Round 18 Independent Financial Review of the National Hospital Cost Data Collection

Independent Hospital Pricing Authority

March 2016

ADVISORY

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

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

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

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

This report has been prepared at the request of Independent Hospital Pricing Authority in accordance with the terms of KPMG's contract dated 1 July 2015. 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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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 used for the funding of public hospital services. To ensure that the quality of NHCDC data is robust and fit-for-purpose, IHPA commissions an independent financial review to assess whether all participating hospitals have included appropriate costs and patient activity.

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

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

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

Observations from the Round 18 IFR

The following key observations were made during the Round 18 IFR:

- A number of key initiatives were implemented by jurisdictions that contributed to a more robust costing process for Round 18 submissions to the NHCDC, including new costing software in Tasmania and the Northern Territory (NT) (NT also improved costing methodologies), increased frequency of costing and reconciliation processes in South Australia (SA), improved non-admitted patient service events and quality assurance tools in New South Wales and an AHPCS Version 3.1 compliance project in Western Australia (WA) hospitals which highlighted a significant level of compliance.
- Minor variances in the financial reconciliations were noted for five of the 14 hospitals sampled, however, nothing was identified to suggest that the financial data was not fit for NHCDC submission.
- Feeder system information provided for all sampled hospitals highlighted that the number of records linked from source to product was significant. The majority of feeder systems in all hospitals had at least a 90 percent link or match. The average linking ratio across all sampled hospitals and their feeders was 96.2 percent. This percentage demonstrates that jurisdictions and hospitals have made significant improvements to ensure that the resources

consumed can be identified by patient, which ensures greater rigour to the composition of costed patient output.

- Common variances in feeder data were noted in pharmacy systems, for reasons such as repeat prescriptions being filled up to 12 months from the original encounter and where the activity related to services provided to patients at other facilities. Other feeder systems such as pathology, imaging and prosthetics experienced variances due to issues of data quality at source with inappropriate date of service fields being populated (accurate dates of service enables linking using episode numbers).

Findings and recommendations

The following findings and associated recommendations have been identified during the Round 18 IFR:

1. Reconciliation templates

The review found that financial reconciliation processes are robust for all jurisdictions and occur at the hospital/LHN level and also at the jurisdictional level. However, for Victoria, there was no evidence of a formalised reconciliation process from the Victorian Cost Data Collection data submitted by the hospital to the final NHCDC submission to IHPA. It is noted that a formalised reconciliation process has been implemented by Victoria for the Round 19 NHCDC.

Despite the high linking ratio between the feeder records in the source systems and those allocated to patients, costing system records were not provided for four of six feeders at Princess Margaret Hospital in WA.

Recommendation

Reconciliation templates should be included as part of the NHCDC submission from jurisdictions. The templates, covering both financial and activity data, should present the end-to-end reconciliation. That is, data should flow from the hospital to the jurisdiction and to IHPA for transformation and storage in the NHCDC national dataset. Detail should be provided for all adjustments at each step of the process.

2. WIP and the escalation factor

The AHPCS *COST 5.002: Treatment of Work-In-Progress Costs* requires the cost of work-in-progress (WIP) patients to be reported and applied at the patient level. The standard does not provide guidance on how to cost WIP patients, or whether WIP costs from prior years should be escalated. Furthermore, the NHCDC data submission requirements do not allow IHPA to identify how WIP costs have been applied or reported by each jurisdiction in their submission.

On review of the treatment and reporting of WIP costs by jurisdictions to the NHCDC in Round 18, a number of inconsistencies were identified. The only jurisdictions to apply an escalation factor to the costs of WIP patients were SA and NSW. In contrast, the NT did not include any WIP costs in Round 18 due to the implementation of a new costing system, and WA did not include WIP costs prior to 2012/13, as a new costing system had been adopted in Round 17.

Recommendation

It is recommended that IHPA considers methods for improving the costing and reporting of WIP, including escalation, either through the NHCDC submission, the AHPCS or through other reporting methods.

3. Application of the AHPCS

The application of the selected standards from AHPCS Version 3.1 across the jurisdictions was consistent, with the exception of *SCP 2.003: Product Costs in Scope; SCP 2A.003: Teaching and training Costs; SCP 2B.002: Research Costs; SCP 3C.001: Matching Production* and *Cost – Commercial Business Entities; GL 2.004: Account Code Mapping to Line Items* and *COST 5.002: Treatment of Work-In-Progress Costs*. The details of these inconsistencies are discussed further in Chapter 2 and the jurisdiction chapters.

Recommendation

A signed jurisdiction statement in relation to the application of the AHPCS should be included in the NHCDC submission. The consistency of application of the AHPCS is important for ensuring the NHCDC is comparable across a range of factors such as jurisdictions, DRGs, and hospital settings etc. A signed statement should require jurisdictions to confirm that they have applied the AHPCS, or identify where the standards were not applied and reasons therefore.

4. Teaching, Training and Research

The approach to costing teaching, training and research (TTR) varies across jurisdictions. A number of jurisdictions do not allocate TTR costs to a TTR product and instead incorporate them as a component of total patient cost, making TTR unidentifiable in the NHCDC submission. The NT was the only jurisdiction to submit teaching and training product costs to the Round 18 NHCDC; this allocation was undertaken using product fractions (PFRACS).

Recommendation

The development of a classification system for TTR was included as a recommendation in the Round 17 IFR. It is understood that IHPA is currently developing a TTR classification system and it is recommended that this continues in an effort to improve clarity over TTR activities and consistency across jurisdictions for future NHCDC rounds.

Acronyms/Abbreviations

Acronym / Abbreviation	Description
ABF	Activity Based Funding
AHPCS	Australian Hospital Patient Costing Standards
ATSI	Aboriginal and Torres Strait Islander
CAHS	Child and Adolescent Health Service
CCU	Critical Care Unit
DNR	District and Network Return
DRG	Diagnosis Related Group
DRS	Data Request Specifications
ED	Emergency department
EDW	Enterprise Data Warehouse
ETL	Extract, Transform and Load
FMS	Financial Management System
GL	General ledger
HDU	High Dependency Unit
HHS	Hospital and Health Service
ICU	Intensive Care Unit
IFR	Independent Financial Review
IHPA	Independent Hospital Pricing Authority
LHD	Local Health District
LHN	Local Health Network
MRI	Magnetic Resonance Imaging (MRI scan)
NEP	National Efficient Price

Acronym / Abbreviation	Description
NHCDC	National Hospital Cost Data Collection
NHR	National Health Reform
NSW	New South Wales
NT	Northern Territory
PAS	Patient Administration System
PBS	Pharmaceutical Benefits Scheme
PCCL	Patient clinical complexity level
PFRAC	Product fractions
PPM2	Power Performance Manager 2
QA	Quality assurance
RVEEH	Royal Victorian Eye and Ear Hospital
RVU	Relative Value Unit
SA	South Australia
TAS-DHHS	Tasmanian Department of Health and Human Services
THO-South	Tasmanian Health Organisation - South
TOPAS	The Open Patient Administration System
TTR	Teaching, Training and Research
UQB	Unqualified baby
VCDC	Victorian Cost Data Collection
VMO	Visiting Medical Officer
VPG	Virtual Patient Group
WA	Western Australia
WIP	Work-In-Progress

1. Introduction

1.1 Overview and scope

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

IHPA engaged KPMG to undertake the Round 18 independent financial review (IFR) of a sample of state and territory hospitals who supplied data to the Round 18 (2013/14) NHCDC. This review includes:

- Assessment of the accuracy and completeness of the NHCDC participating hospitals reconciliations provided for Round 18.
- Assessment of the consistency between jurisdictions sampled of the application of Version 3.1 of the Australian Hospital Patient Costing Standards (AHPCS) in selected standards, as highlighted in Table 3.
- 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.

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

1.2 Participating hospitals

Each of the eight jurisdictions was asked to participate in the IFR for Round 18. All jurisdictions agreed to participate with the exception of the Australian Capital Territory. Participating jurisdictions were requested to nominate hospitals or LHNs based on the following sampling framework:

- *Historical participation* - provides an opportunity to review new sites, or review a hospital or LHN that has previously participated in the IFR to enable progress to be tracked over time.
- *Size* - as assessed by volume and the scope of work undertaken.
- *Materiality* - the total cost submitted to the NHCDC by the hospital.
- *Systems* - the types of costing systems utilised in preparing the submission, and potentially extending to the types of feeder systems available.

- *Other factors* - where sites had previously participated and identified focus areas such as Emergency Department costing or overhead allocations, or other potential areas such as previously identified governance, control or capability issues.

In total, a sample of 14 sites, including 11 hospitals and three LHNs were selected by jurisdictions to participate in the IFR.

Table 1 – Round 18 IFR participating hospitals/LHNs

Jurisdiction	Hospital	Characteristics
New South Wales	Illawarra Shoalhaven Local Health District	• LHD has previously not participated in an NHCDC IFR • Includes major regional hospitals • Costing system – PPM2
	Northern NSW Local Health District	• LHD has previously not participated in an NHCDC IFR • Includes major regional and rural hospitals • Costing system – PPM2
	Western Sydney Local Health District	• Participated in Round 16 NHCDC IFR • Includes major urban hospitals • Costing system – PPM2
Northern Territory	Royal Darwin Hospital	• Participated in Round 15 NHCDC IFR • Major urban hospital • Costing system – PPM2 (new for Round 18)
Queensland	Ipswich Hospital	• Hospital has previously not participated in an IFR • Major urban hospital • Costing system – Transition 2
	Mackay Base Hospital	• Hospital has previously not participated in an IFR • Major regional hospital • Costing system – Transition 2
	The Prince Charles Hospital	• Hospital has previously not participated in an IFR • Major urban hospital and tertiary referral centre • Costing system – Transition 2
South Australia	Lyell McEwin Hospital	• Participated in Round 15 NHCDC IFR • Major urban and teaching hospital • Costing system – PPM2
	Modbury Hospital	• Hospital has previously not participated in an IFR • Non-major urban hospital • Costing system – PPM2

Jurisdiction	Hospital	Characteristics
Tasmania	Royal Hobart Hospital	• Participated in Round 15 and Round17 NHCDC IFR • Major urban, teaching and research hospital • Costing system – User Cost (new for Round 18)
Victoria	Royal Eye and Ear Hospital	• Hospital has previously not participated in an IFR • Major urban specialist hospital • Costing system – Adaptive Costing
	St Vincent's Hospital	• Hospital has previously not participated in an IFR • Major urban hospital and teaching, research, tertiary referral centre. • Costing system – PPM2
Western Australia	Princess Margaret Hospital	• Participated in Round 14 NHCDC IFR • Major urban children's hospital • Costing system – PPM2
	Rockingham General Hospital	• Participated in Round 15 NHCDC IFR • Major urban children's hospital • Costing system – PPM2

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; and
- *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.

1.3.1 Financial and activity data collection template

The review team developed financial and activity data collection templates for distribution to the jurisdictions. Jurisdictional representatives were given the opportunity to review these templates, with their feedback incorporated prior to finalisation. The finalised templates 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. Details of the information requested in the templates are discussed in Table 2.

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

Tab	Details
LHN expenditure reconciliation	This tab requested financial information from the hospital/LHN and included: • A breakdown of LHN costs reported in the audited financial statements, and how they are linked with the general ledger (GL) used for costing. • 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	This tab requested activity and feeder data information from the hospital/LHN and included: • 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.
LHN Other Standards	This tab requested information in relation to the application of AHPCS *SCP 3G.001 - Matching Production and Cost - Reconciliation to Source Data*. It required hospitals/LHNs to detail the mapping of account codes to the specified line items.
Jurisdiction	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: • A summary of costs and activity received by the

Tab	Details
	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.
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.

1.3.2 Site visits

KPMG scheduled site visits with each of the seven 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 review 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 0.

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 their chapter prior to it being included in this report.

1.3.3 The peer review process

The Round 18 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 Queensland, South Australia, Western Australia and Tasmania nominated peers (all peers were jurisdiction representatives). The remaining jurisdictions were unable to send representatives due to capacity, funding and timing constraints. Appendix A contains a list of the peer review participants.

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

1.3.4 Application of AHPCS

The objectives of the IFR for Round 18 included the assessment of the consistency between participating jurisdictions in their application of a selection of Version 3.1 AHPCS. KPMG collected information from the templates and discussions conducted with jurisdiction and hospital/LHN representatives to assist in meeting this objective. The jurisdiction chapters include a summary of the application of the selected standards by the hospitals/LHNs and the jurisdiction. The requirements of the selected standards are provided in Table 3.

Table 3 – Application of Costing Standards – Round 18

No.	Title	Standard
SCP 1.004	Hospital Products in Scope	Hospitals will allocate costs to all hospital products grouped into the categories: • 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	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.
SCP 2A.003	Teaching and Training Costs	All costs should be allocated to the 'teaching and training' sub-product where direct teaching and training is clearly the purpose of the cost centre. A portion of the costs of other cost centres should be allocated to the 'teaching and training' sub-product where there is a robust and justifiable method of identifying the costs attributable to direct teaching and training activities.
SCP 2B.002	Research Costs	All costs should be allocated to the 'research' sub-product where direct research is clearly the purpose of the cost centre. A portion of the costs of other cost centres should be allocated to the 'research' sub-product where there is a robust and justifiable method

No.	Title	Standard
		of identifying those costs attributable to direct research activities.
SCP 3.001	Matching Production and Cost	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.
SCP 3A.001	Matching Production and Cost – Overhead Cost Allocation	All costs accumulated in overhead cost centres should be allocated to final cost centres before any partitioning of costs into product categories is undertaken.
SCP 3B.001	Matching Production and Cost – Costing all Products	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.
SCP 3C.001	Matching Production and Cost – Commercial Business Entities	Commercial business entities should be treated as non-patient products for the purposes of product costing.
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.
GL2.004	Account Code Mapping to Line Items	Hospitals will map all in-scope costs to the standard list of line items.
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

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 18 IFR and improvements for future NHCDC rounds.
Hospital chapters	Presents the costing and reconciliation process for each of the seven participating jurisdictions and their nominated hospitals.
IHPA process review	Presents the findings of IHPA's processes for receiving and reviewing data, through to the storing of data in IHPA's national database.
Appendix A	Provides an overview of patient level costing and how it applies in the NHCDC context.
Appendix B	Contains a list of all attendees at the site visits.

2. Findings of the review

This section summarises the findings of the National Hospital Cost Data Collection (NHCDC) Round 18 Independent Financial Review (IFR), including 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).

2.1 Summary of findings

In Round 18, jurisdictions continued to improve their processes for Activity Based Funding (ABF), demonstrating the recognised value of a collection such as the NHCDC to be a well-informed evidence base, and the need for it to be fit-for-purpose. This was demonstrated by a number of developments across jurisdictions and shows the growing emphasis placed on data quality as costing data is increasingly used to inform the management and funding of public health services nationally.

In recognition of the ongoing development of ABF and the move to greater Activity Based Management practices within our health services, recommendations are made in areas where opportunities for improvement were identified by the review team. The recommendations are discussed to facilitate improvements of financial reconciliation and NHCDC submission processes in future rounds.

2.2 Developments in Round 18

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

The following key initiatives were implemented in Round 18:

- ***New costing software*** – Both Tasmania and the Northern Territory (NT) implemented new software for patient level costing. Tasmania implemented User Cost and NT implemented Power Performance Manager 2 (PPM2).
- ***Improved costing methodology*** – NT introduced a more robust approach to costing. Costs such as inter-hospital patient transport are now included at the patient level. The NT allocation methodologies for a range of costs such as salaries and wages and pharmacy (separation of Pharmaceutical Benefits Scheme (PBS) and non-PBS) have also been improved.
- ***Increased frequency of costing processes*** – South Australia (SA) is transitioning to more frequent, formalised costing processes in an effort to identify anomalies in cost data earlier.
- ***AHPCS Version 3.1 compliance project*** – Western Australia (WA) undertook an internal AHPCS Version 3.1 compliance project and developed educational tools and documentation to enhance hospital costing. The compliance project highlighted that WA health services were compliant with 86 percent of the AHPCS, partially compliant with 11 percent of the AHPCS and non-compliant with 3 percent of the AHPCS (representing one standard – *SCP 3F.001 Matching Production and Cost – Order Request Point*).

- ***Improved quality assurance tools*** – New South Wales (NSW) implemented a new web-based tool to facilitate the review and correction of the District and Network Return (DNR) submissions during the draft submission period. This review was previously undertaken via the use of spreadsheets.

2.3 Observations from the Round 18 IFR

2.3.1 Reconciliation of financial data

Financial data was gathered through the data collection templates completed for each participating site. Based on discussions during the site visits and a review of the templates, all jurisdictions demonstrated that accurate and complete financial reconciliation processes are in place at the hospital/LHN level, and jurisdictional level. Although not formalised, the financial reconciliation process is robust in Victoria. It is noted that a formalised reconciliation process has been implemented by Victoria for the Round 19 NHCDC.

On review of the data flow from the hospital/LHN to jurisdiction and through to submission in IHPA's national dataset, minor variances in the reconciliations were noted for five of the 14 hospitals/LHNs sampled. Where these variances were noted, the review team sought to identify the causes of the variance with the relevant sites. These variations were predominantly due to timing issues, and were not of a material size or nature.

A summary of the variances identified is provided below:

- In Victoria, a variance of $158,855 (0.03 percent of allocated costs) between the costs allocated to patients and the costed products submitted to the jurisdiction was noted for St Vincent's Hospital. However, total costs received by the jurisdiction reconciled to the costs allocated to patients.
- In WA, a variance of $269,821 (0.1 percent of hospital expenditure) between the total hospital expenditure and the costs allocated to patients was noted for Rockingham General Hospital. A variance of $2.8 million (1.5 percent of allocated costs) between the costs allocated to patients and the costed products submitted to the jurisdiction was also noted for Rockingham General Hospital.
- A variance of $172,426 was noted for the Royal Hobart Hospital in Tasmania (0.05 percent of the costs submitted to IHPA) between the product level costs submitted to IHPA by the jurisdiction and the total costs received by IHPA.
- A variance of $28,733 was noted for the Lyell McEwin Hospital in SA (0.01 percent of the costs submitted to IHPA) between the product level costs submitted to IHPA by the jurisdiction and the total costs received by IHPA.
- A variance of $12,435 was noted for the Modbury Hospital in SA (0.01 percent of the costs submitted to IHPA) between the product level costs submitted to IHPA by the jurisdiction and the total costs received by IHPA.

Despite these variances, nothing was identified during the IFR to suggest that the financial data was not fit for submission to the NHCDC for Round 18.

2.3.2 Teaching, Training and Research

The approach to costing teaching, training and research (TTR) varies across jurisdictions. The variation can be attributed to different cost centre structures at the hospital/LHN level, adherence to jurisdiction costing guidelines and the costing methodology adopted. For example:

- Some jurisdictions cost TTR and assign it to a virtual or dummy patient and then exclude the costs prior to NHCDC submission.
- Some jurisdictions do not cost to a TTR product and allocate costs across all patients.
- Some jurisdictions use a combination of these methods depending on the cost centre structure.

NT was the only jurisdiction to submit teaching and training product costs to the Round 18 NHCDC. NT allocates teaching and training costs using product fractions (PFRACs).

2.3.3 ICU, ATSI & Private Patients

Jurisdictions do not adjust the costing methodology to inflate for the costs of Intensive Care Unit, Aboriginal and Torres Strait Islander (ATSI) and private patients. These patients are costed in the same manner as all patients and are allocated costs based on the resources they consume. It should be noted that for ATSI patients, NT stated:

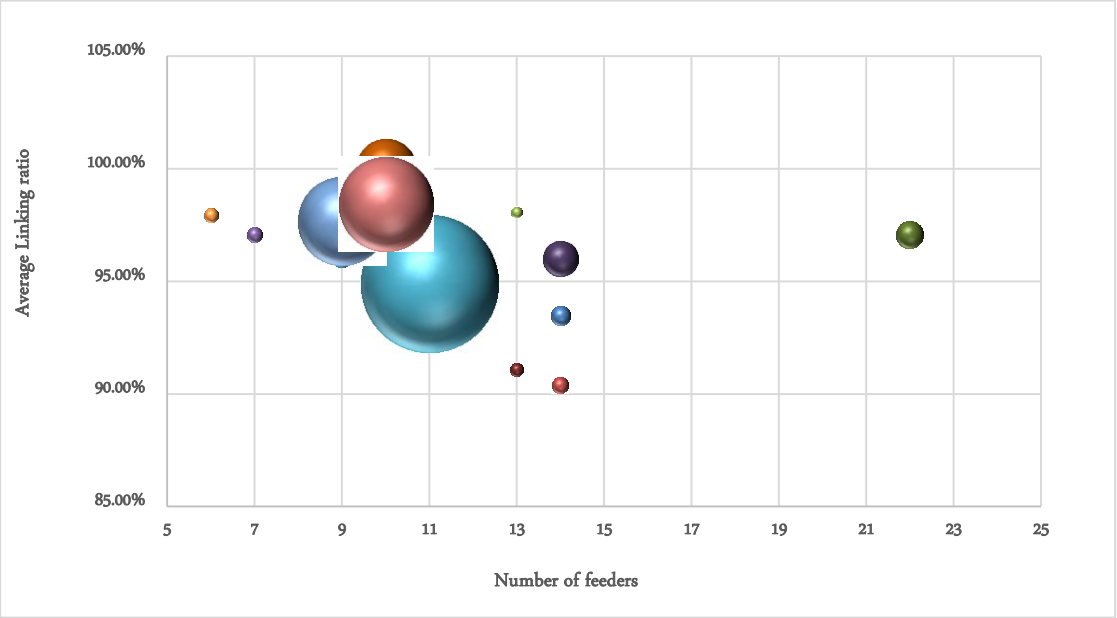
- Health services have a number of Indigenous only cost centres, i.e. 100 percent of costs are applied to ATSI patients.
- Indigenous Patient Liaison Officers and Aboriginal Health Worker costs are only allocated to ATSI patients.

2.3.4 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 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. Despite the high linking ratio between the feeder records in the source systems and those allocated to patients, costing system records were not provided for four of six feeders at Princess Margaret Hospital.

Based on the feeder system information provided for all sampled hospitals, the number of records linked from source to product was significant with a 90 percent link or match for the majority of feeder systems. The average linking ratio across all sampled hospitals and their feeders was 95.2 percent. This percentage demonstrates that jurisdictions and hospitals have made significant improvements to ensure that the resources consumed can be identified by patient, which ensures greater rigour to the composition of costed patient output. Figure 1 presents a high level comparison of the average linking ratio for all feeders and the number of feeders for each of the sampled hospitals. The size of each hospital (represented by a bubble) reflects the total number of records from the hospital's feeder systems.

Figure 1: Comparison of the sampled hospitals - average linking ratio and number of feeders



Source: KPMG, based on sampled hospital feeder system data

Figure 1 illustrates that the average linking ratio (across all feeders) is above 90 percent for all sampled hospitals. Furthermore, the accuracy in feeder systems remains high as the number of records processed by the hospital increases.

Common variances were noted in pharmacy systems, for reasons such as repeat prescriptions being filled up to 12 months from the original encounter and where the activity related to services provided to patients at other facilities. Other feeder systems such as pathology, imaging and prosthetics experienced variances due to issues of data quality at source with inappropriate date of service fields being populated (accurate dates of service enables linking using episode numbers). It should be noted that most of these systems are not audited for their own primary purpose, let alone for costing purposes.

For 13 of the 14 hospitals/LHNs sampled, no variances were noted in the transfer of activity data from the hospitals/LHNs, to the jurisdiction and then onto IHPA. A variance was noted for St Vincent's Hospital in Victoria between the activity submitted to, and the activity received by, the jurisdiction. This variance represented 0.1 percent of the total data submitted to the jurisdiction and related to timing issues.

2.3.5 Treatment of WIP

On review of the AHPCS *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. However, the treatment and reporting of WIP costs to the NHCDC in Round 18 was found to vary significantly between jurisdictions. While IHPA produced a circular to guide jurisdictions in reporting these costs, during the review a number of jurisdictional representatives indicated that they were not willing to escalate WIP costs as per IHPA's guidelines.

The guidelines advise that all costs incurred in a previous round should have an escalation factor applied to bring them into real dollars. This was considered incorrect by some

representatives on the basis that costs should remain as reported in the year they were collected, and that applying an escalation factor would undermine the value of the NHCDC data set as a benchmarking tool across years. The following was noted about the adjustments for reporting WIP to the NHCDC for Round 18:

- All jurisdictions submitted costs for hospitals for admitted and discharged patients in 2013/14.
- Costs for patients not discharged at 30 June 2014 were excluded by all jurisdictions.
- Costs for patients discharged in 2013/14 but incurred in prior years were submitted by all jurisdictions, with the exception of NT.
- NT adopted a new costing system for the Round 18 NHCDC submission and as such no prior year WIP was included.
- WA did not include WIP costs prior to 2012/13 as it adopted a new costing system in Round 17.
- Both NSW and SA adjusted WIP for the escalation factor (where applicable) as prescribed by IHPA guidelines. Queensland, Tasmania, Victoria and WA did not adjust WIP for the escalation factor.

2.3.6 Application of AHPCS Version 3.1

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

- *SCP 2.003: Product Costs in Scope* – The following items are noted in relation to the application of this cost standard:
  - Depreciation and Amortisation is excluded from the Victoria hospital submissions.
  - NSW LHDs do not submit S100 drugs for non-admitted services.
  - Patient travel costs are significant in NT.
- *SCP 2A.003: Teaching and training Costs and SCP 2B.002: Research Costs* – Jurisdictions adopt varied approaches to TTR costs.
- *SCP 3C.001: Matching Production and Cost – Commercial Business Entities* – the hospitals sampled for Victoria did not exclude the costs of entities such as the café from hospital expenditure, however, it was noted that these costs were not significant.
- *GL 2.004: Account Code Mapping to Line Items* - Victorian cost data is mapped to the NHCDC by the jurisdiction based on data submitted by hospitals to the VCDC rather than mapped directly by hospitals. This applies to the NSW submission also (i.e. the ABF Taskforce in NSW maps the NSW codes to the NHCDC.)

  Furthermore, Queensland and NSW noted in the interview process that there were inconsistencies in the Depreciation reporting requirement between the AHPCS and the NHCDC Data Request Specifications (DRS). Specifically the AHPCS requires Depreciation (Deprec) in full whilst the DRS requires depreciation to be split for Building Depreciation (DeprecB) and Equipment Depreciation (DeprecE) at NHCDC line item level.

- *COST 5.002: Treatment of Work-In-Progress Costs* – NT did not include WIP from prior years in Round 18 due to the introduction of new costing software. Likewise, for WA, any costs prior to 2012/13 were not included as new costing software was implemented in Round 17.

2.4 Recommendations

Noting the changes and developments implemented for Round 18 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. Four key recommendations are made to improve data and processes for future NHCDC rounds.

2.4.1 Reconciliation templates

For reconciliation purposes, it is important that the submission of cost and activity data can be followed from the hospital GL, to the jurisdiction for adjustments and finally to IHPA for storage in the NHCDC national dataset. This improves the transparency and robustness of the financial reconciliation process.

To facilitate this process, it is recommended that financial reconciliation templates form part of the NHCDC submission process for jurisdictions. Important factors to consider when implementing this recommendation include:

- The templates, covering both financial and activity data, should present the end-to-end reconciliation. That is, data should flow from the hospital to the jurisdiction and to IHPA for transformation and storage in the NHCDC national dataset. Detail should be provided for all adjustments at each step of the process.
- The templates submitted by the jurisdictions should include the hospital/LHN and jurisdiction information. IHPA should complete the remainder of the template post data transformation and return to jurisdictions.
- Variances in the approaches and/or software implemented by each of the jurisdictions should be considered in the design of templates to ensure there is flexibility in the completion of the templates to account for these differences.
- To ensure the validity and robustness of these templates, the requirement for executive level sign off before submission should be considered.
- Reconciliations of cost and activity data to source data is considered best practice and is already included in *SCP 3G.001 – Matching Production and Cost – Reconciliation to Source Data* of Version 3.1 AHPCS. The requirement to submit an end-to-end reconciliation template as part of NHCDC submission should be included in the AHPCS.

2.4.2 WIP and the escalation factor

In its current form, the AHPCS *COST 5.002: Treatment of WIP* requires WIP to be reported and applied at the patient level. It does not provide guidance on how to cost WIP, or whether WIP costs from prior years should be escalated. In addition, the current NHCDC submission requirements do not allow IHPA to identify WIP costs. IHPA provides guidelines for reporting

WIP to the NHCDC that includes the application of an escalation factor however, it was clear from the review interviews that jurisdictions treat and report WIP costs differently.

To ensure greater consistency in reporting these costs, it is recommended that IHPA consider methods for improving the costing and reporting of WIP and escalation, either through the NHCDC submission, the AHPCS or through other reporting methods. For example, a WIP cost centre could be included in the NHCDC submission which would make WIP identifiable, providing IHPA with WIP visibility. In addition, a separate escalation cost centre would provide IHPA with flexibility to either include or exclude WIP from the NHCDC and address cost (benchmarking) and price adjustment requirements.

2.4.3 Application of the AHPCS

A signed jurisdiction statement in relation to the application of the AHPCS should be included in the NHCDC submission. It was observed during the review that the sign off process varied across jurisdictions at both hospital and Departmental level. The consistency of application of the AHPCS is important for ensuring the NHCDC is comparable across a range of factors such as jurisdictions, DRGs, and hospital settings etc. Most jurisdictions have their own costing guidelines that are applied by hospitals/LHNs within that jurisdiction. While the majority of the guidelines align to the AHPCS in the most part, there will be some differences that should be communicated to the NHCDC through the statement. A signed statement should require jurisdictions to confirm that they have applied the AHPCS, or identify where the standards were not applied and reasons therefore.

The timing of this recommendation may need to be considered further in light of any review of the AHPCS undertaken by IHPA.

2.4.4 Teaching, Training and Research

The development of a TTR classification system was included as a recommendation in the Round 17 IFR. It is understood that IHPA is currently developing a TTR classification system and it is recommended that this continues in an effort to improve clarity over TTR activities and consistency across jurisdictions for future NHCDC rounds.

3. New South Wales

3.1 Jurisdictional overview

3.1.1 Management of NHCDC process

New South Wales (NSW) is structured as 15 Local Health Districts (LHDs) (eight covering metropolitan areas and seven in rural areas) with three Speciality Networks (SHNs) which focus on children's and paediatric services, forensic mental health, justice health and the public hospital services provided by St Vincent's Health. Published financial statements are reported at the LHD/SHN level.

Each of these LHD/SHNs is responsible for preparing, processing and submitting the patient level costing. The NSW patient level costing is known as the District and Network Return (DNR) and consists of an expense file and three activity files (inpatient, emergency department and non-admitted encounters). The Activity Based Funding (ABF) Taskforce does not alter the DNR submissions received from LHD/SHNs (apart from Work in Progress).

The DNR is a single submission used for a number of purposes, such as the development of the State Price and the NHCDC submission. The use of one submission facilitates reconciliation between a number of returns such as the NHCDC, Public Hospitals Establishment Collection and the Health Expenditure Report.

The Power Performance Manager (PPM) costing application is used by all LHD/SHNs for the DNR. The ABF Taskforce is responsible for developing a range of tools such as the database that extracts the inpatient and emergency department data from the Health Information Exchange and formats the various files for loading into PPM. The ABF Taskforce also provides technical support and assistance to the costing officers in the LHD/SHNs.

Costing is performed at the six and 12 month points of the fiscal year, allowing any errors to be identified at the halfway point for correction before the full year submission. NSW has an integrated quality assurance process that includes:

- A Costing Standards User Group (CSUG) where standards are tabled and endorsed.
- Publishing the NSW Cost Accounting Guidelines.
- Validation checks in the PPM DNR Module (such as checking the relationship between cost and length of stay), some of which must be passed for the DNR Expense file to be generated by the LHD/SHNs.
- Validation checks on submission of the DNR expense and activity files by the LHD/SHNs to the ABF Taskforce to ensure compliance with approved entity reporting structure and file format requirements.
- A draft submission period during which 52 patient level data quality tests are performed and fed back to the LHD/SHN costing officers for review and correction as required. During the draft submission period, LHD/SHNs may submit any number of times to correct cost allocation issues. Some of the tests are scored to enable a calculation for each LHD/SHN.

- The completion of a LHD/SHN Chief Executive letter and reconciliation schedule, that reconciles with the published financial statements, to formally advise of the finalisation of the DNR submission.

The ABF Taskforce is responsible for formatting and consolidating the LHD/SHN patient level costed data for the NHCDC. Only patient level data is submitted for ABF facilities for the NHCDC. Records that fail the IHPA validation checks are excluded from the submission. Once finalised, the Secretary of NSW Health sends a letter to IHPA advising of the finalised submission.

NSW nominated three LHDs to participate in the review for Round 18, Western Sydney LHD, Illawarra and Shoalhaven LHD, and the Northern NSW LHD.

Work In Progress

The ABF Taskforce makes work-in-progress (WIP) patient adjustments required for the NHCDC submission. WIP is included for two prior NHCDC rounds. NSW Health also includes an escalation factor for WIP and applies it at the line item level as per IHPA's circular for reporting WIP costs in Round 18. Further discussion of WIP is included in the analysis for each LHD.

Key initiatives since Round 17 NHCDC

The following initiatives were implemented by NSW since the Round 17 NHCDC:

- An additional 14 hospitals were submitted in Round 18. These hospitals - Casino, Macksville, Maclean, Inverell, Moree, Mudgee, Cowra, Forbes, Lithgow, Parkes, Deniliquin, Cooma, Cessnock and Singleton were submitted as they are ABF Hospitals from 2015/16.
- There was a significant increase in non-admitted patient service events with the expanded availability of patient level data.
- The quality assurance processes were further enhanced during Round 18 with the development of a web based tool to facilitate the review and correction of DNR submissions during the draft submission period. This tool replaced spreadsheets that were distributed on a daily basis.

3.2 Western Sydney Local Health District

3.2.1 Overview

The Western Sydney LHD is responsible for providing primary and secondary health care for people living in the Auburn, Blacktown, the Hills Shire, Holroyd and Parramatta Local Government Areas and tertiary care to residents of the Greater Western Sydney Region. It includes the Auburn, Cumberland, Blacktown, Mount Druitt (two campuses) and Westmead hospitals, and an extensive network of community health centres. Western Sydney LHD employs almost 9,500 people, and has a large research and teaching program which enjoys a national and international reputation[1].

[1] Western Sydney Local Health District – NSW Government [http://www.wslhd.health.nsw.gov.au]. *Accessed 9 October 2015*

3.2.2 Financial data

For the Round 18 IFR, representatives from NSW Health completed the IFR templates and participated in consultations during the review. Representatives of Western Sydney LHD also attended the site visit.

Table 4 presents a summary of Western Sydney LHD's costs, commencing with extraction of the general ledger (GL) through to the final NHCDC costs for the LHD for Round 18.

Table 4 – Round 18 NHCDC Reconciliation – Western Sydney LHD

Hospital			
Item		**Amount**	**% of GL**
A General Ledger (GL)	$	1,448,595,926	
B Adjustments to the GL			
Inclusions	$	20,268,268	
Exclusions	$	(4,112,740)	
Total hospital expenditure	**$**	**1,464,751,453**	*101.12%*
C Allocation of Costs			
Post Allocation Direct amount	$	1,148,141,157	
Post Allocation Overhead amount	$	316,610,296	
Total hospital expenditure	**$**	**1,464,751,453**	*101.12%*
Variance	*$*	*-*	*0.00%*
D Post Allocation Adjustments			
nil	$	-	
Total expenditure allocated to patients	**$**	**1,464,751,453**	*101.12%*
E Costed products submitted to jurisdiction			
Acute	$	758,307,323	
Non-admitted	$	278,930,736	
Emergency	$	122,297,181	
Sub Acute	$	89,611,886	
Mental Health	$	-	
Other	$	215,604,324	
Research	$	-	
Teaching & Training	$	-	
	$	**1,464,751,449**	*101.12%*
Variance	*$*	*(4)*	*0.00%*

Jurisdiction		
Item		**Amount**
F Costed Products received by jurisidction	$	1,464,751,449
Variance	*$*	*-*
G Final Adjustments		
WIP Escalation	$	36,965,942
Non-ABF facilities	$	(43,090,896)
ABF facility excluded encounters	$	(168,320,541)
ABF facility Non Patient Level Products	$	(171,943,627)
Total costs submitted to IHPA	**$**	**1,118,362,327**
H Costed products submitted to IHPA		
Acute	$	724,768,108
Non-admitted	$	194,009,306
Emergency	$	97,446,455
Sub Acute	$	66,911,143
Mental Health	$	-
Other	$	35,227,315
Research	$	-
Teaching & Training	$	-
	$	**1,118,362,328**
Variance	*$*	*1*

IHPA		
Item		**Amount**
I Total costed products received by IHPA	$	1,118,362,327
Variance	*$*	*(1)*
J IHPA Adjustments		
Admitted ED Reallocations	$	63,341,946
Final NHCDC costs	**$**	**1,181,704,273**
K Final NHCDC costed products		
*Acute**	$	787,961,724
Non-admitted	$	190,134,710
Emergency	$	97,446,455
*Sub Acute**	$	67,051,557
Mental Health	$	-
Other	$	39,109,827
Research	$	-
Teaching & Training	$	-
	$	**1,181,704,273**
Variance	*$*	*-*

Source: KPMG based on data supplied by Western Sydney LHD, jurisdiction and IHPA

** These figures include admitted emergency costs.*

Explanation of reconciliation items

Table 5 discusses each of the reconciliation items including adjustments, inclusions and exclusions to the GL.

