NHCDC Round 23 Data Quality

Healthcare Purchasing and System Performance

National Hospital Cost Data Collection Round 23

Data Quality Statement - Queensland

1. Overview of Costing Environment

Queensland comprises sixteen Hospital and Health Services (HHS) plus the Mater Public Hospitals (Brisbane), each providing health services to the community in admitted and non-admitted settings (acute, sub-acute, non-acute, emergency, facility-based outpatient ambulatory clinics and community-based heath intervention and support services).

Each HHS and the Mater undertake costing of their services and provide cost data to the Department which is then submitted to the National Hospital Data Collection (NHCDC). The NHCDC is the primary data collection used to develop the National Efficient Price (NEP). To ensure accurate information is submitted to the NHCDC and subsequently available for the NEP determination, there are validation and quality assurance processes conducted.

The following describes the costing processes and data quality issues that have been identified in the NHCDC Round 23 (2018-2019) data for Queensland.

1.1 Processing the cost data

Of the sixteen HHSs plus the Mater Public Hospitals (Brisbane), four of the HHSs are in rural and remote areas and the costing process is undertaken on behalf of these HHSs by the costing team within the Department. The remaining HHSs plus the Mater Public Hospitals (Brisbane) have their own costing teams that undertake the costing themselves.

1.2 Costing frequency

The frequency the HHSs do the costing ranges from daily to annually, with the majority doing it on a monthly basis. Once the cost data are finalised for the year, the data are extracted from each HHS's costing system and submitted to the costing team within the Queensland Department of Health.

1.3 Costing systems

For the period covered in this report (2018-2019), there were three costing systems in use across the Queensland; Transition II, Power Performance Manager and CostPro. During 2019-2020, the legacy costing system Transition II, which was used by the majority of HHSs, is being decommissioned and CostPro implemented as a state-wide solution.

1.4 Jurisdiction training and support

Each HHS is a statutory body governed by a Hospital and Health Board. Each has experienced costing practitioners with the necessary expertise to undertake the costing and to manage and train users in costing methodology and the technical skills required to operate the costing system. There is a Department of Health costing team that works closely with each HHS providing technical advice and expertise regarding clinical costing issues as required. The Department costing team makes clinical costing resource material available including costing guidelines and standards.

1.5 Costing improvements

Queensland HHSs continually monitor the implementation of new clinical data collection systems to assess whether they can be utilised for clinical costing, and they also work collaboratively with data managers to improve existing systems to attain minimum requirements for costing.

Improvements have been made in the costing of HHS's using utilisation data from the continued rollout of several systems in Round 23:

- Integrated electronic medical record (ieMR)
- Patient Retrieval and Transport
- Oral Health
- Breast Screening

The rollout of the ieMR is a state priority as this system delivers an integrated suite of digital health care services that improve safety, efficiency and quality in clinical workflow processes. The introduction of this software has altered work practices which has in turn generated some activity movements. During 2018-2019, the following ieMR modules were rolled-out across the following sites, replacing the previous information systems at these hospitals:

- Enterprise Scheduling Management (ESM), utilised predominantly for non-admitted patients: Ipswich Hospital, Queen Elizabeth II Jubilee Hospital, Redland Hospital, Sunshine Coast University Hospital, Beaudesert Hospital, Nambour General Hospital, Townsville University Hospital, Robina Hospital and Gold Coast University Hospital.
- FirstNet, which is system capturing presentations and workflows within an Emergency Department: Ipswich Hospital, Redland Hospital, Sunshine Coast University Hospital, Beaudesert Hospital, Nambour General Hospital and Gold Coast University Hospital.
- SurgiNet, which is a system to workflow patients through and in the operating theatres: Ipswich Hospital, Redland Hospital, Sunshine Coast University Hospital, Beaudesert Hospital, Nambour General Hospital and Gold Coast University Hospital.

2. Submitted Cost Data

Of the 519 facilities which have been costed at patient or service level in the 2018-2019 fiscal year (including several facilities that are out of scope for the NHCDC such as nursing homes for which cost data are held by the Department of Health), 210 were submitted as part of the NHCDC in Round 23. The excluded facilities accounted for 11.0 per cent of costs and are all out of scope for the NEP and NEC determination.

2.1 Submitted Facilities

There were 210 facilities reported in Round 23, a net increase of 14 facilities over Round 22. Table 1 below shows the changes between Rounds by funding type and facility type. The Activity Based Funding (ABF) hospitals were consistent between Rounds, with changes occurring in the block funded facilities.

