDC

The key initiatives since Round 20 related to the following changes:

- DHHS continues to revise and update the linking rules of the cost data to the relevant activity datasets including linking to VAED, VEMD, and incorporating new rules for VINAH.
- DHHS 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 validity of those records.
- DHHS has also piloted, across selected sites, access to the IHPA portal data, which will allow health services to understand what is contained in the IHPA dataset and allow health services to compare to other jurisdictions on similar resource types.

9.3 Alfred Health

9.3.1 Overview

Alfred Health provides a comprehensive range of healthcare services in Victoria through three hospital campuses (The Alfred, Caulfield Hospital and Sandringham Hospital), a large network of community programs and 14 statewide services.

The Alfred has one of Australia's busiest emergency and trauma centres, the state's largest Intensive Care Unit and is home to multiple statewide services. It also houses Victoria's only heart and lung transplant service, the Victorian Adult Burns Service and the Victorian Melanoma Service.

Caulfield Hospital specialises in community services, rehabilitation, aged care and aged mental health. The hospital plays a statewide role in rehabilitation services, which includes the Acquired Brain Injury Rehabilitation Centre, neurological rehabilitation, spinal rehabilitation and care for amputee patients.

Sandringham Hospital provides healthcare in emergency, paediatrics, general medicine and in outpatient clinics. The hospital works closely with community healthcare providers, including the Urgent Care Centre which is run by GPs who treat emergency patients with non-threatening conditions. Obstetric and gynaecology services at Sandringham are provided by The Women's Hospital onsite.¹⁸

There is currently one full time costing full-time equivalent (FTE) based at The Alfred Hospital, who reports through the finance team via the Financial Services team. The costing system used is PPM and costing data is loaded into the system annually. There is communication between business managers, regarding feeder data and the inputs that incorporate the costing process. PFRACS in the costing system are reviewed annually and there is an iterative improvement each year in the allocations.

Over time, Alfred Health has made a concerted effort to receive feedback from business partners responsible for budgets to cross reference with costing data. Costing data is also being utilised in business cases, research requests and costing international patients. At this stage costing data is not published internally but a new business portal will include costing data. Before final submission, Finance, together with the costing group, analyses year on year trends both internally and statewide. The CFO provides final sign-off to DHHS.

Financial data

For the Round 21 IFR, the data collection templates were completed by representatives from Alfred Health with assistance from DHHS representatives for their respective sections.

Table 1 presents a summary of Alfred Health's costs, from the original extract from the GL through to the final NHCDC submission for Round 21.

This section discusses major variances in the reconciliation process. The information is based on Alfred Health templates and review discussions. Detailed commentary against each of the reconciliation items, including adjustments, inclusions and exclusions to the GL, is provided in the *Round 21 IFR Report: Supplementary Information*.

- DHHS made a number of adjustments to the final data submitted by the hospital. The net total of the adjustments made for Round 21 totalled \$235.66 million made up of excluded costs related to out of scope and unlinked services (\$208.63 million). This included but was not limited to community mental health (\$47.75 million), costs related to activity not linking to Tier 2 activity (\$24.88 million), unlinked pharmacy (\$13.1 million), unlinked imaging (\$7.95 million), regional radiotherapy (\$7.15 million) and various community and aged care programs.

¹⁸ Alfred Health, Our Hospitals, <https://www.alfredhealth.org.au/our-hospitals/>

Table 30 – Round 21 NHCDC Reconciliation – Alfred Health

Hospital			Jurisdiction			IHPA		
Item	Amount	% of GL	Item	Amount		Item	Amount	
A General Ledger (GL)	\$ 1,218,445,926		F Costed Products received by jurisdiction	\$ 1,131,221,887		I Total costed products received by IHPA	\$ 895,564,350	
			<i>Variance</i>	\$ (0)		<i>Variance</i>	\$ 1	
B Adjustments to the GL			G Final Adjustments			J IHPA Adjustments		
<i>Inclusions</i>	\$ 32,566,281		<i>Out of scope</i>	\$ (208,626,938)		<i>Admitted ED reallocations</i>	\$ 60,409,558	
<i>Exclusions</i>	\$ (115,729,244)		<i>QA Checks</i>	\$ (2,134,859)		Final NHCDC costs	\$ 955,973,908	
Total hospital expenditure	\$ 1,135,282,963	93.17%	<i>Not linking to Tier 2 activity</i>	\$ (24,882,389)				
			<i>Not linking to VAED activity</i>	\$ (13,351)				
C Allocation of Costs								
<i>Post Allocation Direct amount</i>	\$ 945,256,125							
<i>Post Allocation Overhead amount</i>	\$ 190,026,837							
Total hospital expenditure	\$ 1,135,282,963	93.17%						
<i>Variance</i>	\$ 0	0.00%	Total costs submitted to IHPA	\$ 895,564,349				
D Post Allocation Adjustments								
<i>WIP Excluded</i>	\$ (29,822,750)							
<i>WIP Included</i>	\$ 25,761,696							
Total expenditure allocated to patients	\$ 1,131,221,909	92.84%						
E Costed products submitted to jurisdiction			H Costed products submitted to IHPA			K Final NHCDC costed products		
<i>Acute and Newborns</i>	\$ 702,528,326		<i>Acute and Newborns</i>	\$ 593,248,005		<i>Acute^ and Newborns</i>	652,876,058	
<i>Non-admitted</i>	\$ 136,818,958		<i>Non-admitted</i>	\$ 111,936,569		<i>Non-admitted</i>	111,936,569	
<i>Emergency</i>	\$ 83,247,665		<i>Emergency</i>	\$ 83,234,314		<i>Emergency</i>	83,234,314	
<i>Sub Acute</i>	\$ -		<i>Sub Acute</i>	\$ 79,838,039		<i>Sub Acute^</i>	79,838,039	
<i>Mental Health</i>	\$ 47,751,770		<i>Mental Health</i>	\$ 26,988,336		<i>Mental Health</i>	27,769,841	
<i>Other</i>	\$ 96,791,380		<i>Other</i>	\$ 319,087		<i>Other</i>	319,087	
<i>Research</i>	\$ -		<i>Research</i>	\$ -		<i>Research</i>		
<i>Teaching & Training</i>	\$ -		<i>Teaching & Training</i>	\$ -		<i>Teaching & Training</i>		
<i>System-generated patients</i>	\$ 64,083,788		<i>System-generated patients</i>	\$ -		<i>System-generated patients</i>		
Total	\$ 1,131,221,887	92.84%	Total	\$ 895,564,350		Total	\$ 955,973,908	
<i>Variance</i>	\$ (22)	0.000%	<i>Variance</i>	\$ 1		<i>Variance</i>	\$ 0	

Source: KPMG based on data supplied by Alfred Health, jurisdiction and IHPA.

^ These figures include admitted emergency costs.

9.3.2 Activity data

Alfred Health and DHHS representatives were able to reconcile the activity from source data systems to that which was costed and included in the NHCDC submission. The review examined patient activity data based on source and costing systems for Alfred Health. This activity data was then compared to the transfer of activity data by NHCDC product from Alfred Health to DHHS and then through to IHPA submission and finalisation.

The following should be noted about the activity reported:

- There was a variance between the number of records from source systems (538,114 records) and activity related to 2016-17 costs by NHCDC product (687,630 records) of 149,516 records. The majority of the variance related to radiotherapy non-admitted encounters created during the costing process based on radiotherapy services that do not link to admitted encounters. There were also virtual encounters created, where applicable, for unlinked services.
- Adjustments were made by DHHS 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).

The *Round 21 IFR Report: Supplementary Information* presents the detailed activity data for Alfred Health.

9.3.3 Feeder data

Alfred Health representatives were able to provide the independent review team with the feeder system information used in the cost allocation process.

Across Alfred Health there are 33 feeders which represent the major hospital departments that provide resources. However, only 6 of the feeders had a 100 percent matching rate. The Nuclear Medicine/PET feeder file had the lowest matching rate of 71.61 percent of linked records from the source system to the hospital product. The unlinked records in this feeder (2,516) relate to the tests conducted in-house that cannot be linked to patient activity, i.e. state-wide services or research. The fact that 27 of the 33 feeders had a greater than 90 percent matching rate suggests that there is robustness in the level of feeder activity linked to episodes.