Table 5 – Financial Reconciliation, explanation of items – Western Sydney LHD

Item	Heading	Discussion
A	General Ledger	The final GL extracted from NSW financial systems indicates expenditure for the LHD of $1.45 billion.
B	Adjustments to the GL	A number of adjustments are made to the GL. Expenditure for salary packaging and information technology services hosted for other LHDs are excluded base on an agreed percentage split. Combined, this excluded expenditure totals $4.1 million. Expenditure items included relate to medical indemnity insurance which is held by NSW Health and is not included in the LHD GL. Expenditure included totals $20.3 million. These adjustments established an expenditure base for costing of $1.46 billion. This was approximately 101 percent of total expenditure reported in the GL.
C	Allocation of Costs	The Western Sydney LHD undertakes a process of reclass/transfers etc. between direct cost centres. The net effect of these reclass/transfers was zero. Reclass/transfers are determined based on discussions with cost centre managers. • It was observed that the total of all direct cost centres of $1.15 billion was allocated pre and post allocation. • It was observed through the templates that all overheads of $316.6 million were allocated to direct cost centres, pre and post allocation.
D	Post Allocation Adjustments	No post allocation adjustments were made at the LHD level. It was observed through the template that overhead costs of $316.6 million and direct care costs of $1.15 billion reconcile to the expenditure base for costing of $1.46 billion.
E	Costed Products Submitted to jurisdiction	Costs derived by the jurisdiction and reported at product level reconcile to $1.46 billion. The LHD included acute, non-admitted, emergency, subacute and other costed products. A minor $4 variance between Item D and Item E was identified.

Item	Heading	Discussion
F	Costed Products received by jurisdiction	No variance was noted between Items E and F.
G	Final Adjustments	The jurisdiction makes adjustments to the cost data prior to submission to IHPA. These adjustments related to the inclusion of WIP (including WIP adjustment for the escalation factor), and exclusions of activity data and associated costs. The breakdown of adjustment items included: • Non ABF Facilities of $43.1 million. • ABF Facility Excluded Encounters of $168.3 million. • ABF Facility Non Patient Level Products of $171.9 million. • WIP escalation amount of $37 million. The total cost after these adjustments was $1.12 billion.
H	Costed Products submitted to IHPA	Costs derived by the jurisdiction and reported at product level reconcile to $1.12 billion. NSW Health included acute, non-admitted, emergency, subacute and other costed products. A minor $1 variance between Item G and Item H was noted.
I	Total Products received by IHPA	Total costed products received by IHPA totalled $1.12 billion. There was no variance between costs submitted by the jurisdiction and costs received by IHPA. A minor $1 variance between Item H and Item I was noted.
J	IHPA Adjustments	*Admitted Emergency* Upon receipt of cost data, IHPA allocates the admitted emergency costs back to admitted patients for the purposes of reporting and analysis. Within IHPA's reconciliation this amount was a duplication of admitted emergency costs and not an additional cost. For Western Sydney LHD this amounted to $63.3 million.
K	Final NHCDC Costed Outputs	The final NHCDC costed data for Western Sydney LHD that was loaded into the National Round 18 cost data set was $1.18 billion which includes the admitted emergency cost of $63.3 million.

Source: KPMG, based on Western Sydney LHD templates and review discussions

3.2.3 Activity data

Table 6 presents patient activity feeder data for Western Sydney LHD.

Table 6 – Activity data – Western Sydney LHD

Data	# Records from Source	# Records in costing system	Variance	# Records linked to Acute	# Records linked to Emergency	# Records linked to Non-admitted	Total Linking Process to Products	# Records linked to Other	# Unlinked records	% Linked
Activity Data										
PAS	150,791	150,791	-	-	-	-	-	-	-	-
Emergency	165,289	165,289	-	-	-	-	-	-	-	-
Non-admitted	1,169,853	1,169,853	-	-	-	-	-	-	-	-
TOTAL	**1,485,933**	**1,485,933**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Feeder Data										
Prosthesis	1,718	1,718	-	1,718	-	-	1,718	-	-	100%
Pharmacy	599,270	599,270	-	411,164	17,403	78,512	507,079	92,191	-	85%
Allied	7,002	7,002	-	355	6,064	256	6,675	327	-	95%
Allied	324,068	324,068	-	259,973	299	34,577	294,849	29,219	-	91%
Imaging	115,724	115,724	-	347	114,901	113	115,361	363	-	100%
Imaging	181,766	181,766	-	117,362	589	42,915	160,866	20,900	-	89%
Pathology	434,385	434,385	-	1,570	429,541	1,216	432,327	2,058	-	100%
Pathology	1,359,095	1,359,095	-	994,860	2,694	317,086	1,314,640	44,455	-	97%
Anaesthetics	49,634	49,634	-	40,778	23	7,014	47,815	1,819	-	96%
Theatre	49,634	49,634	-	40,737	30	7,048	47,815	1,819	-	96%
Recovery	49,645	49,645	-	40,779	23	7,020	47,822	1,823	-	96%
Blood	37,993	37,993	-	29,662	3,144	5,078	37,884	109	-	100%
ED Service	165,117	165,117	-	-	165,117	-	165,117	-	-	100%
NAP Service	1,284,127	1,284,127	-	-	-	1,284,127	1,284,127	-	-	100%

Source: KPMG based on data supplied by Western Sydney LHD

The following should be noted about the activity and feeder data for Western Sydney LHD:

- There are 14 feeders reported from hospital source systems and they appear to represent major hospital departments providing resource activity.
- With the exception of two feeder data systems, the number of records linked to admitted acute patients, emergency or non-admitted patients had a greater than 90 percent link or match. The two exceptions had a greater than 85 percent link or match. This suggests that there is robustness in the level of feeder activity reported back to episodes.

Table 7 highlights the transfer of activity data from Western Sydney LHD to NSW Health and then through to IHPA submission and finalisation.

Table 7 – Activity data submission – Western Sydney LHD

Product	Activity related to 2013-14 Costs	Adjustments	Activity submitted to jurisdiction	Adjustments	Activity submitted to IHPA	Adjustments	Total Activity submitted for Round 18 NHCDC
Acute	144,708	-	144,708	(3,813)	140,895	-	140,895
Non-admitted	1,168,060	-	1,168,060	(223,106)	944,954	-	944,954
Emergency	165,289	-	165,289	(18,755)	146,534	-	146,534
Sub Acute	6,068	-	6,068	(357)	5,711	-	5,711
Mental Health	-	-	-	-	-	-	-
Other	67,093	-	67,093	(64,535)	2,558	-	2,558
Research	-	-	-	-	-	-	-
Teaching and Training	-	-	-	-	-	-	-
Total	**1,551,218**	**-**	**1,551,218**	**(310,566)**	**1,240,652**	**-**	**1,240,652**

Source: KPMG based on data supplied by Western Sydney LHD, NSW Health and IHPA

The following should be noted about the transfer of activity data for Western Sydney LHD:

- The variance between records from source detailed in Table 6 (1,485,933 records) and activity related to 2013-14 costs by NHCDC product in Table 7 (1,551,218 records) was attributable to:
  - Only patient level records were allocated to acute, sub-acute, emergency and non-admitted (patient level) NHCDC products. Non-patient level data was removed; and
  - Records allocated to the other product category related to dummy and virtual encounters which included aggregate non-admitted patient records and TTR (for example).
- Adjustments made by NSW Health relate to the activity associated with the exclusion of costs (at Item G in the reconciliation) such as non-ABF facilities, ABF facility excluded encounters and ABF facility non-patient level products.
- The adjustments made by IHPA relating to admitted emergency reallocations for reporting and analysis purposes (as discussed in Item J of the explanation of reconciliation items) has no impact on the reported activity.

3.2.4 Treatment of WIP

Table 8 demonstrates models for WIP and what was included in the Western Sydney LHD Round 18 NHCDC submission.

Table 8 – WIP – Western Sydney LHD

Model	Description	Submitted to Round 18 NHCDC
1	Admitted and Discharged Patients in 2013/14 only	Submitted to Round 18 of the NHCDC
2	Costs for patients discharged in 2013/14 but admitted prior to 2013/14	Submitted to Round 18 of the NHCDC. Costs are submitted from 2011/12 and escalated.
3	Costs for patients admitted prior to or in 2013/14 and remain admitted at 30/06/2014	Not submitted to Round 18 of the NHCDC
4	Costs for patients admitted prior to 2013/14 and still admitted at 30/06/2014	Not submitted to Round 18 of the NHCDC

Source: KPMG, based on Western Sydney LHD templates and review discussions

In summary, for Western Sydney LHD, NSW Health submitted WIP costs for admitted and discharged patients in 2013/14 and WIP costs for 2011/12 and 2012/13 for those patients admitted prior to, but discharged, in 2013/14.

Escalation factor

NSW Health applied the escalation factors provided by IHPA for prior years to the costs associated with WIP as part of the Round 18 submission to the NHCDC for Western Sydney LHD.

3.2.5 Treatment of specific items

The following items were discussed during the reviews to understand their treatment in the costing process as the cost data is used to inform the NEP and specific funding model adjustments for particular patient cohorts. Western Sydney LHD's treatment of each of the items is highlighted below. It should be noted that Western Sydney LHD costing staff acknowledged that they cost according to the NSW Health costing guidelines and the jurisdiction stated that where possible the NSW guidelines comply with the AHPCS.

Table 9 – Treatment of specific items – Western Sydney LHD

Item	Treatment
Research	Research costs are assigned to a product. However are excluded from NHCDC submission.
Teaching and Training	Teaching and Training costs are assigned to a product. However are excluded from NHCDC submission.
Shared/Other commercial entities	Expenditure is excluded by the LHD by allocating it to a non-patient product.
Intensive Care Unit	No change to the costing methodology. No ICU weights or adjustments made.
Aboriginal Torres Strait Islander patients	No change to the costing methodology. No ATSI weights or adjustments made. Costs based on resources linked.

Item	Treatment
Private Patients	No change to the costing methodology. VMO costs are not allocated to private patients. No private patient weights or adjustments are made for staff specialists.
Pharmaceutical Benefits Scheme drugs	NSW is not a signatory to the PBS Agreement so distinction between PBS and Non-PBS is not applicable. S100 drugs are not allocated to non-admitted service events.

Source: KPMG based on IFR discussions

3.2.6 Sample patient data

IHPA selected a sample of five patients from Western Sydney LHD for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. NSW Health provided the patient level costs for all five patients and these reconciled to IHPA records. The results are summarised in Table 10.

Table 10 – Sample patients – Western Sydney LHD

#	Product	Jurisdiction records	Received by IHPA	Variance
1	Non-admitted	$401	$401	$-
2	Acute	$171,968	$171,968	$-
3	Acute	$2,336	$2,336	$-
4	Admitted ED	$944	$944	$-
5	Non-Admitted ED	$606	$606	$-

Source: KPMG, based on Western Sydney LHD and IHPA data

3.3 Illawarra Shoalhaven Local Health District

3.3.1 Overview

The Illawarra Shoalhaven LHD's catchment area extends about 250 kilometres along the coastal strip from Helensburgh in the north to North Durras in the south, servicing a population of more than 390,000 residents. Illawarra Shoalhaven LHD is one of the region's largest employers with a workforce of more than 7,300 across nine hospital sites and community health services. The following hospitals are included in the Illawarra Shoalhaven LHD:

- Bulli Hospital
- Coledale Hospital
- David Berry Hospital
- Kiama Hospital and Community Health Service
- Milton-Ulladulla Hospital
- Port Kembla Hospital
- Shellharbour Hospital
- Shoalhaven District Memorial Hospital
- Wollongong Hospital.[2]

3.3.2 Financial data

For the Round 18 IFR, representatives from NSW Health completed the IFR templates and participated in consultations during the review. Representatives of Illawarra Shoalhaven LHD also attended the site visit.

Table 11 presents a summary of Illawarra Shoalhaven LHD costs, commencing with extraction of the GL through to the final NHCDC costs for the LHD for Round 18.

[2] Illawarra Shoalhaven Local Health District NSW Government [https://www.islhd.health.nsw.gov.au/Hospitals.asp]. *Accessed 9 October 2015*

Table 11 – Round 18 NHCDC Reconciliation – Illawarra Shoalhaven LHD

Hospital			
Item		**Amount**	**% of GL**
A General Ledger (GL)	$	771,431,349	
B Adjustments to the GL			
Inclusions	$	11,418,340	
Exclusions	$	(4,351,564)	
Total hospital expenditure	**$**	**778,498,125**	*100.92%*
C Allocation of Costs			
Post Allocation Direct amount	$	620,878,910	
Post Allocation Overhead amount	$	157,619,216	
Total hospital expenditure	**$**	**778,498,126**	*100.92%*
Variance	*$*	*0*	*0.00%*
D Post Allocation Adjustments			
nil	$	-	
Total expenditure allocated to patients	**$**	**778,498,126**	*100.92%*
E Costed products submitted to jurisdiction			
Acute	$	390,338,820	
Non-admitted	$	93,268,608	
Emergency	$	92,424,236	
Sub Acute	$	78,590,081	
Mental Health	$	-	
Other	$	123,876,380	
Research	$	-	
Teaching & Training	$	-	
	$	**778,498,125**	*100.92%*
Variance	*$*	*(0)*	*0.00%*

Jurisdiction		
Item		**Amount**
F Costed Products received by jurisidction	$	778,498,125
Variance	*$*	*-*
G Final Adjustments		
WIP Escalation	$	13,928,416
Non ABF Facilities	$	(138,814,401)
ABF Facility Excluded Encounters	$	(27,539,227)
ABF Facility Non Patient Level Products	$	(57,961,528)
Total costs submitted to IHPA	**$**	**568,111,385**
H Costed products submitted to IHPA		
Acute	$	374,886,581
Non-admitted	$	52,581,948
Emergency	$	76,323,189
Sub Acute	$	58,736,567
Mental Health	$	-
Other	$	5,583,099
Research	$	-
Teaching & Training	$	-
	$	**568,111,386**
Variance	*$*	*0*

IHPA		
Item		**Amount**
I Total costed products received by IHPA	$	568,111,386
Variance	*$*	*-*
J IHPA Adjustments		
Admitted ED Reallocations	$	30,087,245
Final NHCDC costs	**$**	**598,198,631**
K Final NHCDC costed products		
*Acute**	$	404,941,391
Non-admitted	$	52,581,949
Emergency	$	76,323,189
*Sub Acute**	$	58,757,815
Mental Health	$	-
Other	$	5,594,286
Research	$	-
Teaching & Training	$	-
	$	**598,198,630**
Variance	*$*	*(1)*

Source: KPMG based on data supplied by Illawarra Shoalhaven LHD jurisdiction and IHPA

** These figures include admitted emergency costs.*

Explanation of reconciliation items

Table 12 discusses each of the reconciliation items including adjustments, inclusions and exclusions to the GL.

Table 12 – Financial Reconciliation, explanation of items – Illawarra Shoalhaven LHD

Item	Heading	Discussion
A	General Ledger	The final GL extracted from NSW financial systems indicates expenditure for the entire LHD of $771.4 million.
B	Adjustments to the GL	A number of adjustments are made to the GL. Expenditure for salary packaging services hosted for other LHDs are excluded base on an agreed percentage split. The Medical Imaging operates as a Business Unit, and costs relating to the non-public hospital services are excluded by revenue offset. Combined this excluded expenditure totals $4.4 million. Expenditure items included relate to medical indemnity insurance which is held by NSW Health and is not included in the LHD GL. Expenditure included totals $11.4 million. These adjustments established an expenditure base for costing of $778.5 million. This was approximately 101 percent of total expenditure reported in the GL.
C	Allocation of Costs	The LHD undertakes a process of reclass/transfers etc. between direct cost centres. The net effect of these reclass/transfers was zero. Reclass/transfers are determined based on discussion with cost centre managers and for Illawarra Shoalhaven LHD related to product fractions and non-admitted patients. • It was observed that the total of all direct cost centres of $620.9 million was allocated pre and post allocation. • It was observed through the template that all overheads of $157.6 million were allocated to direct cost centres, pre and post allocation.
D	Post Allocation Adjustments	No post allocation adjustments at the LHD level were reported. It was observed through the template that direct care costs of $620.9 million and overhead costs of $157.6 million reconcile to the expenditure base for costing of $778.5 million.

Item	Heading	Discussion
E	Costed Products Submitted to jurisdiction	Costs derived by the jurisdiction and reported at product level reconcile to $778.5 million. The Illawarra Shoalhaven LHD included acute, non-admitted, emergency, subacute and other costed products.
F	Costed Products received by jurisdiction	No variance was noted between Items E and F.
G	Final Adjustments	The jurisdiction makes adjustments to the cost data prior to submission to IHPA. These adjustments related to the inclusion of WIP (including WIP adjustment for the escalation factor), and exclusions of activity data and associated costs as they were considered out of scope for the submission. The total amount of adjustments was $210 million. The breakdown of adjustment items included: • Non ABF Facilities of $138.8 million. • ABF Facility Excluded Encounters of $27.5 million. • ABF Facility Non Patient Level Products of $57.7 million. • WIP escalation amount of $13.9 million. The total cost after these adjustments was $568.1 million.
H	Costed Products submitted to IHPA	Costs derived by the jurisdiction and reported at product level reconcile to $568.1 million. NSW Health included acute, non-admitted, emergency, subacute and other costed products.
I	Total Products received by IHPA	Costed products received by IHPA totalled $568.1 million. There was no variance between costs submitted by the jurisdiction and costs received by IHPA.
J	IHPA Adjustments	*Admitted Emergency* Upon receipt of cost data, IHPA allocates the admitted emergency costs back to admitted patients for the purposes of reporting and analysis. Within IHPA's reconciliation this amount was a duplication of admitted emergency costs and not an additional cost. For Illawarra Shoalhaven LHD this amounted to $30.1 million.
K	Final NHCDC Costed Outputs	The final NHCDC costed data for Illawarra Shoalhaven LHD that was loaded into the National Round 18 cost data set was $598.2 million which includes the admitted

Item	Heading	Discussion
		emergency cost of $30.1 million. A minor $1 variance was noted between Item J and Item K.

Source: KPMG, based on Illawarra Shoalhaven LHD templates and review discussions

3.3.3 Activity data

Table 13 presents patient activity and feeder data for Illawarra Shoalhaven LHD.

Table 13 – Activity data – Illawarra Shoalhaven LHD

Data	# Records from Source	# Records in costing system	Variance	# Records linked to Acute	# Records linked to Emerg..	# Records linked to Non-admitted	Total Linking Process to Products	# Records linked to Other	# Unlinked records	% Linked
Activity Data										
PAS	144,396	144,396	-	-	-	-	-	-	-	-
Emergency	86,775	86,775	-	-	-	-	-	-	-	-
Non-admitted	380,780	380,780	-	-	-	-	-	-	-	-
TOTAL	**611,951**	**611,951**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Feeder Data										
Acute Rehab Team	124	124	-	123	-	-	123	-	1	99%
Ambulance	3,042	3,042	-	1,086	1,819	-	2,905	-	137	95%
Anaesthetics	20,616	20,616	-	18,454	-	2,133	20,587	29	-	100%
Blood Products	22,401	22,401	-	12,674	2,743	1,572	16,989	5,412	-	76%
CardioProsth	676	676	-	665	-	-	665	-	11	98%
Imaging	194,801	194,801	-	56,530	115,017	12,375	183,922	10,879	-	94%
Nuclear Medicine	4,247	4,247	-	2,040	148	475	2,663	1,584	-	63%
Operating Room	20,655	20,655	-	18,490	-	2,136	20,626	29	-	100%
ORProsth	20,255	20,255	-	20,226	-	9	20,235	-	20	100%
Pathology	270,266	270,266	-	157,906	99,685	4,553	262,144	8,122	-	97%
Pharmacy	205,713	205,713	-	155,830	7,758	13,373	176,961	28,752	-	86%
Recovery	19,953	19,953	-	17,832	-	2,096	19,928	25	-	100%
Service ED	144,707	144,707	-	-	144,706	-	144,706	-	1	100%
Service NAP	437,114	437,114	-	-	-	437,114	437,114	-	-	100%

Source: KPMG based on data supplied by Illawarra Shoalhaven LHD

The following should be noted about the activity and feeder data for Illawarra Shoalhaven LHD:

- There are 14 feeders reported from hospital source systems and they appear to represent major hospital departments providing resource activity.
- With the exception of three feeder data systems, the number of records that are linked to either admitted acute patients, emergency or non-admitted patients had a greater than 90 percent link or match. The three exceptions had a greater than 63 percent link or match. This would suggest that there is robustness in the level of feeder activity reported back to episodes.
- The Nuclear Medicine feeder has the lowest percentage of linked records.

Table 14 highlights the transfer of activity data from Illawarra Shoalhaven LHD to NSW Health and then through to IHPA submission and finalisation.

Table 14 – Activity data submission – Illawarra Shoalhaven LHD

Product	Activity related to 2013-14 Costs	Adjustments	Activity submitted to jurisdiction	Adjustments	Activity submitted to IHPA	Adjustments	Total Activity submitted for Round 18 NHCDC
Acute	79,856	-	79,856	(3,748)	76,108	-	76,108
Non-admitted	380,780	-	380,780	(154,727)	226,053	-	226,053
Emergency	144,706	-	144,706	(26,509)	118,197	-	118,197
Sub Acute	8,010	-	8,010	(1,907)	6,103	-	6,103
Mental Health	-	-	-	-	-	-	-
Other	32,965	-	32,965	(32,396)	569	-	569
Research	-	-	-	-	-	-	-
Teaching and Training	-	-	-	-	-	-	-
Total	**646,317**	**-**	**646,317**	**(219,287)**	**427,030**	**-**	**427,030**

Source: KPMG based on data supplied by Illawarra Shoalhaven LHD, NSW Health and IHPA

The following should be noted about the transfer of activity data for Illawarra Shoalhaven LHD:

- The variance between records from source detailed in Table 13 (611,951 records) and activity related to 2013-14 costs by NHCDC product in Table 14 (646,317 records) was attributable to:
  - Only patient level records were allocated to acute, sub-acute, emergency and non-admitted (patient level) NHCDC products. Non-patient level data was removed; and
  - Records allocated to the other product category related to dummy and virtual encounters which included aggregate non-admitted patient records and TTR (for example).
- Adjustments made by NSW Health relate to the activity associated with the exclusion of costs (at Item G in the reconciliation) such as Non-ABF facilities, ABF facility excluded encounters and ABF facility non-patient level products.
- The adjustments made by IHPA relating to admitted emergency reallocations for reporting and analysis purposes (as discussed in Item J of the explanation of reconciliation items) has no impact on the reported activity.

3.3.4 Treatment of WIP

Table 15 demonstrates models for WIP and what was included in the Illawarra Shoalhaven LHD Round 18 NHCDC submission.

Table 15 – WIP – Illawarra Shoalhaven LHD

Model	Description	Submitted to Round 18 NHCDC
1	Admitted and Discharged Patients in 2013/14 only	Submitted to Round 18 of the NHCDC
2	Costs for patients discharged in 2013/14 but admitted prior to 2013/14	Submitted to Round 18 of the NHCDC. Costs are submitted from 2011/12 and escalated.
3	Costs for patients admitted prior to or in 2013/14 and remain admitted at 30/06/2014	Not submitted to Round 18 of the NHCDC
4	Costs for patients admitted prior to 2013/14 and still admitted at 30/06/2014	Not submitted to Round 18 of the NHCDC

Source: KPMG, based on Illawarra Shoalhaven LHD templates and review discussions

In summary, for Illawarra Shoalhaven LHD, NSW Health submitted WIP costs for admitted and discharged patients in 2013/14 and WIP costs for 2011/12 and 2012/13 for those patients admitted prior to, but discharged, in 2013/14.

Escalation factor

NSW Health applied the escalation factors provided by IHPA for prior years to the costs associated with WIP as part of the Round 18 submission to the NHCDC for Illawarra Shoalhaven LHD.

3.3.5 Treatment of specific items

The following items were discussed during the reviews to understand their treatment in the costing process as the cost data is used to inform the NEP and specific funding model adjustments for particular patient cohorts. It should be noted that costing staff acknowledged that they cost according to the NSW Health costing guidelines, and the jurisdiction stated that where possible the NSW guidelines comply with the AHPCS.

Table 16 – Treatment of specific items – Illawarra Shoalhaven LHD

Item	Treatment
Research	Research costs are assigned to a product. However are excluded from NHCDC submission.
Teaching and Training	Teaching and Training costs are assigned to a product. However are excluded from NHCDC submission.
Shared/Other commercial entities	Expenditure is excluded by the LHD by allocating it to a non-patient product.
Intensive Care Unit	No change to the costing methodology. No ICU weights or adjustments made.
Aboriginal Torres Strait Islander patients	No change to the costing methodology. No ATSI weights or adjustments made. Costs based on resources linked.
Private Patients	No change to the costing methodology. VMO costs are not allocated to private patients. No private patient

Item	Treatment
	weights or adjustments are made for staff specialists.
Pharmaceutical Benefits Scheme drugs	NSW is not a signatory to the PBS Agreement so distinction between PBS and Non-PBS is not applicable. S100 drugs are not allocated to non-admitted service events.

Source: KPMG

3.3.6 Sample patient data

IHPA selected a sample of five patients from Illawarra Shoalhaven LHD for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. NSW Health provided the patient level costs for all five patients and these reconciled to IHPA records. The results are summarised in Table 17.

Table 17 – Sample patients – Illawarra Shoalhaven LHD

#	Product	Jurisdiction records	Received by IHPA	Variance
1	Non-admitted	$445	$445	$-
2	Acute	$17,462	$17,462	$-
3	Acute	$19,591	$19,591	$-
4	Acute	$20,007	$20,007	$-
5	Acute	$46,974	$46,974	$-

Source: KPMG, based on Illawarra Shoalhaven LHD and IHPA data

3.4 Northern NSW Local Health District

3.4.1 Overview

The Northern NSW LHD encompasses fourteen hospitals and a variety of community health centres (approximately 21) from Tweed Heads to Grafton. The Northern NSW LHD has approximately 4,000 full-time equivalent employees. Hospitals included in this LHD are:

- Ballina District Hospital
- Byron Central Hospital Development
- Bonalbo Hospital
- Byron District Hospital
- Casino & District Memorial Hospital
- Grafton Base Hospital
- Kyogle Memorial Hospital
- Lismore Base Hospital
- Maclean District Hospital
- Mullumbimby War Memorial Hospital
- Murwillumbah District Hospital
- Nimbin Multi-Purpose Centre
- The Tweed Hospital
- Urbenville Rural Hospital.[3]

3.4.2 Financial data

For the Round 18 IFR, representatives from NSW Health completed the IFR templates and participated in consultations during the review.

Table 18 presents a summary of Northern NSW LHD costs, commencing with extraction of the GL through to the final NHCDC costs for the hospital for Round 18.

[3] Northern NSW Local Health District – NSW Government [http://www.health.nsw.gov.au/lhd/Pages/nnswlhd.aspx]. *Accessed 9 October 2015*

Table 18 – Round 18 NHCDC Reconciliation – Northern NSW LHD

Hospital			
Item		**Amount**	**% of GL**
A General Ledger (GL)	$	665,479,052	
B Adjustments to the GL			
Inclusions	$	10,724,440	
Exclusions	$	(1,657)	
Total hospital expenditure	**$**	**676,201,835**	*101.61%*
C Allocation of Costs			
Post Allocation Direct amount	$	516,775,337	
Post Allocation Overhead amount	$	159,426,498	
Total hospital expenditure	**$**	**676,201,835**	*101.61%*
Variance	*$*	*1*	*0.00%*
D Post Allocation Adjustments			
nil	$	-	
Total expenditure allocated to patients	**$**	**676,201,835**	*101.61%*
E Costed products submitted to jurisdiction			
Acute	$	357,604,475	
Non-admitted	$	54,131,127	
Emergency	$	104,955,128	
Sub Acute	$	25,713,992	
Mental Health	$	127,857	
Other	$	133,669,255	
Research	$	-	
Teaching & Training	$	-	
	$	**676,201,835**	*101.61%*
Variance	*$*	*-*	*0.00%*

Jurisdiction		
Item		**Amount**
F Costed Products received by jurisidction	$	676,201,835
Variance	*$*	*-*
G Final Adjustments		
WIP Escalation	$	8,017,011
Non ABF Facilities	$	(134,482,886)
ABF Facility Excluded Encounters	$	(35,211,340)
ABF Facility Non Patient Level Products	$	(54,239,164)
Total costs submitted to IHPA	**$**	**460,285,456**
H Costed products submitted to IHPA		
Acute	$	336,461,705
Non-admitted	$	21,870,415
Emergency	$	73,500,036
Sub Acute	$	22,157,711
Mental Health	$	-
Other	$	6,295,595
Research	$	-
Teaching & Training	$	-
	$	**460,285,462**
Variance	*$*	*6*

IHPA		
Item		**Amount**
I Total costed products received by IHPA	$	460,285,463
Variance	*$*	*1*
J IHPA Adjustments		
Admitted ED Reallocations	$	44,706,761
Final NHCDC costs	**$**	**504,992,224**
K Final NHCDC costed products		
*Acute**	$	381,164,543
Non-admitted	$	21,870,414
Emergency	$	73,500,036
*Sub Acute**	$	22,185,103
Mental Health	$	-
Other	$	6,272,125
Research	$	-
Teaching & Training	$	-
	$	**504,992,221**
Variance	*$*	*(3)*

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

** These figures include admitted emergency costs.*

Explanation of reconciliation items

Table 19 discusses each of the reconciliation items including adjustments, inclusions and exclusions to the GL.

Table 19 – Financial Reconciliation, explanation of items – Northern NSW LHD

Item	Heading	Discussion
A	General Ledger	The final GL extracted from NSW financial systems indicates expenditure for the Northern NSW LHD was $665.5 million.
B	Adjustments to the GL	A number of adjustments are made to the GL. Expenditure for NGO coordination, Mental Health and Renal service management and salary packaging services hosted for other LHDs are excluded base on an agreed percentage split. Combined, this excluded expenditure totals $1,657. Expenditures included relate to medical indemnity insurance which is held by NSW Health and is not included in the LHD GL. Expenditure included totals $10.7 million. These adjustments established an expenditure base for costing of $676.2 million. This was approximately 102 percent of total expenditure reported in the GL.
C	Allocation of Costs	The LHD undertakes a process of reclass/transfers etc. between direct cost centres. The net effect of these reclass/transfers was zero. Reclass/transfers are determined based on discussion with cost centre managers. • It was observed that the total of all direct cost centres of $516.8 million was allocated pre and post allocation. • It was observed through the template that all overheads of $159.4 million were allocated to direct cost centres, pre and post allocation.
D	Post Allocation Adjustments	No post allocation adjustments at the LHD level were reported. It was observed through the template that direct care costs of $516.8 million and overhead costs of $159.4 million reconcile to the expenditure base for costing of $676.2 million.
E	Costed Products Submitted to jurisdiction	Costs derived by the jurisdiction and reported at product level reconcile to $676.2 million. The LHD included acute,

Item	Heading	Discussion
		non-admitted, emergency, subacute, mental health and other costed products.
F	Costed Products received by jurisdiction	No variance was noted between Items E and F.
G	Final Adjustments	The jurisdiction makes adjustments to the cost data prior to submission to IHPA. These adjustments related to the inclusion of WIP (including WIP adjustment for the escalation factor), and exclusions of activity data and associated costs as they were considered out of scope for the submission. The total amount of adjustments was $215.9 million. The breakdown of adjustment items included: • Non ABF Facilities of $134.5 million • ABF Facility Excluded Encounters of $35.2 million • ABF Facility Non Patient Level Products of $54.2 million • A WIP escalation amount of $8 million The total cost after these adjustments was $460.3 million.
H	Costed Products submitted to IHPA	Total costs submitted to IHPA by NSW Health were $460.3 million. NSW Health included acute, non-admitted, emergency, subacute and other costed products. A minor variance of $6 was noted between Item G and Item H.
I	Total Products received by IHPA	Costed products received by IHPA totalled $460.3 million. There was no variance between costs submitted by the jurisdiction and costs received by IHPA. A minor variance of $1 was noted between Item H and Item I.
J	IHPA Adjustments	*Admitted Emergency* Upon receipt of cost data, IHPA allocates the admitted emergency costs back to admitted patients for the purposes of reporting and analysis. Within IHPA's reconciliation this amount was a duplication of admitted emergency costs and not an additional cost. For Northern NSW LHD this amounted to $44.7 million. *Unqualified Baby Adjustment* Upon receipt of cost data, IHPA redistributes the unqualified baby cost to the mother DRG to provide a complete delivery DRG cost. Within IHPAs reconciliation

Item	Heading	Discussion
		this was not an additional cost but a movement between patients.
K	Final NHCDC Costed Outputs	The final NHCDC costed data for Northern NSW LHD that was loaded into the National Round 18 cost data set was $505 million which includes the admitted emergency cost of $44.7 million. A minor variance of $3 was noted between Item J and Item K.

Source: KPMG, based on Northern NSW LHD templates and review discussions

3.4.3 Activity data

Table 20 presents patient activity and feeder data for Northern NSW LHD.

Table 20 – Activity data – Northern NSW LHD

Data	# Records from Source	# Records in costing system	Variance	# Records linked to Acute	# Records linked to Emerg.	# Records linked to Non-admitted	Total Linking Process to Products	# Records linked to Other	# Unlinked records	% Linked
Activity Data										
PAS	89,901	89,815	(86)	-	-	-	178,559	(88,744)	86	198.62%
Emergency	185,164	185,164	-	-	-	-	-	-	-	-
Non-admitted	376,379	376,379	-	-	-	-	-	-	-	-
TOTAL	**651,444**	**651,358**	**(86)**	**-**	**-**	**-**	**178,559**	**(88,744)**	**86**	
Feeder Data										
Anaesthetics	23,944	23,944	-	-	-	-	23,944	-	-	100%
Theatre	23,947	23,947	-	-	-	-	23,947	-	-	100%
Prosthetics	14,931	14,931	-	-	-	-	14,931	-	-	100%
Pathology	525,658	525,658	-	-	-	-	522,867	-	2,791	99%
Blood	7,949	7,949	-	-	-	-	7,655	-	294	96%
Pharmacy	80,555	80,555	-	-	-	-	74,084	-	6,471	92%
Imaging	135,779	135,779	-	-	-	-	124,586	-	11,193	92%

Source: KPMG based on data supplied by Northern NSW LHD

The following should be noted about the activity and feeder data for Northern NSW LHD.

- During Round 18, there was an issue with the extract from the source system for the PAS data for Northern NSW LHD which resulted in a near duplication of records. The numbers reflected in the activity data for PAS reflected the initial extract before the duplication issue was corrected. The 88,744 duplicated records were not costed.
- There are seven feeders reported from hospital source systems.
- The number of records linked from source to product was significant as anaesthetics, theatre and prostheses demonstrated zero unlinked records. Pathology had less than one percent of unlinked records.
- The Blood feeder system had four percent of records unlinked, however that feeder will be decommissioned and a new system in place and is expected to be used in Round 19.

- Pharmacy and imaging had 8 percent unlinked records. The unlinked records are a result of a number of patients having scripts filled outside of linking rule ranges, including patients having three week post discharge interactions with the health service. Costing staff indicated that to change linking rules to accommodate this practice, would increase the rate of unlinked records.
- The linking ratios across all feeders suggest that there is robustness in the level of feeder activity reported back to episodes.

Table 21 highlights the transfer of activity data from Northern NSW LHD to NSW Health and then through to IHPA submission and finalisation.

Table 21 – Activity data submission – Northern NSW LHD

Product	Activity related to 2013-14 Costs	Adjustments	Activity submitted to jurisdiction	Adjustments	Activity submitted to IHPA	Adjustments	Total Activity submitted for Round 18 NHCDC
Acute	87,120	-	87,120	(5,102)	82,018	-	82,018
Non-admitted	249,852	-	249,852	(132,374)	117,478	-	117,478
Emergency	185,157	-	185,157	(63,333)	121,824	-	121,824
Sub Acute	2,582	-	2,582	(316)	2,266	-	2,266
Mental Health	418	-	418	(418)	-	-	-
Other	21,172	-	21,172	(20,245)	927	(5)	922
Research	-	-	-	-	-	-	-
Teaching and Training	-	-	-	-	-	-	-
Total	**546,301**	**-**	**546,301**	**(221,788)**	**324,513**	**(5)**	**324,508**

Source: KPMG based on data supplied by Northern NSW LHD, NSW Health and IHPA

The following should be noted about the transfer of activity data for Northern NSW LHD:

- The variance between records from source detailed in Table 20 (651,444 records) and activity related to 2013-14 costs by NHCDC product in Table 21 (546,301 records) was attributable to:
  - Non-admitted activity data from source includes all facilities for Northern NSW LHD, whereas, only ABF facilities were included in the costing process.
  - Only patient level records were allocated to acute, sub-acute, emergency and non-admitted (patient level) NHCDC products. Non-patient level data was removed; and
  - Records allocated to the other product category related to dummy and virtual encounters which included aggregate non-admitted patient records and TTR (for example).
- Adjustments made by NSW Health relate to the activity associated with the exclusion of costs (at Item G in the reconciliation) such as Non-ABF facilities, ABF facility excluded encounters and ABF facility non-patient level products.
- The adjustment made by IHPA to the other product relates to the UQB adjustment discussed in Item J of the explanation of financial reconciliation items.

