Independent Financial Review of the National Hospital Cost Data Collection

Round 24 (2019-20)
Independent Hospital Pricing Authority

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Overview of the National Hospital Cost Data Collection

The National Hospital Cost Data Collection (NHCDC) is the annual collection of public hospital cost data and is the primary data collection tool used to inform the national efficient price (NEP). For the Round 24 (2018-19) NHCDC, cost data was submitted from 553 hospitals across all jurisdictions. The NHCDC provides an avenue for cost measurement across public hospitals. It is also the primary data collection that Independent Hospital Pricing Authority (IHPA) relies on to inform the NEP and national efficient cost (NEC). To ensure that the quality of NHCDC data is robust and fit-for-purpose, IHPA commissioned an annual validation process to verify that all participating hospitals have included appropriate costs and patient activity.

IHPA engaged KPMG to conduct the Independent Financial Review (IFR) of the Round 24 Public Sector NHCDC for the 2019-20 financial year.

Findings and recommendations

Specific observations from Round 24 (2019-20) are detailed in section 2.1, while the overarching observations of the Round 24 (2019-20) IFR were that, while one jurisdiction did not participate, the IFR was well received by all participating jurisdictions with robust conversations throughout the consultation process.

The recommendations to come out of the Round 24 IFR work focus on opportunities to refine and realign future IFRs. This review highlighted that the current structure and approach to the IFR needs to be reconsidered in light of the maturity of the approach to costing across jurisdictions and within IHPA's data collections and improvements, including the processes and systems used. The purpose and veracity of the IFR remain of primary importance, however the process with which the IFR is conducted warrants consideration.

The IFR seeks to address:

1. Accuracy and completeness of the NHCDC participating health services provided for Round 24, including a reconciliation between the financial and costing systems

   Based upon the findings and observations contained in section 2 participating jurisdictions have provided reconciling data and source information to support the accuracy of submitted data.

2. Assessment of the consistency between jurisdictions sampled of the application of Version 4.0 of the Australian Hospital Patient Costing Standards (AHPCS) for selected standards

   The application of the selected standards from AHPCS Version 4.0 across the jurisdictions was mostly consistent as outlined in the various data quality statements received by IHPA. Jurisdictions noted partial compliance with various standards. Whilst the process of applying standards is consistent, it was noted that the impacts of COVID-19 have resulted in variation of treatment of general ledger costs which may have impacted consistency of NHCDC submissions. This includes inconsistent costing periods submitted, costs included or excluded and movement in general ledger activity throughout the year.

   Whilst the review did not specifically focus on the application of COVID-19 Response - Costing and pricing guidelines, it is noted that IHPA has conducted work

in parallel with application of guidelines being varied by jurisdictions. All jurisdictions provided commentary on the impact COVID-19 had on general ledgers during this period.

As a result, Round 24 data may not be fit for purposes such as setting NEP.

3. Assess the degree to which the NHCDC data is robust and fit for purpose

As outlined above whilst data submissions are reconciled and complete, the impact of COVID-19 on general ledgers and activity has significantly influenced submissions. Further quality assurance would be required to substantiate data integrity of Round 24 data if it is to be utilised for reliance in price setting.

Table 1. Recommendations from the Round 24 (2019-20) IFR

No.	Recommendation
1	**Structure and approach for future IFRs** Change the current focus from completing the current structured template to a review of key supporting documentation as evidence to support the reconciliation process. Documentation would be required at all key steps in the process to demonstrate adherence to costing standards. Key to this revised focus will be the Quality Assurance processes that are in place in the health network, the jurisdictions and IHPA.
2	**Implementation of IFR recommendations** To ensure there is greater focus on the outcomes from future IFRs, it is recommended that a process be established for reporting progress of recommendations to the NAC with engagement from jurisdictions on progress of implementation where applicable. .
3	**Developing and promoting cost practitioner knowledge** To elevate and sustain the role of the costing practitioner, it is recommended that discussions be held with a relevant professional body, for example the Health Finance Management Association (HFMA), regarding hosting a costing focus group as part of its broader remit or tertiary institutions incorporating health costing into curricula.
4	**Focus areas** The change in the approach to the IFR will enable future reviews to have a greater focus on key costing processes, such as continued deep dives on how costs are allocated by health networks, national consistency of cost allocations, consistency of approach and opportunities for future improvement and promote innovation and good practice.
5	**Use of NHCDC data** It was observed during the consultation phase that there are still opportunities to increase the utility of the costing data produced by health networks and the jurisdictions. While all jurisdictions refer to developing a portal of some kind, the National Benchmarking Portal already in place could be further developed for these purposes.

No.	Recommendation
6	**Scope of the IFR – Health Service Selections** IHPA should consider re-implementing a risk-based approach to the identification of the number and mix of participants per jurisdiction in the Round 25 IFR and beyond. It should be noted that the revised approach described above should be less onerous on smaller jurisdictions (whilst still being representative) and is expected to provide benefits from an increased focus on key focus areas. Data Quality Statements (DQS) and self assessments submitted by jurisdictions could be utilised in the sampling approach to both inform sample selection and, potentially, focus areas. Submission for the costing entity would be required by February or March to inform the IFR approach.

1 Introduction

1.1 Scope of the Independent Financial Review

Independent Hospital Pricing Authority (IHPA) engaged KPMG to undertake a sample of NHCDC data submitted by state and territory hospitals as part of Round 24 (2019-20) of the NHCDC. The Independent Financial Review (IFR) of Round 24 (2019-20) includes:

1. an assessment of the accuracy and completeness of the NHCDC participating health services provided for Round 24, including a reconciliation between the financial and costing systems
2. an assessment of the consistency between jurisdictions sampled of the application of Version 4.0 of the Australian Hospital Patient Costing Standards (AHPCS) for selected standards
3. assess the degree to which the NHCDC data is robust and fit for purpose
4. a 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
5. an identification of improvements implemented at the health service and/or jurisdictional level as compared to the previous round (Round 22 as Round 23 did not occur) of NHCDC and address any developments made in response to the findings in the Round 22 IFR Final Report.

Following a workshop held at the commencement of the review, the Round 24 IFR also included the following item:

6. a review of the cost allocation methodology utilised by different hospital sites for two focus areas, Operating Room and Prosthesis.

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

1.2 Methodology

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

1. 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 4.0
2. collection of data, both quantitative and qualitative, relating to two focus areas (Operating Room and Prosthesis)
3. virtual site visits with the hospital costing team and jurisdictional representatives and follow-up discussions to address feedback and outstanding issues

4. sample testing of five patients at each hospital to test the transfer of patient cost data from the hospital to IHPA
5. 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
6. a peer review process to allow NHCDC peers to share information, processes, challenges and solutions.

1.3 Participating sites

Seven of the eight jurisdictions participated in the IFR for Round 24; Tasmania did not participate in the Round 24 (2019-20) IFR. While the sample for review was consistent with the pragmatic approach of previous rounds that recognises the need for jurisdictional support for the IFR, resource constraints and a desire to obtain a geographical spread across the jurisdictions, COVID-19 provided an additional constraint. The selection of the sample was undertaken by each jurisdiction with consideration of when the health service last participated in the IFR. Table 2 identifies IFR participating hospitals.

Table 2. Round 24 IFR participating hospitals/LHNs

Jurisdiction	Hospital
ACT	Calvary Public Hospital
NSW	Southern New South Wales Local Health District
NT	Royal Darwin Hospital
QLD	Central West Health Cairns and Hinterland Hospital and Health Service Sunshine Coast Hospital and Health Service
SA	Queen Elizabeth Hospital Riverland Regional Health Service
TAS	Not applicable
VIC	Northern Health Barwon Health Goulburn Valley Health
WA	Sir Charles Gairdner Hospital Rockingham General Hospital Kalgoorlie Hospital

Source: KPMG

1.4 Challenges

During the IFR for Round 24 (2019-20), the following challenges were identified in the planning and delivery of the IFR:

1. Initial planning for the IFR included both virtual and in-person approaches as it was unknown what impact COVID-19 would have during different stages of the project. Ultimately, only one site visit was able to be conducted in person, while all other participating site visits were virtual.
2. In planning for virtual site visits, it was agreed that this was an opportunity to open up the peer review participants to all jurisdictions and also to costing practitioners at health services, where in the past the in-person site visit limited this to one peer reviewer per jurisdiction.
3. It was discovered during planning and delivery that there were some resource constraints with jurisdictions given the demands on their time for costing data and the increased importance of that data.
4. Although COVID-19 and its impacts was not a focus of this year's IFR, it continued to become a discussion point throughout the consultations, particularly on the challenge of costing the 2019-20 financial year.

2 Findings and Recommendations

2.1 Observations from Round 24

The specific observations from Round 24 (2019-20) are categorised below. The IFR was well received by all participating jurisdictions with robust conversations throughout the consultation process.

Considering that the full IFR did not take place for Round 23 (2018-19), this year saw a return of the focus on financial reconciliations, while still undertaking the additional analysis of two focus areas (Operating Rooms and Prostheses). The general feedback on the templates and the reconciliation is that they were comprehensive but could be superfluous given the current maturity in cost collection processes and data validation from IHPA during the submission process. Future focus on providing evidence, rather than expending significant effort completing another template, is consistent feedback from participants and noted as a reflection for future IFRs.

The IFR seeks to address:

1 Accuracy and completeness of the NHCDC participating health services provided for Round 24, including a reconciliation between the financial and costing systems

   Based upon the findings and observations contained in section 2, participating jurisdictions have provided reconciling data and source information to support the accuracy of submitted data.

2 Assessment of the consistency between jurisdictions sampled of the application of Version 4.0 of the AHPCS for selected standards

   The application of the selected standards from AHPCS Version 4.0 across the jurisdictions was mostly consistent as outlined in the various data quality statements received by IHPA. Jurisdictions noted partial compliance with various standards. Whilst the process of applying standards is consistent it was noted that the impacts of COVID-19 have resulted in variation of treatment of general ledger costs which may have impacted consistency of NHCDC submissions. This includes inconsistent costing periods submitted, costs included or excluded and movement in general ledger activity throughout the year.

   Whilst the review did not specifically focus on the application of COVID-19 Response - Costing and pricing guidelines, it is noted that IHPA has conducted work in parallel with application of guidelines being varied by jurisdictions. All jurisdictions provided commentary on the impact COVID-19 had on general ledgers during this period.

   As a result, Round 24 data may not be fit for purposes such as setting NEP.

3 Assess the degree to which the NHCDC data is robust and fit for purpose

   As outlined above, whilst data submissions are reconciled and complete, the impact of COVID-19 on general ledgers and activity has significantly influenced submissions. Further quality assurance would be required to substantiate data integrity of Round 24 data if it is to be utilised for reliance in price setting.

2.1.1 Continuous improvement

Throughout the consultations, the continuous improvement by all levels of participants was evidenced. The prevailing theme was the improvement in data capture and the continuous pursuit of improving the matching of costs with activity and increasing the percentage of costs that match at the patient level. Set out below is a summary of the key improvements by participant.

Health Services

- Costing continues to evolve after each round, with the increased use of feeder systems and matching activity to costs.
- Quality assurance (QA) improvements either by automating QA reports or continuing to undertake reconciliations throughout the process to improve data quality.
- Continued focus to increase the use of costing data by more users, both business managers and clinicians alike.

Jurisdictions

- Jurisdictions noted the continued improvement in the governance process by reporting to the executive and boards prior to finalising submissions to IHPA.
- Continuing to improve the costing of centralised costs by attaching these costs to episode data where possible.
- The continued education of operational staff in all aspects of the costing process for example workshops to refine reclass rules or greater education on Activity Based Funding (ABF).

IHPA

- IHPA changed the way the Data Quality Statement (DQS) is structured by including more questions to ensure the NHCDC is still fit for purpose for the NEP.
- Major change to the cost bucket matrix with rules embedded into the costing mechanism and used for the Extract, Transform and Load (ETL) process.
- Updated the Data Request Specification (DRS) to improve the linking between activity and costing, using the ABF activity as the source of truth allowed for less ‘unlinked’ records.

2.1.2 COVID-19 impact

Although COVID-19 and its impacts were not a focus of this year’s IFR, it continued to become a discussion point throughout the consultations, with the main points being:

- most of the jurisdictions split the costing year into two periods (July 2019 to February 2020 and March 2020 to June 2020) to ensure the isolation of COVID-19 cost impacts could be analysed prior to the submission of data
- the additional analysis of COVID-19 impacts allowed for extra testing of results to ensure robustness of submissions but also identified possible refinements to the costing process for the jurisdiction.

It is noted that IHPA is conducting parallel work to review the implementation of COVID-19 costing guidelines and any implications application may have on data submissions.

2.1.3 Reconciliation from LHN/hospital to jurisdictions to IHPA

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 have suitable financial reconciliation processes in place at the hospital/LHN level and jurisdictional level. The added sign-off and completion of processes for IHPA during submission indicate that the process is robust.

The review of the data flow from the hospital/LHN to jurisdiction identified some minor variances. These variances were not investigated further as they were considered minor.

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

The review of the data flow from the jurisdiction to IHPA identified no material variances between the jurisdictional data submitted to IHPA and the data contained in the national reconciliation file provided by IHPA.

Noting these adjustments and variances and in accordance with the review methodology detailed in section 1.2 of this report, jurisdictions have suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission for Round 24. However, it is noted that IHPA is conducting parallel streams of work and has recently held workshops in relation to the application of COVID-19 costing guidelines by jurisdictions. It is noted that variation in the application of the recently developed guidelines have been applied which may result in some variation in data submissions. Further work is to be conducted by IHPA to assess the impact on the Round 24 data submission for its utilisation in benchmarking, reporting and pricing as a result of the COVID-19 impacts.

2.1.4 Testing data flow at patient level to IHPA

IHPA selected a sample of five patients from either each health service or three sites within an LHN for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. There were no major variances between the sample patient records tested during this process. South Australia (SA) had one issue with a truncated patient ID record and were not able to find the patient record to then provide KPMG with the corresponding amounts relating to the Mental Health patient; all other SA records matched.

2.1.5 Activity and feeder data

Based on the feeder system information provided for all sampled hospitals/LHNs, the number of records linked from source to product was significant, and the majority of participating sites indicated that the number of feeder systems had increased from previous rounds. This high level of matching, and continuous improvement in the use of feeder data, indicates that jurisdictions and hospitals continue to make improvements in data validation processes to ensure that the resources consumed can be identified by patient (or activity), which supports greater precision in linking services to patients and consequently increased robustness in costed patient output.

2.1.6 Peer reviews

As discussed above, in planning for virtual site visits, it was agreed that this was an opportunity to open peer review participation to all jurisdictions and to costing practitioners at health services where, in the past, the in-person site visit limited this to one peer reviewer per jurisdiction.

For Round 24 (2019-20), the number of peer reviewers present was greater than one for most of the consults and for the first time costing practitioners from other jurisdictions and health services were able to participate.

Although Round 24 (2019-20) resulted in being mostly virtual due to COVID-19, there is no reason not to extend the virtual nature of the peer review in future IFRs conducted in-person.

2.1.7 Application of AHPCS (v4.0)

The application of the selected standards from AHPCS Version 4.0 across the jurisdictions was mostly consistent as outlined in the various data quality statements received by IHPA. Jurisdictions noted partial compliance with various standards. This is mainly the result of instances where the unavailability of allocation statistic data or the level of service data is incomplete for the purposes of accurate matching. Other specific exceptions to the standards were all outlined in the data quality statements. A sample of these is outlined below, with further detail available in the individual jurisdiction chapters:

- depreciation is not included in all submissions
- research costs are excluded from some jurisdictional submissions
- posthumous organ donation, the application of this standard varies across the jurisdictions
- blood products are not costed at a patient level as data matching is not accurate enough to provide robust costings.

Whilst the review did not specifically focus on the application of COVID-19 Response - Costing and pricing guidelines, it is noted that IHPA has conducted work in parallel with

application of guidelines being varied by jurisdictions. All jurisdictions provided commentary on the impact that COVID-19 had on general ledgers during this period. It was noted that inclusion and exclusion of various costs was not consistent and may not reflect all applicable costs (regardless of funding source) for the purpose of the NHCDC. As a result, Round 24 data may not be fit for purposes such as setting NEP without further quality assurance being conducted.

2.2 Recommendations

The recommendations from the Round 24 IFR focus on opportunities to refine and realign future IFRs. This review highlighted that the current structure and approach to the IFR needs to be reconsidered in light of the maturity of the approach to costing across jurisdictions and within IHPA's data collections and improvements, including the processes and systems used. The purpose and veracity of the IFR remain of primary importance but the process with which the IFR is conducted warrants consideration.

2.2.1 Structure and approach for future IFRs

Context

The NHCDC for the public sector, collected through the states and territories, is the primary data collection tool used to develop the NEP. It is an annual and voluntary collection of public hospital data. To ensure it is robust for national efficient price (NEP) and national efficient cost determination (NEC), the NHCDC undergoes:

1 validation

2 quality assurance checks

3 reporting to allow benchmarking.

Each yearly collection includes an independent financial review and the production of a public hospital cost report that contains cost weight tables.[1]

The current approach to the IFR is focused on 'stepping through' the costing process to validate the data (financial and activity) used by the hospitals or health networks, from the source financial data to the final submission to IHPA. This process is achieved by the participants of the review completing a template that replicates the costing process.

Future IFRs

Consistent with a key recommendation in the Round 22 (2017-18) IFR, the review process should continue, however it is recommended that the approach and focus of future IFRs should change. Specifically, future IFRs should:

- Change the current focus from completing the current structured template to a review of key supporting documentation as evidence to support the reconciliation process. For example, this could include:
  - audited financial statements
  - system generated reports from the costing system

[1] https://www.ihpa.gov.au/what-we-do/nhcdc/public-sector

  - system reports from the source activity and feeder systems
  - sample testing (as per the individual patient level tests currently conducted).
- Documentation would be required at all key steps in the process to demonstrate adherence to costing standards, including:
  - reconciliation to the audited financial results
  - the transformation of data in the costing system
  - final reconciliation and sign-off by the Health Service
  - submission to jurisdiction
  - jurisdiction submission to IHPA
  - IHPA's receipt of the submission.
- Key to this revised focus will be the QA processes that are in place in the health network, the jurisdictions and IHPA, such as the recently introduced Quality Data Statements.

The major benefits of the realignment of focus is to make the IFR:

- less transactional in nature
- more focussed on validating the data
- enabling greater focus on key focus areas.

Increased effort of key focus areas

The proposed change in focus for future IFRs will enable IHPA and the jurisdictions to increase the focus on the approach to, and the utility of, the costing process. In previous IFRs, there has been a limited focus on compliance with the AHPCS and 'deep dives' into selected focus areas identified by the NAC.

The implementation of new costing standards could be tested using the focus areas; for example, jurisdictional reviews of cost of COVID-19 impacts, involving analysis by cost buckets to identify consequential impacts and standard lines of questioning on treatment of costs.

Relationship to other reviews

The proposed change in approach to the IFR is consistent with key recommendations made by the University Technology Sydney (UTS) in their report 'Patient level costing in Australia – Uses, challenges, and future opportunities'. This report recommended that IHPA:

- increase the granularity and scope of data in the National Benchmarking Portal
- engage with relevant health professional bodies and education providers
- work with jurisdictions to develop and promote patient level costing.

2.2.2 Implementation of IFR recommendations

As part of the consultation process, recommendations from previous IFRs are discussed with the jurisdictional participants. It was evident from the interviews that ,while there was an awareness of previous recommendations, there was limited understanding of the status of any of the recommendations at health service or jurisdictional level. To ensure there is

greater focus on the outcomes from future IFRs, it is recommended that a process be established for the NAC to monitor the implementation of applicable recommendations.

Furthermore, it is recommended that a workshop be facilitated by the IFR reviewers for all jurisdictions with IHPA to review the key observations and findings from the IFR. This workshop would contribute to the final recommendations and the associated work plan that will be monitored by the NAC.

Improved monitoring of IFR recommendations should support continuous improvement within IHPA and jurisdictions.

2.2.3 Developing and promoting cost practitioner knowledge

Integrity of cost data is highly reliant upon cost practitioner knowledge of costing standards, methods and process. During the interviews, it was identified that:

- there are only limited numbers of costing practitioners in each health service and jurisdictions that participated in the IFR
- there is no clear pathway to become a costing practitioner in a health service.

This represents a potential risk to the future of robust costing processes with potential loss of 'corporate knowledge'.

Similarly, the UTS report 'Patient level costing in Australia – Uses, challenges, and future opportunities' recommends further broadening the remit to education providers and to incorporate funding and patient level costing into relevant tertiary courses.[2]

This also links to the peer review process during the IFR, noting that take up was not significant; however interest, particularly in focus areas, was valued by those that did participate and working groups around focus areas could help facilitate the education of costing practitioners.

To address these issues and elevate the role of the costing practitioner, it is recommended that discussions be held with a relevant professional body, for example the Health Finance Management Association (HFMA), regarding hosting a costing focus group as part of its broader remit.

2.2.4 Focus areas

As discussed above, the change in the approach to the IFR will enable future reviews to have a greater focus on key costing processes, including:

- more deep dives on how costs are allocated by health networks to promote data quality and process improvement
- the national consistency or lack thereof to cost allocations or application of the standards
- keep factors that impact on the consistency of approach and opportunities for future improvement
- promote innovation and good practice across jurisdictions.

[2] https://ihpa.govcms.gov.au/sites/default/files/patient_level_costing_in_australia_-_uses_challenges_and_future_opportunities.pdf

2.2.5 Use of NHCDC data

It was observed during the consultation phase that there are still opportunities to increase the utility of the costing data produced by health networks and the jurisdictions. For example:

- Queensland: the key focus in the last 12 months has been on the roll out of a new costing system. There are still opportunities to improve the used of the data across the health services
- Victoria: still need to increase access to the IHPA portal
- NSW: the data is used for the Ministry's internal benchmarking portal
- SA: developing an internal benchmarking portal
- IHPA: potentially look to release the dashboard portal publicly.

While all jurisdictions refer to developing a portal of some kind, the national benchmarking portal already in place could be further developed for these purposes. There is still a place for jurisdictional specific benchmarking; however if the detail and scope of the national benchmarking portal can be increased, having one source of the truth for benchmarking would be valuable. This also aligns with the work completed by UTS in their report 'Patient level costing in Australia – Uses, challenges, and future opportunities'.

2.2.6 Scope of the IFR – health service selections

In the Round 24 IFR:

- one jurisdiction chose not the participate in the process
- the largest jurisdiction nominated one LHD for the review which represented only a small proportion of the state's total health expenditure
- there was a continued mix of hospital only or local health network wide submissions contributing to difficulties reconciling to source (such as audited statements).

The variability in participation is, in part, due to the transactional approach used for the IFR and, in part, a view of the level of effort required to complete the current templates as reiterated by participants.

In the Round 20 IFR, IHPA used a risk-based approach to select the number and mix of health networks in each jurisdiction to participate in the IFR. It should be noted that there are a number of limitations to this approach in certain jurisdictions, for example where there is a single health network in the jurisdiction.

IHPA should consider reimplementing a risk-based approach to the identification of the number and mix of participants per jurisdiction in the Round 25 IFR and beyond.

It should be noted that the revised approach described above should be less onerous on smaller jurisdictions (whilst still being representative) and is expected to provide benefits from an increased focus on key focus areas.

DQS and self-assessment submitted by jurisdictions could be utilised in the sampling approach to both inform sample selection and potentially focus areas. Submission for the costing entity would be required by February or March to inform the IFR approach.

3 Focus Areas

For the Round 24 (2019-20) IFR, the two focus areas selected were the Operating Room and Prosthesis. The purpose of analysing the focus areas was to test the approach taken by each health service for variation and to understand the various allocation methods employed by each. The outcome was a discussion on how to achieve greater consistency in applying the standards in respect of the two focus areas. System and data limitations will always apply at varying levels across the health services, but understanding those variations is the first step in creating consistency where possible. The opportunity for peer participation also provided jurisdictions' visibility of practices and data capture in these focus areas.

3.1 Operating room

The selection of the Operating Room as a focus area was to better understand how costs were allocated and if any opportunities existed to standardise the application of the costing standards. The selected sites had varying levels of costs related to operating rooms depending on the type of services undertaken at each hospital. Table 3 summarises the number of operating rooms and the operating costs identified in the IFR template.

Table 3. Summary operating room data collected

Jurisdiction	Service	Operating rooms	Operating costs	Percentage of NHCDC
ACT	Calvary Public Hospital	7	$42,397,349	17.59%
NSW	SNSWLHD	4	$34,817,477	9.64%
NT	Royal Darwin Hospital	8	$43,584,008	7.12%
QLD	Central West Health	1	$675,625	1.15%
	Cairns and Hinterland Hospital and Health Service	11	$79,306,676	9.30%
	Sunshine Coast Hospital and Health Service	20	$98,117,535	9.99%
SA	Riverland Regional Health Service	3	$7,359,916	19.21%
	Queen Elizabeth Hospital	8	$40,820,965	9.76%
VIC	Northern Health	15	$74,440,230	10.74%
	Barwon Health	12	$76,394,030	12.31%
	Goulburn Valley Health	4	$19,564,641	8.58%
WA	Sir Charles Gairdner Hospital	15	$84,048,315	9.59%
	Rockingham General Hospital	5	$13,680,340	6.15%

Jurisdiction	Service	Operating rooms	Operating costs	Percentage of NHCDC
	Kalgoorlie Hospital	2	$8,197,508	8.61%

3.1.1 Operating room feeder systems

Operating room feeder systems differed across the jurisdictions, however the bulk were used for the same purpose of collecting theatre usage data, such as theatre minutes, nurse minutes, and patient counts, to allow for the allocation of costs. The different systems used are set out in Table 4.

Table 4. Operating room feeder systems by jurisdiction

	ORMIS	iPM	Vital	Surginet	Caresys	TMS
ACT		●				
NSW				●		
NT					●	
QLD	●			●		
SA	●					
VIC		●	●			
WA						●

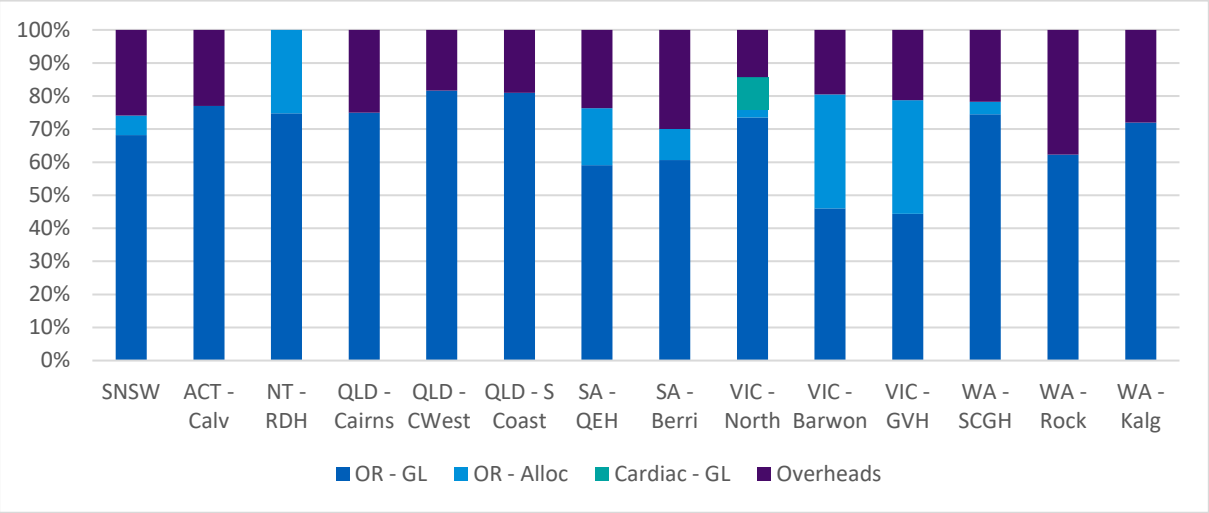
Source: Jurisdictional consultations and IFR template

All usage data collected from these systems allowed for allocation of operating room costs, using the respective relative value units across the procedures performed.

3.1.2 Operating room cost collection

The operating room cost data collected in the IFR template collated costs directly from the source (general ledger (GL) operating room cost centres), allocated costs and overhead costs, culminating in the total operating room cost bucket for the respective health services. Figure 3.1 highlights the composition of these costs.