The *Round 21 IFR Report: Supplementary Information* presents the feeder data that Alfred Health used in the costing process.

9.3.4 Treatment of WIP

Alfred Health submits costs for all patients discharged within the 2016-17 year. Where these patients have been admitted in prior year(s) those costs are also submitted. For patients still admitted as at 30 June 2017, the accumulated costs for these patients are not submitted to the NHCDC. Alfred Health representatives confirmed that no indexation is applied to prior year costs.

9.3.5 Critical care

Alfred Health have one co-located area which treats both Intensive Care Unit (ICU) and High Dependency Unit (HDU) patients. Expenditure is reported in one cost centre for the co-located ICU/HDU. These types of patients can be identified via a transfer file where the nursing ratio that was utilised is identified. That ratio is then applied as the basis for weighting the cost allocations between ICU and HDU. Alfred Health also has other high acuity areas throughout the hospital which are classified by the bed acuity system in place at the hospital and not a dedicated HDU. These beds are included in the relevant ward costs and allocated to all patients who occupied that ward.

Alfred Health also has a Coronary Care ward located in the hospital. Coronary Care expenditure can be separately identified, which was demonstrated in the templates.

Alfred Health, at the Sandringham Hospital, operates a Special Care Nursery. A small amount of costs were allocated to this service during the transition of governance from Alfred Health to the Royal Women's Hospital.

The process described by Alfred Health for costing critical areas indicates that costs are captured in accordance with the applicable standard.

9.3.6 Costing public and private patients

Alfred Health does not adjust costs for 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.

9.3.7 Treatment of specific items

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

Table 31 – Treatment of specific items – Alfred 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 NHCDC.</p>

Item	Treatment
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 reported where it is utilised as part of the treatment of patients.</p>
Shared/Other commercial entities	Any expenditure associated with these activities is excluded by the health service for costing purposes.

Source: KPMG, based on IFR discussions

9.3.8 Sample patient data

IHPA selected a sample of five patients from Alfred Health for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. DHHS provided the patient level costs for all five patients and these reconciled to IHPA records.

Table 32 – Sample patients – Alfred Health

#	Product	Jurisdiction Records	Received by IHPA	Variance
1	OG	\$14,173.46	\$14,173.46	\$-
2	MC	\$11,941.44	\$11,941.44	\$-
3	MC	\$3,124.34	\$3,124.34	\$-
4	AC	\$128.38	\$128.38	\$-
5	AE	\$4,280.35	\$4,280.35	\$-

Source: KPMG, based on Alfred Health and IHPA data

9.4 Bairnsdale Regional Health Service

9.4.1 Overview

The Bairnsdale Regional Health Service is located in the East Gippsland region of Victoria and has approximately 80 admitted beds which are split between acute and subacute admitted, day oncology and day dialysis. There are two theatres, an emergency department and specialist consulting rooms.

The service is comprised of three sites (Day Street, Ross Street and the Bairnsdale CBD). Other services provided include:

- Health Independence Program;
- HACC (Home and Community Care), SACS (Subacute Ambulatory Care Services) and CHSP (Commonwealth Home Support Program);
- Outpatient dental;
- 90 bed aged residential care (excluded from costing) - co-located on the same physical site as the hospital;
- Medical imaging (in-house); and
- Multiple Tier 2 clinics (both medical and nurse led).

The 2016-17 year was the first year that the costing was conducted in-house. As a result of the change of process, i.e. larger number of allocations, the final costed outputs would appear different from last year's submission.

Bairnsdale Regional Health Service uses PPM2 for costing and the health service worked closely with PPM, together with the assistance of other costing staff in Victorian hospitals, to help analyse general ledger and feeder data. As a result the health service has costed more areas than previous years and will continue to refine the costing process.

Financial data

For the Round 21 IFR, the data collection templates were completed and submitted by Bairnsdale Regional Health Service representatives with assistance from DHHS representatives.

Table 33 presents a summary of the Bairnsdale Regional Health Service's costs, from the original extract from the GL through to the final NHCDC submission for Round 21.

This section discusses major variances in the reconciliation process. The information is based on the Bairnsdale Regional Health Service templates and review discussions. Detailed commentary against each of the reconciliation items including adjustments, inclusions and exclusions to the GL is provided in Round 21 IFR Report: Supplementary Information.

- Inclusions made to the GL were (\$2.60 million), the significant portion of which were revenue offsets of the following:
 - Salary recoveries – (\$870,121)
 - Non-salary recoveries – (\$261,939)
 - Rental income – consulting rooms & staff accommodations – (\$409,419)
 - Staff cafeteria income – (\$182,924)
 - GHA Income (regional IT alliance) – (\$1.26 million)
 - Salary packaging admin fee income – (\$189,136)
 - Sale of goods & services – (\$463,566)
 - Meals on Wheels – (\$147,901)
 - TCP Grant - LaTrobe Regional Hospital – (\$199,297).

Table 33 – Round 21 NHCDC Reconciliation – Bairnsdale Regional Health Service

Hospital			Jurisdiction			IHPA		
Item	Amount	% of GL	Item	Amount		Item	Amount	
A General Ledger (GL)	\$ 84,453,128		F Costed Products received by jurisdiction	\$ 82,057,321		I Total costed products received by IHPA	\$ 60,074,028	
			Variance	\$ (0)		Variance	\$ (0)	
B Adjustments to the GL			G Final Adjustments			J IHPA Adjustments		
Inclusions	\$ (2,599,523)		QA checks	\$ (540,789)		Admitted ED reallocations	\$ 5,727,731	
Exclusions	\$ -		Out of scope	\$ (21,397,373)		Final NHCDC costs	\$ 65,801,758	
Total hospital expenditure	\$ 81,853,605	96.88%	Not linked to activity	\$ (45,132)				
			Total costs submitted to IHPA	\$ 60,074,028				
C Allocation of Costs								
Post Allocation Direct amount	\$ 62,981,993							
Post Allocation Overhead amount	\$ 18,871,612							
Total hospital expenditure	\$ 81,853,605	96.92%						
Variance	\$ (0)	0.00%						
D Post Allocation Adjustments								
WIP Excluded	\$ (305,415)							
WIP Included	\$ 510,502							
Episodes not mapped	\$ (1,371)							
Total expenditure allocated to patients	\$ 82,057,321	97.16%						
E Costed products submitted to jurisdiction			H Costed products submitted to IHPA			K Final NHCDC costed products		
Acute and Newborns	\$ 42,618,899		Acute and Newborns	\$ 36,782,171		Acute^ and Newborns	\$ 42,501,430	
Non-admitted	\$ 5,851,133		Non-admitted	\$ 2,753,475		Non-admitted	\$ 2,753,475	
Emergency	\$ 15,287,574		Emergency	\$ 15,242,443		Emergency	\$ 15,242,443	
Sub Acute	\$ -		Sub Acute	\$ 5,295,939		Sub Acute^	\$ 5,304,410	
Mental Health	\$ -		Mental Health	\$ -		Mental Health		
Other	\$ 18,299,715		Other	\$ -		Other		
Research	\$ -		Research	\$ -		Research		
Teaching & Training	\$ -		Teaching & Training	\$ -		Teaching & Training		
System-generated patients	\$ -		System-generated patients	\$ -		System-generated patients		
	\$ 82,057,321	97.16%		\$ 60,074,028			\$ 65,801,758	
Variance	\$ 1	0.000%	Variance	\$ (0)		Variance	\$ 0	

Source: KPMG based on data supplied by the Bairnsdale Regional Health Service, jurisdiction and IHPA.

^ These figures include admitted emergency costs.

9.4.2 Activity data

DHHS staff were able to reconcile the activity from source data systems to that which was costed and included in the NHCDC submission. The review examined patient activity data based on source and costing systems for the Bairnsdale Regional Health Service. This activity data was then compared to the transfer of activity data by NHCDC product from the Bairnsdale Regional Health Service to DHHS and then through to IHPA submission and finalisation.

The following should be noted about the activity reported:

- There was a variance between the number of records from source systems (68,791 records) and activity related to 2016-17 costs by NHCDC product (112,542), of 43,751 records. The majority of the variance related to other non-admitted activity that is unable to be mapped to other VCDC programs. It also includes activity generated as part of imaging or pathology tests that remain unlinked or unallocated.
- Adjustments made by DHHS related to the mapping of VCDC products to NHCDC products, the exclusion of records that failed validation tests and other non-admitted activity (detailed in Item G of the reconciliation).