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

3.4.4 Treatment of WIP

Table 22 demonstrates models for WIP and what was included in the Northern NSW LHD Round 18 NHCDC submission.

Table 22 – WIP – Northern NSW LHD

Model	Description	Submitted to Round 18 NHCDC
1	Admitted and Discharged Patients in 2013/14 only	Submitted to Round 18 of the NHCDC
2	Costs for patients discharged in 2013/14 but admitted prior to 2013/14	Submitted to Round 18 of the NHCDC. Costs are submitted from 2011/12, 12/13 and 13/14 and where appropriate escalated.
3	Costs for patients admitted prior to or in 2013/14 and remain admitted at 30/06/2014	Not submitted to Round 18 of the NHCDC
4	Costs for patients admitted prior to 2013/14 and still admitted at 30/06/2014	Not submitted to Round 18 of the NHCDC

Source: KPMG, based on Northern NSW LHD templates and review discussions

In summary, for Northern NSW LHD, NSW Health submitted WIP costs for admitted and discharged patients in 2013/14 and WIP costs for 2011/12 and 2012/13 for those patients admitted prior to, but discharged, in 2013/14.

Escalation factor

NSW Health applied the escalation factors provided by IHPA for prior years to the costs associated with WIP as part of the Round 18 submission to the NHCDC for Northern NSW LHD.

3.4.5 Treatment of specific items

The following items were discussed during the reviews to understand their treatment in the costing process as the cost data is used to inform the NEP and specific funding model adjustments for particular patient cohorts. It should be noted that costing staff acknowledged that they cost according to the NSW Health costing guidelines, and the jurisdiction stated that where possible the NSW guidelines comply with the AHPCS.

Table 23 – Treatment of specific items – Northern NSW LHD

Item	Treatment
Research	Research costs are assigned to a product. However are excluded from NHCDC submission.
Teaching and Training	Teaching and Training costs are assigned to a product. However are excluded from NHCDC submission.
Shared/Other commercial entities	Expenditure is excluded by the LHD by allocating it to a non-patient product.

Item	Treatment
Intensive Care Unit	No change to the costing methodology. No ICU weights or adjustments made.
Aboriginal Torres Strait Islander patients	No change to the costing methodology. No ATSI weights or adjustments made. Costs based on resources linked.
Private Patients	No change to the costing methodology. VMO costs are not allocated to private patients. No private patient weights or adjustments are made for staff specialists.
Pharmaceutical Benefits Scheme drugs	NSW is not a signatory to the PBS Agreement so distinction between PBS and Non-PBS is not applicable. S100 drugs are not allocated to non-admitted service events.

Source: KPMG

3.4.6 Sample patient data

IHPA selected a sample of five patients from Northern NSW LHD for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. NSW Health provided the patient level costs for all five patients and these reconciled to IHPA records. The results are summarised in Table 24.

Table 24 – Sample patients – Northern NSW LHD

#	Product	Jurisdiction records	Received by IHPA	Variance
1	Non-admitted	$27	$27	$-
2	Non-Admitted ED	$173	$173	$-
3	Admitted ED	$950	$950	$-
4	Acute	$72,696	$72,696	$-
5	Acute	$6,363	$6,363	$-

Source: KPMG, based on Northern NSW LHD and IHPA data

3.5 Application of AHPCS Version 3.1

Table 25 summarises NSW Health's application of selected standards from version 3.1 of the AHPCS (outlined in Section 1.3.4) to the Western Sydney LHD, Illawarra Shoalhaven LHD and Northern NSW LHD Round 18 NHCDC submission. The application of the selected standards was consistent across each of the three LHD's reviewed during the Round 18 IFR. It should be noted that NSW Health identified during the review process that the selected LHDs consistently apply the NSW Health costing standards which incorporate the AHPCS.

Table 25 – Application of Costing Standards – NSW samples LHDs

No.	Title	Discussion
SCP 1.004	Hospital Products in Scope	NSW Health representatives and site costing coordinators demonstrated through the templates and interview process that costs are reported

No.	Title	Discussion
		against all products. It was noted that costs are also created for non-patient products (such as commercial entities) which are not submitted to the NHCDC. Unlinked feeder data may or may not generate virtual or dummy records to which costs are allocated. The generation of dummy records is specific to the feeder. These dummy records with costs are not submitted to the NHCDC. Teaching, Training and Research products are assigned costs but attached to the dummy patient and are not submitted to the NHCDC.
SCP 2.003	Product Costs in Scope	Through the interview process, NSW Health representatives demonstrated the NSW reconciliation process for financial data used for costing purposes. It was also stated that all products are costed, which includes costs assigned to products in scope for the NHCDC, unlinked activity, and costs assigned to dummy patients where there is no activity. For private patient costs the NSW representative indicated that all hospitals in NSW cost according to the NSW costing guidelines. There are no private patient weights or adjustments made to this cohort. NSW is not a signatory to the PBS Agreement so distinction between PBS and Non-PBS is not applicable. S100 drugs are not allocated to Non-admitted service events.
SCP 2A.003	Teaching and Training Costs	Teaching and Training costs are assigned to a product. However are excluded from NHCDC submission.
SCP 2B.002	Research Costs	Research costs are assigned to a product. However are excluded from NHCDC submission.
SCP 3.001	Matching Production and Cost	This was demonstrated during the site visit and an excel file was produced from the costing system which outlined all transfers and offsets

No.	Title	Discussion
		utilised.
SCP 3A.001	Matching Production and Cost – Overhead Cost Allocation	The jurisdiction was able to demonstrate that overhead costs were fully allocated to direct patient care areas via the pre allocation and post allocation data included in the templates.
SCP 3B.001	Matching Production and Cost – Costing all Products	Demonstrated in the template and NSW provided an overview of their internal reconciliation process which demonstrated the allocation of costs to products.
SCP 3C.001	Matching Production and Cost – Commercial Business Entities	Based on discussions during the review, LHD costing officers state that where these entities exist, the costs were allocated to a non-patient product.
SCP 3E.001	Matching Production and Cost – Offsets and Recoveries	No offsets were presented in the final templates. During the interviews Illawarra Shoalhaven LHD noted that medical imaging was treated as a separate business unit. For private patients, the expense had already been charged to the hospital so the revenue offsets expenditure for these patients.
SCP 3G.001	Matching Production and Cost – Reconciliation to Source Data	NSW Health representatives demonstrated through the interview process the NSW reconciliation process for financial and activity data used for costing purposes. The process appears robust.
GL2.004	Account Code Mapping to Line Items	NSW Health indicated that it mapped total costs to the standard specified line items following submission of the cost file by the LHD through the DNR.
COST 5.002	Treatment of Work-In-Progress Costs	Based on discussions during the review, patients are allocated costs based on their consumption of resources for that reporting period. Where costs are incurred in prior years, these are included in the final costed data and NHCDC submission. These costs are also escalated according to the NHCDC circular and the escalation costs and factors used were demonstrated in the review.

Source: KPMG

3.6 Conclusion

The findings of the NSW Round 18 IFR are summarised below:

- A number of key initiatives were implemented in Round 18 including 14 new hospitals submitted to the NHCDC (ABF hospitals from 2015/16, significantly increased non-admitted patient services events and the development of a web-based tool to review and correct DNR submissions.
- The financial reconciliations demonstrated the transformation of cost data for the each LHD. Major exclusions from this LHD data included non-ABF facilities costs, non-patient level products and excluded encounters that are still inpatients at year end or did not link with activity records. There were no unexplained variances in the financial reconciliation of the LHD's NHCDC submissions.
- TTR is product costed in the DNR as a non-patient product. TTR costs are submitted by LHDs to NSW Health in the DNR, however NSW Health does not submit the TTR costs to IHPA as part of the NHCDC submission.
- NSW is not a signatory to the PBS Agreement so distinction between PBS and Non-PBS is not applicable. S100 drugs are not allocated to non-admitted service events.
- Total activity data for each LHD was adjusted for the activity associated with excluded costs, and the IHPA UQB adjustment (Northern NSW LHD only).
- The number of records linked from source to product was significant with all feeders having a greater than 85 percent link or match, with the exception of Nuclear medicine (63 percent linked) and Blood Products (76 percent linked) at Illawarra Shoalhaven LHD. 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. NSW Health applied the escalation factors provided by IHPA for prior years to the costs associated with WIP as part of the Round 18 submission to the NHCDC for all LHDs.
- On review of the five sample patients selected for each LHD, all 15 patients reconciled to IHPA records.

Based on discussions held during the site visits, and a review of the financial reconciliations provided, NSW Health has robust reconciliation processes in place. As such, nothing was identified to suggest that the financial data is not fit for NHCDC submission. Furthermore, the data flow from the jurisdiction to IHPA demonstrated no unexplained variances.

4. Northern Territory

4.1 Jurisdictional overview

4.1.1 Management of NHCDC process

The Northern Territory Department of Health (NT Health), through the Activity Based Funding (ABF) team, is responsible for the processing, reconciliation and submission of National Hospital Cost Data Collection (NHCDC) data to the Independent Hospital Pricing Authority (IHPA) for all hospitals in the NT. This is consistent with the approach used in prior rounds of the NHCDC submission and ensures that there is a consistent approach applied to costing for all NT hospitals. The Round 18 submission for the Royal Darwin Hospital was reviewed as part of the Round 18 Independent Financial Review (IFR).

Local Health Networks (LHNs) are responsible for the capture and maintenance of financial data in the health service general ledger (GL). The hospital financial data is signed-off and submitted to NT Health via the LHN. NT Health applies cost information related to leave liabilities (annual leave and long service leave) as these costs are held centrally by the NT Department of Treasury.

Hospitals are responsible for recording activity data in the relevant system, e.g. the Patient Administration System (PAS). Activity data is extracted to a central NT Health data warehouse. There is a quality assurance process undertaken by the LHN and NT Health. Product fractioned (PFRAC) data is reviewed by cost centre at the hospital and LHN level, prior to submission to NT Health.

Prior to submitting NHCDC data to IHPA, NT Health undertakes a number of quality assurance procedures prior to sign-off of the final file by the Executive Director of Corporate Funding and Performance.

Key initiatives since Round 17 NHCDC

After Round 17 and prior to the submission of Round 18 NHCDC data, NT Health implemented a new clinical costing software solution, Power Performance Management 2 (PPM2) from PowerHealth Solutions. PPM2 was used across all NHCDC sites in the NT for Round 18. As a result of the change in costing software and issues associated with accessing necessary data from the Round 17 submission, there was no work in progress (WIP) patient costs included in the NHCDC process. There were other differences linked to the transition to PPM2, including:

- A more robust approach to costing with previously excluded costs now included, in particular, costs such as patient related travel can now be allocated at the patient level.
- The allocation method for other costs such as salaries and wages expenses has also been improved.
- Improved costing of pharmacy expenditure, i.e. the ability to separate Pharmaceutical Benefits Scheme (PBS) and non-PBS costs for the first time.

4.2 Royal Darwin Hospital

4.2.1 Overview

The Royal Darwin Hospital (Royal Darwin), along with Darwin Private Hospital, is located on the northern side of Darwin. It has approximately 363 beds and more than 1,700 staff and provides a broad range of services in all speciality areas to the Darwin urban population as well as serving as a referral centre to the Top End of the NT, Western Australia and South-East Asia. The Top End population serviced by the hospital is approximately 150,000 people.

Royal Darwin is the largest teaching hospital in the NT and is Australia's National Critical Care and Trauma Response Centre. It is affiliated with the Flinders University in South Australia and the University of Sydney in New South Wales. The association with Flinders University allows the hospital to engage teaching staff and thereby enhance its available expertise in wide-ranging fields. It also has links with Charles Darwin University to provide teaching and clinical experience for nursing students.

Royal Darwin participates in research projects in a variety of fields with the Menzies School of Health Research, which is located in the Combined Health Building on the hospital campus.[4]

4.2.2 Financial data

For the Round 18 IFR, representatives of NT Health completed the relevant IFR templates in conjunction with the software vendor PowerHealth Solutions, and participated in consultations during the review.

Table 26 presents an overview of the template results for expenditures used for costing (at the hospital level), the jurisdictional process for cost data received and the IHPA process for cost data received.

[4] Royal Darwin Hospital – Department of Health Northern Territory Government [http://www.health.nt.gov.au/Hospitals/Royal_Darwin_Hospital/index.aspx]. *Accessed 9 October 2015*

Table 26 – Round 18 NHCDC Reconciliation – Royal Darwin Hospital

Hospital				Jurisdiction			IHPA		
Item		Amount	% of GL	Item		Amount	Item		Amount
A General Ledger (GL)	$	1,033,335,670		**F** Costed Products received by jurisidction	$	462,998,384	**I** Total costed products received by IHPA	$	456,499,417
				Variance	*$*	*-*	*Variance*	*$*	*-*
B Adjustments to the GL									
Inclusions	$	-		**G** Final Adjustments					
Exclusions	$	-		*Escalation factor*	$	-	**J** IHPA Adjustments		
Total hospital expenditure	**$**	**1,033,335,670**	*100.00%*	*Dummy records*	$	(6,498,967)	*Admitted ED Reallocations*	$	10,659,036
				Total costs submitted to IHPA	**$**	**456,499,417**	**Final NHCDC costs**	**$**	**467,158,453**
C Allocation of Costs									
Post Allocation Direct amount	$	761,987,203							
Post Allocation Overhead amount	$	271,348,467							
Total hospital expenditure	**$**	**1,033,335,670**	*100.00%*						
Variance	*$*	*-*	*0.00%*						
D Post Allocation Adjustments									
Excluded Costs (e.g. out of scope hosp)	$	(570,337,286)							
Total expenditure allocated to patients	$	462,998,384	*44.81%*						
E Costed products submitted to jurisdiction				**H** Costed products submitted to IHPA			**K** Final NHCDC costed products		
Acute	$	299,110,926		*Acute*	$	299,110,926	*Acute**	$	317,140,836
Non-admitted	$	74,940,759		*Non-admitted*	$	74,940,759	*Non-admitted*	$	74,940,759
Emergency	$	29,284,863		*Emergency*	$	29,284,863	*Emergency*	$	29,284,862
Sub Acute	$	22,513,521		*Sub Acute*	$	22,513,521	*Sub Acute**	$	22,527,168
Mental Health	$	-		*Mental Health*	$	-	*Mental Health*	$	-
Other	$	27,665,731		*Other*	$	21,166,764	*Other*	$	13,782,241
Research	$	-		*Research*	$	-	*Research*		
Teaching & Training	$	9,482,585		*Teaching & Training*	$	9,482,585	*Teaching & Training*	$	9,482,585
	$	**462,998,384**	*44.81%*		**$**	**456,499,417**		**$**	**467,158,451**
Variance	*$*	*-*	*0.00%*	*Variance*	*$*	*-*	*Variance*	*$*	*(2)*

Source: KPMG based on Royal Darwin IFR templates

** These figures include admitted emergency costs.*

Explanation of reconciliation items

Table 27 discusses each of the reconciliation items including adjustments, inclusions and exclusions to the GL.

Table 27 – Financial Reconciliation, explanation of items – Royal Darwin Hospital

Item	Heading	Discussion
A	General Ledger	The GL amount extracted reflected expenditure of $1.03 billion. It should be noted that this was the total for all LHNs in the NT, i.e. Top End and Central.
B	Adjustments to the GL	No adjustments to the GL were made. All GL amounts are loaded into PPM2 and costed.
C	Allocation of Costs	The ABF team undertake a process of reclass/transfers etc. between direct cost centres. The net effect of these reclass/transfers was zero. Reclass/transfers are determined based on discussions with LHN representatives. • It was observed that the total for all direct cost centres, i.e. $762 million was allocated. • It was observed that overheads of $271.3 million were allocated. These amounts reconciled to $1.03 billion and reflect the total for NT, including out of scope hospitals.
D	Post Allocation Adjustments	Post allocation adjustments were made for out of scope hospitals and services, totalling $570.3 million.
E	Costed Products submitted to jurisdiction	Costs derived by the jurisdiction and reported at product level were equal to $462.9 million. This represented approximately 44 percent of the GL for the LHN. Royal Darwin submitted acute, non-admitted, emergency care, subacute, other and teaching and training costed products.
F	Costed Products received by jurisdiction	No variance was noted between Items E and F.
G	Final Adjustments	The jurisdiction made adjustments to the cost data prior to submission to IHPA. These adjustments related to the removal of dummy records from the activity. This adjustment totalled $6.5 million.
H	Costed Products submitted to IHPA	Costs derived by the jurisdiction and reported at product level reconciled to $456.5 million. NT Health submitted

Item	Heading	Discussion
		acute, non-admitted, emergency care, subacute, other and teaching and training costed products.
I	Total Products received by IHPA	Total costed products received by IHPA totalled $456.5 million. There was no variance between costs submitted by the jurisdiction and costs received by IHPA.
J	IHPA Adjustments	*Admitted Emergency* Upon receipt of cost data, IHPA allocated the admitted emergency costs back to admitted patients for the purposes of reporting and analysis. Within IHPA's reconciliation, this amount was a duplication of admitted emergency costs and not an additional cost. For Royal Darwin this amounted to $10.7 million. *Unqualified Baby Adjustment* Upon receipt of cost data, IHPA redistributes the unqualified baby cost to the mother Diagnosis Related Group (DRG) to provide a complete delivery DRG cost. Within IHPA's reconciliation this was not an additional cost but a movement between patients.
K	Final NHCDC Costed Outputs	The final NHCDC costed data for Royal Darwin loaded into the National Round 18 cost data set was $467.2 million which included the admitted emergency cost of $10.7 million.

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

4.2.3 Activity data

Table 28 presents activity and feeder data for Royal Darwin.

Table 28 – Activity data – Royal Darwin Hospital

Data	# Records from Source	# Records in costing system	Variance	# Records linked to Acute	# Records linked to Emerg.	# Records linked to Non-admitted	Total Linking Process to Products	# Records linked to Other	# Unlinked records	% Linked
Activity Data										
PAS	58,479	126,782	68,303	126,737	-	-	126,737	45	-	99.96%
Emergency	65,500	145,134	79,634	-	145,134	-	145,134	-	-	100%
Non-admitted	176,283	215,080	38,797	-	-	215,080	215,080	-	-	100%
TOTAL	**300,262**	**486,996**	**186,734**	**126,737**	**145,134**	**215,080**	**486,951**	**45**	**-**	
Feeder Data										
Allied Health	55,682	39,534	(16,148)	39,534	-	-	39,534	-	16,148	71%
Angiogram	581	567	(14)	563	2	2	567	-	14	98%
Angioplasty	52	30	(22)	30	-	-	30	-	22	58%
Cath Lab Cardiac	2,300	2,377	77	2,212	20	145	2,377	77	-	103%
Emergency	65,500	118,934	53,434	-	118,934	-	118,934	53,434	-	182%
Imaging	93,134	85,036	(8,098)	31,518	32,287	21,231	85,036	-	8,098	91%
Pathology	549,819	509,732	(40,087)	304,415	124,499	80,818	509,732	-	40,087	93%
Pharmacy	85,715	84,172	(1,543)	82,355	1,026	791	84,172	-	1,543	98%
Pharmacy_HSD	15,477	10,399	(5,078)	-	-	10,399	10,399	-	5,078	67%
Theatre Anaesthesia	12,847	12,499	(348)	12,499	-	-	12,499	-	348	97%
Theatre Nursing	18,400	12,633	(5,767)	12,633	-	-	12,633	-	5,767	69%
Theatre Recovery	13,031	12,666	(365)	12,666	-	-	12,666	-	365	97%
Theatre Surgeon	18,450	17,930	(520)	17,930	-	-	17,930	-	520	97%
Travel Care Flight Darwin	2,030	5	(2,025)	2	1	2	5	-	2,025	0%
Travel Care Flight NT	169	157	(12)	153	3	1	157	-	12	93%
Travel RFDS	-	11	11	5	4	2	11	-	(11)	100%
Travel TMS	122	172	50	165	2	5	172	50	-	141%

Source: KPMG based on Royal Darwin IFR templates

There is a Patient Admission System (PAS) across all hospitals and a client information system across primary and regional NT. Non-admitted activity numbers have increased in Round 18 and relate to required Visiting Medical Officer (VMO) work in remote areas. Costs for this work are recorded in the home hospital but activity data is in the primary care system. The activity is transferred by matching with the unique client identifier (ID) and is reflected as non-admitted activity numbers.

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

- Source activity data relates to activity at Royal Darwin only, whereas costing system activity data relates to all NT hospitals.
- There are 17 feeder systems utilised at Royal Darwin and they appear to represent major hospital departments providing resource activity.
- With the exception of four feeder data systems, the number of records linked to admitted acute patients, emergency or non-admitted patients had a greater than 90 percent link or match.

- Linking ratios greater than 100% existed where the costing system included feeder data related to all NT hospitals, not just Royal Darwin.
- The variances in the allied health, angioplasty and pharmacy_HSD feeders occurred due to data quality issues with linking episodes to patients.
- The variance in the theatre nursing feeder occurred due to data quality issues as there are less nursing records loaded into the theatre feeders than surgeon records.

Table 29 highlights the transfer of activity data from Royal Darwin to NT Health and then through to IHPA submission and finalisation.

Table 29 – Activity data submission – Royal Darwin Hospital

Product	Activity related to 2013-14 Costs	Adjustments	Activity submitted to jurisdiction	Adjustments	Activity received by IHPA	Adjustments	Total Activity submitted for Round 18 NHCDC
Acute	55,393	-	55,393	-	55,412	(11)	55,401
Non-admitted	149,416	-	149,416	-	149,416	-	149,416
Emergency	65,474	-	65,474	-	65,474	-	65,474
Sub Acute	647	-	647	-	647	-	647
Mental Health	-	-	-	-	-	-	-
Other	22,504	-	22,504	(20,072)	2,413	(1,805)	608
Research	-	-	-	-	-	-	-
Teaching and Training	1	-	1	-	1	-	1
Total	**293,435**	**-**	**293,435**	**(20,072)**	**273,363**	**(1,816)**	**271,547**

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

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

- The variance between records from source detailed in Table 28 (300,262 records) and activity related to 2013-14 costs by NHCDC product in Table 29 (293,435 records) was attributed to dummy encounters and unlinked records.
- Adjustments made by NT Health relate to the exclusion of dummy records at Item G in the reconciliation.
- The adjustment made by IHPA to the 'other' product relates to the unqualified baby adjustment discussed in Item J of the explanation of reconciliation items and a reallocation of separations from acute to other patients.
- Adjustments made by IHPA relating to admitted emergency reallocations for reporting and analysis purposes (as discussed in Item J of the explanation of reconciliation items) has no impact on the reported activity.

4.2.4 Treatment of WIP

Table 30 demonstrates models for WIP and what was included in the Royal Darwin Round 18 NHCDC submission.

Table 30 – WIP – Royal Darwin Hospital

Model	Description	Submitted to Round 18 NHCDC
1	Admitted and Discharged Patients in 2013/14 only	Submitted to Round 18 of the NHCDC
2	Costs for patients discharged in 2013/14 but incurred prior to 2013/14	Not submitted to Round 18 of the NHCDC
3	Costs for patients admitted in 2013/14 and still admitted at 30/06/2014	Not submitted to Round 18 of the NHCDC
4	Costs for patients admitted prior to 2013/14 and still admitted at 30/06/2014	Not submitted to Round 18 of the NHCDC

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

In summary, as a result of the change in clinical costing software referred to above there was no WIP cost data submitted in Round 18 for Royal Darwin.

Escalation factor

No escalation factor was applied to costs incurred prior to 2013/14 for the Royal Darwin Round 18 submission to the NHCDC.

4.2.5 Treatment of other specific cost items

The following items were discussed during the reviews to understand their treatment in the costing process. The cost data is used to inform the National Efficient Price (NEP) and specific funding model adjustments for particular patient cohorts. Royal Darwin's treatment of each of the items is summarised in Table 31.

Table 31 – Treatment of other specific cost items – Royal Darwin Hospital

Item	Treatment
Teaching, training and research	TTR costs are separately costed based on PFRAC information.
Shared/other commercial entities	All expenditure is included in the GL and is excluded where not applicable post allocation.
Intensive Care Unit	No change to the costing methodology.
Aboriginal and Torres Strait Islander patients	No change to the costing methodology. It should be noted that: • Health services have a number of Indigenous only cost centres, i.e. 100 percent of costs applied to ATSI patients. • Indigenous Patient Liaison Officers and Aboriginal Health Worker costs are only allocated to ATSI patients.
Private Patients	No change to the costing methodology. No private patient weights or adjustments made.

Item	Treatment
PBS drugs	Included in the Round 18 submission with no offsets undertaken.
Other	Patient travel costs (in-scope and out of scope) represent a significant cost in the NT, being approximately $50 million in 2013-14. NT Health allocates in-scope costs (inter-hospital transfers) to patient-level encounters. Royal Darwin provides services to the other two hospitals in the LHN, Gove District Hospital and Katherine Hospital. The costs associated with these services are mapped to the relevant facility, rather than recharged. The jurisdiction provided an example of a patient level costing for an orthopaedic patient in the Gove District Hospital where the expenditure included costs for the surgeon and anaesthetist from the Royal Darwin.

Source: KPMG

4.2.6 Sample patient data

IHPA selected a sample of five patients from Royal Darwin 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. The results are summarised in Table 32.

Table 32 – Sample patients – Royal Darwin Hospital

#	Product	Jurisdiction records	Received by IHPA	Variance
1	Acute	$620,248	$620,248	$-
2	Acute	$60,801	$60,801	$-
3	Non-Admitted ED	$75	$75	$-
4	Admitted ED	$46	$46	$-
5	Non-admitted	$87	$87	$-

Source: KPMG, based on Royal Darwin and IHPA data

4.3 Application of AHPCS Version 3.1

Table 33 summarises NT's application of selected standards from Version 3.1 of the AHPCS (outlined in Section 1.3.4) to the Royal Darwin's Round 18 NHCDC submission.

Table 33 – Application of Costing Standards – Royal Darwin Hospital

No.	Title	Discussion
SCP 1.004	Hospital Products in Scope	Application of this standard was demonstrated through the template submitted and the subsequent interview process. Costs are reported against admitted, non-admitted and emergency products.

No.	Title	Discussion
SCP 2.003	Product Costs in Scope	NT Health representatives demonstrated through the interview process that the NT reconciliation process for financial data is used for costing purposes. It was also stated that all products are costed, which includes costs assigned to products in scope for the NHCDC, unlinked activity, and costs assigned to dummy patients where there is no activity. Private patient costs are not imputed.
SCP 2A.003	Teaching and Training Costs	TTR is separately costed using PFRAC information.
SCP 2B.002	Research Costs	Refer to SCP 2A.003 above.
SCP 3.001	Matching Production and Cost	This was demonstrated during the site visit. An excel file was also produced from the costing system which outlined all reclass rules.
SCP 3A.001	Matching Production and Cost – Overhead Cost Allocation	The jurisdiction was able to demonstrate that overhead costs were fully allocated to direct patient care areas via the pre allocation and post allocation data included in the templates.
SCP 3B.001	Matching Production and Cost – Costing all Products	Demonstrated in the template. NT Health provided an overview of their internal reconciliation process which demonstrated the allocation of costs to products.
SCP 3C.001	Matching Production and Cost – Commercial Business Entities	Based on discussions during the review, application of this standard was demonstrated.
SCP 3E.001	Matching Production and Cost – Offsets and Recoveries	Demonstrated in the template and confirmed during the consultation process. There were no offsets and recoveries identified.
SCP 3G.001	Matching Production and Cost – Reconciliation to Source Data	NT Health representatives demonstrated through the consultation process that the NT reconciliation for financial and activity data is used for costing purposes. The

No.	Title	Discussion
		process appears robust.
GL2.004	Account Code Mapping to Line Items	Royal Darwin mapped total costs to the standard specified line items.
COST 5.002	Treatment of Work-In-Progress Costs	No WIP was included in Round 18 – refer to Section 4.2.4 above.

Source: KPMG

4.4 Conclusion

The findings of the NT Round 18 IFR are summarised as follows:

- NT Health implemented a new costing methodology for Round 18 including new costing software PPM2 and improved allocation methods for a range of costs.
- The financial reconciliation demonstrated the transformation of cost data for the entire group of LHNs in the NT. The costs submitted to the jurisdiction for Royal Darwin accounted for 45 percent of the GL for the LNH. There were no unexplained variances in the financial reconciliation of the Royal Darwin NHCDC submission.
- Teaching and training costs were submitted to the NHCDC in Round 18. These costs are product costed using PFRAC information.
- Patient travel costs (in-scope and out of scope) represent a significant cost in the NT, approximately $50 million in 2013-14. NT Health allocates in-scope costs (inter-hospital transfers) to patient-level encounters.
- Total activity data for Royal Darwin was adjusted for the removal of dummy patients by NT Health, a reallocation of acute and other products by IHPA and the IHPA unqualified baby adjustment.
- With the exception of four feeder data systems, the number of records linked to admitted acute patients, emergency or non-admitted patients had a greater than 90 percent link or match.
- WIP for prior years was not included in Round 18 due to a change in the costing software.
- On review of the five sample patients selected for Royal Darwin, all five patients reconciled to IHPA records.

Based on discussions held during the site visit, and a review of the financial reconciliation provided, the changes made since Round 17 have improved the costing methodology and reconciliation processes in place for NT. As such, nothing was identified to suggest that the financial data for Royal Darwin is not fit for NHCDC submission. Furthermore, the data flow from the jurisdiction to IHPA demonstrated no unexplained variances.

5. Queensland

5.1 Jurisdictional overview

5.1.1 Management of NHCDC process

The Queensland NHCDC process is the responsibility of both the Department of Health (Queensland Health) and the 16 Hospital and Health Services (HHS) that support the provision of public health services throughout Queensland. Queensland Health supports the costing function in Queensland, with cost data seen as an essential ingredient to the state's healthcare funding, including through its submission to the NHCDC.

Most hospitals in Queensland have costing staff who undertake patient costing at the hospital level. Once the costing has been completed, hospital costing staff informs Queensland Health that the data has been finalised and submitted to a central state-wide database.

Queensland Health has direct access to the costing system database. The submission files are extracted from the database and a series of validation reports are run for quality assurance purposes. It was noted during the interview process that Queensland Health performs over 400 audit validations on the submitted data. These include a number of pre-audit reports which score the quality of data to achieve an 80 percent confidence level. There are also a number of extract data audit reports that assess records for errors in activity and mismatching of costed data to source activity systems. These audit reports also assess if there are new cost departments (hospital departments) that require mapping to local and national requirements.

Once finalised, a state costing report is produced for each hospital that includes all episodes costed and submitted to each costing team. This report includes information on costs for Diagnosis Related Groups (DRGs), Tier 2 and subacute activity for the current round and previously in Round 17. Differences of less than 10 percent are seen as insignificant. In addition, URG and UDG (emergency departments and emergency services) cost weight report information is provided to hospitals for review prior to the submission of the data for the NHCDC. It is noted that comparative data using cost weight reports is provided at LHN level for current and previous five years with a summary table of average cost outcomes.

Where issues with data quality are identified, hospital costing staff address these and prepare for final submission to Queensland Health. Hospital Chief Financial Officers will sign off on the data. This cost data submission is used for both the Queensland state funding model and NHCDC submission. Queensland Health prepares the NHCDC submission according to the NHCDC Round 18 Data Request Specifications provided by IHPA.

Queensland nominated three hospitals to participate in the Round 18 IFR, including Ipswich Hospital, Mackay Base Hospital, and The Prince Charles Hospital in Brisbane.

Key initiatives since Round 17 NHCDC

The Torres and Cape HHS, South West HHS and Central West HHS (comprising 51 rural and remote hospitals) moved to patient level costing in Round 18.

5.2 Ipswich Hospital

5.2.1 Overview

Ipswich Hospital is a major acute hospital with 351 beds, located in Ipswich, 40 kilometres west of Brisbane. The hospital offers services in all major health specialities, including anaesthetics, emergency, medicine, surgery, intensive and coronary care, orthopaedics, obstetrics, paediatrics, palliative care, rehabilitation and mental health, along with a full range of allied health services. The Ipswich Hospital has a major teaching role, providing both undergraduate and postgraduate clinical education and training[5].

5.2.2 Financial data

For the Round 18 IFR, departmental representatives of Queensland Health completed the relevant IFR templates and participated in consultations during the review.

Table 34 presents an overview of the template results for expenditures used for costing (at the hospital level), the jurisdictional process for cost data received and the IHPA process for cost data received.

[5] Ipswich Hospital Queensland Health – Queensland Government [https://www.health.qld.gov.au/services/westmoreton/ipswich-hosp.asp]. *Accessed 9 October 2015*.

Table 34 – Round 18 NHCDC Reconciliation – Ipswich Hospital

Hospital				Jurisdiction			IHPA		
Item		Amount	% of GL	Item		Amount	Item		Amount
A General Ledger (GL)	$	416,357,217		**F** Costed Products received by jurisidction	$	273,257,015	**I** Total costed products received by IHPA	$	242,495,797
				Variance	*$*	*-*	*Variance*	*$*	*11*
B Adjustments to the GL									
Inclusions	$	-		**G** Final Adjustments			**J** IHPA Adjustments		
Exclusions	$	(149,067,393)		*Corporate overhead costs added*	$	2,418,492	*Admitted ED Reallocations*	$	10,804,722
Total hospital expenditure	**$**	**267,289,824**	*64.20%*	*Negative cost removal*	$	210,096	**Final NHCDC costs**	**$**	**253,300,519**
				AdmED episode - no matching Acute episode	$	(109,615)			
C Allocation of Costs				*Data Error - Unmappable Unlinked Records*	$	(227,944)			
Post Allocation Direct amount	$	222,803,398		*Excluded Accounts*	$	41,582			
Post Allocation Overhead amount	$	44,486,426		*Negative cost encounter*	$	21,209			
Total hospital expenditure	**$**	**267,289,824**	*64.20%*	*VPG Feeder*	$	(26,527,889)			
Variance	*$*	*-*	*0.00%*	*Remaining mismatched cost records*	$	(1,501,778)			
				WIP_CURRENT	$	(5,085,383)			
D Post Allocation Adjustments				**Total costs submitted to IHPA**	**$**	**242,495,786**			
Mismatched Cost Records	$	1,501,778							
WIP - Previous years	$	4,465,414							
Total expenditure allocated to patients	**$**	**273,257,015**							
E Costed products submitted to jurisdiction				**H** Costed products submitted to IHPA			**K** Final NHCDC costed products		
Acute	$	160,174,246		*Acute*	$	160,464,991	*Acute**	$	171,271,377
Non-admitted	$	35,012,719		*Non-admitted*	$	36,281,169	*Non-admitted*	$	36,445,303
Emergency	$	22,366,138		*Emergency*	$	23,075,716	*Emergency*	$	23,181,565
Sub Acute	$	15,730,046		*Sub Acute*	$	15,757,996	*Sub Acute**	$	15,781,916
Mental Health	$	-		*Mental Health*	$	-	*Mental Health*	$	-
Other	$	39,973,866		*Other*	$	6,915,914	*Other*	$	6,620,358
Research	$	-		*Research*	$	-	*Research*	$	-
Teaching & Training	$	-		*Teaching & Training*	$	-	*Teaching & Training*	$	-
	$	**273,257,015**			**$**	**242,495,786**		**$**	**253,300,519**
Variance	*$*	*-*		*Variance*	*$*	*-*	*Variance*	*$*	*-*

Source: KPMG based on Ipswich Hospital IFR templates

** These figures include admitted emergency costs.*

Explanation of reconciliation items

Table 35 discusses each of the reconciliation items, including adjustments, inclusions and exclusions to the GL.

Table 35 – Financial Reconciliation, explanation of items – Ipswich Hospital

Item	Heading	Discussion
A	General Ledger	The final GL extracted from the financial systems indicated expenditure of $416.4 million.
B	Adjustments to the GL	A number of adjustments were made to the GL. Excluded expenditure totalled $149.1 million and comprised: • Other hospital financial data included in the GL totalling $143.5 million. • Out of scope expenditure such as Trust accounts, Disability services and car park expenditure totalling $5.6 million. These adjustments established an expenditure base for costing of $267.3 million. This was approximately 64 percent of total expenditure reported in the GL.
C	Allocation of Costs	The hospital undertakes a process of reclass/transfers etc. between direct cost centres. In Queensland this process is undertaken through derived accounts. The net effect of these derived accounts was zero. Reclass/transfers were determined based on discussions with cost centre managers. • It was observed that a total of $222.8 million direct cost centres were allocated pre and post allocation. • It was observed that overheads of $44.5 million were allocated to direct cost centres pre and post allocation. The total direct and overhead post allocation amount was equal to $267.3 million.
D	Post Allocation Adjustments	Costs were adjusted after the allocation of costs in Item C. These amounts comprised: • $1.5 million in mismatched cost records. This amount related to costs in Transition 2 (the costing software used by Ipswich Hospital) that should be deleted after recosting by Ipswich Hospital. Ipswich Hospital does not delete these records from the system, and neither does Queensland Health for the purposes of the continuing quality assurance processes on the cost data. These costs were excluded prior to submission.