Figure 3.1 Composition of operating room cost bucket



Source: Jurisdictional consultations and IFR template

The main points of variation between the jurisdictions for cost collection are:

- the Royal Darwin Hospital (NT) did not allocate overheads to the operating room
- Northern Health (VIC) included the costs of a specialist suite (catheterisation lab) in the operating room bucket
- the largest percentage of overhead allocations were Rockingham (37.7 per cent) and the regional sites of Western Australia (WA) (Kalgoorlie – 28 per cent) and South Australia (SA) (Berri – 30 per cent) which, given the smaller cost structure of those sites, is not surprising. The other allocations ranged between 14.3 - 25.9 per cent
- the two Victorian sites (Barwon and Goulburn Valley) had the largest allocations outside of the direct GL operating cost centre, which is mainly due to Anaesthetist cost allocation.

3.1.3 Operating room allocation methods

As discussed above, the feeder system data is used for allocating the various costs to the procedures undertaken at each site. Unfortunately, none of this data allowed for costing theatre sessions at the patient level. The closest any jurisdiction came to allocating costs at the patient level were for prosthesis with the use of h-trak software in some of the specialist suites. One jurisdiction (VIC) is looking to push h-trak into the operating theatres from 21 July, which may allow for better allocation of goods and services directly to the patient.

Without feeder systems at some of the smaller sites, one LHN (SNSWLHN) developed a database that records patient minutes in theatre, recovery and nursing time to create the various allocation statistics used by the costing system. The jurisdiction (New South Wales (NSW)) is keen to further improve the costing of theatres in future rounds with the work at SNSWLHN an important input.

In summary, the key points regarding operating room cost allocations are:

- the majority of health services capture staff time in minutes through the various feeder systems to allocate costs

- the minutes captured are utilised at various points of the patient episode to reclassify and align costs to activities within the theatre process that display a differential cost profile, from pre-admission, pre-surgery, theatre, recovery and unutilised
- the use of minutes as an allocation statistic acknowledges that minutes are valued the same whether a patient is having a simple scope or a complex liver transplant. There was discussion regarding the number of staff in a given procedure but this is also not captured; it is just the accumulation of minutes.

3.1.4 Summary

Data capture

During the consultations, all jurisdictions acknowledged that further work could be done to improve the robustness of operating room costs, but this would require further investment in operating theatre systems to better capture the allocation statistics required to improve operating room costs to the patient level.

Costing method

In regard to standardisation across the jurisdictions, some inconsistencies in the composition of the cost bucket were evident, such as the application of overheads, the inclusion of specialist suites or the allocation of medical costs. However, cost allocation methods were similar across the jurisdictions with theatre minutes the allocation statistic widely used to allocate costs across the various procedures. Definitions regarding ‘minutes in theatre’ vary depending upon the jurisdiction and available data for example infrastructure (induction rooms) and counting rules can have an impact.

Drivers of variation

Taking the observations into consideration, the key drivers of variation are the type of procedural suites, GL cost structures, availability of data for allocation statistics and varying level of investment in systems.

3.2 Prosthesis

The selection of Prosthesis as a focus area was to better understand how costs were allocated and if any opportunities existed to standardise the application of the costing standards. The selected sites had varying levels of costs related to prosthesis depending on the type of services undertaken at each hospital. Some hospitals had extensive prosthesis costs, and other smaller hospitals had very minimal prosthesis costs. This is an important point to note when sampling participating hospitals and considering focus areas in the future. Table 5 summarises each of the sites and their prosthesis costs.

Table 5. Summary prosthesis data collected

Jurisdiction	Service	Prosthesis costs
ACT	Calvary Public Hospital	$3,079,012
NSW	SNSWLHD	$5,512,478
NT	Royal Darwin Hospital	$5,340,553
QLD	Central West Health	$10,982
	Cairns and Hinterland Hospital and Health Service	$12,776,156
	Sunshine Coast Hospital and Health Service	$8,837,009
SA	Riverland Regional Health Service	$371,853
	Queen Elizabeth	$6,487,715
VIC	Northern Health	$8,185,238
	Barwon Health	$10,777,449
	Goulburn Valley Health	$2,216,306
WA	Sir Charles Gairdner Hospital	$23,600,000
	Rockingham General Hospital	$1,700,000
	Kalgoorlie Hospital	$92,000

Source: Jurisdictional consultations and IFR template

3.2.1 Prosthesis feeder systems

Prosthesis feeder systems differed across the jurisdictions, however the bulk of them used their theatre management system to manage prosthesis. The different systems used were:

Table 6. Prosthesis feeder systems by jurisdiction

	ORMIS	iPM	Vital	Surginet	Caresys	TMS	h-Trak
ACT		●					
NSW				●			
NT					●		
QLD	●			●			
SA	●						
VIC		●	●				●
WA						●	

Source: Jurisdictional consultations and IFR template

3.2.2 Prosthesis cost collection

The collection of cost data for Prosthesis relies on the financial data contained in the GL for each respective health service. The majority of health services indicated that there is one account code used for Prosthesis and this is the amount used by the costing system for allocating down to patients. There is some distinction in the GL between implantable devices or items used by the specialist suites from general prosthesis to allow for more refined costing. Overheads were allocated to prosthesis in some jurisdictions, but this was not consistent. Most jurisdictions had the same approach to costing for both public and private patients.

3.2.3 Allocation methodologies

The method of allocating costs varied across jurisdictions. All jurisdictions allocated to the patient level to some degree, with varying processes and complexity around allocation method:

- reclass rules to collate prosthesis costs and then detailed weights, based on clinical classification procedure codes, to allocate costs to patients
- allocating to the respective patient types: admitted, non-admitted and theatre cases. Then once the cost pools are set up, business rules based on the clinical classification of each patient are used to determine the cost allocation to each patient
- business rules are based on the clinical classification of each patient to determine the prosthesis cost allocation to each patient
- allocating to specialty, then allocating to encounter (for example cardiac catheter lab, radiology, endoscopy)
- for at least two jurisdictions, lens procedure costs were allocated evenly as only one type of prosthetic was used

- one jurisdiction allocated non-admitted allied health prosthetics to the clinic, rather than to the patient.

3.2.4 Conclusions and recommendations

Data Capture

Costs are generally captured in a single account code in the GL across various cost centres and grouped to the line item. There is variation in feeder systems with underinvestment in tracking technologies.

Cost Allocations

Service weights are generally utilised based on procedure types to allocate costs. No specific points regarding rebates, waste, etc were discussed or identified during the consultations.

Drivers of variation

There was variety in how jurisdictions collect and allocate prosthesis costs and variation within jurisdictions. One jurisdiction (ACT) has particularly focused on prosthesis costs since Round 21 and has significantly improved their allocations with the purchase of a new system to manage their prosthesis. Another (Queensland) highlighted that the implementation of new systems has allowed for better cost capture and allocation for example the scanning of barcodes to identify and match patients with prosthesis. Others acknowledged that prosthesis management is still quite a manual process with room for improvement.

Jurisdictions would benefit from standardisation in this area, and there was curiosity during consultations as to how other jurisdictions manage prosthesis costs.

4 Jurisdictional chapters

4.1 Australian Capital Territory (ACT)

4.1.1 Jurisdictional overview

The Information and Data Management Branch within the Digital Solutions Division at the ACT Health Directorate (ACTHD) is responsible for the collation, processing, reconciliation and submission of National Hospital Cost Data Collection (NHCDC) data to the IHPA for public hospitals in the ACT using the information supplied by health services.

Calvary Public Hospital Bruce (CPHB), one of the two public hospitals in the ACT, was selected as the sample hospital in the ACT for the Round 24 IFR.

ACTHD is responsible for the management of the clinical costing system and the overall processing of the NHCDC submission. ACT Health uses the Power Performance Manager 2 (PPM2) costing application for patient level costing. All activity is costed with the costing process undertaken annually. ACTHD is in the process of establishing quality improvement processes that will increase the frequency of costing to assist with validations.

In consultation with ACTHD, the CPHB costing team prepare and provide their GL and feeder files to the jurisdiction for costing. For Round 24, the costing team in ACT Health performed costing activities on behalf of CPHB.

ACTHD staff perform data validation on feeder data received from each hospital and, if issues are identified, the data is returned to the hospital for resolution. Once the cost model has been run and all data is linked, ACTHD staff provide cost summary reports for review. The majority of the extracts used within the costing process are extracted from the ACT Health data repository and feeder data is extracted from hospital source systems. Data cleansing, reconciliation and reporting is undertaken by CPHB and ACT Health. Activity data is also reconciled by ACT Health.

The patient administration system (PAS) is territory-wide and centralised at the jurisdiction. It is used as the main source of activity information. Encounter activity data is sourced and validated by ACTHD staff from a centralised data repository which covers admitted, emergency, non-admitted and community mental health patients.

ACT Health have territory-wide feeders for pathology, imaging, blood products and admitted contacts. The sites also have local feeders for theatre, pharmacy, prosthetics and medical emergency team (MET) calls. All feeder extracts are at the patient level, containing Unique Record Numbers (URNs), and date of service to allocate costs, rather than using service weights.

Patient cost data is used by some health services and ACTHD to support business cases and decision making. Data is also used to analyse the cost of health care in the ACT and to perform comparative benchmarking using the IHPA benchmarking portal.

ACTHD participates in other cost, activity and benchmarking data collections in addition to the NHCDC, such as Health Roundtable, and Women's and Children's Healthcare Australasia's (WHA / CHA) data collections. IHPA's national benchmarking portal is accessible and used for benchmarking purposes.

4.1.2 Calvary Public Hospital

Calvary Public Hospital is a 256-bed hospital located in the northern suburbs of Canberra and is spread over two campuses (Bruce and Barton). The hospital serves the communities of North Canberra, Belconnen and the Gungahlin precincts and surrounding areas of the ACT and NSW.

Across its campuses, CPHB offers a range of services including 24-hour emergency, intensive and coronary care, medical and surgical inpatient services, maternity services, voluntary psychiatric services, specialist outpatient clinics, Hospital in the Home service and palliative care.

As a teaching hospital, CPHB is affiliated with the Australian Catholic University, the Australian National University and the University of Canberra as well as providing clinical placements for a number of other tertiary providers.

For Round 24, costing was performed by the jurisdiction on behalf of CPHB.

Reconciliation

This section discusses major variances, reconciling items and adjustments in the reconciliation process. The information is based on the CPHB data collection template, data quality self-assessment and review discussions.

Table 7 presents a summary reconciliation from ACT Health's GL to the final NHCDC submission for Round 24 (2019-20).

ACT Health did not make any adjustments in Round 24. They reported being unable to cost Work in Progress (WIP) for this round only and will continue to cost the WIP in future rounds.

Explanation of reconciling items

Adjustments made at the LHN level (Item B)

- Exclusions relating to out of scope costs totalling $1,993,375.
- Teaching, training and research costs of $7,491,282 were removed.
- Work in progress relating to patients not yet discharged in 2019-20.
- Costs attached to activity that was not able to be linked to the various feeders was excluded, this totalled $2,665,791.
- Depreciation and excluded line items were also removed totalling $14,847,066.
- Removal of negative costs of $517.

Adjustments made at the Jurisdiction level (Item E)

No further adjustments were made at the jurisdiction level.

Table 7. Reconciliation from General Ledger to NHCDC Costed Products – Calvary Public Hospital

Hospital				Jurisdiction				IHPA		
	Item		Amount		Item		Amount	Item		Amount
Source: Self-Assessment	**A**	General Ledger (GL)	$ 268,606,565	*Source: Data Collection Template*	**D**	Costed Products received by jurisdiction	$ 241,028,613	**G**	Total costed products received by IHPA	$ 241,028,613
	B	Adjustments to the GL			**E**	**Post Allocation Adjustments**		**H**	IHPA Adjustments	$ -
		Inclusions	$ -			*Nil*	$ -		Reconciling difference	$ (518)
		Exclusions	$ (27,577,951)			**Total costs submitted to IHPA**	**$ 241,028,613**	**I**	**Final NHCDC costs**	**$ 241,028,096**
		Total hospital expenditure	**$ 241,028,614**							
									% of GL submitted to NHCDC	89.2%
Source: Data Collection Template				*Source: Data Collection Template*						
	C	**Costed products submitted to jurisdiction**			**F**	**Costed products submitted to IHPA**			**Costed products per HNCDC**	
Acute		*Acute care (admitted care)*	$ 133,160.395	**Acute**		*Acute care (admitted care)*	$ 133,160,395		Acute	$ 139,358,479
		Newborn care	$ 6,198,085			*Newborn care*	$ 6,198,085		Sub-Acute	$ 16,728,235
Sub-Acute		*Rehabilitation care*	$ 62,575	**Sub-Acute**		*Rehabilitation care*	$ 62,575		Emergency	$ 43,139,067
		Palliative care	$ 10,686,369			*Palliative care*	$ 10,686,369		Non-Admitted	$ 29,557,622
		Geriatric evaluation and management	$ 292,359			*Geriatric evaluation and management*	$ 292,359		Mental Health	$ 12,235,932
		Psychogeriatric care	$ -			*Psychogeriatric care*	$ -		Other	$ 8,759
		Maintenance care	$ 5,686,933			*Maintenance care*	$ 5,686,933		**Total**	**$ 241,028,096**
Emergency		*Emergency Admitted*	$ 43,139,068	**Emergency**		*Emergency Admitted*	$ 43,139,068			
		Emergency Non-admitted	$ -			*Emergency Non-admitted*	$ -			
Non-Admitted		*Non-admitted Outpatient Clinic*	$ 29,557,622	**Non-Admitted**		*Non-admitted Outpatient Clinic*	$ 29,557,622			
		Non-admitted Outreach Community	$ -			*Non-admitted Outreach Community*	$ -			
		Non-admitted Mental Health	$ -			*Non-admitted Mental Health*	$ -			
Mental Health		*Admitted Mental Health*	$ 12,235,932	**Mental Health**		*Admitted Mental Health*	$ 12,235,932			
		Mental Health Care Episode	$ -			*Mental Health Care Episode*	$ -			
		Mental Health Care Phase	$ -			*Mental Health Care Phase*	$ -			
		Other admitted patient care	$ -			*Other admitted patient care*	$ -			
		Hospital boarder	$ -			*Hospital boarder*	$ -			
		Organ procurement – posthumous	$ 9,276			*Organ procurement - posthumous*	$ 9,276			
		Other	$ -			*Other*	$ -			
		Research	$ -			*Research*	$ -			
		Teaching & Training	$ -			*Teaching & Training*	$ -			
		Dummy/virtual patients	$ -			*Dummy/virtual patients*	$ -			
			$ 241,028,613				**$ 241,028,613**			

Application of Australian Hospital Patient Costing standards

ACTHD reported their costing submission was prepared in accordance with the AHPCS Version 4.0 for Round 24.

Quality Assurance

The QA process is undertaken in various phases of the costing cycle. QA is largely an automated process and uses Structured Query Language (SQL) code to capture in-scope costs and compare them to previous years. ACTHD also uses PPM2 reports, and automatic logic checks to perform QA checks. In addition, data is provided to the health services for review and validation. Table 8 identifies a summary of the QA checks for ACT.

Table 8. Summary of QA checks performed — ACT

QA Test	ACTHD	CPHB
Source data and systems		
Reconciliation back to GL and audited statements	Annual reconciliation and checks undertaken by ACTHD	
Reconciliation of activity data back to source systems	Annual reviews on feeder and source systems	
Costing Data – Validation		
Trend analysis to prior periods across cost products	Yes – annually	Errors identified by the jurisdiction are reviewed by CPHB and amended
Reasonableness test of excluded data and outliers	Yes – annually	
Analysis of outliers at the cost, length of stay (LOS) or cost bucket level	Yes – annually and reviewed with sites	
Reasonableness of direct vs overhead allocations	Yes – annually	
Specific business rule tests	Yes – through PPM2	
Costing Data – Governance		
Regular updates with costing staff	Ad hoc	
Local guidelines supporting the AHPCS standards framework	No	
Review of cost allocations	Yes – annually	
Review on reasonableness of costing data output	Data is reviewed for reasonableness and completeness	
Formal sign-off	Final sign off by ACT Health	Data is reviewed and signed off by the CFO at CPHB

Source: Jurisdictional consultations and data quality statement

Operating room costs and allocation methods

CPHB have seven theatres, which includes two Endoscopy suites, and one which is specifically held for emergencies. The theatre module within the PAS (iPM) is the feeder for activity, and they use PPM2 as their costing system.

There is a designated cost centre for operating room costs, with three areas:

- Anaesthesia
- Perioperative
- General Surgery.

Staff time is measured in minutes according to:

- surgeon time
- nurse time
- anaesthetist time
- time in recovery.

Costs in recovery are treated as a single cost; they do not have splits for discipline.

Currently, all theatre data is entered manually and retrospectively by one clerical staff member from the paper copy of the operation record. Data is entered on the day if prior to 3pm on a weekday, but if after that time, entry will occur the next business day. CPHB acknowledged that this process is less than ideal, however it will be addressed in September 2022 with the implementation of an improved PAS/EMR (EPIC).

In summary, the key points to note from the cost submission and discussion regarding operating theatres are as follows.

- Feeder systems: iPM is currently used to capture activity data, and theatre data is manually entered from the paper-based operation record
- Allocation methods: Patient and staff time is captured in minutes according to discipline (anesthetist time, surgeon time, nurse time). Recovery is the notable exception as time is allocated according to minutes in recovery, rather than to discipline
- Cost capture: It is noted that most surgeons are Visiting Medical Officers (VMOs), therefore funds are transferred from other cost centres into theatre in one lump sum amount
- Challenges: There are challenges in relation to consumable and gases as there is no equitable way of allocating them to a case type. Wastage is not well captured as there is currently no means to identify whether a product has been opened in error, or prematurely to when the surgeon needs it and therefore discarded.

Prosthesis costs and allocation methods

CPHB use Max to manage their prostheses. Max manages everything from the surgeon's preference cards (pack to open, what to hold etc.) and lists all consumables. It is also used to scan in the prosthesis and link to patients. Prosthesis costs for Round 24 was $3,079,012.

ACT Health have focused on the management of prosthetic costs since Round 21 IFR. In Round 21, it was identified that it was not possible to link every single implant back to the relevant patient. Data was being drawn from two different catalogues which introduced anomalies such as cases that should have had a prosthesis allocated but did not. The Max system has allowed ACT Health to get closer to having more accurate prosthesis codes, and now they are able to allocate around 90-95 per cent of cases. For the remaining cases, they allocate to the remainder of the cases on a proportional basis.

The approach to allocating costs that cannot be attributed to a specific patient is through reclass rules, rather than cost centres. The majority of such cases are lens replacements carried out by VMOs who must use the designated lenses unless able to justify the need for an alternative.

CPHB have three means of sourcing supplies:

- ACT Health — ACT Health have centralised sterilised supplies, therefore items such as instrument packs must be sourced the directly from ACT Health
- Calvary National — there are prosthesis items that can be purchased through Calvary National
- CPHB — some supplies can be ordered directly through their own procurement department on a needs/demand basis.

The approach to costing prosthesis for private and public patients is the same.

4.1.3 Sample patient data

IHPA selected a sample of five patients from CPHB for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. The jurisdiction provided the patient level costs for all five patients and these reconciled to IHPA records. Further information relating to the sample records is available in Appendix 1.

4.1.4 Conclusion

The IFR is conducted in accordance with the review methodology detailed in section 1.2 of this report. Based on this methodology, CPHB has suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission. Utilisation of submitted data for purposes such as reporting, benchmarking and price setting is subject to further review of the impact and treatment of COVID-19 related costs by IHPA.

4.1.5 Improvements

Improvements since Round 22

ACT's Round 24 (2019-20) costing improvements include:

- review and update of allocation statistics
- continuous improvements for feeder data linking rules, particularly for pathology
- improved QA and approval processes
- submission of COVID-19 costs for Calvary Public Hospital, Bruce
- improved governance process to reconcile prior to sending to IHPA.

Future improvements in development for Round 25

An area that ACT Health have identified for improvement is that of admitted mental health activity. To date, ACT Health have been submitting episode data and cost, not phase level data. It is intended that this will be addressed in future rounds of the NHCDC with the reporting of data at the phase and episode level.

ACT Health have also identified a desire to increase frequency of costing, however this has not been possible to date due to resource constraints.

ACT Health were unable to cost WIP for Round 24 only, but plan to continue for Round 25.

4.2 New South Wales

4.2.1 Jurisdictional overview

The NSW Ministry of Health (NSW Health) costing function leads and manages clinical costing for the state's 15 Local Health Districts (LHDs) and three Specialty Health Networks (SHNs). In NSW, patient costing is processed by costing practitioners within each of the LHDs and SHNs. NSW Health plays a key role in supporting districts and networks for both the semi-annual and the full financial year District Network Return (DNR). The NSW Health Activity Based Management (ABM) Group Costing team is responsible for transforming DNR submissions into the NHCDC format and submitting costing data to IHPA.

The six-monthly submission process was suspended once the COVID-19 pandemic was declared and a monthly cost modelling process was commenced by all LHDs and SHNs. Two large metropolitan LHDs also processed a nine-month DNR to ascertain the veracity of National Weighted Activity Unit (NWAU) price weights for COVID-19 patients. As a result of this analysis, DNRs were prepared for two discrete periods (July 2019 to March 2020 and April 2020 to June 2020) and then consolidated in the costing system to generate a full year patient costing submission. It was noted that there was significant GL disruption throughout the COVID-19 period with project code changes, transfer of funds, and definition changes as to what can be claimed via the National Partnership Agreement (NPA), which made it a challenging year.

NSW Health has developed, distributed and maintained applications (apps) and tools to support the DNR and general costing processes. NSW Health manages several statewide feeder systems used by LHDs and SHNs. A single costing application implemented in 2012 is used by all LHDs and SHNs and is regularly updated to ensure consistency and efficiency of reporting processes.

A Costing Standards User Group (CSUG) meets regularly throughout the year. Each February, there is a three-day workshop to review the previous year's submissions and develop priorities for the upcoming costing year. The workshop program includes topics of interest for key stakeholder groups that sit outside of the costing practitioner group, for example business managers who are invited to attend one day of the workshop.

ABM works with other branches in NSW Health, in particular finance, to prepare the DNR. ABM also develops training and support for costing teams across the state on an ongoing basis. There is a culture of collaboration and shared learnings to improve performance within the LHD and SHN costing teams which is led and supported by the ABM function. ABM manages ongoing refinement of the multi-volume publication the *NSW Cost Accounting Guidelines* (CAG) in consultation with CSUG. The Australian Public Hospital Costing Standards Version 4.0 provides the foundation for *CAG Volume 2: Costing Standards.*

4.2.2 Southern NSW LHD

The Southern NSW Local Health District (SNSWLHD) provides health services for approximately 200,000 people in the South East of NSW. SNSWLHD's catchment population is projected to increase to 245,000 by 2026.

There are 14 hospitals, including three Multipurpose Services (MPS), within SNSWLHD boundaries: Batemans Bay, South East Regional Hospital, Bombala MPS, Braidwood MPS, Cooma, Crookwell, Delegate MPS, Goulburn, Bourke Street Health Service (in Goulburn), Moruya, Pambula, Queanbeyan, Yass and Kenmore Psychiatric.

SNSWLHD services include emergency, intensive care, coronary care, maternity, acute medical and surgical, subacute, primary, community and ambulatory care. The three MPSs provide residential aged care along with low acuity acute care.

Hospitals in other LHDs and the Australian Capital Territory (Canberra Hospital and Calvary Hospital) provide tertiary care to the district.

Costing at SNSWLHD is conducted on a six-monthly cycle, however since the onset of COVID-19, costing has occurred quarterly. Costing is conducted by the Manager of Clinical Costing (1 FTE) who is involved in all aspects of costing at the LHD. The manager liaises with ABM staff almost daily to provide support with reconciliation and data tools as well as providing Power Performance Manager (PPM) expertise. All QA requests are handled by the Manager of Clinical Costing.

SNSWLHD has a costing working group (CWG) which meets monthly to discuss all matters pertaining to costing at the LHD, in addition to the CSUG which costing staff attend. Throughout the costing year, the CWG review the reclass rules and other cost allocations for reasonableness, and a review of the cost of service has recently been added to the metrics monitored by the group. The final outputs of the costing process are signed off by the group prior to final sign off by the Director of Finance and the Chief Executive Officer (CEO).

Reconciliation

This section outlines the reconciliation undertaken by the IFR site visit team together with the data collection templates, data quality self-assessment and discussions held during the review. Table 9 presents a summary reconciliation from the SNSWLHD GL to the jurisdiction submission and the final NHCDC submission to IHPA for Round 24 (2019-20). There was no variance between the self-assessment GL total and the amount submitted in the data collection templates.

This section discusses adjustments in the reconciliation template at various stages of the process.

Adjustments made at the LHD level (Item B)

- The final GL amount of $475,096,393 was reconciled to the audited financial statements as per advice from SNSWLHD representatives and reported in the template.
- Inclusions made to the GL totalled $8,187,435 (1.7 per cent) relating to medical indemnity insurance to comply with the requirements of the AHPCS. The ABM team advised the LHD/SHNs of the total for medical indemnity insurance as this expense is held centrally by NSW Health. The basis of this adjustment appears reasonable.

The above adjustments established an expenditure base for costing of $483,283,828.

Adjustments made at the Jurisdiction level (Item E)

- A WIP adjustment of $4,056,969 for patients discharged in the Round 24 financial year (2019-20) but admitted in the previous year (2018-19).
- ICT project costs of $1,312,317 incurred by eHealth on behalf of LHDs.
- $841,909 was reallocated to SNSWLHD from metropolitan LHDs due to staff being redeployed to assist in the bushfire emergency.
- $1,029,963 relating to expenditure incurred by HealthShare not allocated in the GL of SNSWLHD, items such as food, linen, patient transport and other expenditure.
- All non-pathology expenditure relating to non-admitted was excluded from COVID-19 screening encounters, totalling $1,042,325.
- All non-admitted mental health contacts are submitted at episode level by LHDs. This data needed to be transferred to phase level by ABM with a net impact of $1,116,148.
- Finally, all exclusions relating to encounters not conducted at an ABF hospital or encounters not submitted in the activity submission, totalling $129,385,481.

These adjustments provided a net exclusion of $122,070,501, bringing the total costs submitted to IHPA at Item F to $361,213,328. The breakdown of costed products submitted to IHPA are displayed in Item F of Table 9.