The *Round 21 IFR Report: Supplementary Information* contains the detailed activity data for the Bairnsdale Regional Health Service.

9.4.3 Feeder data

Bairnsdale Regional Health Service representatives were able to provide the independent review team with the feeder system information used in the cost allocation process.

Across the Bairnsdale Regional Health Service there are 16 feeders which represent the major hospital departments that provide resources. All of the feeders had a 100 percent matching rate. However, the radiology and pharmacy feeders had a number of records linked to Other. This was a result of walk-ups which could be for follow up scans or GP referrals. Considering all of the feeders have 100 percent matching, this suggests that there is robustness in the level of feeder activity reported back to episodes.

The *Round 21 IFR Report: Supplementary Information* presents the feeder data that the Bairnsdale Regional Health Service used in the costing process.

9.4.4 Treatment of WIP

The Bairnsdale Regional Health Service submits costs for all patients discharged within the 2016-17 year. Where these patients have been admitted in prior year(s) those costs are also submitted. For patients still admitted as at 30 June 2017, the accumulated costs for these patients are not submitted to the NHCDC.

9.4.5 Critical care

There are no critical care units at the Bairnsdale Regional Health Service.

9.4.6 Costing public and private patients

The Bairnsdale Regional Health Service does not make specific adjustments to the costing methodology, based on the financial classification of the patient.

9.4.7 Treatment of specific items

The review team discussed a number of items during the review to understand their treatment in the costing process. The cost data is used to inform the NEP and specific funding model adjustments for particular patient cohorts. The Bairnsdale Regional Health Service's treatment of each of the items is summarised below.

Table 34 – Treatment of specific items – Bairnsdale Regional Health Service

Item	Treatment
Research	Not applicable as no research is undertaken.
Teaching and Training	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. Embedded teaching is reported where it is utilised as part of the treatment of patients.
Shared/Other commercial entities	Any expenditure associated with these activities is excluded by the hospital for costing purposes.

Source: KPMG, based on IFR discussions

9.4.8 Sample patient data

IHPA selected a sample of five patients from Bairnsdale Regional Health Service for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. DHHS provided the patient level costs for all five patients and these reconciled to IHPA records.

Table 35 – Sample patients – Bairnsdale Regional Health Service

#	Product	Jurisdiction Records	Received by IHPA	Variance
1	RH	\$ 2,673.87	\$ 2,673.87	\$ -
2	NB	\$ 1,333.60	\$ 1,333.60	\$ -
3	NE	\$ 177.01	\$ 177.01	\$ -
4	AE	\$ 276.45	\$ 276.45	\$ -
5	AE	\$ 795.05	\$ 795.05	\$ -

Source: KPMG, based on the Bairnsdale Regional Health Service and IHPA data

9.5 Application of AHPCS Version 3.1

Based on the site visit and review templates, DHHS demonstrated application of all selected standards from Version 3.1 of the AHPCS in both the Alfred Health and Bairnsdale Regional Health Service's Round 21 NHCD submission's. Application and commentary against each standard is provided in Round 21 IFR Report: Supplementary Information.

9.6 Conclusion

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, DHHS has suitable reconciliation processes in place and the financial data is considered fit for NHCD submission.

10. Western Australia

10.1 Summary of key findings

The Western Australian NHCDC process is a shared responsibility between the 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 at each of the WA Area Health Services, where the AHS is responsible for the preparation and submission 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.

The findings of the Western Australian Round 21 IFR are summarised below:

Fiona Stanley Hospital

- There was a variance of \$7.57 million between the audited financial statements and final GL. As per advice from WA Health the variance relates to a change in accounting practices for the treatment of internal service recoups. This item was previously treated as a revenue item, which was then used to offset the gross expenditure amount reported within the income statement. This item is now directly off-set against gross expenditure amount and no longer appears as a revenue item.
- There was no variance recorded between the number of records from source systems and activity related to 2016-17 costs by NHCDC product (593,910 records in total).
- The variance of 15,913 records between the records from source detailed in Table 10 (593,910 records) and activity related to 2016-17 costs by NHCDC product in Table 11 (577,997 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.
- Fiona Stanley Hospital complied with all in-scope Australian Hospital Patient Costing Standards (AHPCS) Version 3.1.
- Based on this methodology and in accordance with the limitations identified in Section 1.1, Fiona Stanley Hospital has suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission

Princess Margaret Hospital

- The final GL reconciled to the audited financial statements as per advice from WA Health representatives and reported in the template. The starting point for PMH was \$376.36 million.
- There are five feeders utilised by PMH and they appear to represent the major clinical support departments providing resource activity.
- All feeders had 100 percent of their records linked from source to hospital product. This suggests that there is robustness in the level of feeder activity reported back to episodes.

- As per the costing process, a number of records are linked to system-generated patients. The largest related to Pharmacy (7.34% linked to system-generated patients) and Pathology (4.92% linked to system-generated patients)
- Princess Margaret Hospital complied with all in-scope Australian Hospital Patient Costing Standards (AHPCS) Version 3.1.
- Based on this methodology and in accordance with the limitations identified in Section 1.1, Princess Margaret Hospital has suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission

Carnarvon Hospital

- The final GL extracted from the financial system was for the WA Country Health Service, which includes Carnarvon Hospital. This expenditure totalled \$1.768 billion. The amount reported in the audited financial statement was \$1.783 billion. A variance of \$14.79 million was associated with Internal / External Service Recoups (\$13.63 million) and WACHS - Corporate Overhead Reversal (\$1.16 million).
- There are two feeders utilised by Carnarvon Hospital (Theatre and Pathology). The Theatre feeder had 98.60 per cent of their records linked from source to hospital product, and the Pathology feeder had a 100 per cent record linkage. This suggests that there is robustness in the level of feeder activity reported back to episodes. The Pathology feeder had 7.82 per cent of data linked to system-generated patients.
- Carnarvon Hospital complied with all in-scope Australian Hospital Patient Costing Standards (AHPCS) Version 3.1.
- Based on this methodology and in accordance with the limitations identified in Section 1.1, Carnarvon Hospital has suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission

10.2 Jurisdictional overview

10.2.1 Management of NHCDC process

The Western Australian NHCDC process is a shared responsibility between the 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 at each of the WA Area Health Services, where the AHS is responsible for the preparation and submission of their own cost data to WA Health based on the Accrued Operating Expenditure data contained in the Audited Financial Statements. The costed dataset includes cost centre, line item, and product type. 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). Finally, a QA process is undertaken and all issues are resolved 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 the following hospitals to participate in the Round 21 IFR:

- Fiona Stanley Hospital;
- Princess Margaret Hospital; and
- Carnarvon Hospital.

Key initiatives since Round 20 NHCDC

WA Health advised that there have been no major changes since the Round 20 NHCDC submission. WA Health representatives noted that the WA Health Costing Guidelines are currently being updated to align with AHPCS Version 4.0.

10.3 Fiona Stanley Hospital

10.3.1 Overview

Fiona Stanley Hospital (FSH) is part of the Fiona Stanley Fremantle Hospitals Group and part of the South Metropolitan Health Service (SMHS) hospital network. The 783-bed public hospital includes the 140-bed State Rehabilitation Service, a 30-bed purpose-built mental health unit and the State Burns Service. It is the major tertiary hospital in the southern metropolitan area of Perth.

10.3.2 Application of AHPCS Version 3.1

Based on the site visit and review templates, WA Health demonstrated application of selected standards from Version 3.1 of the AHPCS in the Fiona Stanley's Round 21 NHCDC submission. Application and commentary against each standard is provided in Appendix A.

10.3.3 Financial data

Data collection templates for Round 21 were completed and submitted by WA Health's Information and System Performance Directorate on behalf of Fiona Stanley Hospital. Representatives from the WA Health Information and System Performance Directorate attended and participated in consultation process during the review, as well as the costing staff from the hospital.

Table 12 presents a summary of Fiona Stanley Hospital's costs, from the original extract from the GL through to the final NHCDC submission for Fiona Stanley Hospital for Round 21.