Item	Heading	Discussion
		See Item G below. • $4.5 million in work in progress (WIP) patients from 2012/13 was included post allocation. The total expenditure allocated to patients was $273.3 million. As this amount included prior year costs (i.e. WIP 2012/13), no percentage of the GL was calculated.
E	Costed products submitted to jurisdiction	Costs derived by the hospital and reported at product level reconciled to $273.3 million. The hospital included acute, non-admitted, emergency care, subacute and other costed products.
F	Costed Products received by jurisdiction	No variance was noted between Items E and F.
G	Final Adjustments	Queensland Health makes a number of adjustments to the hospital submission. The adjustments made for Round 18 totalled $30.8 million and included: • Corporate overhead costs of $2.4 million. • Cost centres with $21,209 of negative balances removed. Note this had a positive impact on the total costs. • Excluded costs of $109,615 related to admitted emergency episodes with no matching admitted acute episodes. • Excluded costs related to unlinked records and mismatched records of $1.7 million. This included $1.5 million in mismatched records discussed in Item D and $227,944 in records with data errors. • Excluded costs of $41,582. • Exclusion of Virtual Patient feeder data totalling $26.5 million. • WIP costs of $5.1 million excluded. The WIP costs excluded were for episodes still in treatment i.e. admitted but not yet discharged at 30 June 2014. The total NHCDC costs submitted to IHPA by Queensland Health was $242.5 million.
H	Costed products submitted to IHPA	Costs submitted to IHPA and reported at product level reconciled to $242.5 million. Queensland Health submitted acute, non-admitted, emergency care, subacute

Item	Heading	Discussion
		and other costed products.
I	Total Products received by IHPA	Total Costs received by IHPA totalled $242.5 million. There was a small variance of $11 noted between costs submitted by the jurisdiction and costs received by IHPA.
J	IHPA Adjustments	*Admitted Emergency* Upon receipt of cost data, IHPA allocates the admitted emergency costs back to admitted patients for the purposes of reporting and analysis. Within IHPA's reconciliation this amount was a duplication of admitted emergency costs and not an additional cost. For Ipswich Hospital this amounted to $10.8 million.
K	Final NHCDC Costed Outputs	The final NHCDC costed data for Ipswich Hospital loaded into the National Round 18 cost data set was $253.3 million which included the admitted emergency cost of $10.8 million.

Source: KPMG, based on Ipswich Hospital templates and review discussions

5.2.3 Activity data

Table 36 presents activity and feeder data for Ipswich Hospital.

Table 36 – Activity data – Ipswich Hospital

Data	# Records from Source	# Records in costing system	Variance	# Records linked to Acute	# Records linked to Emerg.	# Records linked to Non-admitted	Total Linking Process	# Records linked to Other	# Unlinked records	% Linked
Activity Data										
Emergency	54,511	54,511	-	-	54,511	-	54,511	-	-	100%
Acute	44,083	44,083	-	44,083	-	-	44,083	-	-	100%
Non-admitted	162,435	162,435	-	-	-	162,435	162,435	-	-	100%
Unlinked	1,426	1,426	-	-	-	-	1,426	-	1,426	100%
Zero Cost Encounters	318	318	-	-	-	-	318	318	-	100%
TOTAL	**262,773**	**262,773**	**-**	**44,083**	**54,511**	**162,435**	**262,773**	**318**	**1,426**	
Feeder Data										
Appointment Schedule Outpatient	3,782,771	3,782,771	-	401,306	8,308	3,361,958	3,771,572	-	11,199	100%
Diagnostic Imaging	1,715,950	1,715,950	-	895,675	365,875	398,200	1,659,750	-	56,200	97%
Emergency Presentation	1,690,226	1,690,226	-	-	1,683,530	-	1,683,530	-	6,696	100%
Medical ATD(Bedday)	2,675,315	2,675,315	-	2,605,677	-	-	2,605,677	-	69,638	97%
Nursing Acuity	649,938	649,938	-	638,636	-	-	638,636	-	11,302	98%
Nursing ATD(Bedday) Data	16,994,030	16,994,030	-	16,574,130	-	-	16,574,130	-	419,900	98%
Operating Theatre	1,329,194	1,329,194	-	1,318,353	-	-	1,318,353	-	10,841	99%
Pathology	315,106	315,106	-	243,554	43,332	22,992	309,878	-	5,228	98%
Pharmacy	821,036	821,036	-	506,537	1,372	251,334	759,243	-	61,793	92%
Virtual Patient	2,532	2,532	-	-	-	-	-	-	2,532	0%

Source: KPMG based on Ipswich Hospital IFR templates

The following should be noted about the activity and feeder data for Ipswich Hospital:

- Activity data is cleansed through Talons (a program that links activity) on a monthly basis prior to entry into Transition 2. Only valid records (where there is no unlinked activity) are loaded to the costing system. This explains why there were no variances between the source activity data and the costing system.
- Unlinked records include encounters related to patients that "Failed to Attend" and "Did Not Wait". These encounters are assigned a Relative Value Unit (RVU).
- Unlinked pharmacy encounters related mostly to zero cost encounters (where a pharmacy drug is returned and offsets the costs allocated to a patient). Other linkage issues occurred where the pharmacy date stamp was recorded after the patient had returned home.
- Once all extracts are recorded, loaded and posted, the data audit process will also assess the cost data outputs for valid activity records and makes adjustments for deleted or merged records. All records flagged are reviewed before any decision is made to remove them.
- There are ten feeders reported from hospital source systems and they appear to represent major hospital departments providing resource activity.
- The number of records linked from source to product is significant with all feeders having a greater than 90 percent link or match (based on Talons linking). This percentage does not include the virtual patient feeder system that is not linked to hospital activity. This would suggest that there is robustness in the level of feeder activity reported back to episodes.

Table 37 highlights the transfer of activity data from Ipswich Hospital to Queensland Health and then through to IHPA submission and finalisation.

Table 37 – Activity data submission – Ipswich Hospital

Product	Activity related to 2013-14 Costs	Adjustments	Activity submitted to jurisdiction	Adjustments	Activity submitted to IHPA	Adjustments	Total Activity submitted for Round 18 NHCDC
Acute	39,424	-	39,424	-	39,424	-	39,424
Non-admitted	160,684	-	160,684	-	160,684	-	160,684
Emergency	54,308	-	54,308	-	54,308	-	54,308
Sub Acute	1,295	-	1,295	-	1,295	-	1,295
Mental Health	-	-	-	-	-	-	-
Other	7,062	-	7,062	(3,759)	3,303	-	3,303
Research	-	-	-	-	-	-	-
Teaching and Training	-	-	-	-	-	-	-
Total	**262,773**	**-**	**262,773**	**(3,759)**	**259,014**	**-**	**259,014**

Source: KPMG based on data supplied by Ipswich Hospital, Queensland Health and IHPA

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

- The adjustment made by the jurisdiction relates to the activity associated with the excluded costs (at Item G of the financial reconciliation) such as zero cost encounters, unmapped/mismatched records and the virtual patient feeder data.
- The adjustment made by IHPA relating to admitted emergency reallocations for reporting and analysis purposes (as discussed in Item J of the explanation of reconciliation items) has no impact on the reported activity.

5.2.4 Treatment of WIP

Table 38 demonstrates models for WIP and what was included in the Ipswich Hospital Round 18 NHCDC submission.

Table 38 – WIP – Ipswich Hospital

Model	Description	Submitted to Round 18 NHCDC
1	Admitted and Discharged Patients in 2013/14 only	Submitted to Round 18 of the NHCDC
2	Costs for patients discharged in 2013/14 but incurred prior to 2013/14	Submitted to Round 18 of the NHCDC
3	Costs for patients admitted in 2013/14 and still admitted at 30/06/2014	Not submitted to Round 18 of the NHCDC
4	Costs for patients admitted prior to 2013/14 and still admitted at 30/06/2014	Not submitted to Round 18 of the NHCDC

Source: KPMG, based on Ipswich Hospital templates and review discussions

In summary, Queensland Health submitted WIP costs for Ipswich Hospital for patients admitted and discharged in 2013/14 and the WIP costs for patients discharged in 2013/14 but incurred in prior years.

Escalation factor

No escalation factor to costs incurred prior to 2013/14 was applied to the Ipswich Hospital Round 18 submission to the NHCDC.

5.2.5 Treatment of other specific cost items

The following items were discussed during the reviews 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. Ipswich Hospital's treatment of each of the items is summarised in Table 39.

Table 39 – Treatment of other specific cost items – Ipswich Hospital

Item	Treatment
Teaching, Training and Research	Queensland hospitals manage direct TTR by mapping those distinct cost centres to education and research departments. These costs are excluded from final patient costing as per the AHPCS. Indirect and embedded teaching and training are considered part of the provision of healthcare to patients. There are currently no feeder systems available which contain products which could be used for costing these activities and costs in the GL will form part of the salaries and wages component of patient level costs.
Shared/Other commercial entities	Based on discussions during the interview process and a review of source documentation, expenditure is excluded by Ipswich Hospital.
Intensive Care Unit	No change to the costing methodology. No ICU

Item	Treatment
	adjustments made.
Aboriginal and Torres Strait Islander patients	No change to the costing methodology. No ATSI weights or adjustments made. Costs based on resources linked.
Private Patients	No change to the costing methodology. No private patient weights or adjustments made.
PBS drugs	Included in the Round 18 submission, with no offsets undertaken.

Source: KPMG

5.2.6 Sample patient data

IHPA selected a sample of five patients from Ipswich Hospital for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. Queensland Health provided the patient level costs for all five patients and these reconciled to IHPA records. The results are summarised in Table 40.

Table 40 – Sample patients – Ipswich Hospital

#	Product	Jurisdiction records	Received by IHPA	Variance
1	Non-admitted	$230	$230	$-
2	Non-Admitted ED	$481	$481	$-
3	Admitted ED	$926	$926	$-
4	Acute	$7,372	$7,372	$-
5	Acute	$524,557	$524,557	$-

Source: KPMG, based on Ipswich Hospital and IHPA data

5.3 Mackay Base Hospital

5.3.1 Overview

The Mackay Base Hospital (Mackay Base) is a part of the Mackay Hospital and Health Service (Mackay HHS) which is responsible for the delivery of public hospital and health services including medical, surgical, emergency, obstetrics, paediatrics, specialist non-admitted clinics, mental health, critical care and clinical support services to a population of around 180,424. The serviced population lives in a 90,360 square kilometre area from Bowen in the north to St Lawrence in the south, west to Clermont and north-west to Collinsville. Proserpine and the Whitsundays are also included in this region. Mackay Base underwent a $408 million redevelopment which was completed in late 2014. The project included a new acute hospital building together with a new emergency department, increased operating theatres, a dedicated coronary care unit and a larger intensive care unit. The redevelopment also included increased mental health services, larger dialysis unit, day oncology, dental services, delivery suites and a staff skill centre.

The health service has 355 beds and bed alternatives which include 35 aged care beds. As at 30 June 2015, Mackay HHS employed 1,865 employees. Mackay HHS provides training and clinical placement opportunities for students in medicine, nursing, midwifery, dental and allied health from universities including James Cook University and Central Queensland (CQ) University[6].

5.3.2 Financial data

For the Round 18 IFR, departmental representatives of Queensland Health completed the relevant IFR templates and participated in consultations during the review.

Table 41 presents an overview of the template results for expenditures used for costing (at the hospital level), the jurisdictional process for cost data received and the IHPA process for cost data received.

[6] Mackay Hospital and Health Service 2014/15 Annual Report [https://www.health.qld.gov.au/mackay/docs/annual-report/mhhs-annual-report-14-15.pdf]. *Accessed 9 October 2015.*

Table 41 – Round 18 NHCDC Reconciliation – Mackay Base Hospital

Hospital			
Item		**Amount**	**% of GL**
A General Ledger (GL)	$	295,131,573	
B Adjustments to the GL			
Inclusions	$	-	
Exclusions	$	(83,824,231)	
Total hospital expenditure	**$**	**211,307,342**	*71.60%*
C Allocation of Costs			
Post Allocation Direct amount	$	171,644,352	
Post Allocation Overhead amount	$	39,662,990	
Total hospital expenditure	**$**	**211,307,342**	*71.60%*
Variance	*$*	*-*	*0.00%*
D Post Allocation Adjustments			
Mismatched cost records	$	180,618	
WIP - Previous years 2012/13	$	2,962,840	
Total expenditure allocated to patients	**$**	**214,450,800**	
E Costed products submitted to jurisdiction			
Acute	$	120,008,042	
Non-admitted	$	49,345,683	
Emergency	$	19,992,437	
Sub Acute	$	6,472,425	
Mental Health	$	-	
Other	$	18,632,213	
Research	$	-	
Teaching & Training	$	-	
	$	**214,450,800**	
Variance	*$*	*-*	

Jurisdiction		
Item		**Amount**
F Costed Products received by jurisidction	$	214,450,800
Variance	*$*	*-*
G Final Adjustments		
Corporate overhead costs added	$	2,400,423
Negative cost removal	$	118,971
AdmED episode - no matching Acute episode	$	(89,714)
Data Error - Unmappable Unlinked Records	$	(11,103)
Excluded Accounts	$	(4,751)
Negative cost encounter	$	57,137
Remaining Mismatched Cost Records	$	(180,618)
ServCommTime-PresTime < 0 or > 99999	$	(213)
VPG Feeder	$	(12,518,003)
WIP_CURRENT	$	(3,114,455)
Total costs submitted to IHPA	**$**	**201,108,473**
H Costed products submitted to IHPA		
Acute	$	120,248,981
Non-admitted	$	50,850,622
Emergency	$	20,690,794
Sub Acute	$	6,539,553
Mental Health	$	-
Other	$	2,778,531
Research	$	-
Teaching & Training	$	-
	$	**201,108,480**
Variance	*$*	*7*

IHPA		
Item		**Amount**
I Total costed products received by IHPA	$	201,108,481
Variance	*$*	*1*
J IHPA Adjustments		
Admitted ED Reallocations	$	7,353,952
Final NHCDC costs	**$**	**208,462,433**
K Final NHCDC costed products		
*Acute**	$	127,587,782
Non-admitted	$	50,850,622
Emergency	$	20,690,794
*Sub Acute**	$	4,950,089
Mental Health	$	-
Other	$	4,383,146
Research	$	-
Teaching & Training	$	-
	$	**208,462,433**
Variance	*$*	*-*

Source: KPMG based on Mackay Base IFR templates

** These figures include admitted emergency costs.*

Explanation of reconciliation items

Table 42 discusses each of the reconciliation items, including adjustments, inclusions and exclusions to the GL.

Table 42 – Financial Reconciliation, explanation of items – Mackay Base Hospital

Item	Heading	Discussion
A	General Ledger	The final GL extracted from the financial systems indicated expenditure of $295.1 million.
B	Adjustments to the GL	A number of adjustments are made to the GL. Excluded expenditure totals $83.8 million and comprised: • Other hospital financial data included in the GL totalling $80 million. • Out of scope expenditure such as trust accounts totalling $3.9 million. These adjustments established an expenditure base for costing of $211.3 million. This was approximately 72 percent of total expenditure reported in the GL.
C	Allocation of Costs	The hospital undertakes a process of reclass/transfers etc. between direct cost centres. In Queensland this process is undertaken through derived accounts. The net effect of these derived accounts was zero. Reclass/transfers are determined based on discussions with cost centre managers. • It was observed that a total of $171.6 million direct cost centres were allocated. • It was observed that overheads of $39.7 million were allocated to direct cost centres pre and post allocation. The total direct and overhead post allocation amount was equal to $211.3 million.
D	Post Allocation Adjustments	Costs were adjusted after the allocation of costs in Item C. These amounts comprised: • $180,618 in mismatched cost records. This amount was related to costs in Transition 2 (the costing software used by Mackay Base) that should be deleted after recosting by Mackay Base. Mackay Base does not delete these records from the system, and neither does the Queensland Health for the purposes of the continuing QA process on the cost data. These costs are excluded prior to submission. See Item G

Item	Heading	Discussion
		below. • $3 million in WIP from 2012/13 was included post allocation. The total expenditure allocated to patients was $214.5 million. As this amount includes prior year costs (i.e. WIP 2012/13), no percentage of the GL was calculated.
E	Costed products submitted to jurisdiction	Costs derived by the hospital and reported at product level reconciled to $214.5 million. The hospital included acute, non-admitted, emergency, subacute and other costed products.
F	Costed Products received by jurisdiction	No variance was noted between Items E and F.
G	Final Adjustments	Queensland Health makes a number of adjustments to the hospital submission. The adjustments made for Round 18 totalled $13.3 million and included: • Corporate overhead costs included of $2.4 million. • Cost centres with negative balances removed of $118,971. Note this has a positive impact on the total costs. • Excluded costs related to admitted emergency episodes with no matching admitted acute episodes of $89,714. • Excluded costs related to unlinked records and mismatched records of $11,103. • Excluded costs of $4,751. • Encounters with negative costs excluded of $57,137. Note this has a positive impact on the total costs. • Excluded costs relating to mismatched cost records of $180,831. • Virtual Patient feeder data excluded totalling $12.5 million. • WIP costs of $3.1 million excluded.The WIP costs excluded are for episodes still in treatment i.e. admitted but not yet discharged at 30 June 2014. The total NHCDC costs submitted to IHPA by Queensland Health was $201.1 million.

Item	Heading	Discussion
H	Costed products submitted to IHPA	Costs submitted to IHPA and reported at product level reconcile to $201.1 million. Queensland Health included acute, non-admitted, emergency, subacute and other costed products. There was a small variance of $7 noted between total costs and product level costs submitted to IHPA.
I	Total Products received by IHPA	Total Costs received by IHPA totalled $201.1 million. There was a minimal variance of $1 noted between costs submitted by the jurisdiction and costs received by IHPA.
J	IHPA Adjustments	*Admitted Emergency* Upon receipt of cost data, IHPA allocates the admitted emergency costs back to admitted patients for the purposes of reporting and analysis. Within IHPA's reconciliation this amount was a duplication of admitted emergency costs and not an additional cost. For Mackay Base this amounted to $7.4 million.
K	Final NHCDC Costed Outputs	The final NHCDC costed data for Mackay Base loaded into the National Round 18 cost data set was $208.5 million which included the admitted emergency cost of $7.4 million.

Source: KPMG, based on Mackay Base templates and review discussions

5.3.3 Activity data

Table 43 presents activity and feeder data for Mackay Base.

Table 43 – Activity data – Mackay Base Hospital

Data	# Records from Source	# Records in costing system	Variance	# Records linked to Acute	# Records linked to Emerg.	# Records linked to Non-admitted	Total Linking Process	# Records linked to Other	# Unlinked records	% Linked
Activity Data										
Emergency	46,683	46,683	-	-	46,683	-	46,683	-	-	100%
Acute	30,572	30,572	-	30,572	-	-	30,572	-	-	100%
Non-admitted	167,548	167,548	-	-	-	167,548	167,548	-	-	100%
Unlinked	64	64	-	-	-	-	-	-	64	0%
Zero Cost Encounters	168	168	-	-	-	-	-	168	-	-
TOTAL	**245,035**	**245,035**	**-**	**30,572**	**46,683**	**167,548**	**244,803**	**168**	**64**	
Feeder Data										
Appointment Schedule Outpatient	6,787,599	6,787,599	-	32,004	116,447	6,631,653	6,780,104	-	7,495	100%
Delivery (Birthing) Data	18	18	-	18	-	-	18	-	-	100%
Diagnostic Imaging	1,620,678	1,620,678	-	468,505	717,891	420,347	1,606,743	-	13,935	99%
Emergency Presentation	1,988,923	1,988,923	-	-	1,936,665	-	1,936,665	-	52,258	97%
Local Clinical System	15,982	15,982	-	11,617	-	3,586	15,203	-	779	95%
Medical ATD(Bedday)	2,600,734	2,600,734	-	2,553,098	-	-	2,553,098	-	47,636	98%
Nursing ATD(Bedday)	19,338,309	19,338,309	-	18,966,306	-	-	18,966,306	-	372,003	98%
Operating Theatre	690,891	690,891	-	687,085	-	31	687,116	-	3,775	99%
Pathology	732,748	732,748	-	324,464	186,498	213,268	724,230	-	8,518	99%
Pharmacy	644,070	644,070	-	319,333	1,968	311,267	632,568	-	11,502	98%

Source: KPMG based on Mackay Base Hospital IFR templates

The following should be noted about the activity and feeder data for Mackay Base:

- Activity data is cleansed through Talons on a monthly basis prior to entry into Transition 2. Only valid records (where there is no activity mismatch) are loaded into the costing system. This explains why there are no variances between the source activity data and the costing system.
- Unlinked records include encounters related to patients that “Failed to Attend” and “Did Not Wait”. These encounters are assigned an RVU.
- Unlinked pharmacy encounters related mostly to zero cost encounters (where a pharmacy drug is returned and offsets the costs allocated to a patient). Other linkage issues occurred where the pharmacy date stamp was recorded after the patient had returned home.
- Once all extracts are recorded, loaded and posted, the data audit process will also assess the cost data outputs for valid activity records and make adjustments for deleted or merged records. All records flagged are reviewed before any decision is made to remove them.
- There are 11 feeders reported from hospital source systems and they appear to represent major hospital departments providing resource activity.
- The number of records linked from source to product was significant with all feeders having a greater than 90 percent link or match. This percentage does not include the virtual patient feeder system that was not linked to hospital activity. This would suggest that there is robustness in the level of feeder activity reported back to episodes.

Table 44 highlights the transfer of activity data from Mackay Base to Queensland Health and then through to IHPA submission and finalisation.

Table 44 – Activity data submission – Mackay Base Hospital

Product	Activity related to 2013-14 Costs	Adjustments	Activity submitted to jurisdiction	Adjustments	Activity submitted to IHPA	Adjustments	Total Activity submitted for Round 18 NHCDC
Acute	28,549	-	28,549	-	28,549	-	28,549
Non-admitted	166,724	-	166,724	-	166,724	-	166,724
Emergency	46,547	-	46,547	-	46,547	-	46,547
Sub Acute	506	-	506	-	506	-	506
Mental Health	-	-	-	-	-	-	-
Other	2,709	-	2,709	(1,273)	1,436	-	1,436
Research	-	-	-	-	-	-	-
Teaching and Training	-	-	-	-	-	-	-
Total	**245,035**	**-**	**245,035**	**(1,273)**	**243,762**	**-**	**243,762**

Source: KPMG based on data supplied by Mackay Base Hospital, Queensland Health and IHPA

The following should be noted about the transfer of activity data for Mackay Base:

- The adjustment made by the jurisdiction relates to the activity associated with the excluded costs (at Item G of the financial reconciliation) such as zero cost encounters, unmapped/mismatched records and the virtual patient feeder data.
- The adjustment made by IHPA relating to admitted emergency reallocations for reporting and analysis purposes (as discussed in Item J of the explanation of reconciliation items) has no impact on the reported activity.

5.3.4 Treatment of WIP

Table 45 demonstrates models for WIP and what was included in the Mackay Base Round 18 NHCDC submission.

Table 45 – WIP – Mackay Base Hospital

Model	Description	Submitted to Round 18 NHCDC
1	Admitted and Discharged Patients in 2013/14 only	Submitted to Round 18 of the NHCDC
2	Costs for patients discharged in 2013/14 but incurred prior to 2013/14	Submitted to Round 18 of the NHCDC
3	Costs for patients admitted in 2013/14 and still admitted at 30/06/2014	Not submitted to Round 18 of the NHCDC
4	Costs for patients admitted prior to 2013/14 and still admitted at 30/06/2014	Not submitted to Round 18 of the NHCDC

Source: KPMG, based on Mackay Base templates and review discussions

In summary, Queensland Health submitted WIP costs for Mackay Base patients admitted and discharged in 2013/14 and the WIP costs for patients discharged in 2013/14 but incurred in prior years.

Escalation factor

No escalation factor to costs incurred prior to 2013/14 was applied to the Mackay Base Round 18 submission to the NHCDC.

5.3.5 Treatment of other specific cost items

The following items were discussed during the reviews to understand their treatment in the costing process. The cost data is used to inform the National Efficient Price (NEP) and specific funding model adjustments for particular patient cohorts. Mackay Base's treatment of each of the items is summarised in Table 46.

Table 46 – Treatment of other specific cost items – Mackay Base Hospital

Item	Treatment
Teaching, Training and Research	Queensland hospitals manage direct TTR by mapping those distinct cost centres to education and research departments. These costs are excluded from final patient costing as per the AHPCS. Indirect and embedded teaching and training are considered part of the provision of healthcare to patients. There are currently no feeder systems available which contain products which could be used for costing these activities and costs in the GL will form part of the salaries and wages component of patient level costs.
Shared/Other commercial entities	All shared and commercial entities are run by separate legal entities and are therefore not included in the GL.
Intensive Care Unit	No change to the costing methodology. No ICU weights or adjustments made.
Aboriginal and Torres Strait Islander patients	No change to the costing methodology. No ATSI weights or adjustments made. Costs based on resources linked.
Private Patients	No change to the costing methodology. Standard RVUs are applied across all patients.
PBS drugs	Included in the Round 18 submission, with no offsets undertaken.

Source: KPMG

5.3.6 Sample patient data

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

Table *47*.

Table 47 – Sample patients – Mackay Base Hospital

#	Product	Jurisdiction records	Received by IHPA	Variance
1	Non-admitted	$196	$196	$-
2	Admitted ED	$802	$802	$-
3	Non-admitted ED	$178	$178	$-
4	Acute	$9,100	$9,100	$-
5	Acute	$645,528	$645,528	$-

Source: KPMG, based on Mackay Base and IHPA data

5.4 The Prince Charles Hospital

5.4.1 Overview

The Prince Charles Hospital (Prince Charles) is a 630 bed major tertiary referral hospital located at Chermside within the Metro North Hospital and Health Service (Metro North HHS). The Prince Charles is located ten kilometres north of the Brisbane central business district. The hospital employs about 3,500 staff and has the premier cardiac service for Queensland and northern New South Wales, providing specialised services in complex interventional cardiology, structural heart disease, and cardiac electrophysiology. The Prince Charles also provides care over a broad range of specialties including:

- Cardiac and thoracic medicine and surgery
- Emergency medicine – adults and children
- General medical and general surgical services
- Orthopaedic joint surgery (elective)
- Acute geriatrics and rehabilitative medicine
- Children's inpatient and non-admitted services
- Comprehensive and integrated mental health services
- Palliative care.

Prince Charles is an active centre for education and research and is involved in numerous national and international research trials and projects. The Northside Medical School campus of the University of Queensland is located at Prince Charles along with the Queensland University of Technology Mechanical and Biological Engineering Facility. The site is a major training site for cardiothoracic sub specialties.[7]

Metro North HHS has a centralised costing team who undertake costing for the entire Metro North service area.

5.4.2 Financial data

For the Round 18 IFR, departmental representatives of Queensland Health completed the relevant IFR templates and participated in consultations during the review.

Table 48 presents an overview of the template results for expenditures used for costing (at the hospital level), the jurisdictional process for cost data received and the IHPA process for cost data received.

[7] The Princes Charles Hospital Queensland Health – Queensland Government [https://www.health.qld.gov.au/tpch/]. *Accessed 9 October 2015*.

Table 48 – Round 18 NHCDC Reconciliation – The Prince Charles Hospital

Hospital			
Item		**Amount**	**% of GL**
A General Ledger (GL)	$	2,101,277,246	
B Adjustments to the GL			
Inclusions	$	-	
Exclusions	$	(1,508,357,311)	
Total hospital expenditure	**$**	**592,919,936**	*28.22%*
C Allocation of Costs			
Post Allocation Direct amount	$	76,635,622	
Post Allocation Overhead amount	$	516,284,314	
Total hospital expenditure	**$**	**592,919,936**	*28.22%*
Variance	*$*	*-*	*0.00%*
D Post Allocation Adjustments			
Mismatched cost records	$	10,209,924	
WIP - Previous years 2012/13	$	15,677,974	
Total expenditure allocated to patients	**$**	**618,807,834**	
E Costed products submitted to jurisdiction			
Acute	$	317,392,328	
Non-admitted	$	59,732,245	
Emergency	$	51,514,614	
Sub Acute	$	43,801,828	
Mental Health	$	-	
Other	$	146,366,820	
Research	$	-	
Teaching & Training	$	-	
	$	**618,807,834**	
Variance	*$*	*-*	

Jurisdiction		
Item		**Amount**
F Costed Products received by jurisidction	$	618,807,834
Variance	*$*	*-*
G Final Adjustments		
Corporate overhead costs added	$	3,304,200
Negative cost removal	$	4,228,387
AdmED episode - no matching Acute episode	$	(318,381)
Data Error - Unmappable Unlinked Records	$	(3,153,748)
Excluded Accounts	$	(25,207)
Negative cost encounter	$	162,846
Remaining Mismatched Cost Records	$	(10,209,924)
ServCommTime-PresTime < 0 or > 99999	$	(679)
VPG Feeder	$	(111,564,199)
WIP_CURRENT	$	(21,081,640)
WIP_CURRENT Path02	$	(4,439)
Total costs submitted to IHPA	**$**	**480,145,050**
H Costed products submitted to IHPA		
Acute	$	321,285,160
Non-admitted	$	61,780,785
Emergency	$	52,553,428
Sub Acute	$	44,337,117
Mental Health	$	-
Other	$	188,562
Research	$	-
Teaching & Training	$	-
	$	**480,145,053**
Variance	*$*	*3*

IHPA		
Item		**Amount**
I Total costed products received by IHPA	$	480,145,052
Variance	*$*	*(1)*
J IHPA Adjustments		
Admitted ED Reallocations	$	22,557,098
Final NHCDC costs	**$**	**502,702,150**
K Final NHCDC costed products		
*Acute**	$	343,775,127
Non-admitted	$	61,780,785
Emergency	$	52,553,429
*Sub Acute**	$	37,526,653
Mental Health	$	-
Other	$	7,066,157
Research	$	-
Teaching & Training	$	-
	$	**502,702,151**
Variance	*$*	*1*

Source: KPMG based on Prince Charles IFR templates

** These figures include admitted emergency costs.*

Explanation of reconciliation items

Table 49 discusses each of the reconciliation items, including adjustments, inclusions and exclusions to the GL.

Table 49 – Financial Reconciliation, explanation of items – The Prince Charles Hospital

Item	Heading	Discussion
A	General Ledger	The final GL extracted from the financial systems indicated expenditure of $2.1 billion. This GL included all expenditure for the Metro North HHS.
B	Adjustments to the GL	A number of adjustments are made to the GL. Excluded expenditure totals $1.51 billion and comprised: • Other hospital and health service financial data included in the GL totalling $1.5 billion. • Out of scope expenditure including commercial entities, and trust accounts totalling $16.6 million. These adjustments established an expenditure base for costing of $592.9 million. This was approximately 28 percent of total expenditure reported in the Metro North HHS GL.
C	Allocation of Costs	The hospital undertakes a process of reclass/transfers etc. between direct cost centres. In Queensland this process is undertaken through derived accounts. The net effect of these derived accounts was zero. Reclass/transfers are determined based on discussions with cost centre managers. • It was observed that a total of $516.3 million direct cost centres were allocated pre and post allocation. • It was observed that overheads of $76.6 million were allocated to direct cost centres pre and post allocation. The total direct and overhead post allocation amount was equal to $592.9 million.
D	Post Allocation Adjustments	Costs were adjusted after the allocation of costs in Item C. These amounts comprised: • $10.2 million in mismatched cost records. This amount was related to costs in Transition 2 (the costing software used by Metro North HHS) that should be deleted after recosting for Prince Charles. Metro North HHS does not delete these records from the system, and neither does the Queensland Health

Item	Heading	Discussion
		for the purposes of the continuing quality assurance process on the cost data. These costs are excluded prior to submission. See Item G below. • $15.7 million in WIP from 2012/13 was included post allocation. The total expenditure allocated to patients was $618.8 million. As this amount included prior year costs (i.e. WIP 2012/13), no percentage of the GL was calculated.
E	Costed products submitted to jurisdiction	Costs derived by the hospital and reported at product level reconciled to $618.8 million. The hospital included acute, non-admitted, emergency, subacute and other costed products.
F	Costed Products received by jurisdiction	No variance was noted between Items E and F.
G	Final Adjustments	Queensland Health makes a number of adjustments to the hospital submission. The adjustments made for Round 18 totalled $138.7 million and included: • Corporate overhead costs included of $3.3 million. • Cost centres with negative balances removed of $4.2 million. Note this has a positive impact on the total costs. • Excluded costs related to admitted emergency episodes with no matching admitted acute episodes of $318,381. • Excluded costs related to unlinked records and mismatched records of $13.4 million. This included $10.2 million in mismatched records discussed in Item D. • Excluded costs of $25,207. • Encounters with negative costs excluded of $162,846. Note this has a positive impact on the total costs. • Virtual Patient feeder data excluded totalling $111.6 million. • WIP costs of $21.1 million for those patients not discharged in 2013/14. The WIP costs excluded are for episodes still in treatment i.e. admitted but not yet discharged (at 30 June 2014).

Item	Heading	Discussion
		The total NHCDC costs submitted to IHPA by Queensland Health was $480.1 million.
H	Costed products submitted to IHPA	Costs submitted to IHPA and reported at product level reconciled to $480.1 million. Queensland Health included acute, non-admitted, emergency, subacute and other costed products. A small variance of $3 was noted between total costs and product level costs submitted to IHPA.
I	Total Products received by IHPA	Total Costs received by IHPA totalled $480.1 million. There was a minimal variance of $1 noted between costs submitted by the jurisdiction and costs received by IHPA.
J	IHPA Adjustments	*Admitted Emergency* Upon receipt of cost data, IHPA allocates the admitted emergency costs back to admitted patients for the purposes of reporting and analysis. Within IHPA's reconciliation this amount was a duplication of admitted emergency costs and not an additional cost. For Prince Charles this amounted to $22.6 million.
K	Final NHCDC Costed Outputs	The final NHCDC costed data for Prince Charles that was loaded into the National Round 18 cost data set was $502.7 million which includes the admitted emergency cost of $22.6 million. There was a minimal variance of $1 noted between total costs and product level NHCDC costs processed by IHPA.

Source: KPMG, based on Prince Charles templates and review discussions

5.4.3 Activity data

Table 50 presents activity and feeder data for Prince Charles.

Table 50 – Activity data – The Prince Charles Hospital

Data	# Records from Source	# Records in costing system	Variance	# Records linked to Acute	# Records linked to Emerg.	# Records linked to Non-admitted	Total Linking Process	# Records linked to Other	# Unlinked records	% Linked
Activity Data										
PAS	52,156	52,156	-	52,156	-	-	52,156	-	-	100%
Emergency	69,533	69,533	-	-	69,533	-	69,533	-	-	100%
Non-admitted	188,568	188,568	-	-	-	188,568	188,568	-	-	100%
Unlinked	5,068	5,068	-	-	-	-	-	-	5,068	0%
TOTAL	**315,325**	**315,325**	**-**	**52,156**	**69,533**	**188,568**	**310,257**	**-**	**5,068**	
Feeder Data										
Appointment Schedule Outpatient	2,544,445	2,544,445	-	209,610	2,215	2,275,802	2,487,627		56,818	98%
Diagnostic Imaging	2,265,619	2,265,619	-	809,278	761,814	537,934	2,109,026	-	156,593	93%
Emergency Presentation	1,740,195	1,740,195	-	-	1,730,827	-	1,730,827	-	9,368	99%
Local Clinical System	350,911	350,911	-	294,296	1,773	42,080	338,149	-	12,762	96%
Medical ATD(Bedday)	7,057,804	7,057,804	-	6,235,995	-	-	6,235,995	-	821,809	88%
Nursing Acuity	1,574,547	1,574,547	-	1,445,593	-	-	1,445,593	-	128,954	92%
Nursing ATD(Bedday)	33,870,461	33,870,461	-	31,397,367	-	-	31,397,367	-	2,473,094	93%
Operating Theatre	416,666	416,666	-	400,966	-	-	400,966	-	15,700	96%
Pathology	4,641,319	4,641,319	-	2,789,211	1,099,301	567,803	4,456,315	-	185,004	96%
Pharmacy	2,273,532	2,273,532	-	1,401,139	4,655	751,666	2,157,460	-	116,072	95%
Site Derived	16,729,685	16,729,685	-	4,609,328	3,043,337	8,644,205	16,296,870	-	432,815	97%
Virtual Patient	242,400	242,400	-	-	-	-	-	-	242,400	0%

Source: KPMG based on Prince Charles IFR templates

The following should be noted about the activity and feeder data for Prince Charles:

- Activity data is cleansed through Talons on a monthly basis prior to entry into Transition 2. Only valid records (where there is no unlinked activity) are loaded into the costing system. This explains why there are no variances between the source activity data and the costing system.
- Once all extracts are recorded, loaded and posted, the data audit process will also assess the cost data outputs for valid activity records and make adjustments for deleted or merged records. All records flagged are reviewed before any decision is made to remove them.
- Unlinked records include encounters related to patients that “Failed to Attend” and “Did Not Wait”. These encounters are assigned an RVU.
- There are 11 feeders reported from hospital source systems and they appear to represent major hospital departments providing resource activity.
- The number of records linked from source to product was significant with all feeders having a greater than 90 percent link or match, with the exception of the Medical ATD (admission, transfer, and discharge or bed day) data which has greater than 88 percent link or match. This would suggest that there is robustness in the level of feeder activity reported back to episodes. This does not include the virtual patient feeder system that was not linked to hospital activity.