Table 9. Reconciliation from General Ledger to NHCDC Costed Products – Southern NSW LHD

SNSWLHD				Jurisdiction				IHPA		
	Item		Amount		Item		Amount	Item		Amount
Source: Self-Assessment	**A**	General Ledger (GL)	$ 475,096,393	*Source: Data Collection Template*	**D**	Costed Products received by jurisdiction	$ 483,283,828	**G**	Total costed products received by IHPA	**$ 361,213,328**
	B	Adjustments to the GL			**E**	**Post Allocation Adjustments**	**$(122,070,501)**	**H**	IHPA Adjustments	$ -
		Inclusions	$ 8,187,435			*WIP Adjustments*	$ 4,056,969		Reconciling difference	$ 10,944
		Exclusions	$ -			*eHealth project costs*	$ 1,312,317	**I**	**Final NHCDC costs**	**$ 361,224,272**
		Total hospital expenditure	**$ 483,283,828**			*Bushfire Emergency*	$ 841,909			
						Health Share expenditure	$ 1,029,963		% of GL submitted to NHCDC	76.0%
						Non-Pathology COVID-19	$ (1,042,325)			
						Mental health NAP phase data	$ 1,116,148			
						Non-ABF Encounters	$(129,385,481)			
						Total costs submitted to IHPA	**$ 361,213,328**			
Source: Data Collection Template				*Source: Data Collection Template*						
	C	**Costed products submitted to jurisdiction**			**F**	**Costed products submitted to IHPA**			**Costed products per HNCDC**	
Acute		*Acute care (admitted care)*	$ 204,803,971	**Acute**		*Acute care (admitted care)*	$ 198,586,688		Acute	$ 199,760,936
		Newborn care	$ 1,176,107			*Newborn care*	$ 1,191,107		Sub-Acute	$ 28,888,513
Sub-Acute		*Rehabilitation care*	$ 18,339,173	**Sub-Acute**		*Rehabilitation care*	$ 17,469,435		Emergency	$ 71,144,086
		Palliative care	$ 5,682,960			*Palliative care*	$ 4,470,174		Non-Admitted	$ 18,666,426
		Geriatric evaluation and management	$ 3,925,190			*Geriatric evaluation and management*	$ 3,535,661		Mental Health	$ 42,764,312
		Psychogeriatric care	$ 30,559			*Psychogeriatric care*	$ 30,703		Other	$ -
		Maintenance care	$ 6,258,339			*Maintenance care*	$ 3,382,540		**Total**	**$ 361,224,272**
Emergency		*Emergency Admitted*	$ 16,813,844	**Emergency**		*Emergency Admitted*	$ 15,885,677			
		Emergency Non-admitted	$ 63,806,880			*Emergency Non-admitted*	$ 55,258,409			
Non-Admitted		*Non-admitted Outpatient Clinic*	$ 62,180,622	**Non-Admitted**		*Non-admitted Outpatient Clinic*	$ 18,666,426			
		Non-admitted Outreach Community	$ -			*Non-admitted Outreach Community*	$ -			
		Non-admitted Mental Health	$ 18,846,242			*Non-admitted Mental Health*	$ -			
Mental Health		*Admitted Mental Health*	$ 16,755	**Mental Health**		*Admitted Mental Health*	$ -			
		Mental Health Care Episode	$ -			*Mental Health Care Episode*	$ -			
		Mental Health Care Phase	$ 36,168,792			*Mental Health Care Phase*	$ 42,736,508			
		Other admitted patient care	$ -	**Other**		*Other admitted patient care*	$ -			
		Hospital boarder	$ -			*Hospital boarder*	$ -			
		Organ procurement - posthumous	$ -			*Organ procurement - posthumous*	$ -			
		Other	$ 9,483,210			*Other*	$ -			
		Research	$ 87,182			*Research*	$ -			
		Teaching & Training	$ 7,383,568			*Teaching & Training*	$ -			
		Dummy/virtual patients	$ 28,280,434			*Dummy/virtual patients*	$ -			
			$ 482,283,828				**$ 361,213,328**			

Application of Australian Hospital Patient Costing Standards

Compliance with the Australian Hospital Costing Standards continues to improve each year in NSW. Since the Round 23 (2018-19) submission, Standard 1.3 Identify Relevant Expenses – Offsets and Recoveries is now reported as fully compliant.

NSW Health reported full compliance with most of the AHPCS Version 4.0 standards and partial compliance with the following standards:

- Standard 1.2 — Identify Relevant Expenses -Third Party Expenses
- Standard 2.2 — Create the Cost Ledger - Matching Cost Objects and Expenses
- Standard 3.2 — Create Final Cost Centres - Allocation of Expenses in Overhead Cost Centres
- Standard 6.1 — Review and Reconcile - Data Quality Framework
- Standard 6.2 — Review and Reconcile - Reconciliation to Source Data.

Several reasons were provided for the partial compliance outlined above, including unavailability of allocation statistic data and discrepancies between some LHDs and SHNs with regards to the level of service data with which to match expenses.

Overall, NSW reported material compliance with the standards but acknowledged areas for improvement, particularly relating to third party expenses for private patients recorded in trust accounts.

Quality Assurance

NSW Health has implemented multiple QA tests at various phases of the patient cost data preparation process to support costing teams within the LHDs and SHNs. Since identified as an area for improvement in previous rounds, a significant focus has been placed on improving the linking of feeder data with encounters. This has supported improvements in QA and internal audit, for example, applying QA tests across costs of service has provided greater understanding of variation where it occurs.

NSW has established user groups and working groups to focus on technical standards and consistency in application. The CSUG meets monthly (26 times during the prior year as a result of COVID-19) in order to promote standards in NSW and the application of the CAG. As reported in Round 22, the CAG has been developed by NSW as a local supplement to the national ACHPS.

NSW maintains a shared data warehouse and operates on a single version of the same costing system. The DNR module provides a standard file structure, requirements and data tests that are to be conducted. In addition, cost centre structures are consistently mapped to cost pools. QA is conducted at source data level with quality checks applied through the DNR.

Files are submitted to the ‘casemix server’ with validations (dates/facility). The Reasonableness and Quality (RQ) app runs approximately 50 qualification tests including benchmarking against other LHDs and reasonableness tests for comparison (at a service level). Final submissions are reviewed and submitted for sign off by the Director of Finance for each LHD/SHN (interim cost results).

Once the Director of Finance and CEO of each LHD/SHN has signed off the interim cost results, final submissions are signed off via a letter from the CEO. Table1010, below, sets out a summary table of the QA checks performed within NSW.

Table10. Summary of QA checks performed —NSW

QA Test	NSW Health	SNSWLHD
Source data and systems		
Reconciliation back to GL and audited statements	GL is reconciled for each costing cycle	GL is reconciled for each costing cycle
Reconciliation of activity data back to source systems	Numerous checks performed when activity data is extracted from source systems	Costing practitioner performs QA checks on activity data
Costing Data – Validation		
Trend analysis to prior periods across cost products	All draft DNR submissions are subjected to a series of cost result tests by the ABM group.	QA tools and reports reviewed by the CWG
Reasonableness test of excluded data and outliers	All draft DNR submissions are subjected to a series of cost result tests by the ABM group.	QA tools and reports reviewed by the CWG
Analysis of outliers at the cost, LOS or cost bucket level	All draft DNR submissions are subjected to a series of cost result tests by the ABM group.	Analysis on cost per service completed at the LHD level
Direct vs overhead percentage allocations	All draft DNR submissions are subjected to a series of cost result tests by the ABM group.	QA tools and reports reviewed by the CWG
Specific business rule tests	Numerous tests examining the compliance with key costing business rules.	Use of QA tools to test business rules, i.e. duration in theatre
Costing Data – Governance		
Regular updates with costing staff	Monthly CSUG held across the state.	SNSWLHD has a costing working group (CWG) which meets monthly in addition to the CSUG.
Local guidelines supporting the AHPCS standards framework	NSW CAG.	NSW CAG
Review of cost allocations	NSW DNR submission process includes draft period for comparing cost results with peers.	The CWG review the reclass rules and other cost allocations.

QA Test	NSW Health	SNSWLHD
Review on reasonableness of costing data output	NSW DNR submission process includes draft period for comparing cost results with peers.	The CWG review cost of service and the final outputs.
Formal sign-off	Formal sign-off and reconciliation process in place.	The CWG sign-off the outputs, followed by the Director of Finance and the CEO.

Source: Jurisdictional consultations and data quality statement

Operating room costs and allocation methods

Surgical services are relatively minor in SNSWLHD. Table111 provides a summary of the services provided by each Health Service in the LHD.

Table11. Operating services by SNSWLHD health services

	Goulburn Base Hospital	Bega South East Regional Hospital	Batemans Bay Hospital	Moruya Hospital	Cooma Hospital and Health Service
Joint Surgery	●	●		●	●
Orthopaedic Services				●	●
Day Surgery			●		
Cataract Services			●		
Scope Services			●		
Gynaecology Services				●	●

Source: Jurisdictional consultations and IFR template

Each facility has a separate cost centre for theatres, but most costs are coded to that single cost centre for the site. There is some reclassification of costs for recovery, and also nursing costs for day surgery. Currently, goods and services costs are costed using the same allocation method. It is intended that goods and services costs be separated and allocated separately in the near future.

An operating theatre database has been developed to process the feeder system data recording patient minutes in theatre, recovery, and nursing time.These measures provide a basis to conduct reclassifications as outlined above. Session data is sourced via the Surginet system. The following points were captured regarding the functionality of the operating theatre database:

- attendees and session information are sourced from Surginet
- duplicates are removed by employee, for example, the same staff member may perform two different roles. Rules were established to ensure an employee is only included once
- the rules established to add nurses into the stages of each case, for example theatre, recovery, and separates them out by case and session and formats data for PPM

- a similar process is conducted for anaesthetic time
- 'unutilised' sessions (for example cleaning time is calculated as unutilised time and is spread across the respective cases in the session
- the database contains approximately 10 quality assessment reports
- finally, a data table is created ready for PPM.

In summary, the key points to note from the cost submission and discussion regarding operating theatres are as follows.

- Feeder systems: Whilst Surginet data is utilised to capture data, an access database is utilised to calculate relevant allocation statistics as an interim step in the costing process for PPM
- Allocation methods: Patient and nurse minutes are utilised at various points of the patient episode to reclassify costs to activities within the theatre process that display a differential cost profile (for example pre-surgery, theatre or recovery)
- Unutilised time/costs: Allocated across cases in session as an overhead
- Cost capture: It is noted that surgeon costs are not allocated to theatre cost centres and are allocated on a similar basis to nursing costs utilising Surginet data. Goods and services are allocated on a similar basis and therefore allocated across patient/sessions
- QA: The operating room database has a series of business rules incorporated with quality assessment reports produced.

Prosthesis costs and allocation methods

The first part of coding expenses for Prosthesis for SNSWLHD is from the GL. Account codes are split by Prosthetic and Medical Consumables with only the Prosthetic costs loaded into PPM to the Prosthetic account number. This was a total of $5,512,478 for SNSWLHD. Finance are responsible for amounts that are charged to the respective account codes in the GL and the definition of prosthetics may differ between sites, i.e. medical device vs implantable.

Once the amount is loaded into the cost pools in the costing system, it is then allocated to the respective patient types: admitted, non-admitted and theatre cases. Once the cost pools are set up, business rules based on the clinical classification of each patient are used to determine the cost allocation to each patient. The business rules allocate costs by service weights to patients who have been in theatre and would likely receive a prosthetic based on clinical advice at the Diagnosis Related Group (DRG) level.

The service weights currently in use were developed from studies conducted five years ago at the DRG level using the average cost of prosthetic to determine the cost weight. There is currently no feeder data in place for Prosthetics. Previously, Surginet provided a prosthesis feeder, however this is no longer applicable. SNSWLHD continue to refine and develop the Relative Value Units (RVUs) on an ad hoc basis by liaising with LHDs and SHNs that have a prosthetic feeder.

4.2.3 Sample patient data

IHPA selected a sample of five patients from three sites within the LHD for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. The jurisdiction provided the patient level costs for all five patients and these reconciled to IHPA records. Further information relating to the sample records is available in Appendix 1.

4.2.4 Conclusion

The IFR is conducted in accordance with the review methodology detailed in section 1.2 of this report. Based on this methodology, SNSWLHD has suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission. Utilisation of submitted data for purposes such as reporting, benchmarking and price setting is subject to further review of the impact and treatment of COVID-19 related costs by IHPA.

4.2.5 Improvements

Improvements since Round 22 (2017-18)

At the completion of Round 23 (2018-19), NSW Health continued building on improvements in the linking of service data with the respective patient encounters across Pathology, Imaging, Allied Health and Operating Theatre with a focus on diagnostic data. NSW Health had set up a review to refine the various linking rules, however the work was interrupted by the COVID-19 pandemic.

Despite the interruption of planned improvement activities, a significant change in Round 24 (2019-20) was processing of the DNR in two separate costing periods. In addition to ensuring the impact of COVID-19 was appropriately reflected in the costing results, it also provided an opportunity to improve the internal audit process of the DNR.

The Internal Audit DNR program was updated to test cost-per-service results for pathology, imaging, physiotherapy and occupational therapy. NSW Health have continued the focus on cost-per-service and driving improvements with the fundamental purpose of aligning the right bucket of money with the right bucket of activity.

Other improvements implemented from the previous year were listed in the data quality statement submitted by NSW Health as follows:

- A state-wide standard was developed and implemented for medical and surgical supply service feeder data that is now available in five LHDs and SHNs.
- In March 2020, NSW Health commenced the Telestroke service operating out of South Eastern Sydney LHD. The cost of the Telestroke service was appended to relevant Emergency Department (ED) presentations to ensure full cost capture of these patients.
- In March 2020, NSW commenced treatment of patients with acute lymphoblastic leukaemia and diffuse large B-cell lymphoma. In Round 24, gene therapy manufacturing costs were analysed to ensure appropriate cost allocation.
- Residual costs ($16.5M) from HealthShare NSW that were not distributed to LHDs and SHNs in the GL were able to be attached to episodes for the NHCDC submission.
- Changes in the method of mapping operating lease cost. This is now mapped to the lease line item rather than the goods and services line item.

Future improvements in development for Round 25 (2020-21)

NSW Health have highlighted several areas where future improvements are proposed for development leading to Round 25 (2020-21):

- Whilst improvements were established in linking rules for pathology, imaging and theatre for encounters, refinements to linking rules were interrupted by COVID-19. Further work to refine linking rules is planned.
- Improved linking rules have supported a level of quality assessment at the service level. The ability to review cost-per-service across encounters and by hospital provides a building block to assess costs and understand variations. The focus on cost at service level will be embedded within QA and internal audit processes.
- Non-Admitted Patient (NAP) costing is the least mature component of the NSW Health costing submission. NSW Health does not have a sophisticated means of costing NAP, leading to inadequate support of hospital avoidance initiatives. This has resulted in an increased level of urgency to improve NAP costing for future rounds.
- As well as other improvements regarding theatre data, NSW Health intends to utilise the work SNSWLHD have conducted for operating rooms to improve the costing of Operating Theatres in future rounds.

4.3 Northern Territory

4.3.1 Jurisdictional overview

The Northern Territory (NT) Department of Health (DoH) is responsible for the Territory's clinical costing process. The Department leads all aspects of the process, in consultation with the Territory's two health services and is responsible for the preparation and submission of the NT's NHCDC submission to IHPA. The NT has two health services: Top End Health Service (TEHS) and Central Australia Health Service (CAHS) that include six facilities that are included in the NHCDC submission.

Costing is performed annually in NT by the jurisdiction and the jurisdiction's costing team is supported by PowerHealth Solutions (PHS). The DoH leads the consultation on costing matters with the two health services.

As costing is performed at the jurisdictional level, service data is obtained from health Services, GL data from DoH Finance and validated activity data from the IHPA's return. DoH validates the data in collaboration with health Services to resolve or understand reasons for identified variations. There are numerous iterations in the process where the data is reviewed and refined until each health service approves their data output prior to the preparation of the final jurisdictional submission.

NT Health engages with the health services throughout the costing process and facilitates workshops throughout the year to increase knowledge of the costing process. For Round 24, an interim costing results review workshop was facilitated by DoH and PHS to present initial costing results to health Services with the view to refine and fix identified errors. These workshops are attended by the stakeholders at the health services, including Divisional Senior Performance Managers and Senior Finance Officers who work closely with clinical representatives at the hospitals.

Costing information is used to some degree at the jurisdiction level to inform the service delivery agreements. The development of a dashboard to display cost data for operational use is in progress. The dashboard is currently undergoing some refinement work to incorporate an additional year of data as well as disaggregate existing data to meet stakeholders' requirements. The purpose of implementing this dashboard is to increase access to, and awareness of, costing data throughout the system, however the limitation of costing annually makes the use of any dashboards retrospective.

Application of AHPCS

Data provided by the NT for the NHCDC was prepared in accordance with the AHPCS version 4.0, with the exception of the following items:

- Trust Account expenditure sitting outside of the GL is not included in the submission
- the review and reconciliation of the submission is conducted at the jurisdictional level
- Mental Health has been costed at the episode level, not the phase of care level
- data limitations have made it difficult to follow the costing guidelines for Teaching and Training, Research, Posthumous Organ Donation and Mental Health Services, however the standards have been followed to allocate costs appropriately.

Quality assurance

In conjunction with PHS, the jurisdiction conducts a range of quality assurance processes to ensure the accuracy of costing data. The PHS team provide regular reports, such as:

- daily cost per ward
- medical specialty costs by classification
- average cost per activity
- comparisons of year on year cost results per activity

to check for reasonableness. The jurisdiction regularly reviews these results at a high level and provides these reports to the health services for review and input.

Following review of these reports, health services will respond with queries and other refinements to ensure better accuracy of the data for their health service.

For the Round 24 (2019-20) submission, the jurisdiction conducted extensive collaboration with both health services which, in turn, resulted in extensive consultation by health service Finance teams, with their operational areas to refine the alignment of activity and cost to ensure accuracy of cost allocation.

Table 12 sets out a summary of the QA checks performed within the Department and Royal Darwin Hospital (RDH).

Table12. Summary of QA checks performed — NT

QA Test	Department of Health (NT)	RDH
Source data and systems		
Reconciliation back to GL and audited statements	GL is reconciled for each costing cycle	N/A
Reconciliation of activity data back to source systems	Numerous checks performed when activity data is extracted from source systems	N/A
Costing Data – Validation		
Trend analysis to prior periods across cost products	Yes, at the beginning of every cycle	N/A
Reasonableness test of excluded data and outliers	Yes	N/A
Analysis of outliers at the cost, LOS or cost bucket level	Yes	N/A
Direct vs overhead percentage allocations	Yes	N/A
Specific business rule tests	Yes, various business rules are tested when data is loaded	N/A

QA Test	Department of Health (NT)	RDH
Costing Data - Governance		
Regular updates with costing staff	Regularly in contact with external costing consultants	N/A
Local guidelines supporting the AHPCS standards framework	Yes, Local Costing Manual exists and is updated annually.	No
Review of cost allocations	Yes, annually.	No
Review on reasonableness of costing data output	Data is reviewed for reasonableness and completeness	Health service reviews output prior to final submission
Formal sign-off	Formal sign-off by the Executive Director of Funding and Performance	Email from Health service

Source: Jurisdictional consultations and data quality statement

4.3.2 Royal Darwin Hospital

The RDH is a 360-bed public hospital offering a variety of services including emergency medicine, medical, surgical, allied health, clinical support and maternal and child health services. RDH is also home to the National Critical Care and Trauma Response Centre that was established after the hospital's assistance following the 2002 Bali bombings. The centre is responsible for critical emergency care and response to incidents both nationally and across parts of South East Asia.

RDH is the largest hospital in the Northern Territory and is affiliated with Flinders University in South Australia and Charles Darwin University in Darwin.

RDH comes under the auspices of the TEHS and, although costing is completed at the jurisdictional level, the TEHS team are involved in working with DoH and clinical areas to review data prior to final submission. The Chief Financial Officer signs off the costing data for TEHS once the output is reviewed, although only at a high level. This step is important for the health service.

The reconciliation template for the Round 24 IFR was completed by PHS and provided to the DoH costing team for final review and submission.

Data from the NHCDC submission is not widely utilised by the health service mainly due to the timeliness of the data. If timeliness was improved, the data would be useful for comparison with peers and also for reporting at the cost per DRG level.

Reconciliation

This section outlines the reconciliation undertaken by the IFR site visit team together with the data collection templates, data quality self-assessment and discussions held during the review. Table 13 presents a summary reconciliation from the CAHS and TEHS GL to the jurisdiction submission and the final NHCDC submission to IHPA for Round 24 (2019-20).

There was a minor variance of $2,401 between the self-assessment GL total and the GL amount submitted in the data collection templates. This section summarises the adjustments in the reconciliation template.

Adjustments made at the LHD level (Item B)

- The total Northern Territory GL amount of $1,606,274,524 reconciled to the audited financial statements as per advice from NT representatives and reported in the template.
- Inclusions made to the GL, as a negative amount as it was revenue, totalled $7,543,550 relating to various revenue offsets across the NT accounts.
- A WIP adjustment for RDH of $12,373,748 added in costs for patients discharged in the Round 24 year (2019-20) but admitted in the prior year (2018-19). Similarly, a WIP adjustment of $10,078,347 removed costs for patients admitted in 2019-20 but not discharged by 30 June 2021.
- Excluded costs relating to other facilities in the NT were removed in the template to reconcile to the amount submitted for the RDH; the total for these five facilities was $522,014,817.
- Costs that were out of scope for ABF funding (aged care, primary health and mental health) were also removed; these totalled $456,378,741.
- 'Dummy' encounters not submitted to the NHCDC were also excluded, totalling $10,221,156 for the whole of the NT submission, and $7,425,435 related to the RDH.

The basis of these adjustments seem reasonable and the exclusion of the above adjustments established an expenditure base for costing of $612,411,662.

Adjustments made at the Jurisdiction level (Item E)

- Nil adjustments made at the jurisdiction level.

This brings the total costs submitted to IHPA at Item F to $612,411,662. The breakdown of costed products submitted to IHPA are displayed in Item F of Table 13.

Table 113. Reconciliation from General Ledger to NHCDC Costed Products – Royal Darwin Hospital

RDH				Jurisdiction				IHPA			
	Item		Amount		Item		Amount	Item		Amount
Source: Self-Assessment and data collection template	**A**	General Ledger (GL)	$ 1,606,274,524	*Source: Data Collection Template*	**D**	Costed Products created by jurisdiction	$ 612,411,661	**G**	Total costed products received by IHPA	$ 612,411,661
	B	Adjustments to the GL			**E**	**Post Allocation Adjustments**		**H**	IHPA Adjustments	$ -
		Inclusions to GL	$ (7,543,550)			*Nil*	$ -		Reconciling difference	$ (348,546)
		Exclusions to GL	$ -			**Total costs submitted to IHPA**	**$ 612,411,661**	**I**	**Final NHCDC costs**	**$ 612,063,115**
		RDH WIP 2018-19	$ 12,373,748							
		RDH WIP 2019-20	$ (10,078,347)						% of GL submitted to NHCDC	112.5%
		Excluded costs (other NT hospitals)	$ (522,014,817)							
		Out of scope ABF (NT and RDH)	$ (456,378,741)							
		Dummy Encounters (NT and RDH)	$ (10,221,156)							
		Total hospital expenditure	**$ 612,411,661**							
Source: Data Collection Template				*Source: Data Collection Template*						
	C	**Costed products for RDH - jurisdiction**			**F**	**Costed products submitted to IHPA**			**Costed products per HNCDC**	
Acute		*Acute care (admitted care)*	$ 368,279,347	**Acute**		*Acute care (admitted care)*	$ 368,279,347		Acute	$ 383,126,377
		Newborn care	$ 14,847,030			*Newborn care*	$ 14,847,030		Sub-Acute	$ 16,223,810
Sub-Acute		*Rehabilitation care*	$ -	**Sub-Acute**		*Rehabilitation care*	$ -		Emergency	$ 58,331,132
		Palliative care	$ 7,930,974			*Palliative care*	$ 7,930,974		Non-Admitted	$ 103,753,181
		Geriatric evaluation and management	$ -			*Geriatric evaluation and management*	$ -		Mental Health	$ 27,014,575
		Psychogeriatric care	$ -			*Psychogeriatric care*	$ -		Other	$ 23,614,040
		Maintenance care	$ 8,641,381			*Maintenance care*	$ 8,641,381		**Total**	**$ 612,063,115**
Emergency		*Emergency Admitted*	$ 22,365,812	**Emergency**		*Emergency Admitted*	$ 22,365,812			
		Emergency Non-admitted	$ 35,965,320			*Emergency Non-admitted*	$ 35,965,320			
Non-Admitted		*Non-admitted Outpatient Clinic*	$ 103,753,181	**Non-Admitted**		*Non-admitted Outpatient Clinic*	$ 103,753,181			
		Non-admitted Outreach Community	$ -			*Non-admitted Outreach Community*	$ -			
		Non-admitted Mental Health	$ -			*Non-admitted Mental Health*	$ -			
Mental Health		*Admitted Mental Health*	$ 27,014,576	**Mental Health**		*Admitted Mental Health*	$ 27,014,576			
		Mental Health Care Episode	$ -			*Mental Health Care Episode*	$ -			
		Mental Health Care Phase	$ -			*Mental Health Care Phase*	$ -			
		Other admitted patient care	$ -			*Other admitted patient care*	$ -			
		Hospital boarder	$ -			*Hospital boarder*	$ -			
		Organ procurement - posthumous	$ 21,408			*Organ procurement - posthumous*	$ 21,408			
		Other	$ -			*Other*	$ -			
		Research	$ 457,347			*Research*	$ 457,347			
		Teaching & Training	$ 23,135,285			*Teaching & Training*	$ 23,135,285			
		Dummy/virtual patients	$ -			*Dummy/virtual patients*	$ -			
			$ 612,411,661				**$ 612,411,661**			

Operating room costs and allocation methods

There are three main cost centres in the GL where Operating Room (OR) costs are recorded; the other costs are allocated via PFRACs, mainly driven by clinician time per specialty. Of the three main cost centres ($45,317,140), some costs are reallocated to outpatients and teaching, while another component is reallocated to Recovery, leaving $32,602,933 allocated to the OR. With the addition of the PFRAC amounts for clinician time and recovery, this brought the total OR cost for RDH to $43,584,008.

In summary, the key points to note from the cost submission and discussion regarding costing OR costs are:

- Feeder systems: Caresys – operating theatre system – provides all theatre minute data and allows for linking this data at the patient level.
- Theatre minutes are provided to PHS from the jurisdiction for use in the allocating of operating theatre time for Anesthetists, Surgeon time and recovery time.
- Allocation methods: Theatre minutes are utilised at various points of the patient episode to allocate costs for example recovery and theatre.

Prosthesis costs and allocation methods

Prosthesis costs in the GL are mainly contained in the one account code (prostheses) with two more specific account codes for implantable devices (pacing and defibrillators). This was a total of $5,340,553 for RDH in Round 24 (2108-19).

There are current limits with the core system and feeder data where having access to more detail would be helpful for the cost allocation. The account structure limits the detailed allocation required; using cost centres does not provide the level of granularity for patient level allocations.

The final allocation of the total prosthesis amount is then allocated according to the type; cardiology prosthesis are able to be allocated based on quantity and actual charge to the patient, while general prosthesis are allocated using RVUs by procedure code.

4.3.3 Sample patient data

IHPA selected a sample of five patients from RDH for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. The jurisdiction provided the patient level costs for all five patients and these reconciled to IHPA records. Further information relating to the sample records is available in Appendix 1.

4.3.4 Conclusion

The IFR is conducted in accordance with the review methodology detailed in section 1.2 of this report. Based on this methodology, RDH has suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission. Utilisation of submitted data for purposes such as reporting, benchmarking and price setting is subject to further review of the impact and treatment of COVID-19 related costs by IHPA.

Improvements since Round 22 (2017-18)

During the consultation phase, the following improvements for Round 24 (2019-20) were identified:

- TEHS indicated, to improve the quality of the data, there was a focus on improved engagement with Senior Performance Managers, Senior Finance Officers and clinical leads areas through a series of workshops and sessions.
- There was further refinement of reclass rules as a result of various workshops and education sessions with operational staff.
- Patient transport service data was refined to improve the identification and categorisation of medical retrieval costs to bring appropriate costs in-scope as these costs are significant for the NT and play an integral role in the access to patient care.
- TEHS staff indicated that there was a focus on improving the allocation of costs to Palmerston Regional Hospital (PRH), where in the past these services and costs would have been reported under RDH. This refinement better reflects the 'single hospital, multiple sites' approach to service delivery.
- Refinements to the Pathology feeder data linking rules to make it more robust by utilising point of order date rather than point of service date for better matching.

Future improvements in development for Round 25 (2020-21)

During the consultation phase, it was identified that some improvements have been identified (list below), however there is a continuous improvement focus to refine the costing data, feeder systems and linking rules while improving costing knowledge for staff across the broader health service. Specific improvements identified during the consultation included:

- improve the timeliness and utility of costing data by moving to bi-annual costing submissions
- improve the utility of dashboards by including multiple years of data to allow for meaningful trend analysis for internal benchmarking
- continue to provide feedback to health services to allow for refinement of PFRACS
- once timeliness of costing is improved, the health services would like to roll out the use of data for performance reporting and benchmarking.

4.4 Queensland

4.4.1 Jurisdictional overview

The Queensland Department of Health (DoH) provides the oversight and governance of the clinical costing processes undertaken by the state's 16 Hospital and Health Services (HHSs). Of these 16 HHSs, the DoH activity costing team currently performs the costing function for the four rural and remote HHSs:

- South West Queensland
- Central West Queensland
- North West Queensland
- Torres and Cape.

The remaining 12 HHSs have their own costing teams and perform patient level costing for all patients requiring health interventions and services within their HHS. The majority of the HHSs cost patient activity on a monthly basis. Data is submitted to IHPA annually for the purposes of the NHCDC.

Two costing systems were in use across Queensland during Round 24. The two systems used were Power Performance Manager (PPM2) and CostPro. CostPro was implemented prior to the Round 24 submission to replace the previous legacy costing system, Transition II. Twelve (12) HHSs use CostPro and four (4) use PPM2.