Table 36 – Round 21 NHCDC Reconciliation – Fiona Stanley Hospital

Hospital			Jurisdiction		IHPA	
Item	Amount	% of GL	Item	Amount	Item	Amount
A General Ledger (GL)	\$ 1,811,282,852		F Costed Products received by jurisdiction	\$ 1,156,513,651	I Total costed products received by IHPA	\$ 1,059,273,208
			<i>Variance</i>	\$ -	<i>Variance</i>	\$ (3)
B Adjustments to the GL			G Final Adjustments		J IHPA Adjustments	
<i>Inclusions</i>	\$ 8,421,226		<i>System-generated patients</i>	\$ (18,812,178)	<i>Admitted ED reallocations</i>	\$ 48,191,181
<i>Exclusions</i>	\$ (15,603,734)		<i>WIP 2015-16</i>	\$ 24,732,782	Final NHCDC costs	\$ 1,107,464,390
Total hospital expenditure	\$ 1,804,100,344	99.60%	<i>ED removed from WIP</i>	\$ (100,868)		
C Allocation of Costs			<i>Closing WIP</i>	\$ (39,548,075)		
<i>Post Allocation Direct amount</i>	\$ 715,855,914		<i>Unmated ED</i>	\$ (2,888)		
<i>Post Allocation Overhead amount</i>	\$ 456,113,864		<i>Unmatched outpatients</i>	\$ (8,415,249)		
Total hospital expenditure	\$ 1,171,969,778	64.70%	<i>Unmatched inpatients</i>	\$ (2,737,538)		
<i>Variance</i>	\$ (632,130,566)	-34.90%	<i>Teaching, Training and Research</i>	\$ (52,356,425)		
D Post Allocation Adjustments			Total costs submitted to IHPA	\$ 1,059,273,211		
<i>Non hospital programs</i>	\$ (15,456,156)					
Total expenditure allocated to patients	\$ 1,156,513,622	63.85%	H Costed products submitted to IHPA		K Final NHCDC costed products	
E Costed products submitted to jurisdiction			<i>Acute and Newborns</i>	\$ 749,784,823	<i>Acute^ and Newborns</i>	\$ 797,073,361
<i>Acute and Newborns</i>	\$ 750,393,757		<i>Non-admitted</i>	\$ 125,733,755	<i>Non-admitted</i>	\$ 125,733,755
<i>Non-admitted</i>	\$ 133,889,652		<i>Emergency</i>	\$ 86,378,026	<i>Emergency</i>	\$ 86,378,026
<i>Emergency</i>	\$ 86,475,688		<i>Sub Acute</i>	\$ 67,842,450	<i>Sub Acute^</i>	\$ 67,851,717
<i>Sub Acute</i>	\$ 69,758,994		<i>Mental Health</i>	\$ 29,290,250	<i>Mental Health</i>	\$ 30,183,626
<i>Mental Health</i>	\$ 29,134,942		<i>Other</i>	\$ 243,905	<i>Other</i>	\$ 243,905
<i>Other</i>	\$ 15,021,999		<i>Research</i>	\$ -	<i>Research</i>	\$ -
<i>Research</i>	\$ 10,089,371		<i>Teaching & Training</i>	\$ -	<i>Teaching & Training</i>	\$ -
<i>Teaching & Training</i>	\$ 43,192,085		<i>System-generated patients</i>	\$ -	<i>System-generated patients</i>	\$ -
<i>System-generated patients</i>	\$ 18,557,163		Variance	\$ (3)	Variance	\$ -
Variance	\$ 29	0.000%				

Source: KPMG based on data supplied by Fiona Stanley Hospital, WA Health and IHPA

^ These figures include admitted emergency costs.

10.3.4 Explanation of reconciliation items

This section discusses major variances in the reconciliation process. The information is based on Fiona Stanley Hospital's templates and review discussions. Detailed commentary against each of the reconciliation items including adjustments, inclusions and exclusions to the GL is provided in Appendix A.

- There was a variance of \$7.57 million between the audited financial statements and final GL. As per advice from WA Health the variance relates to a change in accounting practices for the treatment of internal service recoups. This item was previously treated as a revenue item, which was then used to offset the gross expenditure amount reported within the income statement. This item is now directly off-set against gross expenditure amount and no longer appears as a revenue item.
- It was observed that the total of all direct cost centres of \$715.86 million was allocated. Overhead cost centres totalled \$379.27 million. These amounts totalled \$1.096 billion and related to Fiona Stanley Hospital only (60.46 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 \$632.13 million between Item B and Item C.
- A variance of \$97.24 million was noted between total expenditure allocated to patients under Item D and costed products submitted to the jurisdiction.

10.3.5 Activity data

There were variances in the FSH activity data from source data systems to that which was costed and included in the NHCDC submission. The variances relate to WIP encounters and non-admitted activity that is out of scope for ABF. The review examined patient activity data based on source and costing systems for the hospital. This activity data was then compared to the transfer of activity data by NHCDC product from Fiona Stanley Hospital to WA Health and then through to IHPA submission and finalisation.

The following should be noted about the activity reported for Fiona Stanley Hospital (see Appendix A):

- There was no variance recorded between the number of records from source systems and activity related to 2016-17 costs by NHCDC product (593,910 records in total).
- The variance of 15,914 records between the records from source (593,910 records) and activity related to 2016-17 costs by NHCDC product (577,996 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.
- Adjustments were made by WA Health to the activity associated with the 2016-17 costs prior to submission to IHPA (removal of 2,553 WIP records).

Appendix A presents patient activity data based on source and costing systems for Fiona Stanley Hospital. The transfer of activity data by NHCDC product Fiona Stanley Hospital to WA Health and then through to IHPA is also provided in Appendix A.

10.3.6 Feeder data

Fiona Stanley Hospital representatives provided the independent review team with the feeder system information used in the cost allocation process. Fiona Stanley Hospital representatives indicated that the majority of the extracts used within the costing process are taken from hospital source systems. Data cleansing, reconciling and reporting is undertaken by Fiona Stanley Hospital staff and used for costing purposes.

Appendix A presents the feeder data that Fiona Stanley Hospital utilises in the costing process and the following should be noted:

- There are eight feeders utilised by Fiona Stanley Hospital and they appear to represent the major hospital departments providing resource activity.
- All feeders had 100 percent of their records linked from source to hospital product. This suggests that there is robustness in the level of feeder activity reported back to episodes.
- As per the costing process, a number of records are linked to system-generated patients. The largest related to Pharmacy (4.32% linked to system-generated patients), Radiology (3.83%) and Pathology (3.15% linked to system-generated patients).

10.3.7 Treatment of WIP

Fiona Stanley Hospital submitted costs for admitted and discharged patients in 2016-17 and WIP costs for those patients admitted in 2015-16 and discharged in 2016-17. There was no indexation applied to any of these costs.

10.3.8 Critical care

Fiona Stanley Hospital has a 40-bed Intensive Care Unit (ICU) and standalone Coronary Care Unit (CCU). The hospital has a High Dependency Unit which is combined with the ICU. The hospital does not have any Close Observation Units located in wards in the hospital. All direct costs associated with ICU / HDU and CCU are allocated to specific ICU / HDU and CCU cost centres. There is no way to differentiate between ICU and HDU bed types. Critical care costs are captured in accordance with the applicable standard.

10.3.9 Costing public and private patients

Fiona Stanley 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, medical imaging, prosthesis and medical costs, in the same manner as public patients. Private patient revenue is not offset against any related expenditure as per the standard.

This aligns with the intent and principles of the AHPCS Version 3.1 for costs allocated to public and private patients treated by the hospital.

10.3.10 Treatment of specific items

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

Table 37 – Treatment of specific items – Fiona Stanley 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	Fiona Stanley Hospital does not have shared services or commercial entities.

Source: KPMG, based on IFR discussions

10.3.11 Sample patient data

IHPA selected a sample of five patients from Fiona Stanley 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.