Table 1: Count of facilities by funding type and facility type

Funding Type	Facility Type	Round 23	Round 22
ABF	LICENSED PRIVATE ACUTE HOSPITAL - PUBLICLY FUNDED ACTIVITY	2	2
ABF	RECOGNISED PUBLIC HOSPITAL	34	34
BLOCK	PUBLIC COMMUNITY MENTAL HEALTH FACILITY	76	65
BLOCK	PUBLIC PSYCHIATRIC HOSPITAL FACILITY	4	3
BLOCK	RECOGNISED PUBLIC HOSPITAL	69	70
BLOCK	PRIMARY HEALTH CENTRE	25	22
Total		**210**	**196**

Table 2 (below) shows the change of costs submitted to NHCDC between Rounds by facility type and funding type. It shows an increase of approximately 7.8 per cent across the ABF hospitals, and a 1.9 per cent increase for block funded hospitals.

Table 2: Costs submitted to NHCDC by funding type and facility type

Funding Type	Facility Type	Round 23 ($)	Round 22 ($)	Change $	Change %
ABF	LICENSED PRIVATE ACUTE HOSPITAL - PUBLICLY FUNDED ACTIVITY	462,240,410	429,333,364	32,907,046	7.7%
ABF	RECOGNISED PUBLIC HOSPITAL	10,281,864,393	9,539,863,312	742,001,081	7.8%
ABF - Total		***10,744,104,803***	***9,969,196,675***	***774,908,128***	***7.8%***
BLOCK	PUBLIC COMMUNITY MENTAL HEALTH FACILITY	277,082,406	285,387,516	-8,305,111	-2.9%
BLOCK	PUBLIC PSYCHIATRIC HOSPITAL FACILITY	49,203,872	43,208,032	5,995,839	13.9%
BLOCK	RECOGNISED PUBLIC HOSPITAL	589,104,339	564,906,704	24,197,634	4.3%
BLOCK	PRIMARY HEALTH CENTRE	20,314,264	24,721,680	-4,407,416	-17.8%
BLOCK - Total		***935,704,879***	***918,223,933***	***17,480,947***	***1.9%***
Total		**11,679,809,683**	**10,887,420,608**	**792,389,074**	**7.3%**

2.2 Costing movements between Rounds

Admitted Acute

Table 3 below shows that for admitted acute episodes, there was an increase of 5.6 per cent in separations and the average cost per separation increased by 0.4% per cent between Round 22 and Round 23.

Table 3: Comparisons between Rounds after adjusting for casemix (acute separations)

	Round 23	Round 22	% change
Acute Separations	1,478,969	1,400,536	5.6%
Average cost per acute separation	$4,542	$4,523	0.4%
Weighted separations	4,601	4,523	1.7%
Casemix Index	0.987	1.000	-1.3%
Average cost per weighted separation	$4,601	$4,523	1.7%

For valid comparison between Rounds, the data are adjusted for casemix (i.e. adjusted for the acuity of the episodes treated between the two Rounds). Using the national public cost weights from the previous Round as the basis for comparison, after adjusting for casemix, the weighted separations increased by 1.7 per cent (compared to an increase of 5.6 per cent in unadjusted separations) and the average cost per weighted separation increased by 1.7 per cent (compared to an increase of 0.4 per cent for unadjusted separations).

Cost buckets

In terms of percentage, the most significant change between Rounds was an approximately 50 per cent decrease in the average cost of the On-costs cost bucket across all program streams. This was due to account codes that were previously mapped to On-costs being updated and re-mapped to the appropriate labour streams. The total encounter cost or product cost is not affected, the on-costs are re-distributed to the labour streams. The affected costs total approximately $312 million which equates to a 3.7 per cent increase in the costs allocated to the salary and wages items. These costs are then allocated to the cost buckets according to the cost bucket matrix mappings.

2.3 Factors influencing submission

Unlinked diagnostic data

Pathology, imaging and pharmacy records that are not able to be matched or linked to an encounter through the data matching process are currently out-of-scope for NHCDC. These records occur for several reasons e.g. external referrals. There will be a proportion that are false negatives (i.e. utilisation that should have linked but did not). An example would be a pharmacy script prescribed during a hospital event but presented outside the time periods defined in the linking business rules. Using the date-of-order can improve matching results but this is not available in some system extracts so the date the service was provided is used which can increase the risk of false negatives. This is currently being addressed during the implementation of the new costing system and will improve matching rates in future submissions.

There is approximately $173 million of unlinked diagnostic costs which is an extra 1.5 per cent in addition to the costs submitted to NHCDC. See Table 4 below.

Table 4: Unlinked diagnostics by ABF facility type

ABF Facility	Number of Unlinked Diagnostics	Unlinked Diagnostics (%)	Unlinked Diagnostics Cost ($)	Unlinked Diagnostics Cost (%)
No	54,631	16.57	21,320,296	12.33
Yes	275,108	83.43	151,646,015	87.67
Total	**329,739**	**100.00**	**172,966,311**	**100.00**

The proportion of costs related to unlinked diagnostics within HHS's ranges from 0.02% to a maximum of 5.67 per cent, with the majority being below 2 per cent.