There is a regular Clinical Costing and Funding Network (CCFN) meeting which includes representatives from costing, finance, reporting and clinical coding teams. This meeting is facilitated by DoH and is focused on:

- reviewing and providing feedback to IHPA technical papers
- providing updates on jurisdictional programs and activities associated with costing, funding and purchasing.

There is also a new costing working group that reports to the CCFN. It is costing system agnostic and not a decision-making group. In addition to these two groups, the costing teams themselves have regular "virtual coffee meetings" to discuss and compare how they manage local issues. These coffee meetings occur without involvement from DoH. A new initiative in recent times is the launch of "ABF TV". This is in response to feedback from CFOs, Costing and Coding teams, indicating that it provided great education on ABF. It involves pre-recording a particular subject/topic, and emailing it to their distribution to watch, and then they have a Q&A session afterwards.

Three HHSs participated in the Round 24 IFR:

- Central West Health HHS
- Cairns and Hinterland HHS
- Sunshine Coast HHS.

The review was conducted with staff from each of these HHSs.

Application of Australian Hospital Patient Costing standards

The Queensland Round 24 NHCDC submission was prepared in adherence with the AHPCS version 4.0. Local Costing Guidelines do exist, however they are based on the original patient costing standards. The only area where there is an issue with the current standards relates to organ donor and procurement. This relates to the state's legislative requirements in relation to the inability to admit deceased patients.

Quality Assurance

Each HHS undertakes a range of review and assurance measures in the data preparation process. Internal QA processes are in place at each of the HHSs including system-based audit reports at each stage of the costing process, and Queensland Health undertake annual validation of costing data as part of the NHCDC data transformation process.

Table144 sets out a summary of the QA checks performed within Queensland Health and the HHSs.

Table14. Summary of QA checks performed - Queensland

QA Test	Queensland Health	CWH	CHHHS	SCHHS
Source data and systems				
Reconciliation back to GL and audited statements	Annual reconciliation and checks undertaken by Qld Health	Reconciliation undertaken annually	Reconciliation undertaken annually	Reconciliation undertaken annually
Reconciliation of activity data back to source systems	N/A	Conducted by HHS	Conducted by HHS	Conducted by HHS
Costing Data - Validation				
Trend analysis to prior periods across cost products	Yes – annually as part of the NHCDC Data Transformation process	CWH have internal processes in place to review data in CostPro. These include system-based audit reports at each stage of the costing process which are updated daily with outcomes visible on the launchpad. and views over the key fields in the database.	CHHHS have internal processes in place to review data in CostPro. These include system-based audit reports at each stage of the costing process which are updated daily with outcomes visible on the launchpad. and views over the key fields in the database.	SCHHS have internal processes in place to review data in CostPro. These include system-based audit reports at each stage of the costing process which are updated daily with outcomes visible on the launchpad. and views over the key fields in the database.
Reasonableness test of excluded data and outliers	Yes – annually as part of the NHCDC Data Transformation process			
Analysis of outliers at the cost, LOS or cost bucket level	Yes - annually as part of the NHCDC Data Transformation process			
Reasonableness of Direct vs overhead allocations	Yes – annually as part of the NHCDC Data Transformation process			
Specific business rule tests	Yes as part of the NHCDC Data Transformation process			
Costing Data - Governance				
Regular updates with costing staff	CCFN meet monthly and a monthly Clinical Costing Working group for costing practitioners.	Clinical Costing network meet monthly “Virtual coffee meetings”	Clinical Costing network meet monthly “Virtual coffee meetings”	Clinical Costing network meet monthly “Virtual coffee meetings”
Local guidelines supporting the AHPCS standards framework	Yes	Yes	Yes	Yes

QA Test	Queensland Health	CWH	CHHHS	SCHHS
Review of cost allocations	Yes as part of the NHCDC Data Transformation process	Annual review	Annual review	Annual review
Review on reasonableness of costing data output	Multiple reviews undertaken and any issues are reported back to HHSs. Full episode level end to end reconciliation process part of the NHCDC data transformation process.	Multiple reviews undertaken prior to signoff	Multiple reviews undertaken prior to signoff	Multiple reviews undertaken prior to signoff
Formal sign-off	Deputy Director General	CFO	CFO	CFO

Source: Jurisdictional consultations and data quality statement

4.4.2 Improvements

Improvements since Round 22

During the consultation phase, all sites and the jurisdiction indicated that work is ongoing to make improvements to the costing process and the costing data. The following improvements for Round 24 (2019-20) were identified:

- A major improvement since Round 22 has been the replacement of the legacy costing system, with a new instance of CostPro. The added benefit of the implementation project was the collaboration, networking and engagement that resulted across sites in finance, costing and clinical coding teams. The HHSs that participated in the process identified that the implementation had led to better relationships between the services and formal and informal networking opportunities.
- CostPro has also proven to be less resource intensive, more intuitive and an improved user experience. Further benefits are also expected to be realised over the coming 12 months as they move into the business as usual (BAU) phase from project implementation.
- A major review of all core feeder systems was undertaken as part of the implementation of CostPro. A large program of work is still ongoing around feeder systems and implementing SQL based business rules to allow standardisation across multiple feeders.
- A new initiative in recent times is the launch of “ABF TV”. This is in response to feedback from CFOs, Costing and Coding teams, for greater education on ABF. It involves pre-recording a particular subject/topic, and emailing it to their distribution lists to watch, followed by a Q&A session afterwards.

Future improvements in development for round 25

The following future improvements for Round 25 were identified:

- further improvements and benefits realisation are expected over the coming 1-2 years as they settle into the BAU phase
- improvements are planned to enable reporting of inter HHS provided community mental health services, that is, where specialist teams such as court liaison provide a service to a resident patient of another HHS
- identification and inclusion of contracted public patient services provided in private hospitals, private day hospitals and by other private providers.

4.4.3 Central West Health

Central West Health (CWH) operates 15 facilities across a geographical area covering 23 per cent of Queensland and comprises five inpatient facilities:

- Longreach District Hospital
- Alpha
- Barcaldine
- Blackall
- Winton.

There are 10 Primary Health Centres (PHCs). The PHCs are located in the communities of Boulia, Bedourie, Birdsville, Windorah, Jundah, Isisford, Tambo, Aramac, Muttaburra and Jericho.

CWH is responsible for the delivery of healthcare services to 10,391 residents across a 382,000 square kilometre area in Western Queensland. The geographic area is equivalent to 20.6 per cent of the state, containing 0.21 per cent of Queensland's population.

Contracted Outback Medical Services deliver general practice access to the people of Longreach and Barcaldine with outreach to the communities of Alpha, Aramac and Muttaburra.

Medical and oral health care and support in the west of CWH is provided by the Royal Flying Doctor Service and allied health services are provided by North and West Remote Health.

Reconciliation

This section discusses major variances, reconciling items and adjustments in the reconciliation process. The information is based on the CWH data collection template, data quality self-assessment and review discussions.

Table155 presents a summary reconciliation from the CWH GL to the final NHCDC submission for Round 24 (2019-20).

CWH final GL of $88,432,076 was reconciled by the Health Service to the audited financial statements.

Adjustments made at the HHS level (Item B)

- The final GL amount of $88,432,076 at Item A provided a small variance of $3,076 to the audited financial statements ($88,429,000). This variance reflects a mapping issue

between the audited financial statements and the source GL. The variance is immaterial and equates to 0.0035 per cent of total expenditure.

- Unlinked activity totalling $1,665,664 was excluded.
- A WIP adjustment of $121,503 added in costs for patients discharged in Round 24 (2019-20) but admitted in the previous (2018-19) year.

Adjustments made at the jurisdiction level (Item E)

- WIP adjustment of $608,315 removed costs for patients admitted during the year but not discharged on 30 June 2021.
- An adjustment of $27,772,952 related to unmatched activity data submitted to IHPA records with the majority of this being virtual/dummy patients ($21.7m). The remainder is larger due to the travelling population passing through.

Table15. Reconciliation from General Ledger to NHCDC Costed Products – Central West Hospital and Health Service

Central West				Jurisdiction				IHPA		
	Item		Amount		Item		Amount	Item		Amount
Source: Self-Assessment	**A**	General Ledger (GL)	$ 88,432,076	*Source: Data Collection Template*	**D**	Costed Products received by jurisdiction	$ 86,887,915	**G**	Total costed products received by IHPA	$ 58,507,152
	B	Adjustments to the GL			**E**	**Post Allocation Adjustments**	$ (28,380,763)	**H**	IHPA Adjustments	$ -
		Inclusions	$ 121,503			*Unmatched activity (largely dummy/virtual patients)*	$ (27,772,952)			
		Exclusions	$ (1.665.664)			*QA Validation adjustments*	$ 504	**I**	**Final NHCDC costs**	**$ 58,507,152**
		Total hospital expenditure	**$ 86,887,915**			*WIP current*	$ (608,315)			
						Total costs submitted to IHPA	**$ 58,507,151**		% of GL submitted to NHCDC	66.2%
Source: Data Collection Template				*Source: Data Collection Template*						
	C	**Costed products submitted to jurisdiction**			**F**	**Costed products submitted to IHPA**			**Costed products per HNCDC**	
Acute		*Acute care (admitted care)*	$ 16,273,293	**Acute**		*Acute care (admitted care)*	$ 16,273,304		Acute	$ 16,624,683
		Newborn care	$ 351,390			*Newborn care*	$ 351,390		Sub-Acute	$ 3,690,124
Sub-Acute		*Rehabilitation care*	$ 715,824	**Sub-Acute**		*Rehabilitation care*	$ 715,824		Emergency	$ 12,532,385
		Palliative care	$ 615,957			*Palliative care*	$ 9,866		Non-Admitted	$ 22,146,326
		Geriatric evaluation and management	$ 51,775			*Geriatric evaluation and management*	$ 51,775		Mental Health	$ 2,664,549
		Psychogeriatric care	$ -			*Psychogeriatric care*	$ -		Other	$ 849,074
		Maintenance care	$ 2,912,659			*Maintenance care*	$ 2,912,659		**Total**	**$ 58,507,152**
Emergency		*Emergency Admitted*	$ 3,544,525	**Emergency**		*Emergency Admitted*	$ 3,544,533			
		Emergency Non-admitted	$ 9,321,828			*Emergency Non-admitted*	$ 8,987,853			
Non-Admitted		*Non-admitted Outpatient Clinic*	$ 26,394,884	**Non-Admitted**		*Non-admitted Outpatient Clinic*	$ 22,146,326			
		Non-admitted Outreach Community	$ -			*Non-admitted Outreach Community*	$ -			
		Non-admitted Mental Health	$ 2,794,855			*Non-admitted Mental Health*	$ 2,598,115			
Mental Health		*Admitted Mental Health*	$ 83,315	**Mental Health**		*Admitted Mental Health*	$ 66,434			
		Mental Health Care Episode	$ -			*Mental Health Care Episode*	$ -			
		Mental Health Care Phase	$ -			*Mental Health Care Phase*	$ -			
		Other admitted patient care	$ -			*Other admitted patient care*	$ -			
		Hospital boarder	$ 849,074			*Hospital boarder*	$ 849,074			
		Organ procurement - posthumous	$ -			*Organ procurement - posthumous*	$ -			
		Other	$ 1,255,114			*Other*	$ -			
		Research	$ -			*Research*	$ -			
		Teaching & Training	$ -			*Teaching & Training*	$ -			
		Dummy/virtual patients	$ 21,723,422			*Dummy/virtual patients*	$ -			
			$ 86,887,915				**$ 58,507,152**			

Operating room costs and allocation methods

CWH have one operating theatre, based at Longreach, in addition to a separate endoscopy suite. Surgical specialties include:

- General surgery
- Orthopaedic surgery
- Obstetrics and Gynaecology
- Cataracts and IOL implants.

There is one cost centre for the operating theatre, and the total post allocation amount for the OR was $675,625.

The key points to note from the cost submission and discussion regarding operating theatre were:

- Feeder system: The Operating Room Management Information System (ORMIS) is the feeder system for activity and theatre data for costing purposes is sourced from the operation report which includes high-cost consumables, Implanted prosthetics, key date and time fields associated with the operation and recovery, Anaesthetic types, staff types and numbers and procedures.
- Allocation methods: Patient and staff time is captured in minutes according to discipline:
  - surgeon time
  - nurse time
  - anaesthetist time.
- Individual procedures are not costed, rather staff time is used as the primary allocation statistic.

Prosthesis costs and allocation methods

CWH record all prostheses against one account code. Prostheses costs totalled $10,982 and a large part related to Mirena's, Intraocular Lenses and K-wires. Most costs are for purchase of implants and for high cost consumables for OR, and there is a very small amount for non-OR prosthetic costs (just over $1,000). Implanted prostheses and high cost consumables are tracked through ORMIS.

4.4.4 Sample patient data

IHPA selected a sample of five patients from CWH for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. The jurisdiction provided the patient level costs for all five patients and these reconciled to IHPA records. Further information relating to the sample records is available in Appendix 1.

4.4.5 Conclusion

The IFR is conducted in accordance with the review methodology detailed in section 1.2 of this report. Based on this methodology, CWH has suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission. Utilisation of submitted data for purposes such as reporting, benchmarking and price setting is subject to further review of the impact and treatment of COVID-19 related costs by IHPA.

4.4.6 Cairns and Hinterland Hospital and Health Service

The Cairns and Hinterland Hospital and Health Service (CHHHS) provides an extensive range of health services at more than 30 regional, rural and remote facilities across a geographical area of 142,900 square kilometres, servicing approximately 250,000 people. CHHHS includes nine hospitals, 11 primary health sites and nine community health centres, as well as mental health facilities and other specialist services.

Of the nine hospitals, Cairns Hospital is the major tertiary hospital and is ABF funded. There are three smaller ABF facilities and five block funded facilities.

Services delivered include surgery, trauma care, paediatrics, general and specialist medicine, intensive care, cardiology, mental health, outpatient, maternity and neonatal care, aged and dementia care, emergency medicine, environmental health, and general public health.

CHHHS is 95 per cent self-sufficient with only a small number of high-level acute services being provided in Townsville and Brisbane.

It is estimated that 14 per cent of the population are Indigenous Australians, compared to 3.5 per cent for Queensland as a whole.

Reconciliation

This section discusses major variances, reconciling items and adjustments in the reconciliation process. The information is based on the CHHHS data collection template, data quality self-assessment and review discussions.

Table166 presents a summary reconciliation from the CHHHS GL to the final NHCDC submission for Round 24 (2019-20).

CHHHS final GL of $1,057,287,900 was reconciled by the Health Service to the audited financial statements.

Adjustments made at the HHS level (Item B)

- The final GL amount of $1,057,287,900 at Item A provided a small variance of $575,900 to the audited financial statements ($1,056,712,000). This variance reflects a mapping issue between the audited financial statements and the source GL.
- Unlinked activity totalling $44,259,830 was excluded.
- A WIP adjustment of $19,213,117 added in costs for patients discharged in Round 24 (2019-20) but admitted in the previous (2018-19) year.

Adjustments made at the jurisdiction level (Item E)

- WIP adjustment of $7,110,258 removed costs for patients admitted in 2019-20 but not discharged by 30 June 2021.
- An adjustment of $72,758,986 related to unmatched activity, the bulk of these occur in the non-admitted outpatient clinics.
- $100,818,812 of excluded costs, with the majority for dummy/virtual patients ($94,202,113).
- An adjustment of $765,596 for QA validation.

Table16. Reconciliation from General Ledger to NHCDC Costed Products – Cairns and Hinterland Hospital and Health Service

Hospital				Jurisdiction				IHPA		
	Item		Amount		Item		Amount	Item		Amount
Source: Self-Assessment	**A**	General Ledger (GL)	$ 1,057,287,900	*Source: Data Collection Template*	**D**	Costed Products received by jurisdiction	$ 1,032,241,186	**G**	Total costed products received by IHPA	$ 852,318,726
	B	Adjustments to the GL			**E**	**Post Allocation Adjustments**	**$ (179,922,461)**	**H**	IHPA Adjustments	$ 5,161
		Inclusions	$ 19,213,117							
		Exclusions	$ (44,259,830)			*Dummy/virtual patients*	$ (100,818,812)	**I**	**Final NHCDC costs**	**$ 852,313,565**
		Total hospital expenditure	**$ 1,032,241,186**			*QA Validation Adjustments*	$ 765,596			
						WIP Current	$ (7,110,258)		% of GL submitted to NHCDC	80.6%
						Cost C Activity Match Exclusions	$ (72,758,986)			
						Total costs submitted to IHPA	**$ 852,318,725**			
Source: Data Collection Template				*Source: Data Collection Template*						
	C	**Costed products submitted to jurisdiction**			**F**	**Costed products submitted to IHPA**			**Costed products per HNCDC**	
Acute		*Acute care (admitted care)*	$ 412,728,863	**Acute**		*Acute care (admitted care)*	$ 405,437,305		Acute	$ 416,864,707
		Newborn care	$ 11,423,961			*Newborn care*	$ 11,432,563		Sub-Acute	$ 51,217,002
Sub-Acute		*Rehabilitation care*	$ 15,779,611	**Sub-Acute**		*Rehabilitation care*	$ 15,789,550		Emergency	$ 98,605,370
		Palliative care	$ 8,222,521			*Palliative care*	$ 1,151,931		Non-Admitted	$ 236,013,852
		Geriatric evaluation and management	$ 7,582,205			*Geriatric evaluation and management*	$ 7,571,027		Mental Health	$ 48,529,047
		Psychogeriatric care	$ 1,612,709			*Psychogeriatric care*	$ 1,612,713		Other	$ 1,083,587
		Maintenance care	$ 25,087,829			*Maintenance care*	$ 25,091,781		**Total**	**$ 852,313,565**
Emergency		*Emergency Admitted*	$ 48,129,640	**Emergency**		*Emergency Admitted*	$ 48,126,013			
		Emergency Non-admitted	$ 63,187,190			*Emergency Non-admitted*	$ 50,479,357			
Non-Admitted		*Non-admitted Outpatient Clinic*	$ 260,377,030	**Non-Admitted**		*Non-admitted Outpatient Clinic*	$ 236,013,852			
		Non-admitted Outreach Community	$ -			*Non-admitted Outreach Community*	$ -			
		Non-admitted Mental Health	$ 51,079,530			*Non-admitted Mental Health*	$ 37,047,674			
Mental Health		*Admitted Mental Health*	$ 26,707,791	**Mental Health**		*Admitted Mental Health*	$ 11,481,373			
		Mental Health Care Episode	$ -			*Mental Health Care Episode*	$ -			
		Mental Health Care Phase	$ -			*Mental Health Care Phase*	$ -			
		Other admitted patient care	$ -			*Other admitted patient care*	$ -			
		Hospital boarder	$ 1,083,541			*Hospital boarder*	$ 1,083,587			
		Organ procurement - posthumous	$ 411,465			*Organ procurement - posthumous*	$ -			
		Other	$ 4,625,190			*Other*	$ -			
		Research	$ -			*Research*	$ -			
		Teaching & Training	$ -			*Teaching & Training*	$ -			
		Dummy/virtual patients	$ 94,202,113			*Dummy/virtual patients*	$ -			
			$ 1,032,241,186				**$ 852,318,726**			

Operating room costs and allocation methods

CHHHS have 11 operating theatres and one day procedure unit. CHHHS perform a wide range of surgical specialities, including:

- ear nose and throat
- gastroenterology
- general surgery
- obstetrics and gynaecology
- cardiac surgery
- general surgery
- maxillofacial
- obstetrics and gynaecology
- ophthalmology
- orthopaedics
- paediatric surgery.

SurgiNet is the feeder system for activity, SurgiNet is the Surgery and Anaesthetic Information Solution of Cerner's Millennium and has been implemented since the Round 22 IFR. SurgiNet records time in theatre by discipline (nurse, surgeon, anaesthetist), but it does not record the award level (for example seniority of nurse). The total post overhead and total post allocation amount for OR was $79.31m.

The key points to note from the cost submission and discussion regarding operating theatre are as follows:

- Feeder system: The ORMIS and Surginet are the feeder systems for activity for costing purposes is sourced from the operation report which includes high-cost consumables, Implanted prosthetics, key date and time fields associated with the operation and recovery, Anaesthetic types, staff types and numbers and procedures.
- Allocation methods: Patient and staff time is captured in minutes according to discipline:
  - Surgeon time
  - Nurse time
  - Anaesthetist time.
- Procedures are not costed, only staff time.

Prosthesis costs and allocation methods

Prosthesis costs totalled $12.78m. Costs are captured for OR prosthesis costs and non-OR prosthesis costs. OR prosthesis costs account for approximately $7.5m, with the remainder being non-OR prosthesis costs. A large portion of the non-OR costs ($3.6m) are for the cardiac catheterisation laboratory. Costs are captured under one GL cost code for prosthesis. Prior to implementing SurgiNet, there were 12 different cost codes, but that has now reduced to one. Prosthesis costs are allocated to the specific patient at the patient level for the product.

Wastage is challenge to track and record. For example, it is not always known whether everyone has been used in a consignment box if it is not recorded on the operation report. If the box is opened, and items are not used, it is not recorded as such.

4.4.7 Sample patient data

IHPA selected a sample of five patients from CHHHS for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. The jurisdiction provided the patient level costs for all five patients and these reconciled to IHPA records. Further information relating to the sample records is available in Appendix 1.

4.4.8 Conclusion

The IFR is conducted in accordance with the review methodology detailed in section 1.2 of this report. Based on this methodology, CHHHS has suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission. Utilisation of submitted data for purposes such as reporting, benchmarking and price setting is subject to further review of the impact and treatment of COVID-19 related costs by IHPA.

4.4.9 Sunshine Coast Hospital and Health Service

Sunshine Coast Hospital and Health Service (SCHHS) is the major provider of public health services, health education and research across the Sunshine Coast, Gympie and Noosa LGAs.

SCHHS provides services through:

- Sunshine Coast University Hospital - the region's tertiary centre for acute, critical and specialised care
- Nambour General Hospital
- Caloundra Health Service
- Gympie Hospital
- Maleny Soldiers Memorial Hospital.

Included in this LGA are a comprehensive range of sub-acute, ambulatory and extended care, community health, mental health and oral health services, and an aged care service at the Glenbrook Residential Aged Care Facility.

The Sunshine Coast University Hospital (SCUH) at Birtinya commenced services in March 2017 and has expanded to a 738-bed facility in 2021. SCUH offers a range of new and expanded services for the Sunshine Coast, including the Sunshine Coast Health Institute – a unique partnership for education and research on site.

The SCHHS region is one of the fastest growing regions in Queensland, with the area's population expected to grow by 147,144 residents between 2016 and 2031. This represents growth of approximately 36 per cent, compared to a growth of 28 per cent for the whole of Queensland.

Reconciliation

This section discusses major variances, reconciling items and adjustments in the reconciliation process. The information is based on the SCHHS data collection template, data quality self-assessment and review discussions.

Table 27 presents a summary reconciliation from the SCHHS GL to the final NHCDC submission for Round 24 (2019-20).

SCHHS final GL of $1,313,333,135 was reconciled by the health service to the audited financial statements.

Adjustments made at the HHS level (Item B)

- The final GL amount of $1,313,333,135 at Item A provided a variance of $4,819,135 to the audited financial statements ($1,308,514,000). This variance reflects a mapping issue between the audited financial statements and the source GL. The variance is immaterial and equates to 0.0036 per cent of total expenditure.
- Unlinked activity totalling $24,122,848 was excluded.
- A WIP adjustment of $8,659,872 added in costs for patients discharged in Round 24 (2019-20) but admitted in the previous (2018-19) year.

Adjustments made at the jurisdiction level (Item E)

- WIP adjustment of $41,490 removed costs for patients admitted in 2019-20 but not discharged by 30 June 2021.
- An adjustment of $73,592,020 related to unmatched activity, the bulk of these occur in the non-admitted outpatient clinics.
- $235,635,321 of excluded costs, with the majority for dummy/virtual patients ($235,216,508).
- An adjustment of $6,136,984 for QA validation.

Table 27. Reconciliation from General Ledger to NHCDC Costed Products – Sunshine Coast Hospital and Health Service

Sunshine Coast				Jurisdiction				IHPA		
	Item		Amount		Item		Amount	Item		Amount
Source: Self-Assessment	**A**	General Ledger (GL)	$ 1,313,333,135	*Source: Data Collection Template*	**D**	Costed Products received by jurisdiction	$ 1,297,870,159	**G**	Total costed products received by IHPA	$ 982,464,344
	B	Adjustments to the GL			**E**	**Post Allocation Adjustments**	$ **(315,405,815)**	**H**	IHPA Adjustments	$ 1,598
		Inclusions	$ 8,659,872							
		Exclusions	$ (24,122,848)			*Virtual patients out of scope*	$ (235,635,321)	**I**	**Final NHCDC costs**	**$ 982,462,746**
		Total hospital expenditure	**$ 1,297,870,159**			*QA Validation adjustments*	$ (6,136,984)			
						WIP Current	$ (41,490)		% of GL submitted to NHCDC	74.8%
						Cost C Exclusions (Activity matching)	$ (73,592,020)			
						Total costs submitted to IHPA	**$ 982,464,344**			
Source: Data Collection Template				*Source: Data Collection Template*						
	C	**Costed products submitted to jurisdiction**			**F**	**Costed products submitted to IHPA**			**Costed products per HNCDC**	
Acute		*Acute care (admitted care)*	$ 609,009,748	**Acute**		*Acute care (admitted care)*	$ 583,801,188		Acute	$ 609,573,785
		Newborn care	$ 25,779,885			*Newborn care*	$ 25,774,195		Sub-Acute	$ 56,140,959
Sub-Acute		*Rehabilitation care*	$ 31,311,998	**Sub-Acute**		*Rehabilitation care*	$ 31,316,644		Emergency	$ 111,246,887
		Palliative care	$ 13,419,487			*Palliative care*	$ 6,262,139		Non-Admitted	$ 148,717,475
		Geriatric evaluation and management	$ 9,643,224			*Geriatric evaluation and management*	$ 9,646,345		Mental Health	$ 56,681,604
		Psychogeriatric care	$ 2,560,283			*Psychogeriatric care*	$ 2,561,232		Other	$ 102,036
		Maintenance care	$ 6,352,747			*Maintenance care*	$ 6,354,599		**Total**	**$ 982,462,746**
Emergency		*Emergency Admitted*	$ 50,318,730	**Emergency**		*Emergency Admitted*	$ 50,318,253			
		Emergency Non-admitted	$ 64,007,288			*Emergency Non-admitted*	$ 60,928,634			
Non-Admitted		*Non-admitted Outpatient Clinic*	$ 167,895,994	**Non-Admitted**		*Non-admitted Outpatient Clinic*	$ 148,717,475			
		Non-admitted Outreach Community	$ -			*Non-admitted Outreach Community*	$ -			
		Non-admitted Mental Health	$ 43,616,550			*Non-admitted Mental Health*	$ 34,708,469			
Mental Health		*Admitted Mental Health*	$ 38,516,085	**Mental Health**		*Admitted Mental Health*	$ 21,973,135			
		Mental Health Care Episode	$ -			*Mental Health Care Episode*	$ -			
		Mental Health Care Phase	$ -			*Mental Health Care Phase*	$ -			
		Other admitted patient care	$ -			*Other admitted patient care*	$ -			
		Hospital boarder	$ 101,982			*Hospital boarder*	$ 102,036			
		Organ procurement - posthumous	$ 119,650			*Organ procurement - posthumous*	$ -			
		Other	$ -			*Other*	$ -			
		Research	$ -			*Research*	$ -			
		Teaching & Training	$ -			*Teaching & Training*	$ -			
		Dummy/virtual patients	$ 235,216,508			*Dummy/virtual patients*	$ -			
			$ 1,297,870,159				**$ 982,464,344**			

Operating room costs and allocation methods

SCHHS provide a wide range of surgical specialties and have 20 theatres across four sites, including one day procedure unit:

- Nambour – two theatres
- Gympie – two theatres
- Sunshine Coast University Hospital (SCUH) – 14 theatres, plus 1 day surgery unit
- Caloundra – one theatre.

There are two feeder systems in use across SCHHS and CostPro is used for costing across all sites. Each of the four sites have one cost centre for OR and the total post overhead and total post allocation amount for OR was $98,117,535.