Table 38 – Sample patients – Fiona Stanley Hospital

#	Product	Jurisdiction Records	Received by IHPA	Variance
1	MA	\$3,358.51	\$3,358.51	\$-
2	MA	\$13,939.98	\$13,939.98	\$-
3	PC	\$19,613.45	\$19,613.45	\$-
4	AC	\$4,605.87	\$4,605.87	\$-
5	OP	\$6.91	\$6.91	\$-

Source: KPMG, based on WA Health and IHPA data

10.4 Princess Margaret Hospital

10.4.1 Overview

The Princess Margaret Hospital forms part of the Child and Adolescent Health Service. Perth Children's Hospital (PCH) has since replaced Princess Margaret Hospital (PMH) (which is now closed) as Western Australia's specialist paediatric hospital and trauma centre, providing medical care to children and adolescents up to 16 years of age.

10.4.2 Application of AHPCS Version 3.1

Based on the site visit and review templates, WA Health demonstrated application of selected standards from Version 3.1 of the AHPCS in PMH's Round 21 NHCDC submission. Application and commentary against each standard is provided in Appendix A.

10.4.3 Financial data

Data collection templates for Round 21 were completed and submitted by WA Health on behalf of PMH representatives. Representatives from WA Health and PMH attended and participated in the consultation process during the review.

This section discusses major variances in the reconciliation process. The information is based on PMH templates and review discussions. Detailed commentary against each of the reconciliation items including adjustments, inclusions and exclusions to the GL is provided in Appendix A.

- The final GL reconciled to the audited financial statements as per advice from WA Health representatives and reported in the template. The starting point for CAHS was \$555.10 million. Of this, \$376.36 million related to PMH.
- It was observed that the total of all direct cost centres of \$285.14 million was allocated. Overhead cost centres totalled \$91.21 million. These amounts totalled \$376.36 million and related to PMH.

Table 39 – Round 21 NHCDC Reconciliation – Princess Margaret Hospital

Hospital			Jurisdiction			IHPA		
Item	Amount	% of GL	Item	Amount		Item	Amount	
A General Ledger (GL)	\$ 376,355,469		F Costed Products received by jurisdiction	\$ 376,355,469		I Total costed products received by IHPA	\$ 340,049,221	
			<i>Variance</i>	\$ -		<i>Variance</i>	\$ 1	
B Adjustments to the GL			G Final Adjustments			J IHPA Adjustments		
<i>Inclusions</i>			System-generated patients	\$ (5,556,137)		UQB removals	\$ (31,216)	
<i>Exclusions</i>	\$ -		WIP 2015-16	\$ 6,079,860		Admitted ED reallocations	\$ 13,502,821	
Total hospital expenditure	\$ 376,355,469	100.00%	ED removed from WIP	\$ (20,722)		Final NHCDC costs	\$ 353,520,827	
C Allocation of Costs			Closing WIP	\$ (10,498,208)				
Post Allocation Direct amount	\$ 285,141,809		Unmatched outpatients	\$ (3,634,234)				
Post Allocation Overhead amount	\$ 91,213,658		Unmatched inpatients	\$ (150,661)				
Total hospital expenditure	\$ 376,355,466	100.00%	Teaching, Training and Research	\$ (22,526,147)				
<i>Variance</i>	\$ (3)	0.00%	Total costs submitted to IHPA	\$ 340,049,220				
D Post Allocation Adjustments								
Nil	\$ -							
Total expenditure allocated to patients	\$ 376,355,466	100.00%						
E Costed products submitted to jurisdiction			H Costed products submitted to IHPA			K Final NHCDC costed products		
Acute and Newborns	\$ 215,060,819		Acute and Newborns	\$ 211,616,071		Acute^ and Newborns	\$ 225,025,522	
Non-admitted	\$ 82,319,745		Non-admitted	\$ 78,816,777		Non-admitted	\$ 78,816,777	
Emergency	\$ 34,616,465		Emergency	\$ 34,597,317		Emergency	\$ 34,597,317	
Sub Acute	\$ 2,059		Sub Acute	\$ 2,059		Sub Acute^	\$ 2,059	
Mental Health	\$ 14,924,018		Mental Health	\$ 14,907,000		Mental Health	\$ 14,969,156	
Other	\$ 861,973		Other	\$ 109,996		Other	\$ 109,996	
Research	\$ 4,691,517		Research	\$ -		Research		
Teaching & Training	\$ 18,411,724		Teaching & Training	\$ -		Teaching & Training		
System-generated patients	\$ 5,467,149		System-generated patients	\$ -		System-generated patients		
Total expenditure	\$ 376,355,469	100.00%	Total expenditure	\$ 340,049,221		Total expenditure	\$ 353,520,827	
<i>Variance</i>	\$ 3	0.000%	<i>Variance</i>	\$ 1		<i>Variance</i>	\$ (0)	

Source: KPMG based on data supplied by WA Health and IHPA

^ These figures include admitted emergency costs.



10.4.4 Activity data

There were variances in the PMH activity data from source data systems to that which was costed and included in the NHCDC submission. The variances relate to WIP encounters and non-admitted activity that is out of scope for ABF. The review examined patient activity data based on source and costing systems for the hospital. This activity data was then compared to the transfer of activity data by NHCDC product from Princess Margaret Hospital to WA Health and then through to IHPA submission and finalisation.

The following should be noted about the activity reported for PMH (see Appendix A):

- There was no variance recorded between the number of records from source systems and activity related to 2016-17 costs by NHCDC product (323,120 records in total).
- There was a variance of 50,469 records between the records from source (323,120 records) and activity related to 2016-17 costs by NHCDC product (272,651 records). WA Health representatives indicated that this relates to:
 - 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;
 - cancelled records that occurred after the dataset was for costing;
 - Allied Health Encounters, as these are captured in a separate system;
 - ED Patients with 'No URG', 'Unknown Outcomes' and 'Did not Wait' status which are not costed; and
 - Mental Health Patients
 - Child clinics and Non-Admitted encounters are not costed
 - Admitted at Bentley Hospital and not PMH.
- The adjustments made by IHPA to the Acute and Newborns product group related to UQB removals (5 records) as discussed in Item J of the explanation of reconciliation items.

Appendix A presents patient activity data based on source and costing systems for PMH. The transfer of activity data by NHCDC product from PMH to WA Health and then through to IHPA is also provided in Appendix A.

10.4.5 Feeder data

PMH representatives provided the independent review team with the feeder system information used in the cost allocation process. PMH representatives indicated that the majority of the extracts used within the costing process are taken from hospital source systems. Data cleansing, reconciling and reporting is undertaken by PMH staff and used for costing purposes.

Appendix A presents the feeder data that PMH utilises in the costing process and the following should be noted:

- There are five feeders utilised by PMH and they appear to represent the major clinical support departments providing resource activity.
- All feeders had 100 percent of their records linked from source to hospital product. This suggests that there is robustness in the level of feeder activity reported back to episodes.



- As per the costing process, a number of records are linked to system-generated patients. The largest related to Pharmacy (7.34% linked to system-generated patients) and Pathology (4.92% linked to system-generated patients).

10.4.6 Treatment of WIP

PMH submitted costs for admitted and discharged patients in 2016-17 and WIP costs for those patients admitted in 2015-16 and discharged in 2016-17. There was no indexation applied to these costs.

10.4.7 Critical care

PMH has 6 ICU beds in the Paediatric Intensive Care Unit (PICU) and the neonatal ward has 25 beds, 15 of which were ICU beds (NICU). 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 a specific ICU cost centre.

10.4.8 Costing public and private patients

PMH 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.

There are no adjustments made to expenditures for medical officers 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 intent and principles of the AHPCS Version 3.1 for costs allocated to public and private patients treated by the hospital.

10.4.9 Treatment of specific items

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

Table 40 – Treatment of specific items – PMH

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	PMH does not have shared services or commercial entities.

Source: KPMG, based on IFR discussions



10.4.10 Sample patient data

IHPA selected a sample of five patients from Princess Margaret 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.

Table 41 – Sample patients – PMH

#	Product	Jurisdiction Records	Received by IHPA	Variance
1	AC	\$2,902.48	\$2,902.48	\$-
2	NB	\$8,431.22	\$8,431.22	\$-
3	MC	\$19,626.43	\$19,626.43	\$-
4	OP	\$433.22	\$433.22	\$-
5	AE	\$940.26	\$940.26	\$-

Source: KPMG, based on WA Health and IHPA data

10.5 Carnarvon Hospital

10.5.1 Overview

The Carnarvon Health Campus encompasses an Emergency Department (ED) with two resuscitation bays, four treatment bays, central nursing station, three consulting rooms, 10 acute beds and 15 residential aged care beds. There is a four-chair renal dialysis service and various outpatient facilities.