Table 51 highlights the transfer of activity data from Prince Charles to Queensland Health and then through to IHPA submission and finalisation.

Table 51 – Activity data submission – The Prince Charles Hospital

Product	Activity related to 2013-14 Costs	Adjustments	Activity submitted to jurisdiction	Adjustments	Activity submitted to IHPA	Adjustments	Total Activity submitted for Round 18 NHCDC
Acute	43,342	-	43,342	-	43,342	-	43,342
Non-admitted	180,978	-	180,978	-	180,978	-	180,978
Emergency	69,151	-	69,151	-	69,151	-	69,151
Sub Acute	4,474	-	4,474	-	4,474	-	4,474
Mental Health	-	-	-	-	-	-	-
Other	17,380	-	17,380	(17,101)	279	-	279
Research	-	-	-	-	-	-	-
Teaching and Training	-	-	-	-	-	-	-
Total	**315,325**	**-**	**315,325**	**(17,101)**	**298,224**	**-**	**298,224**

Source: KPMG based on data supplied by Prince Charles, Queensland Health and IHPA

The following should be noted about the transfer of activity data for Prince Charles:

- The adjustment made by the jurisdiction relates to the activity associated with the excluded costs (at Item G of the financial reconciliation) such as zero cost encounters, unmapped/mismatched records and the virtual patient feeder data.
- The adjustment made by IHPA relating to admitted emergency reallocations for reporting and analysis purposes (as discussed in Item J of the explanation of reconciliation items) has no impact on the reported activity.

5.4.4 Treatment of WIP

Table 52 demonstrates models for WIP and what was included in the Prince Charles Round 18 NHCDC submission.

Table 52 – WIP – The Prince Charles Hospital

Model	Description	Submitted to Round 18 NHCDC
1	Admitted and Discharged Patients in 2013/14 only	Submitted to Round 18 of the NHCDC
2	Costs for patients discharged in 2013/14 but incurred prior to 2013/14	Submitted to Round 18 of the NHCDC
3	Costs for patients admitted in 2013/14 and still admitted at 30/06/2014	Not submitted to Round 18 of the NHCDC
4	Costs for patients admitted prior to 2013/14 and still admitted at 30/06/2014	Not submitted to Round 18 of the NHCDC

Source: KPMG, based on Prince Charles templates and review discussions

In summary, Queensland Health submitted WIP costs for Prince Charles for admitted and discharged patients in 2013/14 and the WIP costs for patients discharged in 2013/14 but incurred in prior years.

Escalation factor

No escalation factor to costs incurred prior to 2013/14 was applied to the Prince Charles Round 18 submission to the NHCDC.

5.4.5 Treatment of other specific cost items

The following items were discussed during the reviews 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. Prince Charles's treatment of each of the items is summarised in Table 53.

Table 53 – Treatment of other specific cost items – The Prince Charles Hospital

Item	Treatment
Teaching, Training and Research	Queensland hospitals manage direct TTR by mapping those distinct cost centres to education and research departments. These costs are excluded from final patient costing as per the AHPCS. Indirect and embedded teaching and training are considered part of the provision of healthcare to patients. There are currently no feeder systems available which contain products which could be used for costing these activities and costs in the GL will form part of the salaries and wages component of patient level costs.
Shared/Other commercial entities	All shared and commercial entities are excluded from the expenditure base via dead-ended costs.
Intensive Care Unit	No change to the costing methodology. No ICU weights or adjustments made.
Aboriginal and Torres Strait Islander patients	No change to the costing methodology. No ATSI weights or adjustments made. Costs based on resources linked.
Private Patients	No change to the costing methodology. Standard RVUs are applied across all patients.
PBS drugs	Included in the Round 18 submission, with no offsets undertaken.

Source: KPMG

5.4.6 Sample patient data

IHPA selected a sample of five patients from Prince Charles for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. Queensland Health provided the patient level costs for all five patients and these reconciled to IHPA records. The results are summarised in Table 54.

Table 54 – Sample patients – The Prince Charles Hospital

#	Product	Jurisdiction records	Received by IHPA	Variance
1	Non-admitted	$1,227	$1,227	$-
2	Admitted ED	$1,749	$1,749	$-
3	Non-admitted ED	$693	$693	$-
4	Acute	$60,767	$60,767	$-
5	Acute	$786,343	$786,343	$-

Source: KPMG, based on Prince Charles and IHPA data

5.5 Application of AHPCS Version 3.1

Table 55 summarises Queensland's application of selected standards from Version 3.1 of the AHPCS (outlined in Section 1.3.4). The application of the selected standards was consistent across each of the three hospitals reviewed during the Round 18 IFR. Queensland Health representatives and hospital costing representatives advised that costing occurs in accordance with state published guidelines which have been written with consideration of the AHPCS Version 3.1.

Table 55 – Application of Costing Standards – Queensland sampled hospitals

No.	Title	Discussion
SCP 1.004	Hospital Products in Scope	Queensland Health representatives completed templates for this review for hospitals and demonstrated through the templates and interview process that costs are reported against admitted acute, emergency care and non-admitted products. It was noted that costs are also created for non-patient products (such as unlinked records).
SCP 2.003	Product Costs in Scope	It was stated that all products are costed, which includes costs assigned to products in scope for the NHCDC, unlinked activity, and costs assigned to virtual patients. It was noted in the interview process that costs are not imputed for private patients.
SCP 2A.003	Teaching and Training Costs	Queensland hospitals manage direct TTR by mapping those distinct cost centres to education and research departments. These costs are excluded from final patient costing as per the AHPCS. Indirect and embedded teaching and training are considered part of the provision of healthcare to patients. There are currently no feeder systems available which contain products which could be used

No.	Title	Discussion
		for costing these activities and costs in the GL will form part of the salaries and wages component of patient level costs. If a feeder system was to be developed Queensland hospitals would consider costing these activities separately but unless otherwise required by national reporting structures to report indirect and embedded teaching separately, Queensland would still consider these as an integral part of the cost of service delivery to all patients, and therefore the costs of these activities would continue to be reported as a component of the final patient cost.
SCP 2B.002	Research Costs	See SCP 2A.003
SCP 3.001	Matching Production and Cost	This was demonstrated during the site visit through discussion on derived accounts with both Queensland Health and hospital costing representatives.
SCP 3A.001	Matching Production and Cost – Overhead Cost Allocation	The jurisdiction was able to demonstrate that overhead costs were fully allocated to direct patient care areas via the pre allocation and post allocation data included in the templates.
SCP 3B.001	Matching Production and Cost – Costing all Products	Demonstrated in the template. Queensland Health provided an overview of their internal reconciliation process which demonstrated the allocation of costs to products.
SCP 3C.001	Matching Production and Cost – Commercial Business Entities	Based on discussions during the review and a review of the templates, application of this standard was demonstrated.
SCP 3E.001	Matching Production and Cost – Offsets and Recoveries	Cost recoveries for salaries and wages and work cover expenses were noted in the template.
SCP 3G.001	Matching Production and Cost – Reconciliation to Source Data	Based on discussions during the review, Queensland Health completes a final reconciliation of its costing system to source documentation. Queensland Health representatives also noted

No.	Title	Discussion
		the 400+ validations are undertaken on the data including activity mismatch as a basis of reconciliation.
GL2.004	Account Code Mapping to Line Items	Queensland Health mapped total costs to the standard specified line items and noted inconsistency between what is published in the Version 3.1 AHPCS regarding Depreciation line items.
COST 5.002	Treatment of Work-In-Progress Costs	Based on discussions during the review, patients are allocated costs based on their consumption of resources for that reporting period. Where costs are incurred in prior years, these are included in the final costed data and NHCDC submission. No escalation factor is applied to prior year costs.

Source: KPMG

5.6 Conclusion

The findings of the Queensland Round 18 IFR are summarised below:

- The financial reconciliations demonstrated the transformation of cost data for the sampled hospitals based on the GL of the respective HHS. Major exclusions from the HHS data included other hospitals/health services within each HHS. Queensland Health processed a number of adjustments, with the largest exclusion being related to the virtual patient feeder.
- There were no unexplained variances in the financial reconciliations of the Ipswich Hospital, Mackay Base or Prince Charles submissions to the NHCDC.
- Total activity data for the hospitals was adjusted by Queensland Health for the removal of records associated with excluded costs. IHPA made no adjustments to activity data.
- The number of records linked from source to product was significant with all feeders having a greater than 88 percent link or match, across all hospitals. This suggests that there is robustness in the level of feeder activity reported back to episodes. This percentage does not include the virtual patient feeder system that was not linked to hospital activity.
- Queensland Health representatives and hospital costing representatives advised that costing occurs in accordance with state published guidelines which have been written with consideration of the AHPCS Version 3.1.
- Teaching and training costs are not product costed but are spread across all patients. Clinical research is assigned to a virtual patient and excluded during jurisdiction adjustments.

- WIP was treated in accordance with the COST 5.002 of the AHPCS Version 3.1. We note that no escalation factor was applied to prior year costs.
- On review of the five sample patients selected for each of the three participating Queensland hospitals, all 15 patients reconciled to IHPA records.

Based on discussions held during the site visits, and a review of the financial reconciliations provided, Queensland Health and the health services reviewed have robust reconciliation processes in place. As such, nothing was identified to suggest that the financial data for Ipswich Hospital, Mackay Base and Prince Charles is not fit for NHCDC submission. Furthermore, the data flow from the jurisdiction to IHPA demonstrated no unexplained variances.

6. South Australia

6.1 Jurisdictional overview

6.1.1 Management of NHCDC process

The South Australian Department of Health and Ageing (SA Health) through the Funding Models Unit is responsible for the preparation and submission of SA data to the NHCDC. The approach for Round 18 is consistent with the approach used during the Round 17 submission.

SA Health prepared the Round 18 submission in consultation with the relevant hospitals and Local Health Networks (LHNs).

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

Hospitals are responsible for recording activity data in the Patient Administration System (PAS). Hospital activity data is extracted to a state-wide data warehouse. Quality assurance processes are undertaken by the LHN and SA Health to ensure that the activity data is robust and consistent.

SA Health has a single instance of its financial management information system with each LHN having a dedicated general ledger (GL). Individual health services 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. SA Health does not allocate any additional costs to the financial data after it is extracted from the GL.

Product fractioned (PFRAC) data was recently reviewed at the hospitals included in this IFR, in particular, fractions used to allocate medical salaries and wages costs.

Prior to submitting NHCDC data to IHPA, the Funding Model 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. The Senior Manager, Funding Models submits the data to IHPA.

Two hospitals from the Northern Adelaide Local Health Network (Northern Adelaide LHN) were nominated to participate in the IFR for Round 18, the Lyell McEwin Hospital (Lyell McEwin) and Modbury Hospital. In addition to these hospitals, the Northern Adelaide LHN provides services for northern Adelaide residents including GP Plus Centres and Super Clinics, subacute and mental health services.

Key initiatives since Round 17 NHCDC

During 2014-15 (for Round 19 submission), SA Health worked on increasing the frequency of costing to become a monthly process, two months in arrears.

6.2 Lyell McEwin Hospital

6.2.1 Overview

The Lyell McEwin Hospital (Lyell McEwin) is located in Elizabeth Vale in northern Adelaide and is part of the Northern Adelaide LHN, which employs more than 4,000 staff. Lyell McEwin provides a full range of high-quality medical, surgical, diagnostic, emergency and support services. It is currently a 336 bed specialist referral public teaching hospital, with links to the University of Adelaide, University of South Australia and Flinders University.

Opening as a small country hospital in 1959, Lyell McEwin is today the major referral centre for acute care and emergency services in the northern region of Adelaide. It is currently undergoing a redevelopment worth in excess of $300 million that will increase bed capacity to 396.[8]

6.2.2 Financial data

For the Round 18 IFR, staff from the SA Health Funding Models Unit completed the IFR templates and participated in consultations during the review. Representatives of Lyell McEwin and the clinical costing software vendor PowerHealth Solutions, also attended the site visit

Table 56 presents an overview of the template results for expenditures used for costing (at the hospital level), the jurisdictional process for cost data received and the IHPA process for cost data received.

[8] Fast Facts Lyell McEwin Hospital [http://www.sahealth.sa.gov.au/wps/wcm/connect/422b6f0042b6ee039e06be30a4818ec3/lmh_fast_facts_july_2015.pdf?MOD=AJPERES&CACHEID=422b6f0042b6ee039e06be30a4818ec3]. *Accessed 9 October 2015*

Table 56 – Round 18 NHCDC Reconciliation – Lyell McEwin Hospital

Hospital			
Item		**Amount**	**% of GL**
A General Ledger (GL)	$	321,392,735	
B Adjustments to the GL			
Inclusions	$	19,932,890	
Exclusions	$	(1,809,449)	
Total hospital expenditure	**$**	**339,516,176**	*105.64%*
C Allocation of Costs			
Post Allocation Direct amount	$	249,431,127	
Post Allocation Overhead amount	$	89,966,420	
Total hospital expenditure	**$**	**339,397,547**	*105.60%*
Variance	*$*	*(118,629)*	*-0.04%*
D Post Allocation Adjustments			
Non-admitted patientss	$	(59,387,416)	
Research	$	(368,776)	
Training	$	(9,305,068)	
Dummy Patients/Non-Casemix	$	(3,833,635)	
Costs shared with activity across hospita	$	118,634	
Total expenditure allocated to patients	**$**	**266,621,286**	*82.96%*
E Costed products submitted to jurisdiction			
Acute	$	221,694,367	
Non-admitted	$	-	
Emergency	$	40,615,891	
Sub Acute	$	4,310,996	
Mental Health	$	-	
Other	$	-	
Research	$	-	
Teaching & Training	$	-	
	$	**266,621,254**	*82.96%*
Variance	*$*	*(32)*	*0.00%*

Jurisdiction		
Item		**Amount**
F Costed Products received by jurisidction	$	266,621,254
Variance	*$*	*-*
G Final Adjustments		
Escalation factor	$	25,184
WIP, Incomplete, Unmatched records	$	(3,018,964)
Total costs submitted to IHPA	**$**	**263,627,474**
H Costed products submitted to IHPA		
Acute	$	221,118,794
Non-admitted	$	-
Emergency	$	38,726,796
Sub Acute	$	3,781,885
Mental Health	$	-
Other	$	-
Research	$	-
Teaching & Training	$	-
	$	**263,627,474**
Variance	*$*	*-*

IHPA		
Item		**Amount**
I Total costed products received by IHPA	$	263,598,741
Variance	*$*	*(28,733)*
J IHPA Adjustments		
Admitted ED Reallocations	$	15,178,671
Final NHCDC costs	**$**	**278,777,412**
K Final NHCDC costed products		
*Acute**	$	236,280,891
Non-admitted	$	-
Emergency	$	38,714,806
*Sub Acute**	$	3,781,715
Mental Health	$	-
Other	$	-
Research	$	-
Teaching & Training	$	-
	$	**278,777,412**
Variance	*$*	*-*

Source: KPMG based on Lyell McEwin IFR templates

** These figures include admitted emergency costs.*

Explanation of reconciliation items

Table 57 discusses each of the reconciliation items including adjustments, inclusions and exclusions to the GL.

Table 57 – Financial Reconciliation, explanation of items – Lyell McEwin Hospital

Item	Heading	Discussion
A	General Ledger	The GL amount of $321.4 million represented the Lyell McEwin share of the total Northern Adelaide LHN expenditure of $472.5 million.
B	Adjustments to the GL	A number of adjustments are made to the GL. Expenditure items excluded totalled $1.8 million and related to the following: • Bad Debts expense of $809,449. • Medical Salaries back pay from a prior financial year of $1 million. Expenditure items included totalled $19.9 million and related to services or functions not recharged through the GL, e.g. centralised procurement and ICT costs ($28.2 million). The inclusions were netted off by recharges and reclassification of costs to other services ($8.3 million). These adjustments established an expenditure base for costing of $339.5 million for Lyell McEwin. This was approximately 106 percent of Lyell McEwin's total expenditure reported in the GL.
C	Allocation of Costs	Once all adjustments are made, costs are allocated to patients. • The template demonstrated that the total of all direct cost centres of $249.4 million were allocated post allocation. • The template demonstrated that overheads of $90 million were allocated to direct cost centres post allocation. We note a variance of $118,629 that related to costs shared across activity with other hospitals. This amount was adjusted during post allocation adjustments.
D	Post Allocation Adjustments	A range of costs were excluded after the allocation of costs in Item C. The amounts excluded included: • Non-admitted patients - $59.4 million (quality and

Item	Heading	Discussion
		completeness of activity data was limited). • TTR - $9.7 million (not patient costed). • Other - $3.83 million (dummy and non-casemix records). Costs shared with activity across hospitals totalling $118,634 were included. This amount relates to the variance identified at Item C. The total expenditure allocated to patients for Lyell McEwin was $266.6 million which represented approximately 83 percent of the GL.
E	Costed Products Submitted to jurisdiction	Costs derived by the hospital and reported at product level equalled $266.6 million. Lyell McEwin submitted acute, emergency care and subacute costed products.
F	Costed Products received by jurisdiction	No variance was noted between Items E and F.
G	Final Adjustments	Final adjustments were processed for WIP and escalation of costs from prior years. These adjustments totalled $2.9 million. The total cost after these adjustments was $263.6 million.
H	Costed products submitted to IHPA	Costs derived by the jurisdiction and reported at product level reconciled to $263.6 million. SA health submitted acute, emergency care and subacute costed products.
I	Total costed products received by IHPA	Costs received by IHPA totalled $263.6 million. A variance of $28,773 between Item I and Item H was identified. This variance represents 0.01 percent of the costs submitted to IHPA.
J	IHPA Adjustments	*Admitted Emergency* Upon receipt of cost data, IHPA allocates the admitted emergency costs back to admitted patients for the purposes of reporting and analysis. Within IHPA's reconciliation, this amount was a duplication of admitted emergency costs and not an additional cost. For Lyell McEwin this amounted to $15.2 million.
K	Final NHCDC costed products	The final NHCDC costed data for Lyell McEwin that was loaded into the NHCDC Round 18 cost data set was $278.8 million, which includes the admitted emergency cost of $15.2 million.

Source: KPMG, based on Lyell McEwin templates and review discussions

6.2.3 Activity data

Table 58 presents activity and feeder data provided for Lyell McEwin.

Table 58 – Activity data – Lyell McEwin Hospital

Data	# Records from Source	# Records in costing system	Variance	# Records linked to Acute	# Records linked to Emergency	# Records linked to Non-admitted	Total Linking Process	# Records linked to Other	# Unlinked records	% Linked
Activity Data										
PAS	43,109	43,109	-	-	-	-	-	-	-	-
Emergency	73,831	72,486	(1,345)	-	-	-	-	-	-	-
Non-admitted	152,541	152,541	-	-	-	-	-	-	-	-
TOTAL	**269,481**	**268,136**	**(1,345)**	**-**	**-**	**-**	**-**	**-**	**-**	
Feeder Data										
Theatre Anaesthesia	11,436	11,436	-	10,194	-	1,211	11,405	-	31	99.7%
Theatre Nursing	9,397	9,397	-	9,366	-	17	9,383	-	14	100%
Theatre Recovery	8,759	8,759	-	8,740	-	6	8,746	-	13	100%
Theatre Surgery	11,506	11,506	-	10,256	-	1,219	11,475	-	31	100%
ED Resuscitation	2,685	2,679	(6)	169	2,509	-	2,678	-	1	100%
MET Service	1,167	1,167	-	1,109	35	12	1,156	-	11	99%
Pathology - $$	317,844	317,842	(2)	154,969	116,569	30,953	302,491	15,351	-	95%
Pharmacy - $$	171,829	171,655	(174)	97,705	47,006	19,263	163,974	7,681	-	96%
Pharmacy S100 - $$	1,088	1,056	(32)	356	2	536	894	162	-	85%
Imaging	86,211	86,211	-	29,566	30,487	19,100	79,153	7,058	-	92%
Allied Health	188,051	188,051	-	143,393	1,837	42,821	188,051	-	-	100%
Medical ED	62,202	62,202	-	-	62,202	-	62,202	-	-	100%
Nursing ED	72,486	72,486	-	-	72,486	-	72,486	-	-	100%
Patient Security Service	2,524	2,524	-	1,487	914	-	2,401	-	123	95%

Source: KPMG based on Lyell McEwin IFR templates

The following should be noted about the activity and feeder data for Lyell McEwin:

- There are 14 feeders reported from hospital source systems and they appear to represent major hospital departments providing resource activity.
- The number of records linked from source to product was significant, with all feeders having a greater than 85 percent link or match. This would suggest that there is robustness in the level of feeder activity reported back to episodes.
- Variances in pharmacy occurred, mostly in relation to S100 Drugs. These variances reflect issues with matching scripts that are for a 12 month period from the original encounter.
- Variances in imaging and pathology occurred as these records could not be matched based on episode numbers.

Table 59 shows the transfer of activity data from Lyell McEwin to SA Health and then through to IHPA submission and finalisation.

Table 59 – Activity data submission – Lyell McEwin Hospital

Product	Activity related to 2013-14 Costs	Adjustment	Activity submitted to jurisdiction	Adjustment	Activity submitted to IHPA	Activity received by IHPA	Adjustment	Total Activity submitted for Round 18 NHCDC
Acute	42,784	-	42,784	(338)	42,446	41,494	-	41,494
Non-admitted	-	-	-	-	-	-	-	-
Emergency	72,486	(18)	72,468	(7,904)	64,564	64,564	-	64,564
Sub Acute	325	-	325	(51)	274	274	-	274
Mental Health	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	952	-	952
Research	-	-	-	-	-	-	-	-
Teaching and Training	-	-	-	-	-	-	-	-
Total	**115,595**	**(18)**	**115,577**	**(8,293)**	**107,284**	**107,284**	**-**	**107,284**

Source: KPMG based on data supplied by Lyell McEwin, NSW Health and IHPA

The following should be noted about the transfer of activity data for Lyell McEwin:

- SA Health did not submit activity and cost data related to non-admitted patients due to issues with the quality and completeness of the activity data. Non-admitted patients are costed at the hospital level, but are removed prior to submission to SA Health. This explains the variance between total records from source detailed in Table 58 (269,481 records) and total activity related to 2013-14 costs by NHCDC product type in Table 59 (115,595 records).
- The adjustment made by Lyell McEwin to emergency products relates to zero cost records.
- Adjustments made by SA Health relate to the activity associated with the exclusion of costs (at Item G of the financial reconciliation) such as current WIP records and unmapped/mismatched records.
- Adjustments made by IHPA relating to admitted emergency reallocations for reporting and analysis purposes (as discussed in Item J of the explanation of reconciliation items) has no impact on the reported activity.

6.2.4 Treatment of WIP

Table 60 demonstrates models for WIP and what was included in the Lyell McEwin Round 18 NHCDC submission.

Table 60 – WIP – Lyell McEwin Hospital

Model	Description	Submitted to Round 18 NHCDC
1	Admitted and Discharged Patients in 2013/14 only	Submitted to Round 18 of the NHCDC
2	Costs for patients discharged in 2013/14 but admitted prior to 2013/14	Submitted to Round 18 of the NHCDC
3	Costs for patients admitted prior to or in 2013/14 and remain admitted at 30/06/2014	Not submitted to Round 18 of the NHCDC
4	Costs for patients admitted prior to 2013/14 and still admitted at 30/06/2014	Not submitted to Round 18 of the NHCDC

Source: KPMG, based on Lyell McEwin templates and review discussions

In summary, Lyell McEwin submitted WIP costs for admitted and discharged patients in 2013/14 and the 2012/13 WIP costs incurred for patients admitted prior to, but discharged, in 2013/14.

Escalation factor

SA Health applied the escalation factors provided by IHPA for prior years to the costs associated with WIP as part of the Round 18 submission to the NHCDC.

6.2.5 Treatment of other specific cost items

The following items were discussed during the reviews to understand their treatment in the costing process. The cost data is used to inform the National Efficient Price (NEP) and specific funding model adjustments for particular patient cohorts. Treatment of each of the items is summarised in Table 61.

Table 61 – Treatment of other specific cost items – Lyell McEwin Hospital

Item	Treatment
Research	Research costs are not submitted to the NHCDC as they are not costed to patients.
Teaching and Training	Teaching and training are not submitted to the NHCDC as they are not costed to patients.
Shared/Other commercial entities	Based on a review of the templates and discussions during the site visit, shared and other commercial entities are removed from the GL.
Intensive Care Unit	No change to the costing methodology. No ICU weights or adjustments made.
Aboriginal and Torres Strait Islander patients	No change to the costing methodology. No ATSI weights or adjustments made. Costs based on resources linked.
Private Patients	No change to the costing methodology. No Private Patient weights or adjustments made.
PBS drugs	Included in Round 18, no revenue offsets processed.

Source: KPMG

6.2.6 Sample patient data

IHPA selected a sample of five patients from Lyell McEwin for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. SA Health provided the patient level costs for all five patients and these reconciled to IHPA records (with minor $1 variances noted for two acute records). The results are summarised in Table 62.

Table 62 – Sample patients – Lyell McEwin Hospital

#	Product	Jurisdiction records	Received by IHPA	Variance
1	Admitted ED	$1,926	$1,926	$-
2	Non-Admitted ED	$530	$530	$-
3	Acute	$291,300	$291,298	$(1.33)
4	Acute	$405	$405	$-
5	Acute	$25,723	$25,723	$(0.51)

Source: KPMG, based on Lyell McEwin and IHPA data

6.3 Modbury Hospital

6.3.1 Overview

Modbury Hospital is part of the Northern Adelaide LHN and is located in Modbury in northern Adelaide. Through its close ties with Lyell McEwin, Modbury Hospital is focused on general medicine and general surgery, with a specific emphasis on rehabilitation, aged care and palliative care services for all northern residents. It is a 164 bed, acute care teaching hospital, with Woodleigh House (which is a 20 bed, acute-care mental health facility for adults) also located at Modbury Hospital.

The Modbury Hospital Emergency Department underwent a $17.4 million redevelopment, completed in 2014. Twenty-four hour emergency services remain on-site at Modbury Hospital including paediatric emergency services. Surgical services in the north are managed across Modbury Hospital and Lyell McEwin with complex cases focused to Lyell McEwin. Day surgery and procedures are managed across Modbury Hospital and Lyell McEwin with increasing procedures directed towards Modbury. Modbury Hospital is affiliated with the University of Adelaide and enjoys a close relationship with general practitioners in its catchment area.[9]

6.3.2 Financial data

For the Round 18 IFR, SA Health staff from the Funding Models Unit completed the IFR templates and participated in consultations during the review. Representatives of Modbury Hospital and the clinical costing software vendor, PowerHealth Solutions, also attended the site visit.

Table 63 presents an overview of the template results for expenditures used for costing (at the hospital level), the jurisdictional process for cost data received and the IHPA process for cost data received.

[9] Fast Facts Modbury Hospital [http://www.sahealth.sa.gov.au/wps/wcm/connect/61e0aa8042b0b01bbb8fbb30a4818ec3/mod_fast_facts_july_2015_.pdf?MOD=AJPERES&CACHEID=61e0aa8042b0b01bbb8fbb30a4818ec3]. *Accessed 9 October 2015*

Table 63 – Round 18 NHCDC Reconciliation – Modbury Hospital

Hospital			
Item		**Amount**	**% of GL**
A General Ledger (GL)	$	135,038,784	
B Adjustments to the GL			
Inclusions	$	8,684,008	
Exclusions	$	(335,570)	
Total hospital expenditure	**$**	**143,387,222**	*106.18%*
C Allocation of Costs			
Post Allocation Direct amount	$	101,725,129	
Post Allocation Overhead amount	$	41,542,653	
Total hospital expenditure	**$**	**143,267,782**	*106.09%*
Variance	*$*	*(119,440)*	*-0.09%*
D Post Allocation Adjustments			
Non-admitted patients	$	(18,512,614)	
Research	$	-	
Training	$	(3,270,250)	
Dummy Patients/Non-Casemix	$	(352,968)	
Costs shared with activity across hospital	$	119,443	
Total expenditure allocated to patients	$	121,251,393	*89.79%*
E Costed products submitted to jurisdiction			
Acute	$	75,899,884	
Non-admitted	$	-	
Emergency	$	23,580,568	
Sub Acute	$	21,770,952	
Mental Health	$	-	
Other	$	-	
Research	$	-	
Teaching & Training	$	-	
	$	**121,251,404**	*89.79%*
Variance	*$*	*11*	*0.00%*

Jurisdiction		
Item		**Amount**
F Costed Products received by jurisidction	$	121,251,404
Variance	*$*	*-*
G Final Adjustments		
Escalation factor	$	13,603
WIP, Incomplete, Unmatched records	$	(549,327)
Total costs submitted to IHPA	**$**	**120,715,680**
H Costed products submitted to IHPA		
Acute	$	72,943,419
Non-admitted	$	-
Emergency	$	23,538,268
Sub Acute	$	24,233,992
Mental Health	$	-
Other	$	-
Research	$	-
Teaching & Training	$	-
	$	**120,715,680**
Variance	*$*	*-*

IHPA		
Item		**Amount**
I Total costed products received by IHPA	$	120,703,245
Variance	*$*	*(12,435)*
J IHPA Adjustments		
Admitted ED Reallocations	$	8,185,547
Final NHCDC costs	**$**	**128,888,792**
K Final NHCDC costed products		
*Acute**	$	80,995,140
Non-admitted	$	-
*Emergency**	$	23,532,104
Sub Acute	$	24,361,548
Mental Health	$	-
Other	$	-
Research	$	-
Teaching & Training	$	-
	$	**128,888,792**
Variance	*$*	*-*

Source: KPMG based on Modbury Hospital IFR templates

** These figures include admitted emergency costs.*

Explanation of reconciliation items

Table 64 discusses each of the reconciliation items including adjustments, inclusions and exclusions to the GL.

Table 64 – Financial Reconciliation, explanation of items – Modbury Hospital

Item	Heading	Discussion
A	General Ledger	The GL amount of $135.04 million represented the Modbury Hospital share of the total Northern Adelaide LHN expenditure of $472.51 million.
B	Adjustments to the GL	A number of adjustments are made to the GL. Expenditure items excluded totals $335,570 and relates to the following: • Bad Debts expense of $73. • Medical Salaries back pay from a prior financial year of $335,497. Expenditure items included totalled $8.7 million and related to services or functions not recharged through the GL, e.g. centralised procurement and ICT costs ($10.1 million). The inclusions are offset by recharges and reclassification of costs to other services ($1.4 million). These adjustments established an expenditure base for costing of $143.4 million for Modbury Hospital. This was approximately 106 percent of total expenditure reported in the Modbury Hospital GL.
C	Allocation of Costs	Once all adjustments are made, costs are allocated to patients. • The template demonstrated that the total of all direct cost centres of $101.7 million were allocated post allocation. • The template demonstrated that overheads of $41.5 million were allocated to direct cost centres post allocation. We note a variance of $119,440 that related to costs shared across activity with other hospitals. This amount was adjusted during post allocation adjustments.
D	Post Allocation Adjustments	A range of costs were excluded after the allocation of costs in Item C. The amounts excluded included: • Non-admitted patients - $18.51 million. • TTR - $3.27 million.

Item	Heading	Discussion
		• Other - $352,968 (dummy and non-casemix records). Costs shared with activity across hospitals totalling $119,443 were included. This amount relates to the variance identified at Item C. The total expenditure allocated to patients was $121.3 million which represented approximately 90 percent of the Modbury Hospital GL.
E	Costed Products Submitted to jurisdiction	Costs derived by the hospital and reported at product level equalled $121.3 million. Modbury Hospital included acute, emergency and subacute costed products.
F	Costed Products received by jurisdiction	No variance was noted between Items E and F.
G	Final Adjustments	Final adjustments were processed for WIP and escalation of costs from prior years. These adjustments totalled $549,327. The total cost after these adjustments was $120.7 million.
H	Costed products submitted to IHPA	Costs derived by the jurisdiction and reported at product level reconciled to $120.7 million. SA health included acute, emergency and subacute products.
I	Total costed products received by IHPA	Costs received by IHPA totalled $120.7 million. A variance of $12,435 between Item I and Item H was identified. This variance represents 0.01 percent of the costs submitted to IHPA.
J	IHPA Adjustments	*Admitted Emergency* Upon receipt of cost data, IHPA allocates the admitted emergency costs back to admitted patients for the purposes of reporting and analysis. Within IHPA's reconciliation this amount was a duplication of admitted emergency costs and not an additional cost. For Modbury Hospital this amounted to $8.2 million.
K	Final NHCDC costed products	The final NHCDC costed data for Modbury Hospital that was loaded into the NHCDC Round 18 cost data set was $128.9 million which includes the admitted emergency cost of $8.2 million.

Source: KPMG, based on Modbury Hospital templates and review discussions

6.3.3 Activity data

Table 65 presents activity and feeder data for Modbury Hospital.

Table 65 – Activity data – Modbury Hospital

Data	# Records from Source	# Records in costing system	Variance	# Records linked to Acute	# Records linked to Emerg.	# Records linked to Non-admitted	Total Linking Process	# Records linked to Other	# Unlinked records	% Linked
Activity Data										
PAS	16,708	16,708	-	-	-	-	-	-	-	-
Emergency	35,639	35,158	(481)	-	-	-	-	-	-	-
Non-admitted	45,743	45,743	-	-	-	-	-	-	-	-
TOTAL	**98,090**	**97,609**	**(481)**	**-**	**-**	**-**	**-**	**-**	**-**	
Feeder Data										
Allied Health	33,623	33,623	-	21,880	164	11,579	33,623	-	-	100.0%
ED Resuscitation	1,765	1,765	-	26	1,718	-	1,744	-	21	98.8%
Imaging	36,101	36,101	-	11,653	20,027	3,704	35,384	717	-	98.0%
Medical ED	35,158	35,158	-	-	35,158	-	35,158	-	-	100.0%
Nursing ED	35,158	35,158	-	-	35,158	-	35,158	-	-	100.0%
Pathology	142,277	142,277	-	64,082	66,953	7,716	138,751	3,526	-	97.5%
Pharmacy	77,404	77,404	-	56,979	11,909	5,283	74,171	3,233	-	95.8%
Pharmacy S100	441	441	-	335	10	79	424	17	-	96.1%
Theatre Anaesthesia	4,498	4,498	-	4,265	-	224	4,489	-	9	99.8%
Theatre Nursing	4,745	4,745	-	4,406	-	328	4,734	-	11	99.8%
Theatre Recovery	4,406	4,406	-	4,180	-	217	4,397	-	9	99.8%
Theatre Surgery	4,743	4,743	-	4,407	-	325	4,732	-	11	99.8%
Translation	1,809	1,809	-	397	29	1,192	1,618	-	191	89.4%

Source: KPMG based on Modbury Hospital IFR templates

The following should be noted about the activity and feeder data for Modbury Hospital:

- There are 13 feeders reported from hospital source systems and they appear to represent major hospital departments providing resource activity.
- The number of records linked from source to product was significant, with all feeders having a greater than 89 percent link or match. This suggests that there is robustness in the level of feeder activity reported back to episodes.
- Variances in pharmacy occurred, mostly in relation to S100 Drugs. These variances reflect issues with matching scripts that are for a 12 month period from the original encounter.
- Variances in imaging and pathology occurred, as these records could not be matched based on episode numbers.

Table 66 highlights the transfer of activity data from Modbury Hospital to SA Health and then through to IHPA submission and finalisation.