The key points to note from the cost submission and discussion regarding operating theatre are as follows:

- Feeder system: The ORMIS is the feeder system for activity for Gympie and Caloundra, and SurgiNet is the feeder system at Nambour and SCUH and theatre data for the day procedure unit at SCUH. Theatre data for costing purposes is sourced from the operation report which includes high-cost consumables, implanted prosthetics, key date and time fields associated with the operation and recovery, anaesthetic types, staff types and numbers and procedures.
- Allocation methods: patient and staff time is captured in minutes according to:
  - surgeon time in minutes by specialty
  - nurse time in minutes
  - anaesthetist time in minutes (either in OR or outpatients, as anaesthetists are seeing patients in outpatients.
- Challenges: A paper-based system is still used in the endoscopy suite which is manual and labour intensive. Also, the same procedure can be done in different areas, for example, the same gastro procedure could be done in theatre, the gastro unit, or as a day procedure. This could fall into three different cost centres but within the same DRG.

Prosthesis costs and allocation methods

Prosthesis costs are captured under one GL code and prosthesis costs account for $8,837,009. The theatre management system at each hospital (either ORMIS or SurgiNet) are used to manage prostheses.

The implementation of CostPro has allowed for more detailed information at a patient level, and sufficient patient level data for mapping of prosthetic costs. Prosthesis barcodes are scanned in interventional suite in a spreadsheet and then patients can be identified.

Allied Health prosthetics are costed to the clinic, not the patient level.

4.4.10 Sample patient data

IHPA selected a sample of five patients from SCHHS for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. The jurisdiction provided the patient level

costs for all five patients and these reconciled to IHPA records. Further information relating to the sample records is available in Appendix 1.

4.4.11 Conclusion

The IFR is conducted in accordance with the review methodology detailed in section 1.2 of this report. Based on this methodology, SCHHS has suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission. Utilisation of submitted data for purposes such as reporting, benchmarking and price setting is subject to further review of the impact and treatment of COVID-19 related costs by IHPA.

4.5 South Australia

4.5.1 Jurisdictional overview

A dedicated team within the Department of Health and Wellbeing (DHW), processes, coordinates and supports clinical costing on behalf of the state's LHNs. The inputs and final results are the responsibility of the LHNs, however DHW is responsible for the preparation and submission of the SA NHCDC data.

The SA jurisdiction contains 10 LHNs: four covering the Adelaide metropolitan region and six covering regional SA. Since the Round 22 IFR, regional SA health networks have devolved from one LHN that covers regional SA, to six LHNs categorised by geographical localities.

The Queen Elizabeth Hospital (TQEH) was the metropolitan hospital selected for the Round 24 (2019-20) IFR and is part of the Central Adelaide LHN (CALHN). Riverland Regional Health Service (RRHS) was the regional hospital selected and is part of the Riverland Mallee Coorong Local Health Network (RMCLHN).

Costing is performed centrally by the jurisdiction on a quarterly basis. The costing system in use is PPM2. The jurisdiction sources inpatient and emergency data centrally from statewide data warehouses on a quarterly basis whilst receiving outpatient data from LHNs. Some of the LHNs use PHS contractors to provide clinical costing support.

The COVID-19 pandemic had an impact on jurisdictional activity and cost data, resulting in two formal costing submissions made by LHNs to address the onset of COVID-19 for the Round 24 (2019-20) period. "Pre-COVID-19" submissions for the period July 2019 - February 2020, and "COVID-19" submissions for the period March 2020 - June 2020 where hospital practices and activity profiles that underwent considerable change were prepared for LHNs. These two periods were then combined prior to submission to IHPA.

Costing data from the LHNs is processed by the central patient costing team in DHW. These teams work closely with one another and seek to apply standardised methodologies and processes. The LHNs use the same guidelines for costing patient level data. While LHNs may choose different cost drivers in particular instances, the methodology is consistent.

There are statewide feeder systems for pharmacy, imaging (ESMI) and pathology (EPLIS), with a few exceptions where country hospitals are not on the statewide pharmacy and imaging systems. Pathology datasets are provided by SA Pathology to LHNs, who submit the data to DHW. There are a number of PAS in use in the state, however they are progressing further in the rollout of the "Sunrise" statewide PAS and Electronic Medical Record (EMR). TQEH are using Sunrise PAS, and RRHS are using Chiron, a legacy PAS.

Public hospital data is used for benchmarking against the NEP, other hospitals in SA, monitor improvement initiatives and forecast the costs/funding required for future programs. LHNs submit data annually to the Health Round Table.

Application of Australian Hospital Patient Costing standards

South Australia adheres to the AHPCS and costs in accordance with its guidelines and principles, except for the following:

- blood products
- private pathology
- research and teaching is costed at an aggregate rather than patient level.

Blood products and private pathology are not costed at a patient level as data matching is not sufficiently accurate to provide robust costings. DHW reported that there are no other specific areas of deviation from the AHPCS.

Quality Assurance

Each costing run is subject to a number of reconciliations to ensure completeness and reasonableness of the costed data. All results are reviewed, and any significant variances are investigated and resolved before submission. DHW and the LHNs also hold monthly working group meetings to collaborate, resolve issues and keep informed.

In addition, every year the DHW Patient Costing team meets with the LHNs for a thorough review of all costings. This is referred to as the "DRG Review" and includes admitted as well as non-admitted and emergency classifications. Any discrepancies are addressed and costing continued until the LHNs are satisfied that their data is fit for purpose and the results are true and correct. The costing team then provide the CFO with the results. Once the CFO has signed off on the costing submission, the DHW Patient Costing team builds the necessary data for submission to NHCDC.

Table 38 sets out a summary of the QA checks performed within DHW.

Table 38. Summary of QA checks performed – South Australia

QA Test	DHW	QEH	RRHS
Source data and systems			
Reconciliation back to GL and audited statements	GL is reconciled for each costing cycle	GL is reconciled for each costing cycle	GL is reconciled for each costing cycle
Reconciliation of activity data back to source systems	Numerous checks performed when activity data is extracted from source systems	Numerous checks performed when activity data is extracted from source systems	Numerous checks performed when activity data is extracted from source systems
Costing Data – Validation			
Trend analysis to prior periods across cost products	Yes	No formal key performance indicator (KPI) reports are created, however the team look at a series of detailed KPIs like cost per OBD to compare for reasonableness over time during every run.	Rural Support Services (RSS) work closely with DHW who drive the processing and QA feeders and conduct reconciliations and run audit reports for reasonableness.
Reasonableness test of excluded data and outliers	Yes		
Analysis of outliers at the cost, LOS or cost bucket level	Yes		

QA Test	DHW	QEH	RRHS
Direct vs overhead percentage allocations	Yes	Feeder data is collated centrally, the results are sent back to each LHN for verification and to make any adjustments.	
Specific business rule tests	Central team control feeder data and QA the data and run through the business rules for each LHN.	Completed centrally	Completed centrally
Costing Data - Governance			
Regular updates with costing staff	Updates are conducted monthly.	Ad-hoc updates as required.	Ad-hoc updates as required.
Local guidelines supporting the AHPCS standards framework	No	No	Intranet page for ABF with links to educational videos from IHPA.
Review of cost allocations	Yes, annually.	Yes, annually.	Yes, annually.
Review on reasonableness of costing data output	Data is reviewed for reasonableness and completeness. IHPA QA reports provided to LHNs	Review of data throughout the process.	Review of data throughout the process.
Formal sign-off	Formal sign-off by CEO.	Yes, by CFO for CALHN.	Yes, CFO/RSS ABF Manager to approve.

Source: Jurisdictional consultations and data quality statement

4.5.2 Improvements

Improvements since Round 22 (2017-18)

There has been significant staff turnover since Round 22 (2017-18), and some history and institutional knowledge has been lost which has been challenging. However, DHW have made improvements in the treatment of community mental health and are ensuring more accurate cost attribution of overheads. At this stage, the DHW costing team have not been able to report this data into the NHCDC as there have been reconciliation problems. This will continue to be an area of focus to further improve the process.

There have been major improvements in the utilisation of costing data for improved ABM in terms of budgeting, performance reporting and development of the key metrics. For example, DHW are undertaking deep dives and analysis in the treatment of outliers (high and low), with anomalies being identified and monitored.

Future improvements in development for Round 25 (2020-21)

At this stage, no improvements have been flagged other than the continued refinement of costing data. The costing team suggested that better use of the QA reports provided during the IHPA upload process should be utilised more broadly, together with a discussion on some of the work undertaken in other jurisdictions that may have a strong reporting capability. This suggests that benchmarking will continue to be an area of focus for DHW.

Continuing to report on a cost per National Weighted Activity Unit (NWAU) basis, particularly with the introduction of boards for each respective LHN, the costing needs to be robust and as accurate as possible. Viewing costing data through this lens will continue to drive analysis of outliers and further refinement of the costing process.

Representatives from the regional LHN discussed the difficulty in finding and training costing practitioners and how this should be rectified in the future. The discussion centred on utilising other industry bodies, such as Healthcare Financial Management Association (HFMA), to provide a pathway for people interested in costing.

4.5.3 The Queen Elizabeth Hospital

One of the selected sites for SA for round the Round 24 (2019-20) IFR was TQEH, which is part of the CALHN. CALHN is comprised of the following hospitals:

- Royal Adelaide Hospital
- The Queen Elizabeth Hospital
- Hampstead Rehabilitation Centre
- St Margaret's Hospital
- Glenside Health Services.

TQEH is a 303-bed acute care teaching hospital that provides inpatient, outpatient, and emergency treatment to a population of over 250,000 people living primarily in Adelaide's western suburbs. Some of the services TQEH provides include ED, general medicine, geriatric medicine, surgery, palliative care, pregnancy advisory, oncology, rehabilitation, cardiology and mental health services.

In addition to the hospital's main campus in Woodville, the hospital also operates the St Margaret's Hospital in Semaphore, which is a residential step-down facility, however St Margaret's are not included in this IFR.

The audited financial accounts are at the LHN level and TQEH comes under the auspices of CALHN. As a result, the reconciliation from CALHN audited results to the TQEH GL and the costing submission poses some difficulty. The following section outlines that reconciliation.

Reconciliation

This section outlines the reconciliation undertaken by the IFR site visit team together with the data collection templates, data quality self-assessment and discussions held during the review. Table 49 presents a summary reconciliation from the TQEH GL to the jurisdiction submission and the final NHCDC submission to IHPA for Round 24 (2019-20).

There was a variance of $8,251,698 between the self-assessment GL total and the GL amount submitted in the data collection templates due to other hospital recharges.

This section discusses adjustments in the reconciliation template.

Adjustments made at the LHD level (Item B)

- The final GL amount of $410,980,644 reconciled to the audited financial statements for CALHN as per advice from CALHN representatives and reported in the template.
- Inclusions made to the GL totalled $13,620,180 relating to transferred costs, SA pathology overheads, library costs, SA Medical Imaging (SAMI) costs and non-payover rights of private practice (ROPP).
- Exclusions made to the GL amount totalled $9,654,824 relating to bad debt expense, statewide SAMI recharges and the clear out of ROPP revenue.
- A WIP adjustment of $7,202,708 added in costs for patients discharged in the Round 24 year (2019-20) but admitted in the prior year (2018-19). Similarly, a WIP adjustment of $5,907,602 removed costs for patients admitted in 2019-20 but not discharged by 30 June 2021.
- Excluded costs such as unmatched records, research, training, and non-casemix activity totalling $32,504,956.
- Included costs such as overhead allocations from other CALHN units totalling $34,523,109.

The basis of these adjustments seem reasonable and the inclusion of the above adjustments established an expenditure base for costing of $418,259,260.

Adjustments made at the Jurisdiction level (Item E)

- Nil adjustments made at the jurisdiction level.

This brings the total costs submitted to IHPA at Item F to $418,259,253. The breakdown of costed products submitted to IHPA are displayed in Item F Table 49, providing an immaterial variance between Items E and F of $6.

Table 49. Reconciliation from General Ledger to NHCDC Costed Products – The Queen Elizabeth Hospital

TQEH				Jurisdiction				IHPA		
	Item		Amount		Item		Amount	Item		Amount
Source: Self-Assessment	**A**	General Ledger (GL)	$ 410,980,644	*Source: Data Collection Template*	**D**	Costed Products received by jurisdiction	$ 418,259,259	**G**	Total costed products received by IHPA	$ 418,259,253
	B	Adjustments to the GL			**E**	**Post Allocation Adjustments**		**H**	IHPA Adjustments	$ -
		Inclusions to GL	$ 13,620,180			*Nil*	$ -			
		Exclusions to GL	$ (9,654,824)			**Total costs submitted to IHPA**	**$ 418,259,259**	**I**	**Final NHCDC costs**	**$ 418,259,253**
		WIP 2018-19	$ 7,202,708							
		WIP 2018-19	$ (5,907,602)						% of GL submitted to NHCDC	101.8%
		Excluded costs	$ (32,504,956)							
		Overhead allocations	$ 34,523,109							
		Total hospital expenditure	**$ 418,259,260**							
Source: Data Collection Template				*Source: Data Collection Template*						
	C	**Costed products submitted to jurisdiction**			**F**	**Costed products submitted to IHPA**			**Costed products per HNCDC**	
Acute		*Acute care (admitted care)*	$ 216,469,007	**Acute**		*Acute care (admitted care)*	$ 216,469,007		Acute	$ 216,469,007
		Newborn care	$ -			*Newborn care*	$ -		Sub-Acute	$ 31,725,168
Sub-Acute		*Rehabilitation care*	$ 5,586,403	**Sub-Acute**		*Rehabilitation care*	$ 5,586,403		Emergency	$ 37.843.943
		Palliative care	$ 6,614,995			*Palliative care*	$ 6,614,995		Non-Admitted	$ 95,605,333
		Geriatric evaluation and management	$ 12,847,462			*Geriatric evaluation and management*	$ 12,847,462		Mental Health	$ 36,605,295
		Psychogeriatric care	$ -			*Psychogeriatric care*	$ -		Other	$ 10,506
		Maintenance care	$ 6,676,308			*Maintenance care*	$ 6,676,308		**Total**	**$ 418,259,253**
Emergency		*Emergency Admitted*	$ 18,168,194	**Emergency**		*Emergency Admitted*	$ 18,168,194			
		Emergency Non-admitted	$ 19,675,749			*Emergency Non-admitted*	$ 19,675,749			
Non-Admitted		*Non-admitted Outpatient Clinic*	$ 95,605,333	**Non-Admitted**		*Non-admitted Outpatient Clinic*	$ 95,634,806			
		Non-admitted Outreach Community	$ -			*Non-admitted Outreach Community*	$ -			
		Non-admitted Mental Health	$ -			*Non-admitted Mental Health*	$ -			
Mental Health		*Admitted Mental Health*	$ 7,981,523	**Mental Health**		*Admitted Mental Health*	$ 7,981,523			
		Mental Health Care Episode	$ -			*Mental Health Care Episode*	$ -			
		Mental Health Care Phase	$ 28,594,300			*Mental Health Care Phase*	$ 28,594,300			
		Other admitted patient care	$ -			*Other admitted patient care*	$ -			
		Hospital boarder	$ -			*Hospital boarder*	$ -			
		Organ procurement - posthumous	$ 10,506			*Organ procurement - posthumous*	$ 10,506			
		Other	$ 29,479			*Other*	$ -			
		Research	$ -			*Research*	$ -			
		Teaching & Training	$ -			*Teaching & Training*	$ -			
		Dummy/virtual patients	$ -			*Dummy/virtual patients*	$ -			
			$ 418,259,259				**$ 418,259,253**			

Operating room costs and allocation methods

TQEH has eight theatres that operate under a single cost centre. From this single cost centre, costs are reclassed and then allocated overheads. TQEH has induction rooms and post theatre recovery rooms for before and after theatre. There is an ORMIS that is a corporate statewide feeder system used across all metropolitan sites and most regional sites in SA. Numerous QA checks are conducted across TQEH data and any anomalies discovered are forwarded to the ORMIS coordinator for investigation and resolution.

A separate cost centre exists for all TQEH Anaesthetic costs, with a portion of this allocated to the OR for costing purposes. Similarly, surgeon time sits in each specialty's cost centre, and costs are reclassed to the OR for the purposes of costing.

The total post overhead and total post allocation amount for the OR for TQEH was $40,820,965.

Time measures are mostly consistent across the metropolitan sites as they are using the same feeder system. Time is measured in anaesthetic, OR and recovery. Costs are shared out (PFRAC) according to number of clinicians, nursing and other staff and are reclassified into each respective cost centre. There is a surgeon feeder, nursing feeder, recovery feeder and anaesthetist feeder to help with cost allocations.

The key points to note from the cost submission and discussion regarding operating theatre are as follows:

- Feeder system: ORMIS is currently used to capture activity data used for cost allocations.
- Allocation methods: Staff time is captured in minutes according to discipline (anaesthetist time, surgeon time, nurse time). Costs are reclassed/PFRAC out from the respective medical cost centres.
- Cost capture: Costs are captured for anaesthetic time, theatre time and recovery time.
- QA: QA checks are undertaken regularly, and anomalies are reported.

Prosthesis costs and allocation methods

Prosthesis are costed and submitted via a feeder file. It is a laborious, manual process that involves looking up prosthesis costs, and keying them into a spreadsheet for loading into the costing system. If a prosthesis is opened and not used, it is still attributed to the patient it was intended for; again this is a manual process.

TQEH do not keep a large stock of prosthesis and will only pre-order non-standard prostheses if needed for a particular patient or, if private patients select a particular implant, the surgeon will order it.

Reclass rules collate prosthesis costs and then detailed weights, based on procedure codes, are used to allocate to costs to patients. Prosthesis costs for Round 24 (2019-20) were $6,487,715.

4.5.4 Sample patient data

IHPA selected a sample of five patients from TQEH for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. The jurisdiction provided the patient level costs for four patients and these reconciled to IHPA records, no record could be found for the

Mental Health sample, perhaps the record was truncated and the patient id could not be found. Further information relating to the sample records is available in Appendix 1.

4.5.5 Conclusion

The IFR is conducted in accordance with the review methodology detailed in section 1.2 of this report. Based on this methodology, TQEH has suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission. Utilisation of submitted data for purposes such as reporting, benchmarking and price setting is subject to further review of the impact and treatment of COVID-19 related costs by IHPA.

4.5.6 Riverland Regional Health Service

Riverland Regional Health Service (RRHS) is a 38-bed public hospital in the regional town of Berri, SA. It provides a range of medical and surgical services to patients from the Riverland and surrounding communities, including the Mallee. The hospital works with the Royal Adelaide Hospital (RAH) and other regional and primary health services to care for patients and deliver telehealth services.

The RRHS is part of the RMCLHN, which is one of six non-metropolitan health networks in regional SA.

Services provided include, 24-hour accident and emergency, general medical and surgical care, maternity and obstetrics, chemotherapy, renal dialysis, stroke care, rehabilitation and mental health services

Reconciliation

This section outlines the reconciliation undertaken by the IFR site visit team together with the data collection templates, data quality self-assessment and discussions held during the review. Table 5 presents a summary reconciliation from the RGH GL to the jurisdiction submission and the final NHCDC submission to IHPA for Round 24 (2019-20). There was a variance of $271,414 between the self-assessment GL total ($34,660,923) and the GL amount ($34,932,337) submitted in the data collection templates due to other hospital recharges.

This section discusses adjustments in the reconciliation template.

Adjustments made at the LHD level (Item B)

- The final GL amount of $34,660,923 reconciled to the audited financial statements for RMCLHN as per advice from RMCLHN representatives and reported in the template.
- Inclusions made to the GL totalled $7,756,403 relating to transferred costs, SA pathology overheads, SAMI costs, non-payover ROPP, procurement services and ICT services.
- Exclusions made to the GL amount totalled $1,629,979 relating to bad debt expense, SAMI recharges and removal of corporate charges for pharmacy and pathology.
- A WIP adjustment of $453,541 added in costs for patients discharged in the Round 24 year (2019-20) but admitted in the prior year (2018-19). Similarly, a WIP adjustment of $453,541 removed costs for patients admitted in 2019-20 but not discharged.
- Excluded costs such as unmatched records, research, training, and non-casemix activity totalling $3,489,457 and reclassification of costs to other areas of $2,912,224.
- Included costs such as overhead allocations from other units totalling $3,291,881.

The above adjustments established an expenditure base for costing of $38,307,547.

Adjustments made at the Jurisdiction level (Item E)

- Nil adjustments made at the jurisdiction level.

This brings the total costs submitted to IHPA at Item F to $38,307,548. The breakdown of costed products submitted to IHPA are displayed in Item F of Table 520.

Table 520. Reconciliation from General Ledger to NHCDC Costed Products – Riverland Regional Health Service

RRHS				Jurisdiction				IHPA		
	Item		Amount		Item		Amount	Item		Amount
Source: Self-Assessment	**A**	General Ledger (GL)	$ 34,660,923	*Source: Data Collection Template*	**D**	Costed Products received by jurisdiction	$ 38,307,548	**G**	Total costed products received by IHPA	$ 38,307,548
	B	Adjustments to the GL			**E**	**Post Allocation Adjustments**		**H**	IHPA Adjustments	$ -
		Inclusions to the GL	$ 7,756,403			*Nil*				
		Exclusions to the GL	$ (1,629,979)			**Total costs submitted to IHPA**	**$ 38,307,548**	**I**	**Final NHCDC costs**	**$ 38,307,548**
		WIP 2018-19	$ 453,541							
		WIP 2019-20	$ (453,541)						% of GL submitted to NHCDC	110.5%
		Inclusions	$ 3,921,881							
		Exclusions	$ (2,912,224)							
		Inclusions	$ (3,489,457)							
		Total hospital expenditure	**$ 38,307,547**							
Source: Data Collection Template				*Source: Data Collection Template*						
	C	**Costed products submitted to jurisdiction**			**F**	**Costed products submitted to IHPA**			**Costed products per HNCDC**	
Acute		*Acute care (admitted care)*	$ 19,054,754	**Acute**		*Acute care (admitted care)*	$ 19,054,754		Acute	$ 19,103,627
		Newborn care	$ 48,873			*Newborn care*	$ 48,873		Sub-Acute	$ 2,828,206
Sub-Acute		*Rehabilitation care*	$ 2,820,818	**Sub-Acute**		*Rehabilitation care*	$ 2,820,818		Emergency	$ 6,862,287
		Palliative care	$ -			*Palliative care*	$ -		Non-Admitted	$ 6,167,802
		Geriatric evaluation and management	$ -			*Geriatric evaluation and management*	$ -		Mental Health	$ 3,345,627
		Psychogeriatric care	$ -			*Psychogeriatric care*	$ -		Other	$ -
		Maintenance care	$ 7,389			*Maintenance care*	$ 7,389		**Total**	**$ 38,307,548**
Emergency		*Emergency Admitted*	$ 2,735,632	**Emergency**		*Emergency Admitted*	$ 2,735,632			
		Emergency Non-admitted	$ 4,126,654			*Emergency Non-admitted*	$ 4,126,654			
Non-Admitted		*Non-admitted Outpatient Clinic*	$ 6,167,802	**Non-Admitted**		*Non-admitted Outpatient Clinic*	$ 6,167,802			
		Non-admitted Outreach Community	$ -			*Non-admitted Outreach Community*	$ -			
		Non-admitted Mental Health	$ -			*Non-admitted Mental Health*	$ -			
Mental Health		*Admitted Mental Health*	$ 3,345,627	**Mental Health**		*Admitted Mental Health*	$ 3,345,627			
		Mental Health Care Episode	$ -			*Mental Health Care Episode*	$ -			
		Mental Health Care Phase	$ -			*Mental Health Care Phase*	$ -			
		Other admitted patient care	$ -			*Other admitted patient care*	$ -			
		Hospital boarder	$ -			*Hospital boarder*	$ -			
		Organ procurement - posthumous	$ -			*Organ procurement - posthumous*	$ -			
		Other	$ -			*Other*	$ -			
		Research	$ -			*Research*	$ -			
		Teaching & Training	$ -			*Teaching & Training*	$ -			
		Dummy/virtual patients	$ -			*Dummy/virtual patients*	$ -			
			$ 38,307,548				**$ 38,307,548**			

Operating room costs and allocation methods

RGH have three operating theatres and perform a range of surgical specialties, including:

- general surgery
- general dental
- oral surgery
- orthopaedic surgery
- otolaryngology – head and neck surgery
- plastic and reconstructive surgery
- vascular surgery.

In theatre, a service code is created within PPM for costing. There is an anaesthetic service code, surgeon service code, and a general theatre service code, which is used to allocate the nursing costs.

The total post overhead and total post allocation amount for the OR for RRHS was $7,359,916. Operating room time measures are not consistent across the regional sites as they are not on the same feeder system. RRHS utilises national DRG weights to cost theatre nursing and consumables. Surgeons and anaesthetists are costed on a fee for service basis from a feeder file.

Prosthesis costs and allocation methods

Prosthesis costs are pooled centrally directly from the GL account code and in the costing system an overhead allocation is added (approximately 17 per cent). In order to allocate costs to the patient level, a service code flags those procedure codes that should have a prosthesis cost allocated. The final allocation of costs across patients are based on ICD codes, some regional sites do provide feeder data detail but not RRHS.

Reclass rules collate prosthesis costs and then detailed weights, based on procedure codes, are used to allocate to costs to patients. Prosthesis costs for Round 24 (2019-20) were $371,853.

4.5.7 Sample patient data

IHPA selected a sample of five patients from RRHS for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. The jurisdiction provided the patient level costs for all five patients and these reconciled to IHPA records. Further information relating to the sample records is available in Appendix 1.

4.5.8 Conclusion

The IFR is conducted in accordance with the review methodology detailed in section 1.2 of this report. Based on this methodology, RRHS has suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission. Utilisation of submitted data for purposes such as reporting, benchmarking and price setting is subject to further review of the impact and treatment of COVID-19 related costs by IHPA.

4.6 Victoria

4.6.1 Jurisdictional overview

The Victorian Department of Health (DH) is responsible for the collation, review and submission of data to the NHCDC. Victorian health services are required to submit costing data to DH in the Victorian Cost Data Collection (VCDC) format, which collects patient-level costed data from metropolitan, regional and sub-regional health services. The VCDC data is used by DH for a number of purposes, including:

- to inform the development of the state's annual funding model
- to support the analysis of cost data for benchmarking purposes
- to inform development of budget proposals
- to analyse the cost of health care
- to perform comparative benchmarking
- to inform best practice quality improvement initiatives
- to meet the NHCDC reporting requirements.

Hospitals/health services submit the VCDC datasets to DH and that data is then linked to the DH activity datasets. DH uses the concept of 'one submission/multiple uses' to describe its approach to the VCDC process. The VCDC submission progresses through various stages ensuring the data is provided as requested, can be matched, and linked to the appropriate activities, and ensures the data is reasonable and valid by undertaking a suite of QA checks. Health services will review data that has been flagged as not meeting certain criteria and confirm the validity of the costed results. This assists those health services using the VCDC data for benchmarking and other analysis and reporting to understand the costed results.

Health services also provide DH with their reconciliation process report (similar to the IFR templates) and submit their individual DQS. Both the reconciliation report and DQS need CEO or CFO signoff, however for Round 24 (2019-20), the formal signoff was not as stringently applied because of issues associated with responding to COVID-19.

As indicated above, one of the uses of the VCDC submission is to inform the NHCDC submission. The format of the VCDC allows the VCDC output to be mapped to the NHCDC file specification. This mapping process is undertaken by DH. DH reviews the specification each year and performs several data checks against the NHCDC specifications to enable submission to IHPA.

Prior to the final NHCDC submission to IHPA, a brief is provided to the Deputy Secretary of DH, summarising and comparing to previous years the type and volume of activity and the associated costs to be submitted to IHPA for NHCDC purposes.

The three sites selected to participate in the Round 24 IFR were Northern Health, Barwon Health and Goulburn Valley Health. Items specific to these facilities are discussed in later sections of this chapter.

Application of Australian Hospital Patient Costing Standards

The Victorian Department of Health reported that the Round 24 (2019-20) NHCDC had been prepared in accordance with the AHPCS Version 4.0 standards. The following exceptions to the standards were outlined in the data quality statement:

- Capital and Depreciation – Victoria does not include these expenditures as they do not impact upon operational costs.
- Teaching and Training costs – if specific activity relates to teaching and training, these are included; however where they cannot be separated from routine work, they would be included in salary and wages expense.
- Research costs – these costs are excluded from Victoria's submission.
- Posthumous organ donation – the application of this standard is being considered by the Victorian Costing Group.