10.5.2 Application of AHPCS Version 3.1

Based on the site visit and review templates, WA Health demonstrated application of selected standards from Version 3.1 of the AHPCS in Carnarvon Hospital's Round 21 NHCD submission. Application and commentary against each standard is provided in Appendix A.

10.5.3 Financial data

Data collection templates for Round 21 were completed and submitted by WA Health on behalf of Carnarvon Hospital. Representatives from the WA Country Health Service attended and participated in the consultation process during the review.

This section discusses major variances in the reconciliation process. The information is based on Carnarvon Hospital's templates and review discussions.

- The final GL extracted from the financial system was for the WA Country Health Service, which includes Carnarvon Hospital. This expenditure totalled \$1.768 billion. The amount reported in the audited financial statement was \$1.783 billion. A variance of \$14.79 million was associated with Internal / External Service Recoups (\$13.63 million) and WACHS - Corporate Overhead Reversal (\$1.16 million).
- It was observed that the total of all direct cost centres of \$15.31 million was allocated.
- It was observed through the templates that all overheads of \$12.81 million were allocated to direct cost centres.
- These amounts reconciled to \$28.12 million and related to Carnarvon Hospital only (1.59 percent of the WA Country Health Service GL) as reported in the templates. The



allocation of costs occurs in WA Country Health Service PPM2 system at a whole of AHS level, which has resulted in a variance of \$1.754 billion between Item B and Item C. This variance related to other facilities within WA Country Health Service.

- Item D Post Allocation Adjustments relating to previous year WIP appeared reasonable.

Table 18 presents a summary of WA Country Health Service costs, from the original extract from the GL through to the final NHCDC submission for Carnarvon Hospital for Round 21.



Table 42 – Round 21 NHCDC Reconciliation – Carnarvon Hospital

Hospital			Jurisdiction		IHPA	
Item	Amount	% of GL	Item	Amount	Item	Amount
A General Ledger (GL)	\$ 1,768,281,308		F Costed Products received by jurisdiction	\$ 27,718,463	I Total costed products received by IHPA	\$ 22,419,370
			<i>Variance</i>	\$ -	<i>Variance</i>	\$ (0)
B Adjustments to the GL			G Final Adjustments		J IHPA Adjustments	
<i>Inclusions</i>	\$ 14,789,170		System-generated patients	\$ (90,249)	Admitted ED reallocations	\$ 2,230,515
<i>Exclusions</i>	\$ -		WIP 2015-16	\$ 226,820	Final NHCDC costs	\$ 24,649,885
Total hospital expenditure	\$ 1,783,070,478	100.84%	ED removed from WIP	\$ (9,695)		
			Closing WIP	\$ (4,478,188)		
C Allocation of Costs			Unmatched outpatients	\$ (10,408)		
Post Allocation Direct amount	\$ 15,305,391		Unmatched inpatients	\$ (937,307)		
Post Allocation Overhead amount	\$ 12,809,809		Teaching, Training and Research	\$ (65)		
Total hospital expenditure	\$ 28,115,200	1.59%	Total costs submitted to IHPA	\$ 22,419,371		
<i>Variance</i>	<i>\$ (1,754,955,278)</i>	-99.25%				
D Post Allocation Adjustments			H Costed products submitted to IHPA		K Final NHCDC costed products	
WIP	\$ (98,433)		Acute and Newborns	\$ 8,354,166	Acute^ and Newborns	\$ 10,577,577
Data mismatch	\$ (264,664)		Non-admitted	\$ 1,701,744	Non-admitted	\$ 1,701,744
Total expenditure allocated to patients	\$ 27,752,103	1.57%	Emergency	\$ 11,730,369	Emergency	\$ 11,730,369
			Sub Acute	\$ 633,092	Sub Acute^	\$ 640,196
E Costed products submitted to jurisdiction			Mental Health	\$ -	Mental Health	
Acute and Newborns	\$ 8,429,564		Other	\$ -	Other	
Non-admitted	\$ 1,712,151		Research	\$ -	Research	
Emergency	\$ 11,740,064		Teaching & Training	\$ -	Teaching & Training	
Sub Acute	\$ 727,327		System-generated patients	\$ -	System-generated patients	
Mental Health	\$ -					
Other	\$ 5,019,046					
Research	\$ 59					
Teaching & Training	\$ 3					
System-generated patients	\$ 90,249					
	\$ 27,718,463	1.57%		\$ 22,419,370		\$ 24,649,885
<i>Variance</i>	<i>\$ (33,640)</i>	-0.002%	<i>Variance</i>	<i>\$ (0)</i>	<i>Variance</i>	<i>\$ -</i>

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

^ These figures include admitted emergency costs.



10.5.4 Activity data

Carnarvon Hospital were able to reconcile the activity from source data systems to that which was costed and included in the NHCDC submission. The review examined patient activity data based on source and costing systems for the hospital. This activity data was then compared to the transfer of activity data by NHCDC product from the Carnarvon Hospital to WA Health and then through to IHPA submission and finalisation.

The following should be noted about the activity reported for Carnarvon Hospital:

- There was no variance recorded between the number of records from source systems and activity related to 2016-17 costs by NHCDC product (21,785 records in total). The 4,586 unlinked records relate to the following:
 - The 4,565 unlinked Outpatients records relates to the source system for outpatient records including the capture of community-based “outpatient” services that are excluded during the costing process. These services are not a part of reportable public hospital activity.
 - The (2) unlinked records in ED relates to a configuration issue in PPM for 2016-17, which created 2 additional emergency department records in error. This issue has been rectified for 2017-18.
 - The 23 unlinked records relates to the source system for Inpatient records including episodes that have been recorded as Boarders, Unqualified Newborns or NULL Episode of Care values which are excluded by local business rules during the costing process.
- There was a variance of 809 records between the records from source (17,199 records) and activity related to 2016-17 costs by NHCDC product (18,008 records). WA Health representatives indicated that this relates to ancillary services that cannot be attached to an episode, also referred to as system generated patients.
- Adjustments were made by WA Health to the activity associated with WIP prior to submission to IHPA.

The *Round 21 IFR Report: Supplementary Information* presents patient activity data based on source and costing systems for Carnarvon Hospital. The transfer of activity data by NHCDC product from Carnarvon Hospital to WA Health and then through to IHPA is also provided in the *Round 21 IFR Report: Supplementary Information*.

10.5.5 Feeder data

Appendix A presents the feeder data that WA Health utilises in the costing process and the following should be noted about the feeder data for Carnarvon Hospital:

- There are two feeders utilised by Carnarvon Hospital (Theatre and Pathology).
- The Theatre feeder had 98.60 per cent of their records linked from source to hospital product, and the Pathology feeder had a 100 per cent record linkage. This suggests that there is robustness in the level of feeder activity reported back to episodes.
- The Pathology feeder had 7.82 per cent of data linked to system-generated patients.

10.5.6 Treatment of WIP

Carnarvon Hospital submitted costs for admitted and discharged patients in 2016-17 and WIP costs for those patients admitted in 2015-16 and discharged in 2016-17. There was no indexation applied to these costs.

Carnarvon Hospital does not provide critical care services.

10.5.8 Costing public and private patients

Carnarvon 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, medical imaging, prosthesis and medical costs, in the same manner as public patients. Private patient revenue is not offset against any related expenditure.

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 intent and principles of the AHPCS Version 3.1 for costs allocated to public and private patients treated by the hospital.

10.5.9 Treatment of specific items

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

Table 43 – Treatment of specific items – Carnarvon 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	Carnarvon Hospital does not have shared services or commercial entities.

Source: KPMG, based on IFR discussions

10.5.10 Sample patient data

IHPA selected a sample of five patients from Carnarvon 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.



Table 44 – Sample patients – Carnarvon Hospital

#	Product	Jurisdiction Records	Received by IHPA	Variance
1	NB	\$ 192.60	\$ 192.60	\$ -
2	NB	\$ 27.72	\$ 27.72	\$ -
3	OP	\$ 22.65	\$ 22.65	\$ -
4	AE	\$ 2,103.96	\$ 2,103.96	\$ -
5	NE	\$ 545.16	\$ 545.16	\$ -

Source: KPMG, based on WA Health and IHPA data

10.6 Conclusion

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 is considered fit for NHCDC submission.