Table 66 – Activity data submission – Modbury Hospital

Product	Activity related to 2013-14 Costs	Adjustment	Activity submitted to jurisdiction	Adjustment	Activity submitted to IHPA	Activity received by IHPA	Adjustment	Total Activity submitted for Round 18 NHCDC
Acute	15,300	-	15,300	(160)	15,140	14,956	-	14,956
Non-admitted	-	-	-	-	-	-	-	-
Emergency	35,158	(1)	35,157	(29)	35,128	35,128	-	35,128
Sub Acute	1,408	-	1,408	(60)	1,348	1,532	-	1,532
Mental Health	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-
Research	-	-	-	-	-	-	-	-
Teaching and Training	-	-	-	-	-	-	-	-
Total	**51,866**	**(1)**	**51,865**	**(249)**	**51,616**	**51,616**	**-**	**51,616**

Source: KPMG based on data supplied by Modbury Hospital, NSW Health and IHPA

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

- SA Health did not submit activity and cost data related to non-admitted patients due to issues with the quality and completeness of the activity data. Non-admitted patients are costed at the hospital level, but are removed prior to submission to SA Health. This explains the variance between total records from source detailed in Table 65 (98,090 records) and total activity related to 2013-14 costs by NHCDC product type in Table 66 (51,866 records).
- The adjustment made by Modbury Hospital to the Emergency product relates to a zero cost record.
- Adjustments made by SA Health relate to the activity associated with the exclusion of costs (at Item G of the financial reconciliation) such as current WIP, unmapped/mismatched records and incomplete cost records.
- Adjustments made by IHPA relating to admitted emergency reallocations for reporting and analysis purposes (as discussed in Item J of the explanation of reconciliation items) has no impact on the reported activity.

6.3.4 Treatment of WIP

Table 67 demonstrates models for WIP and what was included in the Modbury Hospital Round 18 NHCDC submission.

Table 67 – WIP – Modbury Hospital

Model	Description	Submitted to Round 18 NHCDC
1	Admitted and Discharged Patients in 2013/14 only	Submitted to Round 18 of the NHCDC
2	Costs for patients discharged in 2013/14 but admitted prior to 2013/14	Submitted to Round 18 of the NHCDC
3	Costs for patients admitted prior to or in 2013/14 and remain admitted at 30/06/2014	Not submitted to Round 18 of the NHCDC
4	Costs for patients admitted prior to 2013/14 and still admitted at 30/06/2014	Not submitted to Round 18 of the NHCDC

Source: KPMG, based on Modbury Hospital templates and review discussions

In summary, Modbury Hospital submitted WIP costs for admitted and discharged patients in 2013/14 and the 2012/13 WIP costs incurred for patients admitted prior to, but discharged, in 2013/14.

Escalation factor

SA Health applied the escalation factors provided by IHPA for prior years to the costs associated with WIP as part of the Round 18 submission to the NHCDC.

6.3.5 Treatment of other specific cost items

The following items were discussed during the reviews 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. Treatment of each of the items is summarised in Table 68.

Table 68 – Treatment of other specific cost items – Modbury Hospital

Item	Treatment
Research	Research costs are not submitted to the NHCDC as they are not costed to patients.
Teaching and Training	Teaching and Training are not submitted to the NHCDC as they are not costed to patients.
Shared/Other commercial entities	Based on a review of the templates and discussions during the site visit, shared and other commercial entities are removed from the GL.
Intensive Care Unit	No change to the costing methodology. No ICU weights or adjustments made.
Aboriginal and Torres Strait Islander patients	No change to the costing methodology. No ATSI weights or adjustments made. Costs based on resources linked.
Private Patients	No change to the costing methodology. No Private Patient weights or adjustments made.
PBS drugs	Included in Round 18, no revenue offsets processed.

Source: KPMG

6.3.6 Sample patient data

IHPA selected a sample of five patients from Modbury Hospital for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. SA Health provided the patient level costs for all five patients and these reconciled to IHPA records. The results are summarised in Table 69.

Table 69 – Sample patients – Modbury Hospital

#	Product	Jurisdiction records	Received by IHPA	Variance
1	Non-Admitted ED	$288	$288	$-
2	Admitted ED	$788	$788	$-
3	Acute	$439	$439	$-
4	Acute	$19,963	$19,963	$-
5	Acute	$153,650	$153,650	$-

Source: KPMG, based on Modbury Hospital and IHPA data

6.4 Application of AHPCS Version 3.1

Table 70 summarises SA's application of selected standards from version 3.1 of the AHPCS (outlined in Section 1.3.4). The application of the selected standards was consistent across each of the two hospitals reviewed during the Round 18 IFR.

Table 70 – Application of Costing Standards – Lyell McEwin Hospital and Modbury Hospital

No.	Title	Discussion
SCP 1.004	Hospital Products in Scope	Application of this standard was demonstrated through the template submitted and the subsequent interview process. Costs were allocated to all products; however costs associated with non-admitted patient products and TTR products were excluded from the submission to IHPA.
SCP 2.003	Product Costs in Scope	SA Health representatives demonstrated through the interview process that the SA reconciliation process for financial data is used for costing purposes. It was also stated that all products are costed, which includes costs assigned to products in scope for the NHCDC, unlinked activity, and costs assigned to dummy patients where there is no activity. Private patient costs are not imputed.
SCP 2A.003	Teaching and Training Costs	Costs are allocated to Teaching and Training using PFRACs however, these costs are excluded prior to submission of the NHCDC to IHPA.
SCP 2B.002	Research Costs	Costs are allocated to Research using PFRACs however; these costs are excluded prior to submission of the NHCDC to IHPA.

No.	Title	Discussion
SCP 3.001	Matching Production and Cost	This was demonstrated during the site visit and an excel file was produced from the costing system which outlined all reclass rules.
SCP 3A.001	Matching Production and Cost – Overhead Cost Allocation	The jurisdiction was able to demonstrate that overhead costs were fully allocated to direct patient care areas via the pre allocation and post allocation data included in the templates.
SCP 3B.001	Matching Production and Cost – Costing all Products	Demonstrated in the template. SA Health provided an overview of their internal reconciliation process which demonstrated the allocation of costs to products.
SCP 3C.001	Matching Production and Cost – Commercial Business Entities	Application of this standard was demonstrated during review discussions.
SCP 3E.001	Matching Production and Cost – Offsets and Recoveries	Demonstrated in the template and confirmed during the consultation process. Recoveries were excluded from the expenditure base for both hospitals. There were no offsets identified.
SCP 3G.001	Matching Production and Cost – Reconciliation to Source Data	The Funding Model Unit provides a reconciliation of the costing, including a comparison to the previous Round, to the LHN Executive for review and sign-off.
GL2.004	Account Code Mapping to Line Items	SA Health mapped total costs to the standard specified line items.
COST 5.002	Treatment of Work-In-Progress Costs	Demonstrated in the template and during site visit discussions.

Source: KPMG

6.5 Conclusion

The findings of the SA Round 18 IFR are summarised below:

- The financial reconciliations demonstrated the transformation of cost data for the sampled hospitals based on each hospital's share of the GL for the Northern Adelaide LHN. Post allocation adjustments are made for each of the hospitals. These relate to non-admitted patients (quality and completeness of data was limited) and TTR (not patient costed).

- A variance was noted between the costs submitted by the jurisdiction and the costs received by IHPA (Items H and I in Table 56 and Table 63) for both Lyell McEwin ($28,733) and Modbury Hospital ($12,435). For both hospitals, this variance represented 0.01 percent of the costs submitted to IHPA.
- SA Health is seeking to improve future processes by increasing the frequency of formalised patient costing reconciliations during the year. This will assist in identifying anomalies in cost data earlier, prior to NHCDC submission.
- Total activity data for the hospitals was adjusted by SA Health for the removal of records associated with excluded costs. IHPA made no adjustments to activity data.
- The number of records linked from source to product was significant with all feeders having a greater than 85 percent link or match, across both hospitals. This suggests that there is robustness in the level of feeder activity reported back to episodes.
- Variances were noted in both hospitals for the pharmacy feeder in relation to S100 drugs. These variances reflect issues with matching scripts that are for a 12 month period from the original encounter.
- TTR costs are allocated using PFRAC information however, these costs are excluded prior to submission of the NHCDC to IHPA.
- WIP was treated in accordance with the COST 5.002 of the AHPCS Version 3.1. SA Health applied the escalation factors provided by IHPA for prior years to the costs associated with WIP as part of the Round 18 submission to the NHCDC for both hospitals.
- On review of the five sample patients selected for both Lyell McEwin and Modbury Hospital, minor variances of $1.33 and $0.51 were noted for two acute records from Lyell McEwin Hospital. All five sampled patients from Modbury Hospital reconciled with IHPA records.

Based on discussions held during the site visits, and a review of the financial reconciliations provided, SA Health has robust reconciliation processes in place. As such, nothing was identified to suggest that the financial data for Lyell McEwin and Modbury Hospital is not fit for NHCDC submission. Furthermore, the data flow from the jurisdiction to IHPA demonstrated no unexplained variances.

7. Tasmania

7.1 Jurisdictional overview

7.1.1 Management of NHCDC process

The Tasmanian NHCDC process is the responsibility of the jurisdiction from costing through to submission. The Tasmanian Department of Health and Human Services (TAS-DHHS) undertakes the costing function on behalf of the Tasmanian hospitals as it has access to the relevant files / feeders to perform this function. The decision to undertake costing at the jurisdiction level was made to ensure cost data is created and follows historical process for the NHCDC. It is also a decision made given costing workforce shortages in Tasmania.

TAS-DHHS utilises the User Cost costing system by Visasys to undertake patient level costing. This costing system was used for the first time in Round 18.

A central Financial Management System (FMS) is maintained which reports the financial information for all Tasmanian hospitals. The relevant expenditure data used for the costing process is extracted from this system. The process of extracting activity data differs slightly depending on the data required. There is a central Patient Administration System (PAS) with slight configuration differences depending upon the hospital. For example hospitals have the ability to configure beds according to their needs. Some feeders may be configured across two hospitals, some may be independent and for others such as Pharmacy, the data is stored in a central data warehouse.

The initial costing methodology is based on the prior year allocation metrics. A meeting between TAS-DHHS representatives and the hospital Finance Managers is held to discuss the methodology and adjust it where necessary. For example, from year to year, clinicians may vary business units (cost centres) in which they work, which requires allocation metrics to be adjusted. Once the methodology is finalised, TAS-DHHS representatives whom undertake the costing will then process expenditure through the User Cost costing software.

TAS-DHHS representatives noted that all hospital cost centres are mapped to the Australian Hospital Patient Costing Standards (AHPCS) cost centre and line items and these are used for costing purposes.

All patient data and patient feeder system data is loaded into a data warehouse. A staging database is then utilised to overlay this feeder data from source systems and to produce a final reporting database. A series of reports are created against the data within the database as a means of internal checks for data quality and reconciliation purposes.

The costed output is then reviewed against a number of internal checks such as the cost per unit and average cost per bucket against prior year costing. Hospital representatives are able to access a series of costing reports to review. Adjustments are made where required and then TAS-DHHS submits to the NHCDC. There is no official sign off process in place. Once TAS-DHHS deems the data to be fit for submission following review, it is submitted to IHPA and TAS-DHHS will address any further checks or queries that may arise from the IHPA data validation process.

Tasmania nominated one hospital, Royal Hobart Hospital (Royal Hobart), to participate in the Round 18 NHCDC IFR. The Royal Hobart was also reviewed in the IFR for the Round 17 NHCDC.

Key initiatives since Round 17 NHCDC

TAS-DHHS representatives noted that the only change since the Round 17 NHCDC for Royal Hobart was the use of User Cost as the software to undertake patient level costing.

7.2 Royal Hobart Hospital

7.2.1 Overview

The Royal Hobart Hospital (Royal Hobart), located in Hobart, is Tasmania's largest hospital and its major referral centre. It belongs to the southern region Tasmanian Health Organisation, known as THO-South. The Royal Hobart provides acute, subacute, mental health and aged care inpatient and ambulatory services to a population of about 240,000 people in the southern region of Tasmania and has 550 physical beds, including 460 acute overnight and 90 day beds. The Royal Hobart has 2,190 full time equivalent staff or a paid headcount of 3,015.

The Royal Hobart provides a comprehensive range of general and specialty medical and surgical services including many state-wide services such as cardiac surgery, neurosurgery, extensive burns treatment, hyperbaric medicine, neonatal and paediatric intensive care and high risk obstetrics. As the major clinical teaching and research centre, it works closely with the University of Tasmania and other institutions[10].

7.2.2 Financial data

For the Round 18 IFR, TAS-DHHS staff completed the IFR templates and participated in consultations during the review.

Table 71 presents an overview of the template results for expenditures used for costing (at the hospital level), the jurisdictional process for cost data received and the IHPA process for cost data received.

[10] Royal Hobart Hospital – Department of Health and Human Services - Tasmania Government [http://www.dhhs.tas.gov.au/hospital/royal-hobart-hospital]. *Accessed 9 October 2015*.

Table 71 – Round 18 NHCDC Reconciliation – Royal Hobart Hospital

Hospital			
Item		**Amount**	**% of GL**
A General Ledger (GL)	$	660,254,764	
B Adjustments to the GL			
Inclusions	$	4,509,547	
Exclusions	$	(162,270,320)	
Total hospital expenditure	**$**	**502,493,992**	*76.11%*
C Allocation of Costs			
Post Allocation Direct amount	$	385,354,254	
Post Allocation Overhead amount	$	117,139,742	
Total hospital expenditure	**$**	**502,493,996**	*76.11%*
Variance	*$*	*4*	*0.00%*
D Post Allocation Adjustments			
nil	$	-	
Total expenditure allocated to patients	**$**	**502,493,996**	*76.11%*
E Costed products submitted to jurisdiction			
Acute	$	290,728,040	
Non-admitted	$	75,736,069	
Emergency	$	32,225,311	
Sub Acute	$	21,678,178	
Mental Health	$	-	
Other	$	61,338,565	
Research	$	-	
Teaching & Training	$	20,787,833	
	$	**502,493,996**	*76.11%*
Variance	*$*	*-*	*0.00%*

Jurisdiction		
Item		**Amount**
F Costed Products received by jurisidction	$	502,493,996
Variance	*$*	*-*
G Final Adjustments		
WIP, Incomplete, Unmatched records	$	(134,721,330)
Total costs submitted to IHPA	**$**	**367,772,666**
H Costed products submitted to IHPA		
Acute	$	247,456,660
Non-admitted	$	48,420,271
Emergency	$	32,178,896
Sub Acute	$	21,073,352
Mental Health	$	-
Other	$	18,643,486
Research	$	-
Teaching & Training	$	-
	$	**367,772,666**
Variance	*$*	*-*

IHPA		
Item		**Amount**
H Total costed products received by IHPA	$	367,600,240
Variance	*$*	*(172,426)*
I IHPA Adjustments		
Admitted ED Reallocations	$	18,262,754
Final NHCDC costs	**$**	**385,862,994**
J Final NHCDC costed products		
*Acute**	$	267,388,501
Non-admitted	$	48,352,996
Emergency	$	32,153,424
*Sub Acute**	$	21,132,884
Mental Health		
Other	$	16,835,190
Research		
Teaching & Training		
	$	**385,862,995**
Variance	*$*	*1*

Source: KPMG based on Royal Hobart IFR templates

** These figures include admitted emergency costs.*

Explanation of reconciliation items

Table 72 discusses each of the reconciliation items, including adjustments, inclusions and exclusions to the general ledger (GL).

Table 72 – Financial Reconciliation, explanation of items – Royal Hobart Hospital

Item	Heading	Discussion
A	General Ledger	The final GL extracted from the FMS indicates expenditure of $660.2 million.

B	Adjustments to the GL	A number of adjustments were made to the GL. The net effect of $4.5 million of expenditures included were:
		• TAS-DHHS Corporate Overheads of Human Resources and ICT totalling $10.5 million.
		• Work in progress (WIP) - 2012/13 costs for patients admitted prior to 2013/14 but discharged in 2013/14 of $1.7 million.
		  • The WIP data was only included for 2012/13. There may be costs for patients prior to 2012/13, but this was not included in the costing process.
		  • TAS-DHHS representatives noted that the 2012/13 WIP cost data was loaded into User Cost in the 2013/14 costing configuration as a utilisation feeder. The 2012/13 costs were then attached to the relevant patients.
		This included expenditure was offset by revenue offsets of salaries and wages ($5.4 million) and workers compensation recoveries of ($2.3 million).
		Excluded expenditure totalled $162.3 million. This comprised:
		• Oral Health ($30.4 million) and community sector services ($33.7 million) were not submitted as there was no matching activity.
		• Jurisdiction System Accounts ($24.6 million) was deemed to be out of NHCDC scope.
		• Mental health and state-wide services ($73.5 million) was not submitted.
		These adjustments established an expenditure base for costing of $502.5 million This was approximately 76 percent of total expenditure reported in the GL.

C	Allocation of Costs	Royal Hobart undertook a process of

Item	Heading	Discussion
		reclass/transfers/offsets etc. between direct cost centres. Reclass/transfers are determined based on discussions with cost centre managers. • It was observed through TAS-DHHS reports and the IFR templates that all overheads of $117.1 million were allocated down to direct cost centres, pre and post allocation. • It was observed that the total of all direct cost centres of $385.4 million was allocated pre and post allocation.
D	Post Allocation Adjustments	No post allocation adjustments were made and overhead costs of $117.1 million and direct care costs of $385.4 million reconcile to the expenditure base for costing of $502.5 million.
E	Costed Products Submitted to jurisdiction	Costs derived by the jurisdiction and reported at product level reconcile to $502.5 million. Royal Hobart included acute, non-admitted, emergency care, subacute, other, and teaching and training costed products.
F	Costed Products received by jurisdiction	No variance was noted between Items E and F.
G	Final Adjustments	The jurisdiction makes adjustments to the cost data prior to submission to IHPA. These adjustments related to the inclusion of WIP and exclusions of activity data and associated costs. Adjustments totalled $134.7 million and comprised: • $24.7 million excluded for externally referred patients • $25.4 million excluded for bulk-billed non-admitted patient activity • $56.7 million excluded for non-ABF and mental health data (outside scope of NHCDC) • $20.7 million excluded for teaching and training costs • $7.2 million excluded for WIP costs (Patients admitted in 2013/14, but not discharged in 2013/14).
H	Costed Products submitted to IHPA	Costs derived by the jurisdiction and reported at product level total $367.8 million. TAS-DHHS included acute, non-admitted, emergency, subacute and other costed products.

Item	Heading	Discussion
I	Total Products received by IHPA	Total Costs received by IHPA totalled $367.6 million. A variance of $172,426 was noted between the costed products submitted by the jurisdiction and the costed products received by IHPA. This represents 0.03 percent of the costs submitted by Royal Hobart.
J	IHPA Adjustments	*Admitted Emergency* Upon receipt of cost data, IHPA allocates the admitted emergency costs back to admitted patients for the purposes of reporting and analysis. Within IHPA's reconciliation this amount was a duplication of admitted emergency costs and not an additional cost. For Royal Hobart this amounted to $18.3 million. *Unqualified Baby Adjustment* Upon receipt of cost data, IHPA redistributes the unqualified baby cost to the mother separation to provide a complete delivery cost. Within IHPAs reconciliation this was not an additional cost but a movement between patients.
K	Final NHCDC Costed Outputs	The final NHCDC costed data for Royal Hobart that was loaded into the National Round 18 cost data set was $385.9 million which includes the admitted emergency cost of $18.3 million.

Source: KPMG, based on Royal Hobart templates and review discussions

7.2.3 Activity data

Table 73 presents activity and feeder data for Royal Hobart.

Table 73 – Activity data – Royal Hobart Hospital

Data	# Records from Source	# Records in costing system	Variance	# Records linked to Acute	# Records linked to Emerg.	# Records linked to Non-admitted	Total Linking Process	# Records linked to Other	# Unlinked records	% Linked
Activity Data										
PAS	65,643	65,643	-	-	-	-	-	-	-	-
Emergency	54,091	54,091	-	-	-	-	-	-	-	-
Non-admitted	271,566	271,566	-	-	-	-	-	-	-	-
TOTAL	**391,300**	**391,300**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	
Feeder Data										
Anaesthetics	48,246	48,246	-	48,289	-	-	48,289	-	43	100%
Theatre	43,567	43,567	-	43,567	-	-	43,567	-	-	100%
Prosthetics	11,249	11,249	-	11,229	-	-	11,229	-	20	100%
Pathology	1,363,821	1,363,821	-	990,847	79,877	121,490	1,192,214	169,430	2,177	87%
Pharmacy	184,153	163,359	20,794	130,761	2,917	21,302	154,980	8,379	20,794	84%
Imaging	89,221	89,221	-	50,257	11,093	22,366	83,716	3,746	1,759	94%
Allied Health - Speech Pathology	8,796	8,796	-	4,903	50	3,843	8,796	-	-	100%
Allied Health - Podiatry	10,640	10,640	-	881	17	9,742	10,640	-	-	100%
Blood	14,448	14,448	-	13,558	234	656	14,448	-	-	100%

Source: KPMG based on Royal Hobart IFR templates

The following should be noted about the activity and feeder data for Royal Hobart:

- There are nine feeders utilised by Royal Hobart and they appear to represent major hospital departments providing resource activity.
- Feeders representing nursing in wards, ICU and critical care unit (CCU) /high dependency unit were not supplied as reconciliation was difficult. This feeder uses a nursing model which inflates records in the feeder on the patient PCCL score.
- The number of records linked from source to product was significant, with seven of the nine feeders having a greater than 90 percent link or match. This suggests that there is robustness in the level of feeder activity reported back to episodes.
- Variances in pharmacy and imaging occurred as these records represented services offered to patients in other facilities.
- Variances in prosthesis, pathology and MRI occurred as these records could not be matched based on episode numbers.

Table 74 highlights the transfer of activity data from Royal Hobart to TAS-DHHS and then through to IHPA submission and finalisation.

Table 74 – Activity data submission – Royal Hobart Hospital

Product	Activity related to 2013-14 Costs	Adjustment	Activity submitted to jurisdiction	Adjustment	Activity received by IHPA	Adjustment	Total Activity submitted for Round 18 NHCDC
Acute	64,341	-	64,341	(18,606)	45,735	-	45,735
Non-admitted	271,566	-	271,566	(137,872)	133,694	-	133,694
Emergency	54,091	-	54,091	-	54,091	-	54,091
Sub Acute	1,302	-	1,302	(41)	1,261	-	1,261
Mental Health	-	-	-	-	-	-	-
Other	2,926	-	2,926	(116)	2,393	(1,110)	1,283
Research	-	-	-	-	-	-	-
Teaching and Training	1	-	1	(1)	-	-	-
Total	**394,227**	**-**	**394,227**	**(156,636)**	**237,174**	**(1,110)**	**236,064**

Source: KPMG based on data supplied by Royal Hobart, TAS-DHHS and IHPA

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

- A small variance was noted between total records from source detailed in Table 73 (391,300 records) and total activity related to 2013-14 costs by NHCDC product in Table 74 (394,227 records) and related to additional activity allocated to the "Other" product category.
- The adjustments made by the jurisdiction relate to the inclusion of WIP and externally-referred patients (identified as either non-hospital patients or bulk-billed).
- The adjustment to the 'other' product relates to the UQB adjustment discussed in Item J of the explanation of reconciliation items.
- Adjustments made by IHPA relating to admitted emergency reallocations for reporting and analysis purposes (as discussed in Item J of the explanation of reconciliation items) has no impact on the reported activity.

7.2.4 Treatment of WIP

Table 75 demonstrates models for WIP and what was included in the Royal Hobart Round 18 NHCDC submission.

Table 75 – WIP – Royal Hobart Hospital

Model	Description	Submitted to Round 18 NHCDC
1	Admitted and Discharged Patients in 2013/14 only	Submitted to Round 18 of the NHCDC
2	Costs for patients discharged in 2013/14 but admitted prior to 2013/14	Submitted to Round 18 of the NHCDC
3	Costs for patients admitted prior to or in 2013/14 and remain admitted at 30/06/2014	Not submitted to Round 18 of the NHCDC
4	Costs for patients admitted prior to 2013/14 and still admitted at 30/06/2014	Not submitted to Round 18 of the NHCDC

Source: KPMG, based on Royal Hobart templates and review discussions

In summary, TAS-DHHS submitted WIP costs for Royal Hobart for admitted and discharged patients in 2013/14, and the 2012/13 WIP costs incurred for patients admitted prior to, but discharged, in 2013/14.

Escalation factor

No escalation factor to costs incurred prior to 2013/14 was applied to the Tasmanian Round 18 submission to the NHCDC.

7.2.5 Treatment of other specific cost items

The following items were discussed during the reviews 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. TAS-DHHS's treatment (on behalf of Royal Hobart) of each of the items is summarised in Table 76.

Table 76 – Treatment of other specific cost items – Royal Hobart Hospital

Item	Treatment
Research	Not reported by product – spread across patient costed cohort
Teaching and Training	Teaching and Training is reported at product level and is not in the costed patient level data submitted to IHPA.
Shared/Other commercial entities	All expenditure is removed from the GL prior to costing.
Intensive Care Unit	No change to the costing methodology. Feeder adjusts for nursing based on PCCL score as with other wards.
Aboriginal and Torres Strait Islander patients	No change to the costing methodology. No ATSI weights or adjustments made. Costs based on resources linked.
Private Patients	No change to the costing methodology. No private patient weights or adjustments made.
PBS drugs	Included in the Round 18 submission, with no offsets undertaken.

Source: KPMG

7.2.6 Sample patient data

IHPA selected a sample of five patients from Royal Hobart for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. TAS-DHHS provided the patient level costs for all five patients that were reconciled to IHPA records (with minor $1 - $2 variances noted for three records). The results are summarised in Table 77.

Table 77 – Sample patients – Royal Hobart Hospital

#	Product	Jurisdiction records	Received by IHPA	Variance
1	Acute	$10,337	$10,335	$(2)
2	Acute	$991,717	$991,716	$(1)
3	Non-admitted ED	$3	$2	$(1)
4	Admitted ED	$452	$452	$-
5	Non-admitted	$151	$150	$(1)

Source: KPMG, based on Royal Hobart and IHPA data

7.3 Application of AHPCS Version 3.1

Table 78 summarises Tasmania's application of selected standards from version 3.1 of the AHPCS (outlined in Section 1.3.4) to the Royal Hobart's Round 18 NHCDC submission.

Table 78 – Application of Costing Standards – Royal Hobart Hospital

No.	Title	Discussion
SCP 1.004	Hospital Products in Scope	TAS-DHHS demonstrated through the templates and interview process that costs are reported against admitted acute, emergency and non-admitted products. It was noted that costs are also created for non-patient products (such as unlinked records).
SCP 2.003	Product Costs in Scope	TAS-DHHS noted in the interview process that costs are not imputed for private patients.
SCP 2A.003	Teaching and Training Costs	Teaching and Training costs are reported at product level and are not in the costed patient level data submitted to IHPA.
SCP 2B.002	Research Costs	Research costs are not reported by product, but spread across patient costed cohort
SCP 3.001	Matching Production and Cost	This was demonstrated during the site visit and an excel file was produced from the costing system which outlined all transfers and offsets utilised.
SCP 3A.001	Matching Production and Cost – Overhead Cost Allocation	The jurisdiction was able to demonstrate that overhead costs were fully allocated to

No.	Title	Discussion
		direct patient care areas via the pre allocation and post allocation data included in the templates.
SCP 3B.001	Matching Production and Cost – Costing all Products	Demonstrated in the template. TAS-DHHS provided an overview of their internal reconciliation process which demonstrated the allocation of costs to products.
SCP 3C.001	Matching Production and Cost – Commercial Business Entities	Based on discussions during the review, adherence with standard was demonstrated.
SCP 3E.001	Matching Production and Cost – Offsets and Recoveries	Cost recoveries for salaries and wages and work cover expenses noted in the template.
SCP 3G.001	Matching Production and Cost – Reconciliation to Source Data	Based on discussions during the review, TAS-DHHS completes a final reconciliation of its costing system to source documentation. KPMG did not sight these reconciliations.
GL2.004	Account Code Mapping to Line Items	TAS-DHHS mapped total costs to the standard specified line items
COST 5.002	Treatment of Work-In-Progress Costs	Based on discussions during the review, patients are allocated costs based on their consumption of resources for that reporting period. Where costs are incurred in prior years, these are included in the final costed data and NHCDC submission.

Source: KPMG

7.4 Conclusion

The findings of the Tasmania Round 18 IFR are summarised below:

- TAS-DHHS implemented the User Cost patient costing software for the Round 18 NHCDC submission.
- The financial reconciliation demonstrated the transformation of cost data for the Royal Hobart. The costs submitted to the jurisdiction accounted for 76 percent of the GL for Royal Hobart. A minimal variance of $4 was noted between the hospital expenditure and the costs allocated to patients.

- Non-admitted patient costs relating to externally referred and bulk-billed patients were excluded Teaching and Training costs were also excluded (these costs are reported at product level, just not submitted as part of the NHCDC).
- A variance of $172,426 was noted between the costs submitted by the jurisdiction and the costs received by IHPA (Items H and I in Table 71).
- Total NHCDC activity data for the hospitals was adjusted by TAS-DHHS for the removal of records associated with excluded costs. IHPA made adjustments for UQB activity.
- The number of records linked from source to product was significant with all feeders having a greater than 87 percent link or match. This suggests that there is robustness in the level of feeder activity reported back to episodes. The greatest variance was noted in pharmacy as these records represented services offered to patients in other facilities.
- WIP was treated in accordance with the COST 5.002 of the AHPCS Version 3.1. It is noted that no escalation factor was applied to prior year costs.
- On review of the five sample patients selected for Royal Hobart, minor $1 - $2 variances were noted for three of the patient records.

Based on discussions held during the site visit, and a review of the financial reconciliation provided, TAS-DHHS has robust reconciliation processes in place. As such, nothing has come to our attention to suggest that the financial data for Royal Hobart is not fit for NHCDC submission. Furthermore, the data flow from the jurisdiction to IHPA demonstrated no unexplained variances.

8. Victoria

8.1 Jurisdictional overview

8.1.1 Management of NHCDC process

The Victorian Department of Health and Human Services (Victoria Health) is responsible for the collation, review and submission of data to the NHCDC. The data submitted to the NHCDC is sourced from Victorian Cost Data Collection (VCDC). VCDC data is submitted by hospital and health services to support Victoria Health's annual funding model, i.e. it is the basis of the calculation of the annual Weighted Inlier Equivalent Separation price.

Victorian health services are responsible for the preparation of the costing data, including reconciliation to source financial and activity data. Health services submit the VCDC data by campus to Victoria Health via an online portal, either monthly or annually.

During the VCDC process, Victoria Health performs a range of checks on the data to ensure that it is fit for purpose. Victoria Health does not adjust the costing data submitted by the health services, e.g. for work in progress (WIP) patients. Health services may advise of exclusions to the data submitted and these records are flagged as invalid costs and excluded from the VCDC process. Where Victoria Health identifies potential inclusions or exclusions, it will liaise with the relevant health service to confirm if any adjustment should be processed.

Prior to the final NHCDC submission to IHPA, the Secretary of Victoria Health approves the submission.

Victoria nominated two hospitals to participate in the IFR for Round 18, St Vincent's Hospital and the Royal Victorian Eye and Ear hospital. Both these hospitals are located in Melbourne's central business district.

8.2 St Vincent's Hospital

8.2.1 Overview

St Vincent's Hospital (St Vincent's) is a tertiary public healthcare service with 17 sites across greater Melbourne. St Vincent's works with a vast network of collaborative partners to deliver high quality treatment, and is a major teaching, research and tertiary referral centre. Partners include University of Melbourne, St Vincent's Institute, O'Brien Institute, Bionics Institute, the University of Wollongong, Eastern Palliative Care and the Australian Catholic University. St Vincent's has more than 5,700 staff and 880 beds in daily use.

St Vincent's provides a range of services, including acute medical and surgical services, emergency and critical care, aged care, diagnostics, rehabilitation, allied health, mental health, palliative care and residential care.[11]

[11] St Vincent's Hospital Melbourne [http://www.svhm.org.au/aboutus/Pages/aboutus.aspx]. *Accessed 9 October 2015*

8.2.2 Financial data

For the Round 18 IFR, the hospital's clinical costing analyst who also participated in consultations during the review completed St Vincent's IFR templates. St Vincent's are responsible for the preparation and submission of the VCDC data to Victoria Health.

Table 79 presents an overview of the template results for expenditures used for costing (at the hospital level), the jurisdictional process for cost data received and the IHPA process for cost data received.

Table 79 – Round 18 NHCDC Reconciliation – St Vincent's Hospital

Hospital				Jurisdiction			IHPA		
Item		Amount	% of GL	Item		Amount	Item		Amount
A General Ledger (GL)	$	619,483,044		**F** Costed Products received by jurisidction	$	620,646,801	**H** Total costed products received by IHPA	$	385,154,636
				Variance	*$*	*(158,865)*	*Variance*	*$*	*-*
B Adjustments to the GL									
Inclusions	$	10,600,145		**G** Final Adjustments			**I** IHPA Adjustments		
Exclusions	$	-		*Tier 2 clinics - out of scope*	$	(221,599,921)	*Admitted ED Reallocations*	$	14,972,703
Total hospital expenditure	**$**	**630,083,189**	*101.71%*	*Records that failed VIC-DHHS validation tests*	$	(13,892,243)	**Final NHCDC costs**	**$**	**400,127,339**
				Total costs submitted to IHPA	**$**	**384,995,771**			
C Allocation of Costs									
Post Allocation Direct amount	$	534,187,410							
Post Allocation Overhead amount	$	95,895,779							
Total hospital expenditure	**$**	**630,083,189**	*101.71%*						
Variance	*$*	*-*	*0.00%*						
D Post Allocation Adjustments									
WIP - Current	$	(23,772,712)							
WIP - 2012/13	$	14,336,334							
Total expenditure allocated to patients	**$**	**620,646,810**							
E Costed products submitted to jurisdiction				**H** Costed products submitted to IHPA			**J** Final NHCDC costed products		
Acute	$	283,836,938		*Acute*	$	277,891,691	*Acute**	$	292,828,452
Non-admitted	$	38,664,615		*Non-admitted*	$	36,630,183	*Non-admitted*	$	36,630,183
Emergency	$	27,722,626		*Emergency*	$	27,715,303	*Emergency*	$	27,715,303
Sub Acute	$	48,101,032		*Sub Acute*	$	42,904,390	*Sub Acute**	$	42,940,333
Mental Health	$	20,619,480		*Mental Health*	$	-	*Mental Health*	$	-
Other	$	201,860,976		*Other*	$	13,069	*Other*	$	13,069
Research	$	-		*Research*	$	-	*Research*	$	-
Teaching & Training	$	-		*Teaching & Training*	$	-	*Teaching & Training*	$	-
	$	**620,805,666**			**$**	**385,154,636**		**$**	**400,127,340**
Variance	*$*	*158,855*		*Variance*	*$*	*158,865*	*Variance*	*$*	*1*

Source: KPMG based on St Vincent's IFR templates

** These figures include admitted emergency costs.*

Explanation of reconciliation items

Table 80 discusses each of the reconciliation items, including adjustments, inclusions and exclusions to the general ledger (GL).

Table 80 – Financial Reconciliation, explanation of items – St Vincent's Hospital

Item	Heading	Discussion
A	General Ledger	The GL amount of $619.5 million represents the total for St Vincent's and reconciles to the F1 (the financial reporting tool used by hospitals to submit financial data to Victoria Health).
B	Adjustments to the GL	A number of adjustments are made to the GL. Expenditure items totalled $10.6 million and related to: • $10.1 million National Blood Allocation (allocated to patients). • $451,788 Health purchasing Victoria (allocated to the health service based on its share of the total acute health care budget). We note that Depreciation and Amortisation is also excluded for patient costing purposes, however, it is done so in reporting for the F1. That is the GL amount in Item A is exclusive of depreciation and amortisation. These adjustments established an expenditure base for costing of $630.1 million for St Vincent's. This was approximately 102 percent of total expenditure reported in the GL.
C	Allocation of Costs	Once the adjustments are applied, costs are allocated to patients. • The template demonstrated that the total of all direct cost centres of $534.2 million was allocated post allocation. • The template demonstrated that overheads of $95.9 million were allocated down to direct cost centres, post allocation.
D	Post Allocation Adjustments	A range of costs were excluded after the allocation of costs in Item C. The amounts excluded include: • Current WIP excluded - $23.8 million (2013/14 costs for patients not discharged at 30 June 2014) • WIP from 2012/13 included - $14.3 million. The total expenditure allocated to patients was

Item	Heading	Discussion
		$620.6 million. As this amount includes prior year costs (i.e. WIP 2012/13), no percentage of the GL was calculated.
E	Costed Products Submitted to jurisdiction	Costs derived by the hospital and reported at product level are equal to $620.8 million. St Vincent's submitted acute, non-admitted, emergency, mental health, subacute and other costed products. A variance of $158,865 was noted between Items D and E. This related to a timing issue and file being overwritten.
F	Costed Products received by jurisdiction	A variance was noted between Items E and F of $158, 865 and relates to the variance identified in Item E. The costed products received by the jurisdiction in Item F reconciles to Item D
G	Final Adjustments	Victoria-DHHS made a number of adjustments to the hospital submission. The adjustments made for Round 18 totalled $235.5 million and included: • Records that failed the validation tests and could not be linked to the VCDC dataset totalling $13.9 million were excluded. • Records that were not mappable to the National Health Reform Agreement in scope Tier 2 clinics totalling $221.6 million were excluded. The total NHCDC costs submitted to IHPA by Victoria Health was $385.2 million. We note a variance of $158,865 between Item F and G. It relates to the variance identified at Item E and F.
H	Costed products submitted to IHPA	Costs derived by the jurisdiction and reported at product level were $385.2 million. Victoria Health submitted acute, non-admitted, emergency, subacute and other costed products.
I	Total costed products received by IHPA	Costs received by IHPA totalled $385.2 million. We note no variance between Item H and Item I.
J	IHPA Adjustments	*Admitted Emergency* Upon receipt of cost data, IHPA allocates the admitted emergency costs back to admitted patients for the purposes of reporting and analysis. Within IHPA's reconciliation, this amount was a duplication of admitted emergency costs and not an additional cost. For

Item	Heading	Discussion
		St Vincent's this amounted to $14.9 million.
K	Final NHCDC costed products	The final NHCDC costed data for St Vincent's loaded into the NHCDC Round 18 cost data set was $400.1 million, which includes the admitted emergency cost of $14.9 million.