Quality Assurance

Various QA tests are conducted throughout the various stages of the VCDC to NHCDC transformation process. As above, the health service conducts several tests on the data prior to submission and upon submission of the VCDC. Following the health service approval, DH conduct their own test on the initial data load, i.e. business rule checks and then reasonable tests on the final data load.

As part of the checks conducted by DH, any data that is deemed incorrect or invalid will not be submitted to IHPA, however, it may still be included in the internal benchmarking tool. Table 61 sets out a summary of the QA checks performed within VIC.

Table 61. Summary of QA checks performed - Victoria

QA Test	DH	Northern	Barwon	Goulburn Valley
Source data and systems				
Reconciliation back to GL and audited statements	The F1 report confirms submissions reconcile.	All health services submit the F1 report to DH and all costing ledgers reconcile to this.		
Reconciliation of activity data back to source systems	Jurisdiction does not have visibility of source systems for activity, all activity reconciled at the health service level.	All encounters are reconciled by the clinical data unit. Some linking occurs outside of the costing system directly in the data warehouse.	Capture activity directly from the source and check weekly activity report with the department.	All patient data needs to reconcile with VAED, VINAH, there is a process to ensure they match.
Costing Data – Validation				
Trend analysis to prior periods across cost products	Various QA checks are conducted on the linking of data	DSU support the process and look for outliers.	The costing team work with finance to undertake various checks.	Test outputs compared to previous years.

QA Test	DH	Northern	Barwon	Goulburn Valley
Reasonableness test of excluded data and outliers	sets and the reasonableness of the costing data.	Extract and save data as files (looking at feed directly to PPM) and batch loaded into costing system, reports warnings and how many records failed or succeeded.	The costing team work with finance to undertake various checks.	SyRis look at the costing data prior to release to GVH and may flag any potential queries but otherwise reports are sent to GVH to test for reasonableness.
Analysis of outliers at the cost, LOS or cost bucket level		DSU support the process and look for outliers.	The costing team work with finance to undertake various checks.	
Reasonableness of Direct vsoverhead allocations			The costing team work with finance to undertake various checks.	
Specific business rule tests	A number of checks are conducted on submission outputs.	Batch load data into costing system, output reports on how many records failed, data warnings and successfully loaded.	Various QA checks are conducted during loading of data.	Various QA checks are conducted during loading of data.
Costing Data - Governance				
Regular updates with costing staff	Monthly Victorian Costing Working Group (VTWG) and an annual conference.	Costing staff update business managers and create dashboards to understand how the costing works.	Yes, finance and the costing team work closely together.	Quarterly liaison with relevant staff
Local guidelines supporting the AHPCS standards framework	Yes	Intranet page available across whole network.	N/A	No local guidelines.
Review of cost allocations	DH conducts checks during submission of VCDC to NHCDC.	Take CFO through the process, any errors, timing adjustments and final reconciliation.	Yes	Yes
Review on reasonableness of	Yes	Provide report to the board from the GL to the ins and	Yes	Yes

QA Test	DH	Northern	Barwon	Goulburn Valley
costing data output		outs of what was costed, succinct summary.		
Formal sign-off	Yes	CEO across all submissions and signs off.	Final submission signed by CEO and CFO.	CFO conducts final sign-off.

Source: Jurisdictional consultations and data quality statement

4.6.2 Improvements

Improvements since Round 22

During the consultation phase, all sites and the jurisdiction indicated that work is ongoing to make improvements to the costing process and the costing data. The following improvements for Round 24 (2019-20) were identified:

- Northern Health refined the cost allocations of clinicians' time; as it was always an area of concern, the costing team improved the robustness of the allocations by better identifying clinic time versus ward rounds.
- Improvements with ICU allocations: in the past the costing team did not know if a patient was in the High Dependency Unit or a true 1:1 care ratio (Northern Health).
- Northern Health indicated that they have become better with documentation of the costing process and have continued to push through with better transparency; this culminated in a presentation to the Board on the various improvements the team has implemented over the journey.
- Goulburn Valley Health indicated that Round 24 (2019-20) was the first year that community mental health and radiotherapy were costed to the patient level.
- Barwon Health indicated that no major changes were undertaken since Round 22 (2017-18), although that year was the first year costing was brought in-house, so a range of refinements to feeders and cost allocations have been completed over time.
- The jurisdiction indicated that Round 24 (2019-20) was the first data collection run in the cloud via the azure platform.

Future improvements in development for Round 25 (2020-21)

The following improvements for Round 25 were identified:

- Barwon Health indicated that they would like to include costing into the monthly finance reports. Barwon would like to see clinical costing move from statutory type reporting to more profit and loss style reporting, incorporating funding and revenue into the data provided.
- Northern Health are continuing to educate and engage with operational staff on how to use the costing data and to be involved in the costing process.
- Northern Health advised during the site visit that h-trak will be implemented in the operating theatres from 1 July 2021; it is currently only available in the cardiac catheterisation laboratory.

- The jurisdiction, having moved the data collection to the cloud, is planning on moving data from the on-premise database, used for benchmarking, into the cloud for use with Power BI and eventually extend this out to the health services.
- The jurisdiction indicated that the outcomes from the two focus areas for Round 24, i.e. Operating Rooms and Prosthesis, will be of interest and could inform future changes to guidance in this area.

4.6.3 Northern Health

Northern Health (NH) provides a mix of services including medical, surgical, emergency, intensive and coronary care, paediatrics, women's and maternal health, mental health, aged care, palliative care, and rehabilitation. Services are provided through four main campuses: Northern Hospital (approximately 400 beds), Broadmeadows Hospital, Bundoora Centre and Craigieburn Centre.

The NH catchment includes three of Victoria's six growth areas: Hume, Whittlesea and Mitchell, with the catchment's population projected to increase by over 58 per cent (more than 228,000 people) to 2031. The Northern Hospital operates the busiest ED in Victoria with 105,283 presentations in 2019-20 and is the site of one of Melbourne University's Medical School's clinical schools.

The NH Decision Support Unit is responsible for the clinical costing process, which includes preparing the costing submission for the entire organisation and the management of the source system outputs to the data warehouse. There are approximately 30-40 feeders and most of the files are extracted from the data warehouse and loaded into the PowerHealth costing system PPM where activity and costs are linked. There is some linking completed outside of the costing system in the data warehouse to find encounters prior to loading into PPM.

The NH costing team previously conducted costing quarterly but, in the current environment, costing has reverted back to annually, with the long-term aim being to move to monthly costing. Dashboards have been created for Business Managers to assist the business to understand how the costing works. Business Managers also use the costing data for business cases, and other areas of the health service use costing data for research.

Reconciliation

This section outlines the reconciliation undertaken by the site visit team together with the data collection templates, data quality self-assessment and discussions during the review. Table 72 presents a summary reconciliation from the NH GL to the jurisdiction submission and through to the final NHCDC submission to IHPA for Round 24 (2019-20). There was no variance between the self-assessment GL total and the amount submitted in the data collection templates.

This section discusses adjustments in the reconciliation template at various stages of the process.

Adjustments made at the LHD level (Item B)

- The final GL amount of $670,641,451 at Item A provided a variance of $148,451 to the audited financial statements ($670,493,000). This is due to the various expenses related to net losses on assets, which are excluded in the health service costing, as per advice from NH representatives and reported in the template.

- Exclusions made to the GL totalled $35,245,545 relating to capital expenditure, external entities, retail operations and COVID-19 costs.
- Inclusions made to the GL totalled $4,721,852 relating to the National Blood Allocation (NBA) and Health Purchase Victoria (HPV) costs.
- A WIP adjustment of $9,112,977 added in costs for patients discharged in the Round 24 year (2019-20) but admitted in the prior year (2018-19). Similarly, a WIP adjustment of $14,884,226 removed costs for patients admitted in 2019-20 but not discharged by 30 June 2020.
- Excluded costs moved to North-Western Mental Health totalling $785,358.
- The removal of private patient costs of $4,395,214.

A small variance of $7,963 was noted in the template and, together with the above adjustments, established an expenditure base for costing of $629,165,937 ($629,157,974). A small variance of $245 was noted in the template to the final amount submitted to the jurisdiction of $629,157,729.

Adjustments made at the Jurisdiction level (Item E)

- All activity that is un-linkable; activity that does not form part of the Victorian Admitted Episodes Data (VAED) or are part of programs that are not in scope for the ABF are removed; these totalled $24,456,568.
- $1,135,114of excluded costs, the majority of which relates to acute admitted care.
- Final adjustment relating to Mental Health (arrangement with Melbourne Health and Western Health where Melbourne Health conduct the costing and the jurisdiction provide NH's share in this part of the costing process) and records transitioned for phase of care totalling $181,549,462
- Added records and costs reported as ABF Source 1 for episodic level of palliative care totalling $9,238,796.

These adjustments provided a net inclusion of $165,196,577, bringing the total costs submitted by the jurisdiction at Item E to $794,354,306. The breakdown of costed products submitted to IHPA are displayed in Item F of Table 72.

Adjustments made at the IHPA level (Item H)

- Adjustments relating to the alignment and duplication of Mental Health records totalling $90,587,785 were removed.

These adjustments provided the final NHCDC costs at Item I to $703,766,523. The breakdown of costed products per the NHCDC are displayed in Table 72.

Table 72. Reconciliation from General Ledger to NHCDC Costed Products – Northern Health

Northern Health				Jurisdiction				IHPA		
	Item		Amount		Item		Amount	Item		Amount
Source: Self-Assessment	**A**	General Ledger (GL)	$ 670,641,451	*Source: Data Collection Template*	**D**	Costed Products received by jurisdiction	$ 629,157,729	**G**	Total costed products received by IHPA	$ 794,354,308
	B	Adjustments to the GL			**E**	**Post Allocation Adjustments**	**$ 165,196,577**	**H**	IHPA Adjustments	$ 90,578,785
		Inclusions to GL	$ 4,721,852			*Un-linkable records*	$ (24,456,568)			
		Exclusions to GL	$ (35,245,545)			*Excluded costs*	$ (1,135,114)	**I**	**Final NHCDC costs**	**$ 703,766,523**
		WIP 2018-19	$ 9,112,977			*Transitioned records (mental health)*	$ 181,549,462			
		WIP 2018-19	$ (14,884,226)			*Palliative care - episodic level*	$ 9,238,796		% of GL submitted to NHCDC	#DIV/0!
		Mental Health	$ (785,358)			**Total costs submitted to IHPA**	**$ 794,354,306**			
		Private patients	$ (4,395,214)							
		Total hospital expenditure	**$ 629,165,937**							
Source: Data Collection Template				*Source: Data Collection Template*						
	C	**Costed products submitted to jurisdiction**			**F**	**Costed products submitted to IHPA**			**Costed products per HNCDC**	
Acute		*Acute care (admitted care)*	$ 379,186,182	**Acute**		*Acute care (admitted care)*	$ 376,546,075		Acute	$ 377,278,205
		Newborn care	$ 2,203,106			*Newborn care*	$ 2,198,652		Sub-Acute	$ 66,182,189
Sub-Acute		*Rehabilitation care*	$ 10,922,191	**Sub-Acute**		*Rehabilitation care*	$ 10,901,451		Emergency	$ 97,727,644
		Palliative care	$ 9,263,044			*Palliative care (episodic and phase)*	$ 18,483,376		Non-Admitted	$ 69,157,890
		Geriatric evaluation and management	$ 37,852,839			*Geriatric evaluation and management*	$ 37,778,663		Mental Health	$ 93,409,501
		Psychogeriatric care	$ -			*Psychogeriatric care*	$ -		Other	$ 11,094
		Maintenance care	$ -			*Maintenance care*	$ -		**Total**	**$ 703,766,523**
Emergency		*Emergency Admitted*	$ 100.294.364	**Emergency**		*Emergency Admitted*	$ 97,727,644			
		Emergency Non-admitted	$ -			*Emergency Non-admitted*	$ -			
Non-Admitted		*Non-admitted Outpatient Clinic*	$ 69,285,033	**Non-Admitted**		*Non-admitted Outpatient Clinic*	$ 69,157,890			
		Non-admitted Outreach Community	$ -			*Non-admitted Outreach Community*	$ -			
		Non-admitted Mental Health	$ -			*Non-admitted Mental Health*	$ -			
Mental Health		*Admitted Mental Health*	$ -	**Mental Health**		*Admitted Mental Health*	$ 41,230,997			
		Mental Health Care Episode	$ -			*Mental Health Care Episode*	$ 49,730,673			
		Mental Health Care Phase	$ -			*Mental Health Care Phase*	$ 90,587,793			
		Other admitted patient care	$ 5,454,571			*Other admitted patient care*	$ -			
		Hospital boarder	$ -			*Hospital boarder*	$ -			
		Organ procurement - posthumous	$ 11,115			*Organ procurement - posthumous*	$ 11,094			
		Other	$ 14,685,285			*Other*	$ -			
		Research	$ -			*Research*	$ -			
		Teaching & Training	$ -			*Teaching & Training*	$ -			
		Dummy/virtual patients	$ -			*Dummy/virtual patients*	$ -			
			$ 629,157,729				**$ 794,354,306**			

Focus Area – Operating Room (OR) Costs

There are separate cost centres for the operating theatre and other surgical suites, with the majority of costs coded to the single cost centre for each applicable site. Nursing costs are removed from the ward cost centre and reallocated to OR using theatre minutes. Anaesthetic costs are also in a separate cost centre and are allocated back to patients using theatre minutes. All other costs, such as cleaning, administration staff and consumables, are allocated as overheads using theatre minutes.

In summary, the key points to note from the cost submission and discussion regarding OR are as follows:

- The theatre module of iPM provided the activity data for cost allocations.
- Approximately 16 per cent of post allocation overheads are added to the direct costs recognised in the OR cost centres.
- Allocation methods: Patient and nurse minutes are utilised at various points of the patient episode to reclassify costs to activities within the theatre process that display a differential cost profile (for example pre-admission, pre-surgery, theatre or recovery).
- Surgeon time is no longer collected in the GL under theatres; if you were to follow the patient costing through the theatres, surgeon time would be under the medical cost bucket.

Focus Area – Prosthesis costs

Prosthesis costs in the GL are split by account code and by specialty, i.e. vascular, orthopaedic, joint replacement and other. All prosthesis account codes are loaded and linked to encounters in the costing system. This was $8,066,866, with a further $118,373 in overheads applied, for a total of $8,185,238.

For Cardiology prosthetics, all costs are recorded in h-trak and allocated directly to an encounter with the cost being the quantity, and the total quantity is then apportioned to the area cost.

For lens procedures, the costs for this area are allocated evenly as only one type of prosthetic is used for this procedure.

For other prosthetics, the costing system relies on data entered into the theatre module (h-trak not in use in theatre but will be from 1 July 2021), analysis on this process indicates that this occurs most of the time. Theatre sessions with known prosthetic use are allocated costs recorded from purchasing history and, after costs are directly allocated, any remaining prosthetic costs are averaged across patients classified by known prosthetic DRGs.

4.6.4 Sample patient data

IHPA selected a sample of five patients from NH for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. The jurisdiction provided the patient level costs for all five patients and these reconciled to IHPA records. Further information relating to the sample records is available in Appendix 1.

4.6.5 Conclusion

The IFR is conducted in accordance with the review methodology detailed in section 1.2 of this report. Based on this methodology, NH has suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission. Utilisation of submitted data for purposes such as reporting, benchmarking and price setting is subject to further review of the impact and treatment of COVID-19 related costs by IHPA.

4.6.6 Barwon Health

Health services available through Barwon Health (BH) range from primary care, community services, aged care, rehabilitation, mental health, emergency and acute care. With the exception of neurosurgery and transplantation, most other specialties are available through BH's main campus, the University Hospital Geelong.

BH serves a geographically dispersed population with 1,016 beds and a total of 21 sites. The primary catchment for BH has a population of 350,000, extending to 500,000 for some tertiary services.

With more than 7,000 staff, BH is one of Australia's largest regional employers and a major education provider through relationships with Deakin University, Melbourne University, Monash University, the Gordon and a number of other educational centres and universities.

The BH Finance Department are responsible for the health service's costing process. Since Round 22, costing has been brought in-house; prior to that, an external consultant would conduct costing for BH. The current costing software used by the health service is PPM, and the majority of extracts are direct data feeds; some extracts are provided by external providers such as pathology or patient transport. The unit aim for monthly costing (i.e. a month in arrears) and costing data can be available in the middle of the following month.

Costing data is used regularly by the Finance Department, especially for business cases. Clinicians are beginning to use the data but generally have questions on the data so are keen to investigate the make-up of the costs. Current visualisations of the data direct out of the various systems are not meeting the needs of the business and, as a result, the CFO is keen to expand the use of visualisations and data while including revenue to enable true performance reporting for each department.

Reconciliation

This section outlines the reconciliation undertaken by the site visit team together with the data collection templates, data quality self-assessment and discussions during the review. Table 83 presents a summary reconciliation from the BH GL to the jurisdiction submission and through to the final NHCDC submission to IHPA for Round 24 (2019-20). There was no variance between the self-assessment GL totals and the amount submitted in the data collection templates. However the inclusion of National Blood and Health Purchasing costs were included in the self-assessment GL amounts when they should not have been; the net effect was zero.

This section discusses adjustments in the reconciliation template at various stages of the process.

Adjustments made at the LHD level (Item B)

- The GL amount of $1,019,276,729 at Item A provided a variance of $149,872,920 to the audited financial statements ($869,403,809). This is due to various adjustments not included in the audited statements such as net losses on assets, audit adjustments and internal transfer pricing as per advice from BH representatives and reported in the template.
- Exclusions made to the GL totalled $151,989,932 relating to capital expenditure, long service leave (LSL) adjustment and internal transfer pricing.
- Inclusions made to the GL totalled $1,872,248 relating to the NBA and HPV costs.
- A WIP adjustment of $31,358,485 added in costs for patients discharged in the Round 24 year (2019-20) but admitted in the prior year (2018-19). Similarly, a WIP adjustment of $51,831,213 removed costs for patients admitted in 2019-20 but not discharged by 30 June 2020.
- Costs in cost centres excluded from patient costing totalled $83,331,276.

A small variance of $67 was noted in the template and, together with the above adjustments, established a total costing for the VCDC submitted to the jurisdiction of $765,354,973.

Adjustments made at the Jurisdiction level (Item E)

- All activity that is un-linkable; activity that does not form part of the VAED or are part of programs that are not in scope for the ABF are removed; these totalled $136,722,361.
- $8,045,438 of excluded costs, the bulk of which relates to acute admitted care.
- Adjustment relating to the alignment of Mental Health and records transitioned for phase of care totalling $37,280,590.
- Added records and costs reported as ABF Source 1 for episodic level of palliative care totalling $6,058,141.

These adjustments provided a net exclusion of $101,429,121, bringing the total costs submitted by the jurisdiction at Item E to $663,925,852. The breakdown of costed products submitted to IHPA are displayed in Item F of Table 83.

Adjustments made at the IHPA level (Item H)

- Adjustments relating to the alignment and duplication of Mental Health records totalling $38,962,767.

These adjustments provided the final NHCDC costs at Item I to $625,233,083. The breakdown of costed products per the NHCDC are displayed in Table 83.

Table 83. Reconciliation from General Ledger to NHCDC Costed Products – Barwon Health

Barwon Health				Jurisdiction				IHPA		
	Item		Amount		Item		Amount	Item		Amount
Source: Self-Assessment	**A**	General Ledger (GL)	$ 1,019,276,729	*Source: Data Collection Template*	**D**	Costed Products received by jurisdiction	$ 765,354,973	**G**	Total costed products received by IHPA	$ 663,925,851
	B	Adjustments to the GL			**E**	**Post Allocation Adjustments**	**$ (101,429,068)**	**H**	IHPA Adjustments	$ 38,692,767
		Inclusions to GL	$ 1,872,248			*Un-linkable records*	$ (136,722,361)			
		Exclusions to GL	$ (151,989,932)			*Excluded and out-of-scope costs*	$ (8,045,438)	**I**	**Final NHCDC costs**	**$ 625,233,083**
		WIP 2018-19	$ 31,358,485			*Mental Health phase records*	$ 37,280,590			
		WIP 2018-19	$ (51,831,213)			*Palliative care - episodic level*	$ 6,058,141		% of GL submitted to NHCDC	61.3%
		Mental Health	$ (83,331,276)			**Total costs submitted to IHPA**	**$ 663,925,852**			
		Total hospital expenditure	**$ 765,355,040**							
Source: Data Collection Template				*Source: Data Collection Template*						
	C	**Costed products submitted to jurisdiction**			**F**	**Costed products submitted to IHPA**			**Costed products per HNCDC**	
Acute		*Acute care (admitted care)*	$ 412,748,051	**Acute**		*Acute care (admitted care)*	$ 409,173,702		Acute	$ 378,420,433
		Newborn care	$ 3,591,492			*Newborn care*	$ 3,586,522		Sub-Acute	$ 48,588,850
Sub-Acute		*Rehabilitation care*	$ -	**Sub-Acute**		*Rehabilitation care*	$ -		Emergency	$ 48,260,308
		Palliative care	$ 6,060,758			*Palliative care (episodic and phase)*	$ 12,116,281		Non-Admitted	$ 88,631,653
		Geriatric evaluation and management	$ 17,005,272			*Geriatric evaluation and management*	$ 17,008,673		Mental Health	$ 61,275,407
		Psychogeriatric care	$ -			*Psychogeriatric care*	$ -		Other	$ 56,432
		Maintenance care	$ -			*Maintenance care*	$ -		**Total**	**$ 625,233,083**
Emergency		*Emergency Admitted*	$ 49,782,301	**Emergency**		*Emergency Admitted*	$ 48,260,361			
		Emergency Non-admitted	$ -			*Emergency Non-admitted*	$ -			
Non-Admitted		*Non-admitted Outpatient Clinic*	$ 86,515,854	**Non-Admitted**		*Non-admitted Outpatient Clinic*	$ 86,103,847			
		Non-admitted Outreach Community	$ 2,527,806			*Non-admitted Outreach Community*	$ 2,527,806			
		Non-admitted Mental Health	$ -			*Non-admitted Mental Health*	$ -			
Mental Health		*Admitted Mental Health*	$ 13,775,404	**Mental Health**		*Admitted Mental Health*	$ 15,206,010			
		Mental Health Care Episode	$ 43,537,985			*Mental Health Care Episode*	$ 32,605,679			
		Mental Health Care Phase	$ -			*Mental Health Care Phase*	$ 37,280,590			
		Other admitted patient care	$ 35,637,142			*Other admitted patient care*	$ -			
		Hospital boarder	$ -			*Hospital boarder*	$ -			
		Organ procurement - posthumous	$ 58,774			*Organ procurement - posthumous*	$ 56,433			
		Other	$ 94,114,135			*Other*	$ -			
		Research	$ -			*Research*	$ -			
		Teaching & Training	$ -			*Teaching & Training*	$ -			
		Dummy/virtual patients	$ -			*Dummy/virtual patients*	$ -			
			$ 765,354,973				**$ 663,925,852**			

Focus Area – Operating Room costs

There are separate cost centres for the operating theatre, theatre recovery and the wards, while medical costs are allocated from medical cost centres by minutes in theatre. Time data is captured in the theatre module of iPM, timestamps for surgeon start/end time, surgery staff time, dressing completed, into recovery and out of recovery. All other costs, such as cleaning or administration staff, are allocated as overheads. The total OR costs for Round 24 (2019-20) was $76,394,030.

In summary, the key points to note from the cost submission and discussion regarding operating theatres are as follows:

- The theatre module of iPM provided the activity data for cost allocations.
- Approximately 24 per cent of post allocation overheads are added to the direct costs recognised in the OR cost centres.
- Allocation methods: Patient and nurse minutes are utilised at various points of the patient episode to reclassify costs to activities within the theatre process that display a differential cost profile (for example pre-admission, pre-surgery, theatre or recovery).

Focus Area – Prosthesis costs

Prosthesis costs in the GL are split by account code and by specialty, i.e. vascular, orthopaedic, joint replacement and other. All prosthesis account codes are loaded and mapped to the prosthetic line item for a total of $10,777,449 for BH for Round 24 (2019-20). No overheads are allocated to the prosthetic line item.

The use of h-trak for the catheterisation lab and theatre makes costing for prosthetics easier than other areas that may have prosthetic costs. The pricing in h-trak is reflective of what is listed in the catalogue. As a result, this needs to be kept up to date, as bundle pricing can sometimes throw the pricing out, particularly in the catheterisation lab, while constantly monitoring outliers in prosthetic costs.

4.6.7 Sample patient data

IHPA selected a sample of five patients from BH for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. The jurisdiction provided the patient level costs for all five patients and these reconciled to IHPA records. Further information relating to the sample records is available in Appendix 1.

4.6.8 Conclusion

The IFR is conducted in accordance with the review methodology detailed in section 1.2 of this report. Based on this methodology, BH has suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission. Utilisation of submitted data for purposes such as reporting, benchmarking and price setting is subject to further review of the impact and treatment of COVID-19 related costs by IHPA.

4.6.9 Goulburn Valley Health

Goulburn Valley Health (GVH) is the main referral health service for Victoria's Hume region servicing a catchment of approximately 116,000 people. GVH's primary campus at Shepparton provides emergency services, intensive care, outpatients, medical, surgical, paediatric, obstetric, dental, palliative, oncology, mental health, aged care, rehabilitation, medical imaging, pathology, pharmacy and related allied health and community healthcare services. Other sites include:

- a community health facility in Shepparton provides a range of wellbeing programs aimed at preventative and community-based care
- the Tatura campus includes the Tatura Hospital and Parkvilla Aged Care residential facility
- the Rushworth campus is known as Waranga Health and provides 36 aged care beds, Hostel and Nursing Home combined, and four acute beds

GVH operates 190 acute and 48 sub-acute beds across its campuses.

Costing for GVH is outsourced to SyRis Consulting and they provided the submission for the VCDC and the Round 24 (2019-20) NHCDC. During the year, costing is conducted quarterly, and data extracts are provided by GVH staff to SyRis for costing. Feedback is provided regularly by SyRis and GVH staff will follow up to ensure the data that has been sent through is accurate. GVH have an internal review and sign-off process, with the CFO having final sign-off prior to submission to the jurisdiction.

For Round 24 (2019-20), GVH costed community mental health and radiotherapy for the first time. Radiotherapy is outsourced to a private provider and treated as a contracted service. A feeder from GVH was provided and this allowed for patient level costing for the first time.

Use of costing data is mixed across the site, but data is generally used by finance or provided to clinicians to assist with decision making regarding specific projects or understanding the costs related to the model of care. SyRis have developed a portal for all health services they conduct costing for and GVH staff have access to the portal for benchmarking purposes.

Reconciliation

This section outlines the reconciliation undertaken by the site visit team together with the data collection templates, data quality self-assessment and discussions during the review. Table 94 presents a summary reconciliation from the GVH GL to the jurisdiction submission and through to the final NHCDC submission to IHPA for Round 24 (2019-20). There was no variance between the self-assessment GL total and the amount submitted in the data collection templates.

This section discusses adjustments in the reconciliation template at various stages of the process.

Adjustments made at the LHD level (Item B)

- The final GL amount of $322,245,860 reconciled to the audited financial statements as per advice from GVH representatives and reported in the template.

- Exclusions made to the GL totalled $13,133,909 relating to capital expenditure and salary recoveries.
- Inclusions made to the GL totalled $2,059,079 relating to the NBA and HPV costs.
- A WIP adjustment of $3,120,842 added in costs for patients discharged in the Round 24 year (2019-20) but admitted in the prior year (2018-19). Similarly, a WIP adjustment of $2,175,871 removed costs for patients admitted in 2019-20 but not discharged by 30 June 2020.
- Excluded costs relating to non-ABF activities totalling $21,112,552.
- Other adjustments relating to non-operating costs, community dispensing and VCDC rounding totalled $7,150,406.

The above adjustments established a total costing for the VCDC submitted to the jurisdiction of $283,853,042.

Adjustments made at the Jurisdiction level (Item E)

- All activity that is un-linkable; activity that does not form part of the VAED or activity part of programs that are not in scope for the ABF are removed; these totalled $9,175,612.
- $46,746,826 of excluded costs, the bulk of which relates to the other product type.
- Final activity adjustments relating to Mental Health and records transitioned for phase of care $311.
- Added records and costs reported as ABF Source 1 for episodic level of palliative care totalling $1,804,735.