11. IHPA Process

11.1 Overview

KPMG reviewed IHPA's process for compiling the Round 21 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 21 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 20 NHCDC

IHPA noted the following improvements to the NHCDC and processes since Round 20:

- Following implementation of the cloud-based data submission portal in Round 20, IHPA continued enhancement on the portal to focus on the portal driving the analytical process, including adding a QA reporting feature. For the first time, Jurisdictions can now view the Reconciliation Worksheet in the QA reports.
- The DRS was expanded to accommodate activity for mental health care types. IHPA continues to encourage jurisdictions to develop their mental health costing following the outcomes of the Mental Health Costing Study.
- IHPA have engaged a third party to shadow the data collection process including the extraction, transformation, validation and load processes. The third party has also shadowed the creation of the final cost data set and cost weight tables. This is to provide assurance over the IHPA process and relevant cost data dependencies.
- The Round 21 cost weight tables will for the first time include work in progress costs for discharged episodes. This provides greater context to episode costs for those episodes that span various financial years.
- The signed declaration as part of the data quality statements is now an embedded feature of the data submission process. The declaration required jurisdictions to confirm that they have applied the AHPCS, or identify the underlying reasons where the standards were not applied. Further work on this process is being considered for Round 22.

11.2 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 45: NHCDC submission timeline

NHCDC Round	Data reporting period	Data request sent	Submission date	IHPA to validate data by	Final dataset created
20	2015-16	29 Jul 16	28 Feb 17	28 April 17	31 May 17
21	2016-17	31 Jul 17	28 Feb 18	30 April 18	31 May 18
22	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. A key benefit of the portal is a focus on collaborative effort between the Jurisdictions and IHPA in resolving warnings and critical errors. Validation reports were identified as a key benefits in supporting Jurisdictions submit robust data in a timely manner.

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. Any changes to the validation rules that are to be applied to the DRS are signed off by the National Advisory Committee (NAC). This provides Jurisdictions with the opportunity to comment and provide feedback on the QA processes.

Each phase of the process described below applies to all data submitted by Jurisdictions at either the hospital, Local Health Network or Jurisdictional level.

11.2.1 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 use¹⁹”.
- 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.

11.2.2 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 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.

¹⁹ “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.ihsa.gov.au/what-we-do/data-submission-portal>.



- 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 21, 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.

11.2.3 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 20 and 21
- Change in admitted ED and non-admitted ED activity and costs



- Compliance with the DRS specifications (given the changes to the DRS between Round 20 and 21)

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, some Jurisdictions were able to provide more granular episode level mental health activity; whilst others provided cost data at aggregate level.

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 21. 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.

11.2.4 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.

11.2.5 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 46.



Table 46 – IHPA Round 21 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	Calvary Public Hospital, Bruce	172,659			172,659	\$ 212,061,890		\$12,382,311	\$ 224,444,201
NSW	Western Sydney LHD	1,034,062			1,034,062	\$ 1,233,319,475		\$58,189,189	\$ 1,291,508,664
NT	Alice Springs Hospital	162,164			162,164	\$ 254,250,783		\$15,182,133	\$ 269,432,916
QLD	Children's Health Queensland HHS	329,293			329,293	\$ 524,566,226		\$21,035,916	\$ 545,602,143
QLD	Townsville HHS	1,349			1,349	\$ 2,300,075		\$ -	\$ 2,300,075
QLD	Wide Bay HHS	145,053	(605)		144,448	\$ 160,815,318		\$11,413,147	\$ 172,228,465
SA	Whyalla Hospital and Health Service	51,378			51,378	\$51,196,370		\$ 1,925,155	\$53,121,526
SA	Flinders Medical Centre	394,185			394,185	\$ 639,640,400		\$32,853,491	\$ 672,493,891
TAS	Tasmanian Health Service	664,003	(3,762)		660,241	\$ 948,147,039		\$60,054,469	\$ 1,008,201,508
VIC	Alfred Health	366,834			366,834	\$ 895,564,350		\$50,554,060	\$ 946,118,410
VIC	Bairnsdale Regional Health Service	41,161	(333)		40,828	\$60,074,028		\$ 5,727,731	\$65,801,758
WA	Fiona Stanley Hospital	512,407	(2,174)		510,233	\$ 1,059,273,208		\$48,191,181	\$ 1,107,464,390
WA	Princess Margaret Hospital	246,128		(5)	246,123	\$ 340,018,006	(\$31,216)	\$13,502,821	\$ 353,489,611
WA	Carnarvon Hospital	17,103	(15)		17,088	\$22,419,370		\$ 2,230,515	\$24,649,885

Source: IHPA participating site reconciliation from the national NHCDC dataset



12. Cost composition and methodology review

12.1 Overview

As part of the Round 21 IFR, a review of the composition of costs for a sample of patients using the cost centre/line item was undertaken. As this was the first time the IFR examined the similarities and differences at this level, the focus was on a sample of patients in a 'simple' (low complexity) DRG. This eliminated areas of differences due to case complexity or clinical practice. For Round 21, the focus was on G48B - Colonoscopy W/O Catastrophic or Severe CC.

An *episode level data collection template* distributed to jurisdictions and tailored to provide the required information to understand cost allocation methodology and composition of costs for a selected DRG.

The objectives of the cost composition and methodology review were as follows:

- Provide costing practitioners insight into the allocation approaches within other health services to promote dialogue and discussion.
- Enable greater transparency as to how a health service costing approach aligns with the AHPCS.
- Provide 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.

12.2 Limitations

Due to limitations in the data provided to the review team, analysis of costing methodologies applied and feeders used by individual hospitals and jurisdictions was unable to be undertaken. The analysis focused solely on the composition of costs at a line item level. KPMG has not reconciled the data provided by jurisdictions to those received by IHPA.

12.3 Key observations

Based on the episode level data supplied by each jurisdiction, the following observations are made:

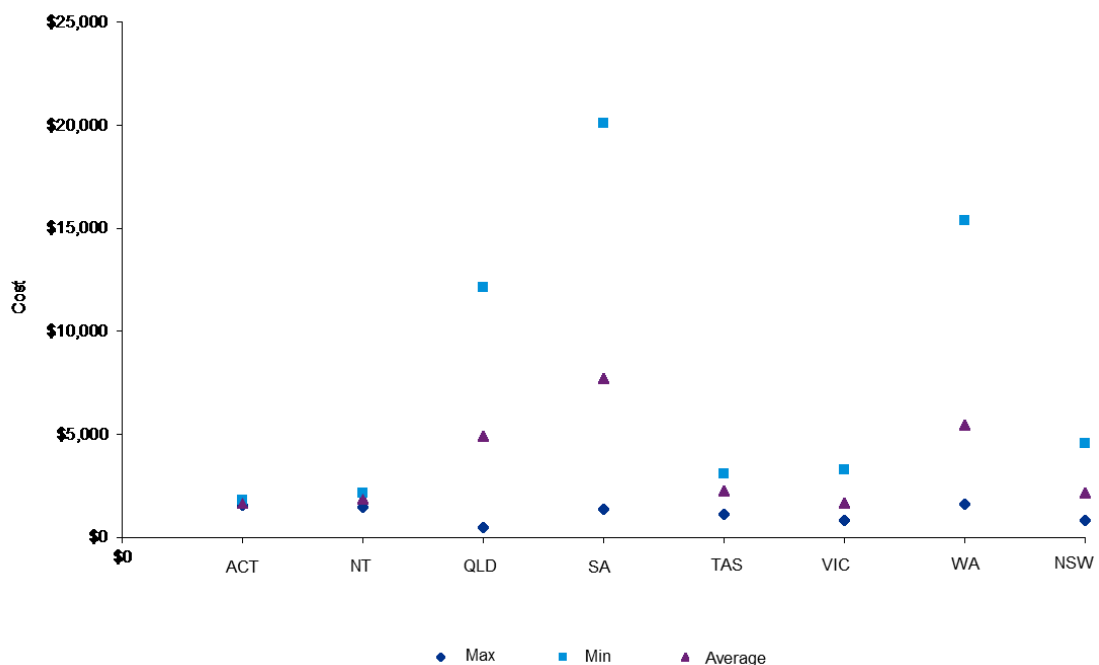
- The national average cost for DRG G48B was \$2,167²⁰. The average sample patient episode collected as part of this review was \$4,049.
- Figure 1 identifies the cost by jurisdiction for each sample episode provided. Each jurisdiction provided five sample patient episodes for each participating hospital in the Round 21 IFR (with the exception of Hughenden Hospital, which did not have the required activity to submit data in this format). In the figure, each symbol represents a single episode.