Source: KPMG, based on St Vincent's templates and review discussions

8.2.3 Activity data

Table 81 presents activity and feeder data for St Vincent's Hospital.

Table 81 – Activity data – St Vincent's Hospital

Data	# Records from Source	# Records in costing system	Variance	# Records linked to Acute	# Records linked to Emerg.	# Records linked to Non-admitted	Total Linking Process	# Records linked to Other	# Unlinked records	% Linked
Activity Data										
PAS	55,660	55,660	-	55,660	-	-	55,660	-	-	100%
Emergency	41,736	41,736	-	-	41,736	-	41,736	-	-	100%
Non-admitted	109,982	109,982	-	-	-	109,982	109,982	-	-	100%
Mental Health	81,071	81,071					81,071	81,071		100%
Services not linked (Prog U)	135,925	135,925					135,925	135,925		100%
TOTAL	**424,374**	**424,374**	**-**	**55,660**	**41,736**	**109,982**	**424,374**	**-**	**-**	
Feeder Data										
Ward Transfer file	190,908	190,908	-	190,908	-	-	190,908	-	-	100%
Diagnosis Codes	194,510	194,510	-	194,510	-	-	194,510	-	-	100%
Procedure Codes	113,629	113,629	-	113,629	-	-	113,629	-	-	100%
Outpatient Booked &Non Booked	173,533	173,533	-	-	-	173,533	173,533	-	-	100%
Emergency	41,745	41,745	-	41,745	-	-	41,745	-	-	100%
Surgical Minutes	23,936	23,936	-	23,936	-	-	23,936	-	-	100%
Anaesthetic Minutes	19,636	19,636	-	19,636	-	-	19,636	-	-	100%
Recovery Minutes	18,790	18,790	-	18,790	-	-	18,790	-	-	100%
Implants	22,911	22,911	-	22,911	-	-	22,911	-	-	100%
Allied Health	385,742	385,742	-	202,551	3,712	166,089	372,352	-	(13,390)	96.5%
Pharmacy	279,813	279,813	-	129,931	13,379	18,999	162,309	-	(117,504)	58.0%
PharmDayOncology	13,080	13,080	-	9,716	88	2,951	12,755	-	(325)	97.5%
PharmStGeorges	7,450	7,450	-	6,896	13	161	7,070	-	(380)	95%
Total Imaging	102,609	102,609	-	46,121	24,330	22,919	93,370		(9,239)	91%
Imaging Prosthetic	1,759	1,759	-	1,731	10	14	1,755		(4)	100%
TotalPath	1,084,519	1,084,519	-	620,861	291,391	153,218	1,065,470		(19,049)	98%
ICU-High Dependency Beds	165	165	-	165	-	-	165		-	100%
Dummy Service	16	16	-	-	-	-	-		(16)	0%
HARP - Service	27,268	27,268	-	-	-	-	-		(27,268)	0%
HACC - Service	25,276	25,276	-	-	-	-	-		(25,276)	0%
MentalHealth - Service	113,792	113,792	-	11,248	3,974	-	15,222		(98,570)	13%

Data	# Records from Source	# Records in costing system	Variance	# Records linked to Acute	# Records linked to Emerg.	# Records linked to Non-admitted	Total Linking Process	# Records linked to Other	# Unlinked records	% Linked
MentalHealth - ED Duration Updated	58	58	-	-	58	-	58		-	100%
MechanicalRestraint	48	48	-	48	-	-	48		-	100%
Seclusions	555	555	-	555	-	-	555		-	100%
Insulin Pumps	70	70	-	70	-	-	70		-	100%
ElectroDiagnosis IP	441	441	-	338	18	85	441		-	100%

Source: KPMG based on St Vincent's IFR templates

The following should be noted about the activity and feeder data for St Vincent's Hospital:

- St Vincent's undertakes an initial audit to ensure the volumes are similar to previous financial years.
- Victoria Health compares the data submitted by the hospital to the Victorian Emergency Minimum Dataset and Victorian Admitted Episodes Dataset collections.
- There are 26 feeder systems, including various sub feeders e.g. Imaging and Imaging prosthetic, that are used as part of the costing process. The feeders appear to represent major hospital departments providing resource activity.
- The number of linked records was significant, with most feeders having a greater than 90 percent linkage or matching. Five of the feeders were below this threshold, with Pharmacy having the largest absolute variance. Despite the pharmacy variance, the ratio suggests that there is robustness in the level of feeder activity reported back to episodes.
- Linkage challenges in Pharmacy relate to dispensed drugs and oncology (manufactured) drugs. Delays can cause linkage issues with episode date.
- Allied Health activity data, i.e. the duration of the service, is recorded in the St Vincent's PAS.
- Activity data Interpreters and the associated costs are linked and costed directly to patient level.

Table 82 highlights the transfer of activity data from St Vincent's to Victoria Health and then through to IHPA submission and finalisation.

Table 82 – Activity data submission – St Vincent's Hospital

Product	Activity related to 2013-14 Costs	Adjustment	Activity submitted to jurisdiction	Activity received by jurisdiction	Adjustment	Activity submitted to IHPA	Adjustment	Total Activity submitted for Round 18 NHCDC
Acute	51,444	(362)	51,082	57,485	(6,436)	51,049	-	51,049
Outpatient	109,982	(474)	109,508	210,936	(100,722)	110,214	-	110,214
Emergency	41,736	(26)	41,710	41,710	(3)	41,707	-	41,707
Sub Acute	2,898	(169)	2,729	-	2,569	2,569	-	2,569
Mental Health	81,071	(105)	80,966	80,966	(80,966)	-	-	-
Other	137,245	(34,527)	102,718	1,289	(1,286)	3	-	3
Research	-	-	-		-	-	-	-
Teaching and Training	-	-	-		-	-	-	-
Total	**424,376**	**(35,663)**	**388,713**	**392,386**	**(186,844)**	**205,542**	**-**	**205,542**

Source: KPMG based on data supplied by St Vincent's, Victoria Health and IHPA

The following should be noted about the transfer of activity data for St Vincent's:

- Adjustments made by the hospital relate to Current WIP and WIP from 2012/13.
- Based on the information contained within the templates, a variance was identified between the activity data submitted to the jurisdiction and the activity data received by the jurisdiction. This variance represents 0.1 percent of the total data submitted to the jurisdiction.
- Adjustments made by Victoria Health relate to the activity associated with the exclusion of costs (at Item G of the financial reconciliation) such as out of scope Tier 2 clinic patients and records that failed the Victoria Health validation tests.
- Adjustments made by IHPA relating to admitted emergency reallocations for reporting and analysis purposes (as discussed in Item J of the explanation of reconciliation items) has no impact on the reported activity.

8.2.4 Treatment of WIP

Table 83 demonstrates models for WIP and what was included in the St Vincent's Round 18 NHCDC submission.

Table 83 – WIP – St Vincent's Hospital

Model	Description	Submitted to Round 18 NHCDC
1	Admitted and Discharged Patients in 2013/14 only	Submitted to Round 18 of the NHCDC
2	Costs for patients discharged in 2013/14 but admitted prior to 2013/14	Submitted to Round 18 of the NHCDC
3	Costs for patients admitted prior to or in 2013/14 and remain admitted at 30/06/2014	Not submitted to Round 18 of the NHCDC
4	Costs for patients admitted prior to 2013/14 and still admitted at 30/06/2014	Not submitted to Round 18 of the NHCDC

Source: KPMG, based on St Vincent's templates and review discussions

In summary, St Vincent's submitted WIP costs for admitted and discharged patients in 2013/14 and the 2012/13 WIP costs incurred for patients admitted prior to, but discharged, in 2013/14.

Escalation factor

There was no escalation factor applied, either by St Vincent's or Victoria Health, to the St Vincent's WIP data submitted to IHPA by Victoria Health.

8.2.5 Treatment of other specific cost items

The following items were discussed during the reviews 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. Treatment of each of the items is summarised in Table 84.

Table 84 – Treatment of other specific cost items – St Vincent's Hospital

Item	Treatment
Research	Not reported by product – Research operating cost centres (where they exist) are spread across costed patients.
Teaching and Training	Not reported by product – teaching and training cost centres (where they exist) are spread across costed patients.
Shared/Other commercial entities	All expenditure is reflected in the costed data. Based on discussions in the interview process, the costs associated with these shared/other commercial entities are not material.
Intensive Care Unit	The ICU at St Vincent's is a shared service with St Vincent's Private Hospital, located adjacent. Costs and activity are allocated to the public hospital. The costs are treated as a 'Contracted Service'.
Aboriginal and Torres Strait Islander patients	No change to the costing methodology. No ATSI weights or adjustments made.
Private Patients	No change to the costing methodology. No private patient weights or adjustments made.
PBS drugs	Included in Round 18 submission, no revenue offsets processed.

Source: KPMG

8.2.6 Sample patient data

IHPA selected a sample of five patients from St Vincent's for the purposes of testing the data flow from the jurisdiction to IHPA at the patient level. Victoria Health provided the patient level costs for all five patients and these reconciled to IHPA records. The results are summarised in Table 85.

Table 85 – Sample patients – St Vincent's Hospital

#	Product	Jurisdiction records	Received by IHPA	Variance
1	Acute	$33,727	$33,727	$-
2	Acute	$730,593	$730,593	$-
3	Admitted ED	$1,232	$1,232	$-
4	Non-Admitted ED	$768	$768	$-
5	Non-admitted	$227	$227	$-

Source: KPMG, based on St Vincent's and IHPA data

8.3 Royal Victorian Eye and Ear Hospital

8.3.1 Overview

The Royal Victorian Eye and Ear Hospital (RVEEH) are based in east Melbourne, with a number of non-admitted clinics around Victoria. It is the largest eye and ear hospital in Australia and performs most of Victoria's specialist eye surgery and all of the State's public cochlear implants, helping nearly 250,000 patients every year.[12]

RVEEH is a world leader in research and education, collaborating with research partners. It currently has 217 active research projects being undertaken in conjunction with partners such as the Centre for Eye Research Australia (CERA), the University of Melbourne, the Bionics Institute, Bionic Vision Australia and HEARing CRC. RVEEH also provide students with competitive training programs and opportunities to learn in hands-on clinical settings.[13]

8.3.2 Financial data

For the Round 18 IFR, the consultants engaged to manage the clinical costing process for RVEEH completed the IFR templates. The consultants who completed the templates did not participate in the consultations during the review.

Table 86 presents an overview of the template results for expenditures used for costing (at the hospital level), the jurisdictional process for cost data received and the IHPA process for cost data received.

[12] The Royal Victorian Ear and Eye Hospital [http://www.eyeandear.org.au/page/About_Us/]. *Accessed 9 October 2015*

[13] The Royal Victorian Ear and Eye Hospital 2014/15 Annual Review [http://www.eyeandear.org.au/icms_docs/221654_Annual_Review_2014-15.pdf]. *Accessed 9 October 2015*

Table 86 – Round 18 NHCDC Reconciliation – Royal Victorian Eye and Ear Hospital

Hospital			
Item		**Amount**	**% of GL**
A General Ledger (GL)	$	93,905,441	
B Adjustments to the GL			
Inclusions	$	95,820	
Exclusions	$	(8,219,151)	
Total hospital expenditure	**$**	**85,782,110**	*91.35%*
C Allocation of Costs			
Post Allocation Direct amount	$	60,305,327	
Post Allocation Overhead amount	$	25,476,783	
Total hospital expenditure	**$**	**85,782,110**	*91.35%*
Variance	*$*	-	*0.00%*
D Post Allocation Adjustments			
WIP - Patients discharged in 13/14	$	113,986	
WIP - Patients not discharged in 13/14	$	(137,877)	
Special purpose funds	$	(2,833,273)	
Total expenditure allocated to patients	**$**	**82,924,946**	
E Costed products submitted to jurisdiction			
Acute	$	44,286,861	
Non-admitted	$	29,739,970	
Emergency	$	8,898,114	
Sub Acute	$	-	
Mental Health	$	-	
Other	$	-	
Research	$	-	
Teaching & Training	$	-	
	$	**82,924,945**	
Variance	*$*	*(1)*	

Jurisdiction		
Item		**Amount**
F Costed Products received by jurisidction	$	82,924,945
Variance	*$*	-
G Final Adjustments		
Records that failed VIC-DHHS validation tests	$	(1,034,936)
Total costs submitted to IHPA	**$**	**81,890,009**
H Costed products submitted to IHPA		
Acute	$	44,232,229
Non-admitted	$	28,760,030
Emergency	$	8,897,750
Sub Acute	$	-
Mental Health	$	-
Other	$	-
Research	$	-
Teaching & Training	$	-
	$	**81,890,009**
Variance	*$*	-

IHPA		
Item		**Amount**
H Total costed products received by IHPA	$	81,890,009
Variance	*$*	-
I IHPA Adjustments		
Admitted ED Reallocations	$	542,247
Final NHCDC costs	**$**	**82,432,256**
J Final NHCDC costed products		
*Acute**	$	44,774,476
Non-admitted	$	28,760,030
Emergency	$	8,897,750
Sub Acute	$	-
Mental Health	$	-
Other	$	-
Research	$	-
Teaching & Training	$	-
	$	**82,432,256**
Variance	*$*	-

Source: KPMG based on RVEEH IFR templates

** This figure includes admitted emergency costs.*

Explanation of reconciliation items

Table 87 discusses each of the reconciliation items, including adjustments, inclusions and exclusions to the GL.

Table 87 – Financial Reconciliation, explanation of items – Royal Victorian Eye and Ear Hospital

Item	Heading	Discussion
A	General Ledger	The GL amount of $93.9 million represents the total for RVEEH.
B	Adjustments to the GL	A number of adjustments are made to the GL. Expenditure items excluded totalled $8.2 million and relate to the following: • Depreciation & Amortisation - $7.6 million • Other (including salary recoveries) - $561,139 Expenditure items included totalled $95,820 and related to costs associated with the National Blood Allocation and Health Purchasing Victoria. These adjustments established an expenditure base for costing of $85.8 million for RVEEH. This was approximately 91 percent of total expenditure reported in the GL for RVEEH.
C	Allocation of Costs	After all adjustments are made, costs are allocated to patients. • The template demonstrated that the total of all direct cost centres of $60.3 million was allocated post allocation. • The template demonstrated that overheads of $25.5 million were allocated down to direct cost centres, post allocation.
D	Post Allocation Adjustments	A range of costs were adjusted after the allocation of costs in Item C. The amounts excluded include: • WIP not discharged in 2013/14 – ($137,877) • Special Purpose Funds – ($2.8 million) WIP discharged in 2013/14 totalling $113,986 was included post allocation. The total expenditure allocated to patients was $82.9 million. As this amount includes prior year costs (i.e. WIP 2012/13), no percentage of the GL was calculated.
E	Costed Products	Costs derived by the hospital and reported at product

Item	Heading	Discussion
	Submitted to jurisdiction	level are equal to $82.9 million. RVEEH submitted acute, non-admitted and emergency costed products.
F	Costed Products received by jurisdiction	No variance was noted between Items E and F.
G	Final Adjustments	Victoria Health adjusted RVEEH cost data for records that failed the validation tests and could not be linked to the VCDC dataset. This amount totalled $1 million. The total NHCDC costs submitted to IHPA by Victoria Health was $81.9 million.
H	Costed products submitted to IHPA	Costs derived by the jurisdiction and reported at product level were $81.9 million. Victoria Health submitted acute, non-admitted and emergency costed products.
I	Total costed products received by IHPA	Costs received by IHPA totalled $81.9 million. We note no variance between Item H and Item I.
J	IHPA Adjustments	*Admitted Emergency* Upon receipt of cost data, IHPA allocates the admitted emergency costs back to admitted patients for the purposes of reporting and analysis. Within IHPA's reconciliation, this amount was a duplication of admitted emergency costs and not an additional cost. For RVEEH this amounted to $542,247.
K	Final NHCDC costed products	The final NHCDC costed data for RVEEH that was loaded into the National Round 18 cost data set was $82.4 million, which includes the admitted emergency cost of $542,247.

Source: KPMG, based on RVEEH templates and review discussions

8.3.3 Activity data

Table 88 presents activity and feeder data for RVEEH.

Table 88 – Activity data – Royal Victorian Eye and Ear Hospital

Data	# Records from Source	# Records in costing system	Variance	# Records linked to Acute	# Records linked to Emerg.	# Records linked to Non-admitted	Total Linking Process	# Records linked to Other	# Unlinked records	% Linked
Activity Data										
Admitted	14,085	14,085	-	14,085	-	-	14,085	-	-	100%
Emergency	40,678	40,678	-	1,368	39,310	-	40,678	-	-	100%
Non-admitted	128,133	128,133	-	-	-	128,133	128,133	-	-	100%
TOTAL	**182,896**	**182,896**	**-**	**15,453**	**39,310**	**128,133**	**182,896**	**-**	**-**	
Feeder Data										
Anaesthetics	15,740	15,720	(20)	15,720	-	-	15,720	-	20	99.87%
Theatre	13,254	13,254	-	13,254	-	-	13,254	-	-	100%
ED Nursing	40,678	40,678	-	-	40,678	-	40,678	-	-	100%
Prosthetics	10,312	8,246	(2,066)	8,246	-	-	8,246	-	2,066	79.97%
Wards	17,704	11,647	(6,057)	11,647	-	-	11,647	-	6,057	65.79%
Pathology	27,284	22,265	(5,019)	4,840	11,887	5,538	22,265	-	5,019	81.60%
Pharmacy	259,220	236,688	(22,532)	87,886	52,619	96,183	236,688	-	22,532	91.31%
Pharmacy S100	45,384	43,714	(1,670)	17,570	9,026	17,118	43,714	-	1,670	96.32%
Imaging	3,920	3,920	-	3,920	-	-	3,920	-	-	100%
Interpreters	17,309	15,795	(1,514)	1,754	315	13,726	15,795	-	1,514	91.25%
Patient Transport	2,083	1,622	(461)	258	107	1,257	1,622	-	461	77.87%
Outpatient Clinics	128,134	128,134	-	-	-	128,134	128,134	-	-	100%
Social Work	2,808	2,808	-	601	153	2,054	2,808	-	-	100%

Source: KPMG based on RVEEH IFR templates

The following should be noted about the activity and feeder data for RVEEH:

- There are 13 feeder systems used as part of the costing process and they appear to represent major hospital departments providing resource activity.
- The number of records linked from source to product was significant for most feeders, with all but four feeders having a greater than 90 percent linkage or matching. This suggests that there is robustness in the level of feeder activity reported back to episodes.
- Variances in pharmacy occurred due to issues with matching scripts that are for a 12 month period from the original encounter. These costs were averaged across patients.
- Variances in interpreters exist due to sessions being provided in a community setting and where sessions conducted via phone cannot be matched because of privacy rules.

Table 89 highlights the transfer of activity data from RVEEH to Victoria Health and then through to IHPA submission and finalisation.

Table 89 – Activity data submission – Royal Victorian Eye and Ear Hospital

Product	Activity related to 2013-14 Costs	Adjustment	Activity submitted to jurisdiction	Adjustment	Activity submitted to IHPA	Adjustment	Total Activity submitted for Round 18 NHCDC
Acute	14,085	-	14,086	(22)	14,064	-	14,064
Non-admitted	112,233	-	112,233	(6,418)	105,815	-	105,815
Emergency	40,678	-	40,678	(1)	40,677	-	40,677
Sub Acute	-	-	-	-	-	-	-
Mental Health	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-
Research	-	-	-	-	-	-	-
Teaching and Training	-	-	-	-	-	-	-
Total	**166,996**	**-**	**166,997**	**(6,441)**	**160,556**	**-**	**160,556**

Source: KPMG based on data supplied by RVEEH, Victoria Health and IHPA

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

- The variance between records from source detailed in Table 88 (182,896 records) and activity related to 2013-14 costs by NHCDC product in Table 89 (166,996 records) was attributed to quality assurance errors identified that were not reported through the VCDC or NHCDC and specific types of patients not submitted as they were deemed out of scope.
- Adjustments made by Victoria Health relate to the activity associated with the exclusion of costs (at Item G of the financial reconciliation) such as records that failed the Victoria Health validation tests.
- Adjustments made by IHPA relating to admitted emergency reallocations for reporting and analysis purposes (as discussed in Item J of the explanation of reconciliation items) have no impact on the reported activity.

8.3.4 Treatment of WIP

Table 90 demonstrates models for WIP and what was included in the RVEEH Round 18 NHCDC submission.

Table 90 – WIP – Royal Victorian Eye and Ear Hospital

Model	Description	Submitted to Round 18 NHCDC
1	Admitted and Discharged Patients in 2013/14 only	Submitted to Round 18 of the NHCDC
2	Costs for patients discharged in 2013/14 but admitted prior to 2013/14	Submitted to Round 18 of the NHCDC
3	Costs for patients admitted prior to or in 2013/14 and remain admitted at 30/06/2014	Not submitted to Round 18 of the NHCDC
4	Costs for patients admitted prior to 2013/14 and still admitted at 30/06/2014	Not submitted to Round 18 of the NHCDC

Source: KPMG, based on RVEEH templates and review discussions

In summary, RVEEH submitted WIP costs for admitted and discharged patients in 2013/14 and the 2012/13 WIP costs incurred for patients admitted prior to, but discharged, in 2013/14.

Escalation factor

There was no escalation factor applied to the RVEEH WIP data submitted to IHPA by Victoria Health.

8.3.5 Treatment of other specific cost items

The following items were discussed during the reviews 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. Treatment of each of the items is summarised in Table 91.

Table 91 – Treatment of other specific cost items – Royal Victorian Eye and Ear Hospital

Item	Treatment
Research	Research is averaged across all patients in accordance with VCDC guidelines.
Teaching and Training	Teaching and training is averaged across all patients in accordance with VCDC guidelines.
Shared/Other commercial entities	All expenditure is reflected in the costed data. Based on discussions in the interview process, the costs associated with these shared/other commercial entities are not material.
Intensive Care Unit	Not applicable – ICU patients are transferred to other facilities.
Aboriginal and Torres Strait Islander patients	No change to the costing methodology. No ATSI weights or adjustments made.
Private Patients	No change to the costing methodology. No private patient weights or adjustments made.
PBS drugs	Included in Round 18, no revenue offsets processed.

Source: KPMG

8.3.6 Sample patient data

IHPA selected a sample of five patients from RVEEH for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. Victoria Health provided the patient level costs for all five patients and these reconciled to IHPA records. The results are summarised in Table 92.

Table 92 – Sample patients – Royal Victorian Eye and Ear Hospital

#	Product	Jurisdiction records	Received by IHPA	Variance
1	Acute	$5,202	$5,202	$-
2	Acute	$67,746	$67,746	$-
3	Admitted ED	$452	$452	$-
4	Non-Admitted ED	$289	$289	$-
5	Non-admitted	$211	$211	$-

Source: KPMG, based on RVEEH and IHPA data

8.4 Application of AHPCS Version 3.1

Table 93 summarises Victoria's application of selected standards from version 3.1 of the AHPCS (outlined in Section 1.3.4). The application of the selected standards was consistent across each of the two hospitals reviewed during the Round 18 IFR.

Table 93 – Application of Costing Standards – Victoria sampled hospitals

No.	Title	Discussion
SCP 1.004	Hospital Products in Scope	Application of this standard was demonstrated through the template submitted and the subsequent interview process Costs were allocated to acute, emergency, non-admitted and subacute products. Costs associated with TTR are allocated across these products.
SCP 2.003	Product Costs in Scope	Based on discussions with both hospitals, it was demonstrated that all relevant product costs are included in the product costing process. Both hospitals do not exclude commercial entity costs such as the café. It is understood that these costs are not material. Both hospitals exclude capital expenditure items in accordance with the VCDC guidelines.
SCP 2A.003	Teaching and Training Costs	Teaching and training costs are allocated across all products.
SCP 2B.002	Research Costs	Research costs are allocated across all products.
SCP 3.001	Matching Production and Cost	This was demonstrated during the site visit and an excel file was produced from the

No.	Title	Discussion
		costing system which outlined all reclass rules.
SCP 3A.001	Matching Production and Cost – Overhead Cost Allocation	The jurisdiction was able to demonstrate that overhead costs were fully allocated to direct patient care areas via the pre allocation and post allocation data included in the templates.
SCP 3B.001	Matching Production and Cost – Costing all Products	Victoria Health provided an overview of their internal reconciliation process which demonstrated the allocation of costs to products, with the exception of Depreciation and amortisation.
SCP 3C.001	Matching Production and Cost – Commercial Business Entities	All expenditure was reflected in the costed data. Based on discussions in the interview process, the costs associated with these shared/other commercial entities are not material.
SCP 3E.001	Matching Production and Cost – Offsets and Recoveries	Demonstrated in the template and confirmed during the consultation process (salary recoveries were included at RVEEH). There were no offsets identified.
SCP 3G.001	Matching Production and Cost – Reconciliation to Source Data	The hospital is responsible for reconciling to source data.
GL2.004	Account Code Mapping to Line Items	Data is not mapped specifically to the NHCDC as it is prepared and submitted for the VCDC purposes.
COST 5.002	Treatment of Work-In-Progress Costs	Based on discussions during the review, patients are allocated costs based on their consumption of resources for that reporting period. Where costs are incurred in prior years, these are included in the final costed data and NHCDC submission. No escalation factor is applied to prior year costs.

Source: KPMG

8.5 Conclusion

The findings of the Victoria Round 18 IFR are summarised below:

- The financial reconciliations demonstrated the transformation of cost data for the sampled hospitals based on the respective hospital GL. Victoria health removed activity from the NHCDC submissions in relation to records that failed validation tests and out-of-scope Tier 2 clinics.
- A variance of $158,855 was noted at St Vincent's between the costed products submitted to the jurisdiction and the costs allocated to patients. This variance related to timing issues and a file being overwritten during the costing process. The costs submitted to IHPA reconciled to the costs allocated to patients at St Vincent's. The financial reconciliation of RVEEH had no variances.
- Both hospitals prepare cost data for NHCDC submission in accordance with the VCDC guidelines. As such, Depreciation and Amortisation was excluded from patient costing and TTR was not product costed, but spread across all patients.
- Total activity data for the hospitals was adjusted by Victoria Health for the removal of records associated with excluded costs. IHPA made no adjustments to activity data.
- The number of records linked from source to product was significant with the majority of feeders having a greater than 90 percent link or match across both hospitals. This suggests that there is robustness in the level of feeder activity reported back to episodes. Large variances were noted in pharmacy due to oncology and manufactured drugs (at St Vincent's) and matching repeat scripts where the activity can be up to 12 months from the original encounter (at RVEEH).
- Data was not mapped specifically to the NHCDC as outlined in AHPCS Version 3.1 GL 2.004 as it was prepared and submitted for the VCDC purposes.
- WIP was treated in accordance with the COST 5.002 of the AHPCS Version 3.1. It is noted that no escalation factor was applied to prior year costs.
- On review of the five sample patients selected for St. Vincent's and RVEEH, all 10 patient records reconciled with IHPA records.

Based on discussions during the site visits, an end-to-end reconciliation process exists from the VCDC data submitted by the hospital to the final NHCDC submission to IHPA, however it is not formalised. It is recommended that a formalised reconciliation process be implemented for future NHCDC rounds. Victoria Health can be certain that the data submitted by each hospital for VCDC purposes has either been submitted to IHPA in the NHCDC or excluded for valid reasons. Further, they can be confident that there is consistency in the data submitted to IHPA and any comparative hospital information that may flow from the NHCDC process. It is noted that a formalised reconciliation process has been implemented by Victoria for the Round 19 NHCDC.

Information provided during the review demonstrated that the financial data for the Round 18 NHCDC for both St Vincent's and RVEEH reconciled (there were no unexplained variances). As such, nothing was identified to suggest that the financial data for St Vincent's and RVEEH is not fit for NHCDC submission. Furthermore, the data flow from the jurisdiction to IHPA demonstrated no unexplained variances.

9. Western Australia

9.1 Jurisdictional overview

9.1.1 Management of NHCDC process

Each Area Health Service in Western Australia (WA) is responsible for the preparation of their own NHCDC submission based on the Accrued Operating Expenditure data contained in the Audited Financial Statements. The WA Department of Health (WA Health), through the Health System Economic Modelling Directorate, Purchasing and System Performance, continues to provide guidance and support for the NHCDC process for the health services around WA.

Power Performance Manager 2 (PPM2) is the software used across all NHCDC sites in WA. The software was first implemented for Round 17. However, Round 18 is the first year work in progress (WIP) patient amounts were included in the NHCDC process.

For Round 18, WA Health nominated Rockingham General Hospital and Princess Margaret Hospital to participate in the IFR.

There is no formal sign-off of the NHCDC data at executive level for either Rockingham General or Princess Margaret, however, the health services implement their own internal checks and processes before sending the data to WA Health. At Rockingham General, the Operations Manager has ownership of the NHCDC data, and is required to sign off on the data before submission to WA Health by the Casemix Manager. A similar process is undertaken for Princess Margaret with internal checks, which include service managers agreeing that the NHCDC data is fit for purpose before it is submitted. An executive level formal sign-off process is being implemented for Round 19.

Once the costed results are received by WA Health, adjustments are made by the jurisdiction. These adjustments include removal of teaching, training and research (TTR) costs and WIP. Finally, a quality assurance process is undertaken and all critical warnings are addressed before the data is regarded as fit for submission. WA Health addresses any further checks or queries that may arise from the IHPA data validation process.

Key initiatives since Round 17 NHCDC

In Round 17, WA Health undertook an internal Australian Hospital Patient Costing Standards (AHPCS) Version 3.1 compliance project and developed educational tools and documentation to enhance hospital costing. A copy of the Patient Costing Standards Compliance Audit – 2013/14 was provided to the review team. The audit indicated that WA Health were compliant with 86 percent of the AHPCS, partially compliant with 11 percent of the AHPCS and non-compliant with 3 percent of the AHPCS (i.e. non-compliance with one standard - SCP 3F.001 Matching Production and Cost – Order Request Point).

This non-compliance relates to the functionality within the PPM2 costing system in relation to the date matching process for service events. Where there is no link by episode number, PPM2

uses a series of date matching windows per patient type, whereas, SCP 3F.001 limits the date matching process to the service's order point.[14]

9.2 Rockingham General Hospital

9.2.1 Overview

Rockingham General Hospital (Rockingham General) is located in Rockingham, approximately 50 kilometres south of the Perth central business district. Rockingham General provides both inpatient and non-admitted services for adults and children. Having first opened in 1975, Rockingham General has undergone extensive redevelopment transforming from a district hospital into a general hospital providing a range of emergency, medical and surgical services for the Rockingham community. The hospital has a 24 hour Emergency Department (ED), Intensive Care Unit (ICU) and a 30 bed mental health inpatient unit. In total, it has more than 200 beds.

Rockingham General is a member of the Rockingham Peel Group and a health care provider for people in the south coastal metropolitan area of WA. The Rockingham Peel Group is part of the South Metropolitan Health Service (South Metro HS) and comprises two hospital campuses, the Rockingham General and Murray District Hospital, in addition to community and mental health services across Peel, Rockingham and Kwinana. Across these facilities, more than 1,000 staff members are employed.[15]

9.2.2 Financial data

For the Round 18 IFR, the South Metro HS and WA Health representatives completed the relevant IFR templates and participated in consultations during the review.

Table 94 presents an overview of the template results for expenditures used for costing (at the hospital level), the jurisdictional process for cost data received and the IHPA process for cost data received.

[14] *Patient Costing Standards Compliance Audit – 2013/14: WA Health NHCDC Submission Round 18 (2013/14) compliance with Australian Hospital Patient Costing Standards Version 3.1*. – Government of Western Australia, Department of Health

[15] Rockingham Peel Group Department of Health - Government of Western Australia [http://www.rkpg.health.wa.gov.au/About-us] - *Accessed 9 October 2015*

Table 94 – Round 18 NHCDC Reconciliation – Rockingham General Hospital

Hospital				Jurisdiction			IHPA		
Item		Amount	% of GL	Item		Amount	Item		Amount
A General Ledger (GL)	$	2,216,450,763		**F** Costed Products received by jurisidction	$	181,249,275	**I** Total costed products received by IHPA	$	168,775,511
				Variance	*$*	*-*	*Variance*	*$*	*-*
B Adjustments to the GL									
Inclusions	$	51,075,388		**G** Final Adjustments			**J** IHPA Adjustments		
Exclusions	$	(4,219,978)		*Round 17 WIP*	$	2,990,760	*Virtual patients*	$	7,003,569
Total hospital expenditure	**$**	**2,263,306,173**	*102.11%*	*DM Products*	$	(1,912,633)	**Final NHCDC costs**	**$**	**175,779,080**
				Round 18 WIP	$	(3,109,331)			
C Allocation of Costs				*Unmatched records*	$	(1,290,764)			
Post Allocation Direct amount	$	146,217,242		*Training and Research*	$	(9,151,799)			
Post Allocation Overhead amount	$	58,502,513		**Total costs submitted to IHPA**	**$**	**168,775,508**			
Total hospital expenditure	**$**	**204,719,755**	*9.24%*						
Variance	*$*	*(2,058,586,418)*	*-92.88%*						
D Post Allocation Adjustments									
nil	$	-							
Total expenditure allocated to patients	$	204,719,755	*9.24%*						
E Costed products submitted to jurisdiction				**H** Costed products submitted to IHPA			**K** Final NHCDC costed products		
Acute	$	112,075,316		*Acute*	$	111,814,875	*Acute*	$	111,929,124
Outpatient	$	14,991,303		*Outpatient*	$	13,751,738	*Outpatient*	$	13,751,738
Emergency	$	25,552,004		*Emergency*	$	25,531,469	*Emergency*	$	32,535,037
Sub Acute	$	16,182,432		*Sub Acute*	$	16,671,045	*Sub Acute*	$	16,671,045
Mental Health	$	-		*Mental Health*	$	-	*Mental Health*	$	-
Other	$	3,059,357		*Other*	$	1,006,384	*Other*	$	892,135
Research	$	1,577,859		*Research*	$	-	*Research*	$	-
Teaching & Training	$	7,811,004		*Teaching & Training*	$	-	*Teaching & Training*	$	-
	$	**181,249,275**	*8.18%*		**$**	**168,775,511**		**$**	**175,779,079**
Variance	*$*	*(23,470,480)*	*-1.06%*	*Variance*	*$*	*3*	*Variance*	*$*	*(1)*

Source: KPMG based on Rockingham General IFR templates

** This amount includes virtual admitted emergency costs*

Explanation of reconciliation items

Table 95 discusses each of the reconciliation items, including adjustments, inclusions and exclusions to the general ledger (GL).

Table 95 – Financial Reconciliation, explanation of items – Rockingham General Hospital

Item	Heading	Discussion
A	General Ledger	The final GL amount extracted indicates expenditure of $2.22 billion. It should be noted that this was the total for South Metro HS of which Rockingham General is a part.
B	Adjustments to the GL	A number of adjustments are made to the GL. Expenditure items excluded totals $2.06 billion and relates to the following: • Loss on disposal of assets of $4.2 million. • South Metro HS Special Purpose/Trust accounts of $8.9 million. • Internal and external recoups of $18.2 million. • Services to external health services of $3.3 million. • Other health services not included in the review of $2.03 billion. Expenditures included relate to shared ICT services and corporate costs which are not included in the South Metro HS GL. Expenditure included totals $51.1 million. These adjustments established an expenditure base for costing of $205 million for Rockingham General. This was approximately 9 percent of total expenditure reported in the GL of South Metro HS.
C	Allocation of Costs	The health service undertakes a process of reclass/transfers etc. between direct cost centres. Reclass/transfers are determined based on a set of pre-determined rules. • It was observed through the template that the total of all direct cost centres of $146.2 million was allocated post allocation. • It was observed through the template that overheads of $58.5 million were allocated down to direct cost centres, post allocation. These amounts are the Rockingham Peel Group component of the total South Metro HS GL in Item B and also include the Murray District component. A variance of $269,821 was noted which relates to timing issues of

Item	Heading	Discussion
		financial information (based on advice from the health service). This variance represented 0.01 percent of the GL.
D	Post Allocation Adjustments	Post allocation adjustments were made for non-activity based funding (ABF) products and totalled. $20.6 million. This amount comprised: • Community health - $5.8 million • Community Mental Health - $12.1 million • Non-ABF - $2.8 million
E	Costed Products Submitted to jurisdiction	Costs derived by the health service/hospital and reported at product level are equal to $181.3 million. The health service/hospital submits acute, non-admitted, emergency, subacute, other, research and teaching and training costed products. A variance of $2.8 million was identified between costs allocated to patients and costs submitted to the jurisdiction. This variance represented 0.13 percent of the GL and relates to financial information timing issues due to some of the information being derived from revised PPM2 datasets recreated approximately 18 months after the initial data submission.
F	Costed Products received by jurisdiction	No variance was noted between Items E and F.
G	Final Adjustments	The jurisdiction makes adjustments to the cost data prior to submission to IHPA. These adjustments relate to the inclusion of WIP (no escalation factor included), and exclusion of activity data and associated costs. The breakdown of adjustment items include: • WIP costs of $3 million from the prior year (2012/13) included. • Removal of dummy records - $1.9 million. • Removal of current WIP - $3.1 million. • Removed unmatched costed records - $1.3 million. • Removed TTR - $9.2 million.
H	Costed Products submitted to IHPA	Costs derived by the jurisdiction and reported at product level reconcile to $168.8 million. WA Health submitted acute, non-admitted, emergency, subacute and other costed products.