These adjustments provided a net exclusion of $55,922,130, bringing the total costs submitted by the jurisdiction at Item E to $227,930,211. The breakdown of costed products submitted to IHPA are displayed in Item F of Table 94.

Adjustments made at the IHPA level (Item H)

- Adjustments relating to the alignment and duplication of Mental Health records totalling $311 were removed.

These adjustments provided the final NHCDC costs at Item I to $229,735,337. The breakdown of costed products per the NHCDC are displayed in Table 94.

Table 94. Reconciliation from General Ledger to NHCDC Costed Products – Goulburn Valley Health

GVH				Jurisdiction				IHPA			
	Item		Amount		Item		Amount	Item		Amount
Source: Self-Assessment	**A**	General Ledger (GL)	$ 322,245,860	*Source: Data Collection Template*	**D**	Costed Products received by jurisdiction	$ 283,853,042	**G**	Total costed products received by IHPA	$ 229,735,648
	B	Adjustments to the GL			**E**	**Post Allocation Adjustments**	**$ (54,117,394)**	**H**	IHPA Adjustments	$ (311)
		Inclusions to GL	$ 2,059,079			*Un-linkable records*	$ (9,175,612)			
		Exclusions to GL	$ (13,133,909)			*Excluded and out-of-scope costs*	$ (46,746,829)	**I**	**Final NHCDC costs**	**$ 229,735,337**
		WIP 2018-19	$ 3,120,842			*Palliative care - episodic level*	$ 1,804,735			
		WIP 2018-19	$ (2,175,871)			**Total costs submitted to IHPA**	**$ 229,735,648**		% of GL submitted to NHCDC	71.2%
		Mental Health	$ (21,112,552)							
		Private patients	$ (7,150,406)							
		Total hospital expenditure	**$ 283,853,042**							
Source: Data Collection Template				*Source: Data Collection Template*						
	C	**Costed products submitted to jurisdiction**			**F**	**Costed products submitted to IHPA**			**Costed products per HNCDC**	
Acute		*Acute care (admitted care)*	$ 136,996,688	**Acute**		*Acute care (admitted care)*	$ 136,990,646		Acute	$ 137,974,040
		Newborn care	$ 983,394			*Newborn care*	$ 983,394		Sub-Acute	$ 20,191,766
Sub-Acute		*Rehabilitation care*	$ 8,140,560	**Sub-Acute**		*Rehabilitation care*	$ 8,140,560		Emergency	$ 29,974,902
		Palliative care	$ 1,804,735			*Palliative care (episodic and phase)*	$ 3,609,470		Non-Admitted	$ 12,537,237
		Geriatric evaluation and management	$ 8,441,736			*Geriatric evaluation and management*	$ 8,441,736		Mental Health	$ 29,046,267
		Psychogeriatric care	$ -			*Psychogeriatric care*	$ -		Other	$ 11,125
		Maintenance care	$ -			*Maintenance care*	$ -		**Total**	**$ 229,735,337**
Emergency		*Emergency Admitted*	$ 29,979,721	**Emergency**		*Emergency Admitted*	$ 29,974,902			
		Emergency Non-admitted	$ -			*Emergency Non-admitted*	$ -			
Non-Admitted		*Non-admitted Outpatient Clinic*	$ 12,537,237	**Non-Admitted**		*Non-admitted Outpatient Clinic*	$ 12,537,237			
		Non-admitted Outreach Community	$ -			*Non-admitted Outreach Community*	$ -			
		Non-admitted Mental Health	$ -			*Non-admitted Mental Health*	$ -			
Mental Health		*Admitted Mental Health*	$ 12,653,951	**Mental Health**		*Admitted Mental Health*	$ 12,653,951			
		Mental Health Care Episode	$ 21,084,340			*Mental Health Care Episode*	$ 16,392,316			
		Mental Health Care Phase	$ -			*Mental Health Care Phase*	$ 311			
		Other admitted patient care	$ 4,472,726			*Other admitted patient care*	$ -			
		Hospital boarder	$ -			*Hospital boarder*	$ -			
		Organ procurement - posthumous	$ 11,125			*Organ procurement - posthumous*	$ 11,125			
		Other	$ 46,746,829			*Other*	$ -			
		Research	$ -			*Research*	$ -			
		Teaching & Training	$ -			*Teaching & Training*	$ -			
		Dummy/virtual patients	$ -			*Dummy/virtual patients*	$ -			
			$ 283,853,042				**$ 229,735,648**			

Focus Area – Operating Room costs

There are separate cost centres for the operating theatre and day surgery suite and most costs are coded to the respective cost centre at each site. Anaesthetic costs are in a separate cost centre and are allocated back to patients using theatre minutes. Pre-admission HMO theatre minutes are driven by the specific HMO back to those patients. If activity is conducted in the ward, for example epidural procedures, that activity is matched back to the relevant patient. All other costs, such as cleaning, administration staff and consumables, are allocated as overheads using theatre minutes.

In summary, the key points to note from the cost submission and discussion regarding operating theatres are as follows:

- Feeder systems: Vital – operating theatre system – provides all theatre minute data and allows for linking this data at the patient level.
- Theatre minutes allocated to each activity have clear definitions and rules, for example anesthetic costs are allocated based on theatre minutes before the cut, and nursing costs are allocated based on theatre minutes for the procedure. As a result, the number of nurses in the theatre does not impact the cost.
- Allocation methods: Patient and nurse minutes are utilised at various points of the patient episode to reclassify costs to activities within the theatre process that display a differential cost profile (for example pre-admission, pre-surgery, theatre or recovery).
- Unutilised time/setup costs: No separate data to capture this effort, SyRis looking at refining this over time.

Focus Area – Prosthesis costs

Prosthesis costs in the GL are split by account code and by specialty, i.e. vascular, orthopaedic, joint replacement and other. All of these account codes are loaded into the costing system. This was a total of $2,216,306 for GVH in Round 24 (2108-19).

Once the total amount is loaded into the general prosthesis category in the costing system, prostheses cost information obtained from VITAL is used for the allocation to each patient. The only amounts allocated are those that are captured in VITAL; if the cost is not visible then it will not be allocated. As a result, some prosthesis costs may be in the consumables or medical supplies accounts if they are charged that way in the GL. QA checks are conducted to check reasonableness, for example prosthesis costs against non-surgical DRGs or vascular leads from ICU.

4.6.10 Sample patient data

IHPA selected a sample of five patients from GVH for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. The jurisdiction provided the patient level costs for all five patients and these reconciled to IHPA records. Further information relating to the sample records is available in Appendix 1.

4.6.11 Conclusion

The IFR is conducted in accordance with the review methodology detailed in section 1.2 of this report. Based on this methodology, GVH has suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission. Utilisation of submitted data

for purposes such as reporting, benchmarking and price setting is subject to further review of the impact and treatment of COVID-19 related costs by IHPA.

4.7 Western Australia

4.7.1 Jurisdictional overview

The WA Department of Health (WA Health) co-ordinates clinical costing for the state's public hospitals and is responsible for the preparation of the Western Australian (WA) NHCDC submission.

Sir Charles Gairdner Hospital (SCGH, Rockingham General Hospital (RGH) and Kalgoorlie Health Campus (KHC) were selected as the sample hospitals in WA for the Round 24 IFR.

Patient costing is undertaken by costing teams at a Health Service Provider (HSP) level. The Round 24 NHCDC submission was based on the individual submission from the five HSPs. On submission to WA Health, HSP costs are further tested and reconciled, with HSPs making further refinements if required.

Health Support Services (HSS) is the shared service centre for WA's health system and is responsible for providing activity extracts for WA's health services. HSS is required to perform validity checks on activity data on a monthly basis against agreed data standards such as ensuring completeness and logic checks.

All costing is conducted using a single instance of the PPM2 patient costing system. Costing is undertaken annually for the NHCDC submission. HSPs will generally undertake quarterly costing in order to meet their individual requirements. Some hospitals undertake costing monthly, but only for internal purposes and it is not published. The COVID-19 pandemic has had a significant impact on jurisdictional activity and cost data resulting in two formal costing submissions made by HSPs to address the onset of COVID-19 for the Round 24 period. "Pre-COVID-19" submissions for the period July 2019 – February 2020, and "COVID-19" submissions for the period March 2020 - June 2020 where hospital practices and activity profiles underwent considerable change, were received from all WA HSPs.

There is a statewide, centralised URN database and a PAS for most hospitals. There are statewide feeders managed by HSS for most areas. Feeder system data is held centrally and is accessible to health services on an as-needs basis. HSS collates and provides all source information and feeder system data to each health service costing team, for the health service to validate and import into PPM2. The provided feeder files are formatted for PPM2 compatibility to enable efficiency in the file importing process.

WA HSPs conduct extensive QA checks throughout the submission preparation process to ensure their cost data is valid, reliable and fit for purpose. In addition to the patient level costing submission, the HSPs provide detailed reconciliation to the source financial data.

Each HSP makes costing data available to relevant users utilising their own internally developed cost/performance applications. HSPs do not access the IHPA benchmarking portal as they have not found value in using it in the past. However, they have developed their own internal cost/performance benchmarks which enables a wide range of benchmarking and performance evaluation both within and across sites. Local and national costing data are also used at a jurisdictional level for a variety of purposes, including as an input to benchmarking exercises, development of contracts, business cases and research projects.

There is a network of costing staff within WA Health with representation from the HSPs, WA Health and HSS who administer and provide technical support for the clinical costing system. Representatives of these groups meet regularly as part of a Business User Group, and intermittently as the WA Clinical Costing Standards Committee (WACCSC). There is increasingly a higher level of consistency and standardisation in costing practice across WA which is enhanced by the two working committees. Representatives of all HSPs and WA Health are working towards developing uniform practices and common understanding of local and national costing issues. Costing in WA is also supported by local tools, such as the WA Costing Guidelines, and the "Clinical Costing QA and Reasonability" application, that demonstrates that costing methodologies work as intended. Prior round costing audits also feed into the local processes helping consistency.

WA HSPs participate in other cost, activity and benchmarking data collections in addition to the NHCDC, such as Health Roundtable, Children's Healthcare Australasia (CHA), Women's Healthcare Australasia (WHA), and Australian Institute of Health and Welfare (AIHW) Public Health Expenditure.

Application of Australian Hospital Patient Costing standards

The WA Round 24 NHCDC submission was prepared in adherence with the AHPCS version 4.0 with the exception of Teaching and Research. WA is not fully compliant with the costing guidelines for Teaching and Research as they are currently calculated utilising an established local methodology. The costs are assigned at a patient level, but withheld from the annual submission to IHPA. WA also does not include the cost of blood products.

Quality Assurance

Each HSP undertakes a range of review and assurance measures in the data preparation process, which have several layers of engagement, including Finance and Business officers, hospital based Clinical and Business Managers, and HSP level Finance Officers and Directors. Inputs into the costing cycle, such as patient fractions and feeder systems and preliminary results, are reviewed by the costing teams, in conjunction with Finance and Business Officers on a regular basis.

The HSPs also undertake a rigorous QA process prior to submitting their cost data. Whilst all HSPs vary slightly in their regime, there is a high degree of commonality in reviews undertaken and data testing. Each HSP has also developed their own applications to create visualisations and dashboards to aid analysis and benchmarking of results. Each HSP performs central financial reconciliation into the Audited Financial Statements which is signed off at Chief Financial Officer/Executive Director level and submitted to WA Health as part of their NHCDC submission.

WA Health also undertakes a series of QA tests on the submitted data, however, work is being undertaken to bring these into the HSP process in order to further streamline the submission process. Additionally, WA Health continues to review and measure hospital, HSP and statewide trends, and changes round to round.

Table 105. Summary of QA checks performed – Western Australia

QA Test	WA Health	SCGH	RGH	Kalgoorlie
Source data and systems				
Reconciliation back to GL and audited statements	Annual reconciliation and checks undertaken	Reconciliation undertaken annually	Reconciliation undertaken annually	Reconciliation undertaken annually
Reconciliation of activity data back to source systems	N/A	Conducted by HSS	Conducted by HSS	Conducted by HSS
Costing Data - Validation				
Trend analysis to prior periods across cost products	Yes – annually	SCGH have internal processes in place to review data loaded from HSS into PPM2	RGH have internal processes in place to review data loaded into PPM2, then matched to activity	Kalgoorlie undertake reasonableness check against ABF business rules, source systems and with regional stakeholders. Cost per unit values are validated against expectations to identify outliers
Reasonableness test of excluded data and outliers	Yes – annually			
Analysis of outliers at the cost, LOS or cost bucket level	Yes - annually			
Reasonableness of Direct vs overhead allocations	Yes – annually			
Specific business rule tests	Yes			
Costing Data - Governance				
Regular updates with costing staff	Business User Group and WACCSC meet regularly	WACCSC meet regularly	WACCSC meet regularly	WACCSC meet regularly Annual QuARP and PRESTo process
Local guidelines supporting the AHPCS standards framework	Yes	Yes	Yes	Yes
Review of cost allocations		Annual review	Annual review	Annual review
Review on reasonableness of costing data output	Multiple reviews undertaken and any	Multiple reviews undertaken prior to signoff	Multiple reviews undertaken prior to signoff	Multiple reviews undertaken prior to signoff

QA Test	WA Health	SCGH	RGH	Kalgoorlie
	issues are reported back to HSPs			
Formal sign-off	Director General	Executive Director, Business and Performance NMHS	Executive Director, Corporate and Finance SMHS	ED Business Services on behalf of WACHS CEO

Source: Jurisdictional consultations and data quality statement

4.7.2 Improvements

Improvements since Round 22

WA have commenced costing for palliative care and mental health at the phase of care level. A minimum suite of QA tests was implemented for Round 24 (approximately 15 cost tests) to assist in identifying potential issues earlier.

Future improvements in development for round 25

WA Health plan the following improvements for Round 25:

- The improvement in palliative care and mental health costing has not fully matured at this stage, and costs were submitted to IHPA at an episode level with a view to report at phase level for Round 25.
- Work is ongoing to be able to include blood products in future rounds.
- The introduction of a six-month and nine-month costing process to enable assessment of trends and potential issues ahead of the full year.

4.7.3 Sir Charles Gairdner Hospital

SCGH is a 600-bed hospital and is the largest hospitals in the North Metropolitan Health Service (NMHS). The hospital employs approximately 5,500 staff who treat more than 420,000 patients each year.

SCGH provides a comprehensive range of clinical services, including trauma, emergency and critical care, orthopaedics, general medicine, general surgery and cardiac care. In addition, SCGH houses the state's only comprehensive cancer centre and is the state's principal hospital for neurosurgery and liver transplants.

The costing team perform costing for all hospitals within NMHS which includes:

- Sir Charles Gairdner Hospital
- Osborne Park Hospital
- Graylands Hospital
- State Forensic Mental Health Service
- Selby Lodge
- King Edward Memorial Hospital.

NMHS also has a Private Public Partnership (PPP) arrangement for Joondalup Health Campus, however, this campus is excluded from their costing.

Costing is performed at a health service level. There is one GL for NMHS which is then divided into hospitals and costed individually.

Since Round 22, NMHS have implemented phase of care costing for mental health. While mental health costs were submitted to IHPA at episode level for Round 24, the intention is to submit at phase level for Round 25. For Round 25, NMHS have commenced costing for outpatients "did not attends."

Reconciliation

This section discusses major variances, reconciling items and adjustments in the reconciliation process. The information is based on the SCGH data collection template, data quality self-assessment and review discussions.

Table 116 presents a summary reconciliation from the SCGH GL to the final NHCDC submission for Round 24 (2019-20).

SCGH final GL of $990,203,616 was reconciled by the health service to the audited financial statements. This value reflects SCGH's share of the NMHS' GL, which includes SCGH specific cost centres and inclusions of $83,215,378 for SCGH's share of central costs, such as corporate and HSS charges and exclusions of $23,866,115 relating to recoupments and recoveries.

Explanation of reconciling items

Adjustments made at the HSP level (Item B)

- The reclassification rules in the costing system remove out-of-scope costs not associated with patients, including Teaching, Training and Research, from specific cost centres ($2.8m), out of scope services ($4.8m), other block funded programs ($12.5m),

commercial activities ($2.8m) and outpatients and boarders ($15.1m), totalling $38m of adjustments.

The above adjustments established an expenditure base for costing of $952,183,180.

Adjustments made at the jurisdiction level (Item E)

- A WIP adjustment of $31.7m added in costs for patients discharged in the Round 24 year (2019-20) but admitted in the previous (2018-19) year. Similarly, a WIP adjustment of $31.1m removed costs for patients admitted in 2019-20 but not discharged by 30 June 2020.
- DM (dummy/virtual) designated episodes of $23.4m were removed for dummy/virtual records in ancillary services.
- An adjustment of $0.8m related to unmatched records, the bulk of these occurred in the emergency admitted product type.
- Teaching, training and research (TTR) costs of $52.1m were excluded by the jurisdiction. These are calculated based on a proportion of salaries and wages for medical, nursing and allied health, which is based on a previous costing study.

Table 116. Reconciliation from General Ledger to NHCDC Costed Products – Sir Charles Gairdner Hospital

SCGH				Jurisdiction				IHPA		
	Item		Amount		Item		Amount	Item		Amount
Source: Self-Assessment	**A**	General Ledger (GL)	$ 990,203,616	*Source: Data Collection Template*	**D**	Costed Products received by jurisdiction	$ 952,183,180	**G**	Total costed products received by IHPA	$ 876,614,823
	B	Adjustments to the GL			**E**	**Post Allocation Adjustments**	**$ (75,568,355)**	**H**	IHPA Adjustments	$ -
		Inclusions				*WIP 2019-20*	$ (31,063,882)			
		Exclusions	$ **(38,020,434)**			*WIP 2018-19*	$ 31,700,196	**I**	**Final NHCDC costs**	**$ 876,614,823**
		Outpatients and boarders	$ (15,128,396)			*Virtual/dummy records*	$ (23,361,767)			
		Out of scope	$ (4,823,788)			*Unmatched records*	$ (778,888)		% of GL submitted to NHCDC	88.4%
		Other block funded programs	$ (12,532,963)			*Teaching, training and research*	$ (52,064,015)			
		Teaching, Training & Research	$ (2,747,111)			**Total costs submitted to IHPA**	**$ 876,614,825**			
		Commercial activities	$ (2,788,176)							
		Total hospital expenditure	**$ 952,183,180**							
Source: Data Collection Template				*Source: Data Collection Template*						
	C	**Costed products submitted to jurisdiction**			**F**	**Costed products submitted to IHPA**			**Costed products per HNCDC**	
Acute		*Acute care (admitted care)*	$ 632,591,097	**Acute**		*Acute care (admitted care)*	$ 597,326,103		Acute	$ 597,325,047
		Newborn care	$ -			*Newborn care*	$ -		Sub-Acute	$ 11,763,687
Sub-Acute		*Rehabilitation care*	$ -	**Sub-Acute**		*Rehabilitation care*	$ -		Emergency	$ 74,917,446
		Palliative care	$ 2,816,929			*Palliative care*	$ 2,671,674		Non-Admitted	$ 168,180,255
		Geriatric evaluation and management	$ 5,885,760			*Geriatric evaluation and management*	$ 5,471,855		Mental Health	$ 24,140,622
		Psychogeriatric care	$ -			*Psychogeriatric care*	$ -		Other	$ 287,766
		Maintenance care	$ 3,449,149			*Maintenance care*	$ 3,620,158		**Total**	**$ 876,614,823**
Emergency		*Emergency Admitted*	$ 47,888,383	**Emergency**		*Emergency Admitted*	$ 45,308,273			
		Emergency Non-admitted	$ 32,723,832			*Emergency Non-admitted*	$ 29,609,173			
Non-Admitted		*Non-admitted Outpatient Clinic*	$ 175,456,726	**Non-Admitted**		*Non-admitted Outpatient Clinic*	$ 168,180,255			
		Non-admitted Outreach Community	$ -			*Non-admitted Outreach Community*	$ -			
		Non-admitted Mental Health	$ -			*Non-admitted Mental Health*	$ -			
Mental Health		*Admitted Mental Health*	$ 26,999,534	**Mental Health**		*Admitted Mental Health*	$ 24,140,622			
		Mental Health Care Episode	$ -			*Mental Health Care Episode*	$ -			
		Mental Health Care Phase	$ -			*Mental Health Care Phase*	$ -			
		Other admitted patient care	$ 702,130			*Other admitted patient care*	$ -			
		Hospital boarder	$ -			*Hospital boarder*	$ -			
		Organ procurement - posthumous	$ 307,875			*Organ procurement - posthumous*	$ 286,710			
		Other	$ -			*Other*	$ -			
		Research	$ -			*Research*	$ -			
		Teaching & Training	$ -			*Teaching & Training*	$ -			
		Dummy/virtual patients	$ 23,361,767			*Dummy/virtual patients*	$ -			
			$ 952,183,180				**$ 876,614,823**			

Operating room costs and allocation methods

SCGH has 15 theatres and one day procedure room. As a large tertiary teaching hospital, SCGH offers a wide range of surgical specialties, including:

- General surgery
  - Colorectal
  - Upper GI
  - Breast
  - Hepatobiliary/transplant
- ENT
- Neuro surgery
- Orthopedics
- Cardiothoracic
- Otolaryngology Health Neck Skull Base Surgery
- Plastic and Reconstructive
- Vascular and Endovascular Surgery.

The Theatre Management System (TMS) is the feeder for activity, and PPM2 is used for costing. The total post overhead and total post allocation amount for OR was $84m.

The key points to note from the cost submission and discussion regarding operating theatre are as follows:

- There are four costs centres in operating theatre:
  - Operating theatres which accumulates costs for the OR
  - Theatre support services (includes recovery)
  - Anaesthetics
  - Theatre consumables
- TMS records time in theatre, time in anaesthetic and time in recovery in minutes
- TMS records consumables and prosthetics amount
- Staff time is measured in minutes according to surgeon time, nurse time, anaesthetist time and recovery.

SCGH did not report any challenges or problems. However, they acknowledged that there is room for improvement. For example, they are only using minutes, regardless of the operation type. Therefore, minutes are valued the same whether a patient is having a simple scope or complex liver transplant.

Prosthesis costs and allocation methods

SCGH record all prostheses against one account code and prosthesis costs accounted for $23.6m. Prosthesis costs are allocated according to the following:

- Actual charge for prosthesis for each encounter in theatre service file

- NIISWA encounters – prosthetics included in total costs are allocated based on actual charge in radiology service file
- Endoscopy suite encounters – prosthetics included in total cost allocated by ward bed hours
- Cardiac catheter lab encounters – prosthetics costs are allocated by actual charge in cardiac catheter service file
- Pain management encounters – prosthetics included in total costs allocated by ward bed hours
- Radiology – prosthetics included in total cost allocated by actual charge in radiology service file.

TMS records the Medical Benefits Scheme (MBS) rate which is not the actual amount they pay for the prosthetic. SCGH use it as a relative charge rate. Some of the MBS rates are less, but they assume that they are relative (at least 85 per cent).

4.7.4 Sample patient data

IHPA selected a sample of five patients from SCGH for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. The jurisdiction provided the patient level costs for all five patients and these reconciled to IHPA records. Further information relating to the sample records is available in Appendix 1.

4.7.5 Conclusion

The IFR is conducted in accordance with the review methodology detailed in section 1.2 of this report. Based on this methodology, SCGH has suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission. Utilisation of submitted data for purposes such as reporting, benchmarking and price setting is subject to further review of the impact and treatment of COVID-19 related costs by IHPA.

4.7.6 Rockingham General Hospital

Rockingham General Hospital (RGH) operates over 200 beds and delivers services to a population of more than 657,800 within a catchment area stretching 3,300 square kilometres across the southern half of Perth.

RGH is part of the South Metropolitan Health Service (SMHS) which incorporates:

- Fiona Stanley Fremantle Hospital Group
- Rockingham Peel Group
- Peel Health Campus.

RGH provides emergency care, acute and general medicine, geriatric medicine, palliative care, paediatrics, obstetrics and neonatal services, a suite of surgical services, intensive care and psychiatric services.

RGH is part of the Rockingham Peel Group (RkPG), which also includes:

- Murray District Hospital (MDH) – a small specialist hospital providing aged care services. RGH provides medical care into MDH, credentialed with admitting rights
- Mandurah Community Health Centre
- Kwinana Community Health
- Rockingham Community Mental Health Service
- Peel Community Mental Health Service.

HSS staff prepare activity and feeder data into the required PPM format within the staging environment. Internally, Rockingham have processes in place to review the data loaded into PPM and then match to activity.

Reconciliation

This section discusses major variances, reconciling items and adjustments in the reconciliation process. The information is based on the RGH data collection template, data quality self-assessment and review discussions.

Table 127 presents a summary reconciliation from the RGH GL to the final NHCDC submission for Round 24 (2019-20).

The RGH final GL of $270,922,818 was reconciled by the health service to the audited financial statements. This value reflects RGH's share of the SMHS GL, which includes RGH specific cost centres and inclusions of RGH's share of central costs, such as corporate and HSS charges and exclusions relating to recoupments and recoveries.

Explanation of reconciling items

Adjustments made at the HSP level (Item B)

- The reclassification rules in the costing system remove out-of-scope costs not associated with patients, including community health ($4.6m), community mental health ($17.6m), non-ABF ($2.4m) and COVID-19 response ($0.6m), totalling $25.2m of adjustments. A final adjustment of $4.8m relating to the MDH was made.

The above adjustments established an expenditure base for costing of $240,906,788, however an immaterial variance of $52,041 was noted with the final amount submitted to the jurisdiction of $240,854,747.

Adjustments made at the jurisdiction level (Item E)

- A WIP adjustment of $10.4m added in costs for patients discharged in the Round 24 year (2019-20) but admitted in the prior year (2018-19). Similarly, a WIP adjustment of $12.6m removed costs for patients admitted in 2019-20 but not discharged by 30 June 2020
- DM episodes adding up to $2.7m were removed for dummy/virtual records in ancillary services
- An adjustment of $0.8m related to unmatched records, the bulk of these occur in the non-admitted outpatient clinics
- TTR costs of $12.8m were excluded by the jurisdiction. These are calculated based on a proportion of salaries and wages for medical, nursing and allied health, which is based on a previous costing study.

Table 127. Reconciliation from General Ledger to NHCDC Costed Products – Rockingham General Hospital

RGH				Jurisdiction				IHPA		
	Item		Amount		Item		Amount	Item		Amount
Source: Self-Assessment	**A**	General Ledger (GL)	$ 270,922,818	*Source: Data Collection Template*	**D**	Costed Products received by jurisdiction	$ 240,854,747	**G**	Total costed products received by IHPA	$ 222,322,867
	B	Adjustments to the GL			**E**	**Post Allocation Adjustments**	**$ (18,531,879)**	**H**	IHPA Adjustments	$ -
		Inclusions				*WIP 2019-20*	$ (12,630,978)			
		Exclusions	**$ (30,016,030)**			*WIP 2018-19*	$ 10,427,908	**I**	**Final NHCDC costs**	**$ 222,322,867**
		Community health	$ (4,598,077)			*Virtual/dummy records*	$ (2,760,294)			
		Community mental health	$ (17,558,420)			*Unmatched records*	$ (789,711)		% of GL submitted to NHCDC	82.0%
		Non-ABF	$ (2,414,555)			*Teaching, training and research*	$ (12,778,805)			
		COVID-19 response	$ (613,698)			**Total costs submitted to IHPA**	**$ 222,322,867**			
		Murray District Hospital	$ (4,831,280)							
		Total hospital expenditure	**$ 240,906,788**							
Source: Data Collection Template				*Source: Data Collection Template*						
	C	**Costed products submitted to jurisdiction**			**F**	**Costed products submitted to IHPA**			**Costed products per HNCDC**	
Acute		*Acute care (admitted care)*	$ 115,631,468	**Acute**		*Acute care (admitted care)*	$ 106,932,387		Acute	$ 110,623,289
		Newborn care	$ 3,903,065			*Newborn care*	$ 3,690,903		Sub-Acute	$ 21,579,916
Sub-Acute		*Rehabilitation care*	$ 9,985,947	**Sub-Acute**		*Rehabilitation care*	$ 9,461,058		Emergency	$ 42,240,039
		Palliative care	$ 2,448,741			*Palliative care*	$ 2,246,152		Non-Admitted	$ 28,871,047
		Geriatric evaluation and management	$ 2,329,779			*Geriatric evaluation and management*	$ 2,221,925		Mental Health	$ 19,008,576
		Psychogeriatric care	$ 6,609,909			*Psychogeriatric care*	$ 7,268,524		Other	$ -
		Maintenance care	$ 382,304			*Maintenance care*	$ 382,257		**Total**	**$ 222,322,867**
Emergency		*Emergency Admitted*	$ 14,155,034	**Emergency**		*Emergency Admitted*	$ 13,296,731			
		Emergency Non-admitted	$ 30,945,775			*Emergency Non-admitted*	$ 28,943,309			
Non-Admitted		*Non-admitted Outpatient Clinic*	$ 31,198,932	**Non-Admitted**		*Non-admitted Outpatient Clinic*	$ 28,871,047			
		Non-admitted Outreach Community	$ -			*Non-admitted Outreach Community*	$ -			
		Non-admitted Mental Health	$ -			*Non-admitted Mental Health*	$ -			
Mental Health		*Admitted Mental Health*	$ 19,644,943	**Mental Health**		*Admitted Mental Health*	$ 19,008,576			
		Mental Health Care Episode	$ -			*Mental Health Care Episode*	$ -			
		Mental Health Care Phase	$ -			*Mental Health Care Phase*	$ -			
		Other admitted patient care	$ 858,557			*Other admitted patient care*	$ -			
		Hospital boarder	$ -			*Hospital boarder*	$ -			
		Organ procurement - posthumous	$ -			*Organ procurement - posthumous*	$ -			
		Other	$ -			*Other*	$ -			
		Research	$ -			*Research*	$ -			
		Teaching & Training	$ -			*Teaching & Training*	$ -			
		Dummy/virtual patients	$ 2,760,294			*Dummy/virtual patients*	$ -			
			$ 240,854,747				**$ 222,322,867**			

Operating room costs and allocation methods

RGH have five theatres and one day procedure unit. RGH perform a wide range of surgical specialities, including:

- ear nose and throat
- gastroenterology
- general surgery
- obstetrics and gynaecology
- maxillofacial
- ophthalmology
- orthopaedics (including hips and knees)
- urology.