²⁰ IHPA (2018), unpublished.



- Table 47 reports the differences in cost allocation between Direct and Overhead cost centres by jurisdiction. For sample episodes, ACT and VIC allocated 83 per cent of cost to Direct, while NT and WA allocated 65 per cent.
- Table 48 reports the total cost by jurisdiction and line item for the sample episodes provided by each hospital. At a line item level, most costs comprise salaries and wages. For the sample patient episodes submitted as part of this review, salaries and wages comprised 58 per cent of total costs.
- There were differences in the combination of cost centres and line items used by each hospital and jurisdiction. For example, of the five sample episodes submitted by Tasmania for the THS, one sample patient episode had eight (8) cost centre / line item combinations, while another had 1,078. Most jurisdictions applied similar cost centre / line item combinations for each of the sample patient episodes.

Figure 1: Episode cost by jurisdiction and hospital



Source: Jurisdictional representatives



Table 47: Split between Direct and Overhead (total cost)

Jurisdiction	Direct	Overhead
ACT	83%	17%
NT	65%	35%
QLD	78%	22%
SA	69%	31%
TAS	83%	17%
VIC	81%	19%
WA	65%	35%
NSW	80%	20%

Source: Jurisdictional representatives

Table 48: Episode cost percentage of total costs by line item

Line Item	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	National
Blood				0					0
Corp			3		1	0		4	2
DeprecB			6	3	4	1		4	3
DeprecE			1	2	0	1		5	2
Exclude		1							0
GS	11	9	12	8	9	38	9	11	11
Hotel	1	2	0	2	4	1	3	5	3
Imag					0		1		0
Lease			1			0	1	1	0
MS	9	13	10	8	5	8	10	7	7
OnCosts	11	6	6	7	9	6	13	6	8
Path	6	4		3	2	0	0	2	2
PharmNPBS	0	2	3	2	2		2	4	2
PharmPBS	2							4	1
Pros		2		0		0		0	0
SWAH		2	0	2	2	1	6	4	3
SWMed	7	26	19	23	18	16	11	13	17
SWNurs	24	18	23	30	32	17	23	22	26
SWOther	4	8	15	10	10	10	9	9	10
SWVMO	24	3	2	0	3		12	2	3



Appendix A: Round 21 IFR Sampling Framework

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 20 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.



Appendix B: Round 21 IFR detailed review process

B.1. Financial and activity data collection template

The Round 21 templates were a modified version of the Round 20 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 21 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 49.

Table 49 – 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"> • 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. • Inclusions or exclusions made to the GL prior to costing. • A list of reclass, transfers and offsets of expenditure that occurred to establish the direct cost centres and overheads for allocation to patients. • A breakdown of expenditure between direct and overhead. • Adjustments made post the allocation to patients performed by the hospital/LHN, e.g. work-in-progress (WIP) patients. • Final costed products submitted to the jurisdiction.
LHN Activity	<p>This tab requested activity and feeder data information from the hospital/LHN and included:</p> <ul style="list-style-type: none"> • A description of the reconciliation or process for loading, linking and costing activity. • A summary of activity and feeder data systems, source records and how this data linked to products. • A summary of adjustments made to hospital/LHN activity data by product and product type. • Final activity data and costs submitted to the jurisdiction by product and product type.



Tab	Details
LHN Other Standards	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.
LHN Critical Care (Round 21 specific)	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.
LHN Private Patients (Round 21 specific)	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.
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"> • A summary of costs and activity received by the jurisdiction by product and product type. • A summary of activity and cost adjustments made to the hospital/LHN data (by product and product type) including the treatment of WIP patients. • A summary of the activity and costs submitted to IHPA by product and product type including a 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.



B.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 E.

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.

B.3. The peer review process

The Round 21 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 the Australian Capital Territory, 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 E contains a list of the peer review participants.

B.4. Application of AHPCS

The objectives of the IFR for Round 21 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.



Appendix C: The NHCDC and patient level costing

C.1. The NHCDC

The cost data submitted to the 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.

C.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.

C.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:

C.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).

C.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).



C.3. The costing process

The costing process generally takes the following steps:

C.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.

C.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.

C.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)²¹. The costing process redistributes all overhead costs across the final cost centres according to the allocation

²¹ 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 Services²².

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.²³

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.

²² AHPCS Version 3.1 Attachment D; AHPCS Version 3.1 COST 1.002

²³ AHPCS Version 3.1 COST 3.004; AHPCS Version 3.1 Attachment E



Appendix D: AHPCS Version 3.1 in scope

Table 50 – Application of Costing Standards – Round 21

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"> • Admitted patient products; • Non-Admitted patient products; • Emergency Department patient products; • Teaching, Training and Research products; and • Non-Patient products.
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 E: Site visit attendees

Jurisdiction	IHPA Representative	Jurisdictional and hospital / LHN representatives	Peer representative	KPMG
Australian Capital Territory	Iman Mehdi	Prathima Karri – ACT Health Therese Martin – ACT Health Mick Barnes – CPHB Scott Mackenzie - CPHB	N/A	John O'Connor Matthew Wright
New South Wales	Sarah Neville Darryl Miller	Renee Droguett – Ministry of Health Alex Quezada – Ministry of Health	N/A	David Debono Matthew Wright
Northern Territory	Iman Mehdi	Stathi Tsangaris (NT Health) Christine Kute (NT Health) Garth Barnett (NT Health consultant) Murray Brown (CAHS) Attendees included the following: Flairy Anne Caragay (NT Health) John Trikilis (NT Health) Janine Wapper (CAHS) Peter Dinham (CAHS) Cameron Cornell (CAHS) Matt Porter (CAHS) Brigid Bourke (TEHS) Kirsty Annesley (TEHS)	Scott Bean (South Australia)	John O'Connor Matthew Wright
Queensland	Darryl Miller	Colin McCrow – Queensland Health Stuart Bowhay – Children's Health Queensland HHS Frank Hurley – Children's Health Queensland HHS Mitchell Price – Wide Bay HHS Gavin Mann – Wide Bay HHS Kirsten White – Townsville HHS Chad Farrell – Townsville HHS	N/A	David Debono Gire Ganesharaja



Jurisdiction	IHPA Representative	Jurisdictional and hospital / LHN representatives	Peer representative	KPMG
South Australia	Julia Hume	Scott Bean (SA Health) Stuart Conboy (SA Health) Eloise Gelston (SA Health) Steve Brown (CHSALHN) Shamus Cogan (CHSALHN) Steve Tarasenko (SALHN)	Nil	David Debono Luigi Viscariello
Tasmania	Iman Mehdi	Matthew Green Daniel Davies Barry Hagan	Prathima Karri (Australian Capital Territory)	David Debono Luigi Viscariello
Victoria	Julia Hume	Joanne Siviloglou (DHHS) Danielle Wills (Alfred Health) Tania Donaldson (Bairnsdale Regional Health Service) Leanne Butler (Bairnsdale Regional Health Service) Johanne Toohey (Bairnsdale Regional Health Service) Nick Fordham (Bairnsdale Regional Health Service)	Daniel Davies (Tasmania)	John O'Connor Luigi Viscariello
Western Australia	Darryl Miller	Kevin Frost – WA Health Rinaldo Ienco – South Metropolitan Health Service Judy Choi – South Metropolitan Health Service Lindsay Adams – WA Country Health Service James Maddock – Child and Adolescent Health Service Tapiwa Marimbe – Child and Adolescent Health Service	N/A	John O'Connor Matthew Wright
IHPA Review	Sarah Neville Julia Hume Iman Mehdi Sheldon Le			David Debono Matthew Wright

Source: KPMG



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