Item	Heading	Discussion
I	Total Products received by IHPA	Total Costs received by IHPA totalled $168.8 million.
J	IHPA Adjustments	*Unqualified Baby Adjustment* Upon receipt of cost data, IHPA redistributes the unqualified baby cost to the mother DRG to provide a complete delivery DRG cost. Within IHPA's reconciliation this was not an additional cost but a movement between patients. *Virtual Patients* For most WA hospitals, the admitted emergency presentation is not captured separately within the PAS and is included with the admitted episode. To maintain the NHCDC classification streams, IHPA (with the consent of WA) duplicated the emergency costs and created virtual patients to be in line with the admitted emergency stream. For Rockingham General this amounted to $7 million.
K	Final NHCDC Costed Outputs	The final NHCDC costed data for Rockingham General that was loaded into the National Round 18 cost data set was $175.8 million which includes the virtual patients cost of $7 million.

Source: KPMG, based on Rockingham General templates and review discussions

9.2.3 Activity data

Table 96 presents feeder data for Rockingham General.

Table 96 – Activity data – Rockingham General Hospital

Data	# Records from Source	# Records in costing system	Variance	# Records linked to Acute	# Records linked to Emerg.	# Records linked to Non-admitted	Total Linking Process	# Records linked to Other	# Unlinked records	% Linked
Activity Data										
PAS	28,443	28,443	-	-	-	-	-	-	-	-
Emergency	43,591	43,591	-	-	-	-	-	-	-	-
Non-admitted	103,725	103,725	-	-	-	-	-	-	-	-
Dummy records	16,663	16,663	-	-	-	-	-	-	-	-
TOTAL	**192,422**	**192,422**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Feeder Data										
Transfers	1,266,500	1,266,500	-	-	-	-	1,266,500	-	-	100%
Emergency	51,968	51,968	-	-	-	-	51,968	-	-	100%
Radiology	60,412	60,412	-	-	-	-	60,412	-	-	100%
Pharmacy data	8,757,832	8,757,832	-	-	-	-	8,757,832	-	-	100%
Pathology	144,864	144,864	-	-	-	-	144,864	-	-	100%
Allied Health	3,687,690	3,687,690	-	-	-	-	3,687,690	-	-	100%
Visiting Medical Officers	6,993	6,993	-	-	-	-	6,993	-	-	100%
Theatre	13,189	13,189	-	-	-	-	13,189	-	-	100%
Prosthetics	3,254	3,254	-	-	-	-	3,254	-	-	100%

Source: KPMG based on Rockingham General IFR templates

The following should be noted about the feeder data for Rockingham General.

- There are ten feeders reported from hospital source systems and they appear to represent major hospital departments providing resource activity. The split of records between acute, emergency and non-admitted was not provided.
- The feeder data supplied by Rockingham General in the templates indicated a 100 percent linking ratio for all ten feeders. This suggests that there is robustness in the level of feeder activity reported back to episodes.

Table 97 highlights the transfer of activity data from Rockingham General to WA Health and then through to IHPA submission and finalisation.

Table 97 – Activity data submission – Rockingham General Hospital

Product	Activity related to 2013-14 Costs	Adjustment	Activity submitted to jurisdiction	Adjustment	Activity received by IHPA	Adjustment	Total Activity submitted for Round 18 NHCDC
Acute	23,898	-	23,898	(135)	23,763		23,763
Non-admitted	103,703	-	103,703	(23,068)	80,635	-	80,635
Emergency	43,588	-	43,588	(34)	43,554	8,815	52,369
Sub Acute	708	-	708	(22)	686		686
Mental Health	-	-	-	-	-	-	-
Other	2,166	-	2,166	(22)	2,144	(833)	1,311
Research	-	-	-	-	-	-	-
Teaching and Training	-	-	-	-	-	-	-
Total	**174,063**	**-**	**174,063**	**(23,281)**	**150,782**	**7,982**	**158,764**

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

The following should be noted about the transfer of activity data for Rockingham General:

- The variance between records from source detailed in Table 96 (192,422 records) and activity related to 2013-14 costs by NHCDC product in Table 97 (174,063 records) was attributable to dummy records that could not be linked back to an acute, emergency or non-admitted episode.
- Adjustments made by the jurisdiction relate to the activity associated with the excluded costs (at Item G of the financial reconciliation) such as dummy, current WIP and unmatched records.
- Adjustments made by IHPA relate to the reallocation of patients for the unqualified baby adjustment and virtual patients (as discussed in Item J of the explanation of reconciliation items).

9.2.4 Treatment of WIP

Table 98 demonstrates models for WIP and what was included in the Rockingham General Round 18 NHCDC submission.

Table 98 – WIP – Rockingham General Hospital

Model	Description	Submitted to Round 18 NHCDC
1	Admitted and Discharged Patients in 2013/14 only	Submitted to Round 18 of the NHCDC
2	Costs for patients discharged in 2013/14 but incurred prior to 2013/14	Submitted to Round 18 of the NHCDC
3	Costs for patients admitted in 2013/14 and still admitted at 30/06/2014	Not submitted to Round 18 of the NHCDC
4	Costs for patients admitted prior to 2013/14 and still admitted at 30/06/2014	Not submitted to Round 18 of the NHCDC

Source: KPMG, based on Rockingham General templates and review discussions

In summary, Rockingham General submitted WIP costs for admitted and discharged patients in 2013/14 and the 2012/13 WIP costs incurred for patients admitted prior to, but discharged, in 2013/14. Round 17 was the first year of WIP data in PPM2 (first year of PPM2), as such there are no WIP costs prior to 2012/13.

Escalation factor

No escalation factor to costs incurred prior to 2013/14 was applied to the Rockingham General Round 18 submission to the NHCDC.

9.2.5 Treatment of other specific cost items

The following items were discussed during the reviews 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. Rockingham General's treatment of each of the items is summarised in Table 99.

Table 99 – Treatment of other specific cost items – Rockingham General Hospital

Item	Treatment
Teaching, Training and Research	TTR costs are not excluded from the costing system and are submitted to the jurisdiction by the health service. These costs are then removed by the jurisdiction for submission to IHPA.
Shared/other commercial entities	Expenditure is excluded by the health service.
Intensive Care Unit	ICU costs are allocated from the GL. No additional costs are allocated.
Aboriginal and Torres Strait Islander patients	No change to the costing methodology. No ATSI weights or adjustments are made. Costs are based on any purchased liaison service then allocated to wards.
Private Patients	No change to the costing methodology. No private patient weights or adjustments made.
PBS drugs	Within the iPharmacy feeder, the PBS flag is identified to obtain a percentage split of drug expenditure. Ward imprest (stock on hand for use in the ward as opposed to items dispensed to individuals) costs are allocated to the ward and are calculated as ward costs. Some reclass rules exist for pharmacy whereby the iPharmacy data is posted back to the department it was dispensed to.

Source: KPMG

9.2.6 Sample patient data

IHPA selected a sample of five patients from Rockingham General for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. WA Health provided the patient level costs for all five patients and these reconciled to IHPA records. The results are summarised in Table 100.

Table 100 – Sample patients – Rockingham General Hospital

#	Product	Jurisdiction records	Received by IHPA	Variance
1	Acute	$63,200	$63,200	$-
2	Acute	$19,807	$19,807	$-
3	Acute	$1,109,591	$1,109,591	$-
4	Non-Admitted ED	$732	$732	$-
5	Non-admitted	$28	$28	$-

Source: KPMG, based on Rockingham General and IHPA data

9.3 Princess Margaret Hospital

9.3.1 Overview

Princess Margaret Hospital (Princess Margaret) is a 220 bed, internationally recognised paediatric facility that treats children and adolescents aged 15 years and younger from WA with approximately 250,000 patient visits (inpatient and non-admitted) each year. It is located in Subiaco, Perth.

Princess Margaret is part of the Child and Adolescent Health Service (CAHS), which also incorporates the Child and Adolescent Mental Health Service, Child and Adolescent Community Health and the Perth Children's Hospital Project. The health service is committed to programs that promote lifelong health in children and adolescents.[16]

9.3.2 Financial data

For the Round 18 IFR, CAHS and WA Health representatives completed the relevant IFR templates and participated in consultations during the review.

Table 101 presents an overview of the template results for expenditures used for costing (at the hospital level), the jurisdictional process for cost data received and the IHPA process for cost data received.

[16] Princess Margaret Hospital Department of Health - Government of Western Australia [http://www.pmh.health.wa.gov.au/general/about_us/]. *Accessed 9 October 2015*

Table 101 – Round 18 NHCDC Reconciliation – Princess Margaret Hospital

Hospital				Jurisdiction			IHPA		
Item		Amount	% of GL	Item		Amount	Item		Amount
A General Ledger (GL)	$	498,960,349		**F** Costed Products received by jurisidction	$	389,929,084	**I** Total costed products received by IHPA	$	316,203,634
				Variance	*$*	*-*	*Variance*	*$*	*-*
B Adjustments to the GL									
Inclusions	$	9,404,190		**G** Final Adjustments			**J** IHPA Adjustments		
Exclusions	$	(118,435,415)		*Aggregate level non-admitted patients*	$	(42,642,531)	*UQB Adjustment*	$	(11,552)
Total hospital expenditure	**$**	**389,929,124**	*78.15%*	*Round 17 WIP*	$	6,357,052	*Virtual patients*	$	10,174,798
				DM Products	$	(2,064,560)	**Final NHCDC costs**	**$**	**326,366,880**
C Allocation of Costs				*Round 18 WIP*	$	(9,333,782)			
Post Allocation Direct amount	$	277,728,030		*Unmatched records*	$	(7,467,972)			
Post Allocation Overhead amount	$	112,201,094		*Training and Research*	$	(18,573,659)			
Total hospital expenditure	**$**	**389,929,124**	*78.15%*	**Total costs submitted to IHPA**	**$**	**316,203,632**			
Variance	*$*	*-*	*0.00%*						
D Post Allocation Adjustments									
nil	$	-							
Total expenditure allocated to patients	**$**	**389,929,124**	*78.15%*						
E Costed products submitted to jurisdiction				**H** Costed products submitted to IHPA			**K** Final NHCDC costed products		
Acute	$	205,707,677		*Acute*	$	203,667,163	*Acute*	$	203,661,593
Non-admitted	$	125,502,877		*Non-admitted*	$	75,988,343	*Non-admitted*	$	75,988,343
Emergency	$	19,419,255		*Emergency*	$	19,407,450	*Emergency*	$	29,582,248
Sub Acute	$	601,664		*Sub Acute*	$	592,172	*Sub Acute*	$	597,742
Mental Health	$	-		*Mental Health*	$	-	*Mental Health*		
Other	$	19,286,498		*Other*	$	16,548,506	*Other*	$	16,536,954
Research	$	4,553,933		*Research*	$	-	*Research*		
Teaching & Training	$	14,857,180		*Teaching & Training*	$	-	*Teaching & Training*		
	$	**389,929,084**	*78.15%*		**$**	**316,203,634**		**$**	**326,366,880**
Variance	*$*	*(40)*	*0.00%*	*Variance*	*$*	*2*	*Variance*	*$*	*-*

Source: KPMG based on Princess Margaret IFR templates

** This amount includes virtual admitted emergency costs*

Explanation of reconciliation items

Table 102 discusses each of the reconciliation items, including adjustments, inclusions and exclusions to the GL.

Table 102 – Financial Reconciliation, explanation of items – Princess Margaret Hospital

Item	Heading	Discussion
A	General Ledger	The final GL amount extracted indicates expenditure of $498.9 million. It should be noted that this was the total for CAHS of which Princess Margaret was a part.
B	Adjustments to the GL	A number of adjustments are made to the GL. Expenditure items excluded totals $118.4 million and relates to special purpose accounts, community health and capital costs. Expenditures included relates to King Edward Neonate, North Metro Parking, state-wide overheads and internal/external recoups. Expenditure included totalled $9.4 million. These adjustments established an expenditure base for costing of $389.9 million for Princess Margaret. This was approximately 78 percent of total expenditure reported in the CAHS GL.
C	Allocation of Costs	The health service undertakes a process of reclass/transfers etc. between direct cost centres. Reclass/transfer is based on a set of pre-determined rules. • It was observed through the template that the total of all direct cost centres of $277.7 million was allocated post allocation. • It was observed through the template that overheads of $112.2 million were allocated down to direct cost centres, post allocation. These amounts are the Princess Margaret component of the total CAHS GL in Item A.
D	Post Allocation Adjustments	No post allocation adjustments were made.
E	Costed Products Submitted to jurisdiction	Costs derived by the health service/hospital and reported at product level equal to $389.9 million. Princess Margaret submitted acute, non-admitted, emergency, subacute, other, research and teaching and training costed products. A minimal variance of $40 between Item D and

Item	Heading	Discussion
		Item E was noted.
F	Costed Products received by jurisdiction	No variance was noted between Items E and F.
G	Final Adjustments	The jurisdiction makes adjustments to the cost data prior to submission to IHPA. These adjustments relate to the inclusion of WIP (no escalation factor included), and exclusions of activity data and associated costs. The breakdown of adjustment items include: • Removal of aggregate level non-admitted patients $42.6 million. • WIP costs of $6.4 million from the prior year (2012/13) included. • Removal of dummy records - $2.1 million. • Removal of current WIP - $9.3 million. • Removed unmatched costed records - $7.5 million. • Removed TTR - $18.6 million.
H	Costed Products submitted to IHPA	Costs derived by the jurisdiction and reported at product level reconcile to $316.2 million. WA Health submitted acute, non-admitted, emergency, subacute and other costed products.
I	Total Products received by IHPA	Total Costs received by IHPA totalled $316.2 million.
J	IHPA Adjustments	*Unqualified Baby Adjustment* Upon receipt of cost data, IHPA redistributes the unqualified baby (UQB) cost to the mother DRG to provide a complete delivery DRG cost. The activity adjustment for UQB separations will not ordinarily have an associated impact on cost. However for Princess Margaret, the UQB adjustment was a complete removal of activity rather than a reallocation. This was due to the UQB separation linking to a prior year or future year mother separation. For Princess Margaret this amounted to $11,552. *Virtual Patients* For most WA hospitals, the admitted emergency presentation is not captured separately within the PAS and is included with the admitted acute episode. To

Item	Heading	Discussion
		maintain the NHCDC classification streams, IHPA (with the consent of WA) duplicated the emergency costs and created virtual patients to be in line with the admitted emergency stream. For Princess Margaret this amounted to $10.2 million.
K	Final NHCDC Costed Outputs	The final NHCDC costed data for Princess Margaret that was loaded into the NHCDC Round 18 cost data set was $175.8 million which includes the UQB adjustment of $11,552 and virtual patients cost of $10.2 million.

Source: KPMG, based on Princess Margaret templates and review discussions

9.3.3 Activity data

Table 103 presents activity and feeder data for Princess Margaret.

Table 103 – Activity data – Princess Margaret Hospital

Data	# Records from Source	# Records in costing system	Variance	# Records linked to Acute	# Records linked to Emerg.	# Records linked to Non-admitted	Total Linking Process	# Records linked to Other	# Unlinked records	% Linked
Activity Data										
PAS	28,920	29,205	285	-	-	-	-	285	-	101%
Emergency	71,385	56,755	(14,630)	-	-	-	-	(14,630)	-	80%
Non-admitted	200,664	201,336	672	-	-	-	-	672	-	100%
TOTAL	**300,969**	**287,296**	**(13,673)**						-	
Feeder Data									-	
Anaesthetics	43,972	43,972	-	-	-	-	43,972	-	-	100%
Theatre	43,972	43,972	-	-	-	-	43,972	-	-	100%
Pathology	148,815	-	-	-	-	-	141,794	-	7,021	95%
Pharmacy	106,501	-	-	-	-	-	105,367	-	1,134	99%
Imaging	71,826	-	-	-	-	-	70,085	-	1,741	98%
Allied Health	249,159	-	-	-	-	-	238,964	-	10,195	96%

Source: KPMG based on Princess Margaret IFR templates

The following should be noted about the activity and feeder data for Princess Margaret:

- Variances identified in the PAS and non-admitted patient activity data relate to reversals of records from annual audits of the PAS and outpatient systems.
- The variance identified in emergency activity data relates to the removal of admitted ED records, as the nature of the PAS in most WA hospitals means that patients admitted via ED only have a single costed record (included in PAS records). The records loaded into the costing system for emergency relate only to non-admitted patients.
- There are six feeders reported from hospital source systems.
- Despite the split between hospital activity not being provided, the combination of source record numbers and details of unlinked records were used to assist with understanding the linked ratio. We note that costing system records were also not provided for four of the feeders.

- The number of records linked from source to product was significant with all feeder systems having at least 95 percent link or match. This suggests that there is robustness in the level of feeder activity reported back to episodes.

Table 104 highlights the transfer of activity data from Princess Margaret to WA Health and then through to IHPA submission and finalisation.

Table 104 – Activity data submission – Princess Margaret Hospital

Product	Activity related to 2013-14 Costs	Adjustment	Activity submitted to jurisdiction	Adjustment	Activity received by IHPA	Adjustment	Total Activity submitted for Round 18 NHCDC
Acute	28,184	-	28,184	(173)	28,011	(1)	28,010
Non-admitted	165,101	-	165,101	(13,816)	151,285		151,285
Emergency	56,766	-	56,766	(40)	56,726	12,407	69,133
Sub Acute	30	-	30	(1)	29	1	30
Mental Health	-	-	-	-	-	-	-
Other	1,036	-	1,036	(115)	921	(2)	919
Research	-	-	-	-	-	-	-
Teaching and Training	-	-	-	-	-	-	-
Total	**251,117**	**-**	**251,117**	**(14,145)**	**236,972**	**12,405**	**249,377**

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

The following should be noted about the transfer of activity data for Princess Margaret:

- The variance between records from source detailed in Table 103 (300,969 records) and activity related to 2013-14 costs by NHCDC product in Table 104 (251,117 records) was attributable to:
  - Timing issues relating to reversal of records in the PAS and non-admitted activity data;
  - Removal of admitted ED records from emergency activity data; and
  - Dummy records where no episode number could be identified.
- Adjustments made by the jurisdiction relate to the activity associated with the excluded costs (at Item G of the financial reconciliation) such as dummy, current WIP and unmatched records and aggregate level non-admitted patients.
- Adjustments made by IHPA relate to the reallocation of patients for the unqualified baby adjustment and virtual patients (as discussed in Item J of the explanation of reconciliation items).

9.3.4 Treatment of WIP

Table 105 demonstrates models for WIP and what was included in the Princess Margaret Round 18 NHCDC submission.

Table 105 – WIP – Princess Margaret Hospital

Model	Description	Submitted to Round 18 NHCDC
1	Admitted and Discharged Patients in 2013/14 only	Submitted to Round 18 of the NHCDC
2	Costs for patients discharged in 2013/14 but incurred prior to 2013/14	Submitted to Round 18 of the NHCDC
3	Costs for patients admitted in 2013/14 and still admitted at 30/06/2014	Not submitted to Round 18 of the NHCDC
4	Costs for patients admitted prior to 2013/14 and still admitted at 30/06/2014	Not submitted to Round 18 of the NHCDC

Source: KPMG, based on Princess Margaret templates and review discussions

In summary, Princess Margaret submitted WIP costs for admitted and discharged patients in 2013/14 and the 2012/13 WIP costs incurred for patients admitted prior to, but discharged, in 2013/14. Round 17 was the first year of WIP data in PPM2 (first year of PPM2) as such there are no WIP costs prior to 2012/13.

Escalation factor

No escalation factor to costs incurred prior to 2013/14 was applied to the Princess Margaret Round 18 submission to the NHCDC.

9.3.5 Treatment of other specific cost items

The following items were discussed during the reviews 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. Princess Margaret's treatment of each of the items is summarised in Table 106.

Table 106 – Treatment of other specific cost items – Princess Margaret Hospital

Item	Treatment
Teaching, training and research	TTR costs are not excluded from the costing system and are submitted to the jurisdiction from the health service. These costs are then removed by the jurisdiction for submission to IHPA.
Shared/other commercial entities	Expenditure is excluded by the health service.
Intensive Care Unit	No change to the costing methodology.
Aboriginal and Torres Strait Islander patients	No change to the costing methodology. No ATSI weights or adjustments were made.
Private Patients	No change to the costing methodology. No private patient weights or adjustments were made; all costs are in the GL. The costing team are not aware of patient status.
PBS drugs	Princess Margaret does not collect this this information and therefore adjustments are not made to the costing methodology.

Source: KPMG

9.3.6 Sample patient data

IHPA selected a sample of five patients from Princess Margaret for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. WA Health provided the patient level costs for all five patients and these reconciled to IHPA records. The results are summarised in Table 107.

Table 107 – Sample patients – Princess Margaret Hospital

#	Product	Jurisdiction records	Received by IHPA	Variance
1	Acute	$11,237	$11,237	$-
2	Acute	$615	$615	$-
3	Acute	$1,306,879	$1,306,879	$-
4	Non-Admitted ED	$2,252	$2,252	$-
5	Non-admitted	$95	$95	$-

Source: KPMG, based on Princess Margaret and IHPA data

9.4 Application of AHPCS Version 3.1

Table 108 summarises WA's application of selected standards from version 3.1 of the AHPCS (outlined in Section 1.3.4) to the Rockingham General and Princess Margaret Round 18 NHCDC submission.

Table 108 – Application of Costing Standards – Western Australia sampled hospitals

No.	Title	Discussion
SCP 1.004	Hospital Products in Scope	Rockingham General and Princess Margaret demonstrated through the templates and interview process that costs are reported against admitted acute, emergency and non-admitted products. It was noted that costs are also created for non-patient products (such as unlinked records) and TTR products.
SCP 2.003	Product Costs in Scope	It was demonstrated through the interview process the WA reconciliation process for financial data used for costing purposes. It was also demonstrated that all products are costed, which includes costs assigned to products in scope for the NHCDC, unlinked activity, and costs assigned to dummy patients where there is no activity. Private patient costs are not adjusted.

No.	Title	Discussion
SCP 2A.003	Teaching and Training Costs	Teaching and Training costs are costed products and submitted to the jurisdiction. These costs are then excluded by the jurisdiction.
SCP 2B.002	Research Costs	Research costs are costed products and submitted to the jurisdiction. These costs are then excluded by the jurisdiction.
SCP 3.001	Matching Production and Cost	This was demonstrated during the site visit and an excel file was produced from the costing system which outlined all reclass rules.
SCP 3A.001	Matching Production and Cost – Overhead Cost Allocation	The jurisdiction was able to demonstrate that overhead costs were fully allocated to direct patient care areas via the pre allocation and post allocation data included in the templates. Laundry expenses from Murray Districts are allocated to Rockingham General prior to cost product partitioning.
SCP 3B.001	Matching Production and Cost – Costing all Products	Demonstrated in the template. WA Health provided an overview of their internal reconciliation process which demonstrated the allocation of costs to products.
SCP 3C.001	Matching Production and Cost – Commercial Business Entities	Based on discussions during the review, application of this standard was demonstrated.
SCP 3E.001	Matching Production and Cost – Offsets and Recoveries	Based on discussions during the review, application of this standard was demonstrated. Cost recoveries for salaries and wages and work cover expenses noted in the Rockingham General template.
SCP 3G.001	Matching Production and Cost – Reconciliation to Source Data	Based on discussions during the review and template documents forwarded, Rockingham General and Princess Margaret complete various reconciliations to the audited financial statements

No.	Title	Discussion
		Rockingham General In addition to financial reconciliations a site peer and patient level reviews are conducted to compare Length of Stay with benchmarks. This included utilisation of data in the Classification of Hospital-acquired Diagnoses (developed by researchers at the Australian Centre for Economic Research on Health). The review team sighted the cube tool and output reports during the site visit. *Princess Margaret* A reconciliation file was provided to the review team which highlighted the various exclusions and adjustments made by the health service to arrive at the figure submitted to the jurisdiction, these included various community services, commercial activities etc.
GL2.004	Account Code Mapping to Line Items	Rockingham General and Princess Margaret mapped total costs to the standard specified line items.
COST 5.002	Treatment of Work-In-Progress Costs	Based on discussions during the review, patients are allocated costs based on their consumption of resources for that reporting period. Where costs are incurred in prior years, these are included in the final costed data and NHCDC submission. This is only the second year of PPM2 and therefore any WIP costs prior to 2012/13 are not included.

Source: KPMG

9.5 Conclusion

The findings of the WA Round 18 IFR are summarised below:

- The financial reconciliations demonstrated the transformation of cost data for the sampled hospitals based on the respective hospital GL. WA Health made adjustments for both hospitals for dummy patients, WIP and TTR.
- A variance of $269,821 (0.01 percent of the GL) was noted in the Rockingham General reconciliation between the total hospital expenditure included for costing and the total expenditure allocated to patients. Rockingham General noted this related to timing issues in

the financial information. Furthermore, a variance was noted between the total costs submitted to the jurisdiction and the costed products submitted to the jurisdiction. This variance totalled $2.8 million (0.13 percent of the GL) and was again related to timing issues. The financial reconciliation of Princess Margaret had no variances.

- TTR was product costed, however was removed by WA Health prior to NHCDC submission.
- No PAS, emergency or non-admitted activity data was supplied for Rockingham General. The review team was unable to assess the amount of records costed to those reported in source systems.
- Total activity data for the hospitals was adjusted by WA Health for the removal of records associated with excluded costs. IHPA made adjustments to activity data for virtual patients and UQB.
- Based on the information provided, the number of records linked from source to product was significant with the majority of feeders having a greater than 95 percent link or match, across both hospitals. This suggests that there is robustness in the level of feeder activity reported back to episodes.
- Costing system records were not provided for four of six feeders at Princess Margaret.
- WIP was treated in accordance with the COST 5.002 of the AHPCS Version 3.1. It is noted that no escalation factor was applied to prior year costs.
- On review of the five sample patients selected for Rockingham General and Princess Margaret, all 10 patient records reconciled with IHPA records.

Based on discussions held during the site visits, and a review of the financial reconciliations provided (noting the minor variances above), nothing was identified to suggest that the financial data for Rockingham General and Princess Margaret is not fit for NHCDC submission. Furthermore, the data flow from the jurisdiction to IHPA demonstrated no unexplained variances.

10. IHPA Process

10.1 Overview

KPMG reviewed the process that IHPA applied in compiling the NHCDC for Round 18 and followed the data flow of the 14 participating sites from submission to the jurisdictions, through to their NHCDC data being recorded in the national data set.

The objective of the IHPA NHCDC data submission process and review was 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
- 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 18 NHCDC submissions.

During the meeting, the review team viewed the supporting reconciliations, validation and QA outputs relating to the participating hospitals. This information was subsequently provided to KPMG, which was used to complete the NHCDC reconciliations for each sampled hospital/LHNs. Additional clarification of reconciliation items was sought during and after the meeting with the relevant IHPA team members.

10.2 IHPA NHCDC data submission process

A new data submission and validation process was introduced for Round 18, which followed on from Round 17 changes to the quality review process. The greatest change in Round 18 was the move to utilise broader Commonwealth Government Infrastructure via the Enterprise Data Warehouse (EDW), which allows automated cross-validation and linking of the data submitted. The EDW was part of the National Health Reform (NHR) agenda's goal to enhance the Information, Communications and Technology capabilities for NHR stakeholders including IHPA.

IHPA's process can be broken down into various phases, with several tasks performed during each phase. Throughout the NHCDC process, IHPA communicates with jurisdictions to keep them informed of the progress of their submission. IHPA publishes the Data Request Specifications (DRS), which contains the format of data items to be submitted, the validation rules for the CostA (activity) and CostC (cost) files, and validation rules for linking to activity files, as well as reference files such as NHCDC hospital identifiers. The DRS is used by jurisdictions to guide data submission for the NHCDC round.

Each phase of the process described below applies at the hospital level.

10.2.1 Phase 1: EDW Data Collection

Phase 1 involved collection of all jurisdictions data submitted via the EDW to IHPA's dropbox. Various cross-validation and linking checks occur and jurisdictions are able to validate data multiple times, update for errors and resubmit.

During this phase, there are various checks undertaken, some of these include:

- Whether the CostA and CostC files met the data requirements, as set out in the NHCDC DRS.
- Whether all episodes recorded in the CostA file were present in the CostC file and vice versa.
- Whether the CostA data matches against the ABF data submission.
- Other logical tests, such as whether all admitted ED patients had a corresponding admitted separation recorded.

10.2.2 Phase 2: Retrieve Data from Operational Data Storage

Data collected during Phase 0 is retrieved by IHPA and placed on the IHPA server ready for data transformation.

As there are numerous files loaded by jurisdictions, the IHPA process retrieves the most recent file which successfully completed the EDW submission process. Jurisdictions will provide an update to IHPA if another pair of files is to be submitted. The EDW data tables are updated every time a data file is resubmitted to the EDW. IHPA also receives a weekly email from the EDW advising of those jurisdictions that submitted or resubmitted their data files.

10.2.3 Phase 3: Data transformation

Once data is placed onto the IHPA server an Extract, Transform and Load (ETL) process is conducted in the data warehouse. At this point, unqualified babies (UQB) and admitted ED adjustments occur on the data. These adjustments are described further below.

Unqualified baby adjustment

The unqualified baby (UQB) adjustment combines the costs of a UQB separation to a mother separation. Within IHPAs reconciliation 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), the costs of that UQB separation are allocated to the mother.
- Any unallocated UQB separations are linked to remaining mother separations up to a maximum ratio of 1:1 (that is, only one UQB separation per mother separation).
- If there are remaining UQB separations after following this process, costs are allocated across all mother separations based on length of stay.

Admitted ED costs

IHPA linked any ED presentations that were subsequently admitted to the corresponding separation. This enables reporting of admitted separations with the related ED costs, and of ED costs for all patients regardless of whether they were subsequently admitted or not. For hospitals this occurred in one of two ways:

- IHPA allocated the admitted emergency costs back to admitted patients for the purposes of reporting and analysis. Within IHPA's reconciliation this amount is a duplication of admitted emergency costs and not an additional cost. While this has the effect of increasing total reported NHCDC costs, it does not increase the patient level costs reported within the admitted or emergency streams.
- For most WA hospitals, the admitted ED presentation is not captured separately within the PAS and is included with the admitted episode. To maintain the NHCDC classification streams, IHPA (with the consent of WA) duplicated the emergency costs and created virtual patients to be in line with the admitted emergency stream.

10.2.4 Phase 4-6: Quality assurance

Once the ETL process has been completed, QA reports are created. For Round 18, this process involved a number of tests on the data to assess for reasonableness, including for high and low patient costs and comparison with prior NHCDC rounds. The QA process produces a set of QA reports. These are provided to jurisdictions to review and action change should material errors be found.

In Phase 4 of the IHPA process, IHPA creates virtual patients for the applicable WA hospitals that include all ED presentations within admitted separations (as discussed in Table 95 and Table 102). Phase 6 is the summary of final data used for the Round 18 NHCDC.

10.2.5 Reconciliation between submitted data and the national database

Table 109 summarises the total cost and activity data provided by jurisdictions for the participating sites, and how this flows through the IHPA process to the national dataset.

Table 109 – IHPA Round 18 NHCDC reconciliation

Hospital	State	Activity submitted	UQB	Admitted ED realloc.	Total NHCDC Activity	Cost submitted	UQB	Admitted ED realloc.	Total NHCDC Costs
Western Sydney LHD	NSW	1,240,652	-	-	1,240,652	$1,118,362,327	$-	$63,341,946	$1,181,704,272
Illawarra Shoalhaven LHD	NSW	427,030	-	-	427,030	$568,111,386	$-	$30,087,245	$598,198,631
Northern NSW LHD	NSW	324,513	(5)	-	324,508	$460,285,463	$-	$44,706,761	$504,992,222
Royal Darwin Hospital	NT	273,363	(1,816)	-	271,547	$456,499,417	$-	$10,659,036	$467,158,452
The Prince Charles Hospital	QLD	298,224	-	-	298,224	$480,145,052	$-	$22,557,098	$502,702,152
Ipswich Hospital	QLD	259,014	-	-	259,014	$242,495,797	$-	$10,804,722	$253,300,518
Mackay Base Hospital	QLD	243,762	-	-	243,762	$201,108,481	$-	$7,353,952	$208,462,432
Lyell McEwin Hospital	SA	107,284	-	-	107,284	$263,598,741	$-	$15,178,671	$278,777,412
Modbury Hospital	SA	51,616	-	-	51,616	$120,703,245	$-	$8,185,547	$128,888,792
Royal Hobart Hospital	TAS	237,174	(1,110)	-	236,064	$367,600,240	$-	$18,262,754	$385,862,995
St Vincent's Hospital	VIC	205,542	-	-	205,542	$385,154,636	$-	$14,972,703	$400,127,339
Royal Victorian Eye and Ear Hospital	VIC	160,556	-	-	160,556	$81,890,009	$-	$542,247	$82,432,256
Rockingham General Hospital	WA	150,782	(833)	8,815	158,764	$168,775,511	$-	$7,003,569	$175,779,077
Princess Margaret Hospital	WA	236,972	(2)	12,407	249,377	$316,203,634	$(11,552)	$10,174,798	$326,366,880

Source: IHPA participating site reconciliation from the national NHCDC dataset

The following should be noted about the reconciliation in Table 109:

- The activity adjustment for UQB separations will not ordinarily have an associated impact on cost. However, for Princess Margaret Hospital, the UQB adjustment is a complete removal

rather than a reallocation due to the UQB separation linking to a prior year or future year mother separation.

- A minimal $6 variance was noted in the reconciliation between costs submitted by the jurisdiction and adjusted for UQB and admitted ED reallocations, and the total reported NHCDC costs for Round 18 for the sampled hospitals. This variance related to rounding differences.

Appendix A The NHCDC and patient level costing

A1 The NHCDC

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

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

A2 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.

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:

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).

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).

A3 The costing process

The costing process generally takes the following steps:

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.

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.

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)[17]. The costing process redistributes all overhead costs across the final cost centres according to the allocation

[17] AHPCS Version 3.1 SCP 3A.001

methodology defined for each overhead such as floor space for cleaning or the number of medical records for Health Information Services[18].

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.[19]

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.

[18] AHPCS Version 3.1 Attachment D; AHPCS Version 3.1 COST 1.002

[19] AHPCS Version 3.1 COST 3.004; AHPCS Version 3.1 Attachment E

Appendix B Site visit attendees

Jurisdiction	IHPA Representative	Jurisdictional and hospital / LHN representatives	Peer representative	KPMG
New South Wales	Cherry Olorenshaw Myles Cover	Suellen Fletcher Andrew McDonnell Nada Shepherd Louise Savrda Andrew Grice Jennifer Killen David Wijaya	Leslie Edgerton (Queensland) Colin McCrow (Queensland)	David Debono Matthew Wright
NT	Myles Cover	Kirsty Annesley Garth Barnett	Kevin Frost (Western Australia)	John O'Connor Luigi Viscariello
Queensland	Joanne Siviloglou	Colin McCrow Leslie Edgerton Dominic Flynn Sharyn Wilson Lynette Gill Roslyn Coupland Debbie Wenzel Michelle Rasmussen Kathleen Mclean Delma Sellars Kayleen Go Abdullah Soufan Marney O'Shea Steve Robinson	Ian Jordan (Tasmania)	David Debono Lisa Strickland

Jurisdiction	IHPA Representative	Jurisdictional and hospital / LHN representatives	Peer representative	KPMG
South Australia	Myles Cover	Phillip Battista Garry Wedlock Silvana Di Ciocco Chris Onderstal Garth Barnett	Kevin Frost (WA)	John O'Connor Lisa Strickland
Tasmania	Julia Hume	Kristian Murray Ian Jordan	-	David Debono Luigi Viscariello
Victoria	Joanne Siviloglou	Richard Bolitho Ian Dobson Florence Chan Caleb Stewart Maura McSweeney	Phillip Battista (SA)	John O'Connor Luigi Viscariello
Western Australia	Cherry Olorenshaw	Kevin Frost Rinaldo Lenco Judy Choi Lydia Bennetts Ian Massingham	Colin McCrow (Queensland) (via teleconference)	David Debono Luigi Viscariello

Source: KPMG