The TMS is the feeder for activity, and RGH use PPM2 as their costing system. TMS records time in theatre, anaesthesia time, and time in recovery in minutes. RGH have one cost centre and all costs are contained to that cost centre. The total post overhead and total post allocation amount for OR was $13.6m.

The key points to note from the cost submission and discussion regarding operating theatre are as follows:

- There is a dedicated cost centre to capture nursing staff for theatre and recovery areas, and a dedicated cost centre to capture anaesthetic staff
- Staff time is measured in minutes according to surgeon time, nurse time, anaesthetist time and time in recovery
- Procedures are matched to encounters
- There is no delineation in cost of operating time/procedure delivered to patient, therefore costs are calculated as a single cost per minute of consumption
- The value at a patient level is determined by multiplying cost per minute with the duration.

The ongoing challenge that RGH have is capturing surgical time and determining the fraction of their time dedicated to the surgeon's theatre list.

Prosthesis costs and allocation methods

RGH record all prostheses against one account code. Prosthesis costs accounted for $1.7m. Procedures are matched to a patient encounter view case-matching rules and there is a reclass rule to pool expenses into the central cost centre. RGH use TMS as the feeder system that manages prosthesis. All implants have an ID which has a purchase price linked to it and the value is assigned to the patient. This is stored in TMS and is used as a RVU.

RGH can directly align prostheses to patients and make every effort to ensure they fully account the dollars to activity. If TMS displays that a patient did or did not have an implant, this information is regarded as accurate. RGH undertakes some quality checks, for example, if a patient has a DRG that indicates a prosthesis, and the patient did not have one according to TMS, the record will be queried. RGH have the ability to benchmark across two health

services and there are also screening reports as produced by the WA Health to which they validate the results across the various patient products.

RGH have the same approach to costing prosthesis for both public and private patients.

4.7.7 Sample patient data

IHPA selected a sample of five patients from RGH for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. The jurisdiction provided the patient level costs for all five patients and these reconciled to IHPA records. Further information relating to the sample records is available in Appendix 1.

4.7.8 Conclusion

The IFR is conducted in accordance with the review methodology detailed in section 1.2 of this report. Based on this methodology, RGH has suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission. Utilisation of submitted data for purposes such as reporting, benchmarking and price setting is subject to further review of the impact and treatment of COVID-19 related costs by IHPA.

4.7.9 Kalgoorlie Hospital

The KHC is in the Goldfields region of WA and is geographically the largest of the seven regions in the WA Country Health Service (WACHS), covering the entire south east corner of the state. Kalgoorlie is a 131-bed facility, includes an ED and provides a range of services including an oncology unit, obstetric services, maintenance renal dialysis unit, paediatric services, psychiatric unit, palliative care unit (which includes accommodation units for cancer patients) and areas for allied health services such as physiotherapy, occupational health, audiology, dietetics, podiatry and social work. KHC is the largest regional hospital in WA.

HSS staff prepare activity and feeder data to support the shared WA Health instance of PPM. The business user groups then agree to any changes to activity and feeder data extracts.

Reconciliation

This section discusses major variances, reconciling items and adjustments in the reconciliation process. The information is based on the KHC data collection template, data quality self-assessment and review discussions.

Table 138 presents a summary reconciliation from the KHC GL to the final NHCDC submission for Round 24 (2019-20).

The KHC final GL of $99,916,352 was reconciled by the health service to the audited financial statements at the Country Health summary level of Goldfields (Kalgoorlie and Esperance). This value reflects KHC's share of the WACHS GL, which includes Kalgoorlie specific cost centres, locally managed WIP and inclusions of KHC's share of central costs and exclusions relating to non-hospital products and recoups and recoveries.

Explanation of reconciling items

Adjustments made at the HSP level (Item B)

No other adjustments were made at the HSP level, however an immaterial variance of $21,476 was noted with the final amount submitted to the jurisdiction of $99,894,876.

Adjustments made at the jurisdiction level (Item E)

- A WIP adjustment of $1.2m was made for patients who were discharged in the Round 24 year (2019-20) but admitted in the prior year (2018-19). Similarly, a WIP adjustment of $1.8m removed costs for patients admitted in 2019-20 but not discharged by 30 June 2020
- Removal of $77k for dummy/virtual records in ancillary services, i.e. pathology and imaging, which were stripped out
- An adjustment of $0.3m related to unmatched records, the bulk of these occur in the subacute product type
- TTR costs of $3.7m have been excluded. These are calculated based on a proportion of salaries and wages for medical, nursing and allied health areas.

Table 138. Reconciliation from General Ledger to NHCDC Costed Products – Kalgoorlie Hospital

Hospital				Jurisdiction				IHPA		
	Item		Amount		Item		Amount	Item		Amount
Source: Self-Assessment	**A**	General Ledger (GL)	$ 99,916,352	*Source: Data Collection Template*	**D**	Costed Products received by jurisdiction	$ **99,894,876**	**G**	Total costed products received by IHPA	$ 95,263,503
	B	Adjustments to the GL			**E**	**Post Allocation Adjustments**	**$ (4,631,373)**	**H**	IHPA Adjustments	$ -
		Inclusions				*WIP 2019-20*	$ (1,754,451)			
		Exclusions				*WIP 2018-19*	$ 1,176,635	**I**	**Final NHCDC costs**	**$ 95,263,503**
		Total hospital expenditure	**$ 99,916,352**			*Virtual/dummy records*	$ (77,337)			
						Unmatched records	$ (291,683)		% of GL submitted to NHCDC	95.2%
						Teaching, training and research	$ (3,684,537)			
						Total costs submitted to IHPA	**$ 95,263,503**			
Source: Data Collection Template				*Source: Data Collection Template*						
	C	**Costed products submitted to jurisdiction**			**F**	**Costed products submitted to IHPA**			**Costed products per HNCDC**	
Acute		*Acute care (admitted care)*	$ 51,695,087	**Acute**		*Acute care (admitted care)*	$ 49,659,305		Acute	$ 51,085,700
		Newborn care	$ 1,485,271			*Newborn care*	$ 17,190,045		Sub-Acute	$ 2,688,003
Sub-Acute		*Rehabilitation care*	$ 1,141,772	**Sub-Acute**		*Rehabilitation care*	$ 1,064,808		Emergency	$ 24,063,202
		Palliative care	$ 796,781			*Palliative care*	$ 1,426,395		Non-Admitted	$ 10,158,420
		Geriatric evaluation and management	$ -			*Geriatric evaluation and management*	$ -		Mental Health	$ 7,268,178
		Psychogeriatric care	$ -			*Psychogeriatric care*	$ -		Other	$ -
		Maintenance care	$ 678,433			*Maintenance care*	$ 844,968		**Total**	**$ 95,263,503**
Emergency		*Emergency Admitted*	$ 7,166,978	**Emergency**		*Emergency Admitted*	$ 6,873,157			
		Emergency Non-admitted	$ 17,997,120			*Emergency Non-admitted*	$ 10,158,420			
Non-Admitted		*Non-admitted Outpatient Clinic*	$ 10,737,169	**Non-Admitted**		*Non-admitted Outpatient Clinic*	$ 778,227			
		Non-admitted Outreach Community	$ -			*Non-admitted Outreach Community*	$ -			
		Non-admitted Mental Health	$ -			*Non-admitted Mental Health*	$ -			
Mental Health		*Admitted Mental Health*	$ 7,310,826	**Mental Health**		*Admitted Mental Health*	$ 7,268,178			
		Mental Health Care Episode	$ -			*Mental Health Care Episode*	$ -			
		Mental Health Care Phase	$ -			*Mental Health Care Phase*	$ -			
		Other admitted patient care	$ 808,104			*Other admitted patient care*	$ -			
		Hospital boarder	$ -			*Hospital boarder*	$ -			
		Organ procurement - posthumous	$ -			*Organ procurement - posthumous*	$ -			
		Other	$ -			*Other*	$ -			
		Research	$ -			*Research*	$ -			
		Teaching & Training	$ -			*Teaching & Training*	$ -			
		Dummy/virtual patients	$ 77,337			*Dummy/virtual patients*	$ -			
			$ 99,894,876				**$ 95,263,503**			

Quality Assurance

The QA process at KHC is facilitated by two tools:

1. Regional consultation from September – November 2020 using the **Quality Assurance Review Process (QuARP)** toolkit. This tool is used to sense-check the costing outputs and contains a dashboard that breaks down costing outputs at ward, product, DRG and patient level, including comparisons to funding. It contains detail of overhead allocations and adjustments made during the costing process. It is used to interview and interchange with regional stakeholders via a spreadsheet summary.
2. **Performance Reporting and Efficiency Support Tool (PRESTo)** is used for results reporting and was undertaken in December 2020/January 2021. It is a highly visual tool that is used to share the costing outputs.

Operating room costs and allocation methods

KHC has an operating suite that is comprised of two surgical theatres. Services include:

- general surgery
- orthopaedics
- obstetrics/gynaecology
- minor surgical procedures.

Surgery is provided by both local and visiting surgeons. Elective surgery is planned on a six week program which tends to the suit fly in fly out (FIFO) cycle.

The TMS is the feeder for activity, and PPM2 for costing. The total post overhead and total post allocation amount for OR was $8.2m.

The key points to note from the cost submission and discussion regarding operating theatre are as follows:

- KHC has one cost centre and all costs are contained within it
- TMS records time in theatre, time in anaesthetic and time in recovery in minutes
- Staff time is measured in minutes according to surgeon time, nurse time, anaesthetist time and recovery.

Prosthesis costs and allocation methods

KHC record all prostheses against one account code. Prosthesis costs accounted for $92,000. They have a reclass rule to pool expenses into the central cost centre. KHC use TMS as the feeder system that manages prosthesis. KHC have the same approach to costing prosthesis for both public and private patients.

4.7.10 Sample patient data

IHPA selected a sample of five patients from KHC for the purposes of testing the data flow from jurisdictions to IHPA at the patient level. The jurisdiction provided the patient level costs for all five patients and these reconciled to IHPA records. Further information relating to the sample records is available in Appendix 1.

4.7.11 Conclusion

The IFR is conducted in accordance with the review methodology detailed in section 1.2 of this report. Based on this methodology, KHC has suitable reconciliation processes in place and the financial data is considered fit for NHCDC submission. Utilisation of submitted data for purposes such as reporting, benchmarking and price setting is subject to further review of the impact and treatment of COVID-19 related costs by IHPA.

5 IHPA Review

5.1 IHPA process for the NHCDC

The below NHCDC timeframes are published in IHPA's Three Year Data Plan, covering the period 2018-19 to 2020-21. The milestones reflect a process, which involves submission to the NHCDC through the data submission portal, validation and QA of submitted data and finalisation of the costing database for the publication of national cost weights by 31 May each year.

Table 149. NHCDC submission timeline

NHCDC Round	Data reporting period	Data request sent	Submission date	IHPA to validate data by	Final dataset created
22	2017-18	31 Jul 18	28 Feb 19	30 April 19	31 May 19
23	2018-19	31 Jul 19	28 Feb 20	30 April 20	29 May 20
24	2019-20	31 Jul 20	1 Mar 21	30 April 21	31 May 21

Source: IHPA's Three Year Data Plan 2018-19 to 2020-21

IHPA oversees the NHCDC with continuous involvement of jurisdictional and hospital costing staff as represented through the NHCDC Advisory Committee. During the NHCDC study period, IHPA staff hold internal meetings to discuss the progress of the NHCDC.

IHPA's process can be separated 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. For Round 24, IHPA published the DRS on the 30 July 2020, which contained the format of data items to be submitted, the validation rules for the CostA (activity) and CostC (cost) files, and validation rules for linking checks to activity files, as well as reference files, such as line items and cost centres. The DRS is used by jurisdictions to guide data submission for the NHCDC round. IHPA consult any changes to the validation rules that are to be applied to the DRS with the National Advisory Committee (NAC). This provides jurisdictions with the opportunity to comment and provide feedback on the QA processes.

Each phase of the process described below applies to all data submitted by jurisdictions at either the hospital, LHN or jurisdictional level.

Portal data collection

The first stage involves the collection of all jurisdictions' data submitted via the data submission portal to the IHPA, which provides a secure system for users to upload and download data in all file formats. Various automated cross-validation and linking checks occur and the output of cross validation checks are provided to jurisdictions. Following review, jurisdictions are able to validate data multiple times, update for critical errors and re-submit. This can occur by health service, therefore there is no need to re-submit all jurisdiction data if a critical error is identified.

During this stage, there are various checks undertaken (all logic checks are listed in the DRS) including whether:

- the CostA and CostC files met the data requirements, as set out in the NHCDC DRS
- all episodes recorded in the CostA file were present in the CostC file and vice versa
- the CostA data matched against the ABF data submission.

The portal also contains a number of reports for IHPA and jurisdictions to monitor the consolidated submission which detail errors, and summaries of expenditure and activity. The portal data tables are updated every time a data file is re-uploaded to the portal.

Extract Transform Load (ETL)

Once jurisdictions confirm that their submitted data was absent of critical errors and they are satisfied with the validation reports, the Extract, Transform and Load (ETL) process is conducted by IHPA's Data Acquisition Seam.

IHPA undertakes the NHCDC ETL process once each jurisdiction has submitted data free of critical errors. IHPA applies a number of business rules to the raw data files, including linking to ABF data files, updating product types, creating cost buckets, linking emergency department activity with corresponding admitted episodes, and combining costs for unqualified babies (UQB) with mother episodes.

The cost buckets are created using the cost centre and line item information submitted by each hospital. The AHPCS contain the cost bucket matrix, clearly identifying the allocation of cost bucket for each combination of cost centre and line item.

At this point, costs are grouped in to cost buckets and adjustments for UQB are made. The UQB allocation process follows the creation of cost buckets from line items and cost centres, and the linking of the ABF and NHCDC datasets. The UQB adjustment combines the costs of a UQB separation to a mother separation. This is not an additional cost but a movement of costs between patients.

Other adjustments could occur if data is not reasonable and, with consensus from the jurisdiction, these may be removed, i.e. if costs are not matched to activity or if Mental Health costs are not reasonable. Once these adjustments are made, the file is then divided into the various product types such as admitted acute, emergency, and non-admitted.

Quality assurance (QA) reports

The QA reports are generated by the Data Analytics Section and they are reviewed internally and approved by the Data Analytics Executive Director prior to being distributed to jurisdictions.

The QA process produces a set of QA reports that operate as interactive tools to allow jurisdictions to investigate specific areas or correct errors in the form of an Excel workbook. These are provided to jurisdictions to review and action should material errors be found or provide clarification to IHPA on any issues highlighted in the QA reports. The workbook contains numerous tabs with tables and graphs (including in and out of scope) analysing current year verses previous years. The tables are conditionally formatted to quickly highlight results that diverge from the accepted tolerances.

Round 24 (2019-20) included a tab for COVID-19 cost centres and there was also an acknowledgement that delays in elective surgery and some activity reductions may have impacted the respective tolerances for the QA checks.

The Acute tab is the most relevant stream for the calculation of the NEP, and the calculations for percentage change and outliers are analysed at the DRG level, however all tabs are analysed. Any odd movements or unreasonableness are highlighted and the top three DRGs with major change are sent to the jurisdiction by e-mail with the respective narrative to notify them of any items that may require further investigation or comment.

Final submission and output

After review by IHPA and the jurisdictions, the data sets are re-submitted by jurisdictions, as appropriate, to correct any issues. After all issues are resolved and any modifications undertaken, the jurisdiction confirm their data is final, together with the completed DQS. IHPA will then create the final NHCDC datasets.

Before the final output is produced by IHPA, there is a final internal QA process conducted by the respective data teams where each costing stream is analysed to ensure all submitted data has been captured and reconciled to the final submission. Once this process is finalised, a minute to the IHPA Executive to endorse and approve the release of the cost weight tables to jurisdictions.

IHPA send to each jurisdiction the various cost tables to allow jurisdictions to analyse where they compare to the national cost weight tables. IHPA do not generally receive any feedback on this part of the process. The respective teams then prepare the NHCDC appendix.

5.1.2 Improvements

Improvements since Round 22

The following improvements for Round 24 (2019-20) were identified:

- In Round 23 (2018-19), IHPA changed the way the DQS is structured, and it was updated to include more questions to ensure the NHCDC is still fit for purpose for the NEP. The additional questions streamlined the process in understanding how jurisdictions undertake their respective data submissions.
- Major change to the cost bucket matrix with rules embedded into the costing mechanism and used for the ETL process.
- Updated the DRS to improve the linking between activity and costing, using the ABF activity as the source of truth allowed for less ‘unlinked’ records.
- The data structure shifted from product type to care type with the addition of extra care types to provide more granularity.
- Introduced a new line item in the DRS to capture lease information better after a review of the lease standard.

Future improvements in development for Round 25 (2020-21)

The following improvements for Round 25 were identified:

- Working towards making QA process automated via the IHPA’s data portal. At the time of submission, if data is validated instantly then jurisdictions should be able to receive the QA report immediately to conduct their reviews.
- Having jurisdictions submit their DQS earlier, similar to activity data and with the data submission.

- Continue to improve the benchmarking portal and allow for jurisdictions to manipulate and change variables for analysis.

Appendix 1. Sample patient data

Table30. Sample patient data summary by jurisdiction

Jurisdiction	Site	Stream	Jurisdiction Records	Received by IHPA	Variance
ACT	Calvary Public Health	Acute	$619,386.29	$619,386.29	$ -
		Sub Acute	$74,381.17	$74,381.17	$ -
		ED	$10,640.48	$10,640.48	$ -
		Non-Admitted	$42,957.46	$42,957.46	$ -
		Mental Health	$141,242.48	$141,242.48	$ -
NSW	Bourke St Health Service Goulburn	Acute	$21,633.59	$21,633.59	$ -
		Sub Acute	$117,078.51	$117,078.51	$ -
		ED	N/A	N/A	N/A
		Non-Admitted	$1,365.77	$1,365.77	$ -
		Mental Health	N/A	N/A	N/A
	Goulburn Base Hospital	Acute	$71,067.21	$71,067.21	$ -
		Sub Acute	$160,917.56	$160,917.56	$ -
		ED	$12,397.25	$12,397.25	$ -
		Non-Admitted	$1,591.64	$1,591.64	$ -
		Mental Health	$74,723.81	$74,723.81	$ -
	Bega District Hospital	Acute	$91,907.83	$91,907.83	$ -
		Sub Acute	$85,143.08	$85,143.08	$ -
		ED	$14,342.87	$14,342.87	$ -
		Non-Admitted	$1,065.17	$1,065.17	$ -
		Mental Health	$120,840.63	$120,840.63	$ -
NT	Royal Darwin Hospital	Acute	$1,222.12	$1,222.12	$ -
		Sub Acute	$3,811.69	$3,811.69	$ -
		ED	$16,872.60	$16,872.60	$ -

Jurisdiction	Site	Stream	Jurisdiction Records	Received by IHPA	Variance
		Non-Admitted	$395.15	$395.15	$ -
		Mental Health	$392.48	$392.48	$ -
QLD	Longreach Hospital	Acute	$31,853.11	$31,853.11	$ -
		Sub Acute	$17,408.24	$17,408.24	$ -
		ED	$15,474.70	$15,474.70	$ -
		Non-Admitted	$1,807.52	$1,807.52	$ -
		Mental Health	$4,744.10	$4,744.10	$ -
	Cairns Hospital	Acute	$68.63	$68.65	$0.02
		Sub Acute	$133,035.85	$133,035.85	$ -
		ED	$34,418.99	$34,418.99	$ -
		Non-Admitted	$62,891.61	$62,891.61	$ -
		Mental Health	$73,026.43	$73,026.43	$ -
	Sunshine Coast Public University Hospital	Acute	$248,885.57	$248,885.57	$ -
		Sub Acute	$13.48	$13.48	$ -
		ED	$852.71	$852.71	$ -
		Non-Admitted	$213.57	$213.57	$ -
		Mental Health	$1,681.63	$1,681.63	$ -
SA	The Queen Elizabeth Hospital	Acute	$309,619.63	$309,619.62	$0.01
		Sub Acute	$130,958.61	$130,958.61	$ -
		ED	$11,176.58	$11,176.58	$ -
		Non-Admitted	$453.17	$453.17	$ -
		Mental Health	N/A	$183,349.40	$183,349.40
	Riverland Regional Health Service	Acute	$391.57	$391.57	$ -
		Sub Acute	$44,029.13	$44,029.13	$ -
		ED	$86.99	$86.99	$ -

Jurisdiction	Site	Stream	Jurisdiction Records	Received by IHPA	Variance
		Non-Admitted	$309.99	$309.99	$ -
		Mental Health	$69,630.77	$69,630.77	$ -
VIC	Goulburn Valley Health	Acute	$55,527.75	$55,527.75	$ -
		Sub Acute	$156,991.34	$156,991.35	$0.01
		ED	N/A	N/A	N/A
		Non-Admitted	N/A	N/A	N/A
		Mental Health	N/A	N/A	N/A
	Northern Hospital	Acute	$259,285.50	$259,285.50	$ -
		Sub Acute	$10,632.56	$10,632.56	$ -
		ED	$9,327.53	$9,327.53	$ -
		Non-Admitted	$14,354.16	$14,354.16	$ -
		Mental Health	$90,349.69	$90,349.69	$ -
	University Hospital Geelong	Acute	$373,095.85	$373,095.85	$ -
		Sub Acute	$23,730.96	$23,730.96	$ -
		ED	$15,732.82	$15,732.82	$ -
		Non-Admitted	$153,996.81	$153,996.81	$ -
		Mental Health	$25,138.07	$25,138.07	$ -
WA	Kalgoorlie Hospital	Acute	$52,420.79	$52,420.79	$ -
		Sub Acute	$121,549.98	$121,549.98	$ -
		ED	$587.39	$587.39	$ -
		Non-Admitted	$1,153.37	$1,153.37	$ -
		Mental Health	$107,334.14	$107,334.14	$ -
	Rockingham Hospital	Acute	$726.00	$726.00	$ -
		Sub Acute	$165,737.43	$165,737.43	$ -
		ED	$3,620.54	$3,620.54	$ -

Jurisdiction	Site	Stream	Jurisdiction Records	Received by IHPA	Variance
		Non-Admitted	$11,914.00	$11,914.00	$ -
		Mental Health	$725.69	$725.69	$ -
	Sir Charles Gairdner Hospital	Acute	$613.88	$613.88	$ -
		Sub Acute	$45,101.06	$45,101.06	$ -
		ED	$696.58	$696.58	$ -
		Non-Admitted	$30.55	$30.55	$ -
		Mental Health	$299,435.55	$299,435.55	$ -

Appendix 2. Acronym/Abbreviation

Acronym/Abbreviation	Description
ABF	Activity Based Funding
ABM	Activity Based Management
ACTHD	ACT Health Directorate
AHPCS	Australian Hospital Patient Costing Standards
AIHW	Australian Institute of Health and Welfare
BAU	business as usual
BH	Barwon Health
CHA	Children's Healthcare Australasia
CPHB	Calvary Public Hospital Bruce
CAG	NSW Cost Accounting Guidelines
CAHS	Central Australia Health Service
CALHN	Central Adelaide LHN
CCN	Clinical Costing Network
CHHHS	Cairns and Hinterland Hospital and Health Service
CSUG	Costing Standards User Group
CWG	Costing working group
CWH	Central West Health
DH	Department of Health
DHW	Department of Health and Wellbeing
DoH	Department of Health
DQS	Data Quality Statement
DRG	Diagnosis Related Group
DRS	Data Request Specification
DSU	Decision Support Unit
ED	Emergency Department
EMR	Electronic Medical Record
ETL	Extract, Transform and Load
FIFO	Fly in fly out
GL	General ledger
GVH	Goulburn Valley Health
HFMA	Healthcare Financial Management Association
HHS	Hospital and Health Services
HPV	Health Purchase Victoria
HSP	Health Service Provider
HSS	Health Support Services
IFR	Independent Financial Review
IHPA	Independent Hospital Pricing Authority
KHC	Kalgoorlie Health Campus
KPI	Key performance indicator

Acronym/Abbreviation	Description
LHD	Local Health District
LHN	Local Health Network
LSL	Long Service Leave
MBS	Medical Benefits Scheme
MDH	Murray District Hospital
MET	Medical emergency team
MPS	Multipurpose Services
NAC	NHCDC Advisory Committee
NAP	Non-admitted Patient
NBA	National Blood Allocation
NEP	National Efficient Price
NH	Northern Health
NHCDC	National Hospital Cost Data Collection
NMHS	North Metropolitan Health Service
NSW	New South Wales
NT	Northern Territory
OR	Operating Room
ORMIS	Operating Room Management Information System
PAS	Patient administration system
PFRACs	Product Fractions
PHC	Primary Health Centre
PHS	Power Health Solutions
PPM	Power Performance Manager
PPM2	Power Performance Manager 2
PPP	Private Public Partnership
PRESTo	Performance Reporting and Efficiency Support Tool
PRH	Palmerston Regional Hospital
QA	Quality assurance
QEH	Queen Elizabeth Hospital
QuARP	Quality Assurance Review Process
RAH	Royal Adelaide Hospital
RDH	Royal Darwin Hospital
RGH	Rockingham General Hospital
RkPG	Rockingham Peel Group
RMCLHN	Riverland Mallee Coorong Local Health Network
ROPP	Rights of private practice
RRHS	Riverland Regional Health Service
RSS	Rural Support Services
RVU	Relative Value Unit
SA	South Australia
SAMI	A Medical Imaging

Acronym/Abbreviation	Description
SCGH	Sir Charles Gairdner Hospital
SCHHS	Sunshine Coast Hospital and Health Service
SCUH	Sunshine Coast University Hospital
SMHS	South Metropolitan Health Service
SNSWLHD	Southern New South Wales Local Health District
SQL	Structured Query Language
TEHS	Top End Health Service
TMS	Theatre Management System
TQEH	The Queen Elizabeth Hospital
TTR	Teaching, training and research
UQB	unqualified babies
URNs	Unique Record Number
VCDC	Victorian Cost Data Collection
VINAH	Victorian Integrated Non-Admitted Health
VTWG	Victorian Costing Working Group
WA	Western Australia
WACCSC	WA Clinical Costing Standards Committee
WACHS	WA Country Health Service
WA Health	WA Department of Health
WHA	Women's Healthcare Australasia
WHA / CHA	Women's and Children's Healthcare Australasia's
WIP	Work-In-Progress

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