Patient Travel

Patient travel costs in Queensland are significant but are not fully reflected in the NHCDC submission. This is due to the absence of patient level feeder data in all hospitals and as such the costs are reported against system-generated virtual patients and therefore excluded from the NHCDC.

Of the $214 million recorded as patient travel in the initial NHCDC extracts, the majority ($154 million) is allocated to virtual patients and excluded. The $72 million of patient transport costs included in the submission are where patient level patient transport data is available to the hospital costing teams.

Blood products

Blood product costs have been included at patient level in the NHCDC since Round 20. There was a marginal increase of 0.96 per cent this year over the previous round, with $44.8 million included in this submission, compared with $44.3 million last year.

2.4 Challenges costing specific products

Mental Health

A two-step process is used to match the cost data to the activity data. Firstly, the cost data are matched to a package of care i.e. to records in the Mental Health Care Episode dataset, then to a phase of care i.e. to records in the Mental Health Care Phase level dataset, using the datetime stamp of the service record.

Of the $848 million submitted mental health data, $625 million (74 per cent) was allocated to a phase. The $223 million difference is for encounter level records that have no phase level information. This can arise due to several reasons including no clinical outcomes data recorded or not complete, or a combination of data quality and matching rules in the source data. These records are submitted to IHPA at the encounter level.

Non-Admitted activity reporting and encounter costing

The counting rules for ABF purposes involving multiple health care providers stipulate that irrespective of whether the patient was seen jointly or separately by multiple providers, only one non-admitted patient service event may be counted for a patient at a clinic on a given calendar day. In the costing system, the data is specific to the service and reports for each separate service event. To be consistent with the ABF counting rules the costs of patients with multiple clinic records on the same day are rolled up into a single clinic visit.

This Round, 258,352 components of resource costs were rolled up into 241,856 non-admitted services comprising a total cost of $55.6 million. Overall, the total cost of non-admitted data submitted has increased by 13.9 per cent between the two Rounds, compared to an increase of 9.33 per cent in non-admitted activity.

Palliative care phases

Palliative care patients are costed at the encounter level within the costing system. IHPA has requested phase level data be provided for palliative care data where possible. The phase level information i.e. phase categories and phase date changes are in the activity data submitted to IHPA as part of the Admitted Patient Costing National Minimum Data Set (APC NMDS). The episode level cost records are firstly linked to the APC data and then costs allocated to the phases based on date-of-service and the phase dates.

2.5 Quality Assurance

Initial quality control is carried out at the HHS level, each HHS has its own quality assurance processes in place to assess the suitability of the data for inclusion in NHCDC. Once the HHS has finalised the costing for the period and data quality issues addressed, they submit the data to the Department.

Further checks are then carried out regarding the internal consistency of the data and mapping of the data to the NHCDC costing framework which include:

- Orphaned cost and encounter records
- Unmapped departments
- Unmapped items
- Invalid/missing product codes
- Low cost encounters
- Negative costs
- Linking to activity data sets
- Date/time validations
- Validations on demographic information
- Validations on morbidity information

A financial reconciliation is undertaken, and the data transformed into the NHCDC data specification format. All data are validated by the Department of Health and the HHS prior to submission to the IHPA.

A five-year cost summary report is compiled which allows HHSs to compare their data with the consolidated Queensland results and with other HHSs, at various levels of aggregation, e.g. HSS, facility, product, cost bucket.

3. Adherence to the Australian Hospital Patient Costing Standards

Guidelines for preparing cost data are published in the Queensland Clinical Costing Guidelines (QCCG). It is a supplementary document to the Australian Hospital Patient Costing Standards (AHPCS) and is a guide to the HHS costing teams in the application of the AHPCS within the technical environment of the feeder data and costing systems used within Queensland Health. These guidelines are applied by each HHS in the preparation of their costing data and therefore are compliant with AHPCS version 4.0. Survey documents received from HHSs indicate they are compliant with AHPCS version 4.0.

4. Governance and use of cost data

4.1 Use of Cost Data

Within the Department, the consolidated patient costed data are used for a variety of purposes including:

- Health service planning
- Queensland funding models and localisations
- Research requests
- Benchmarking
- Informing the determination of appropriate funding levels for specified services, for example in business cases for change.

4.2 Contributions to jurisdictional and other national collections

As well as extensive use with the Department and HHSs, the data is provided to other national collections including subscription based external benchmarking organisations including Health Roundtable and Women's and Children's Healthcare Australasia where the data feed into their benchmarking reports into women's and paediatric health services across the country.

4.3 Costing practice consistency

A governance process has been adopted to ensure decisions associated with costing are undertaken in a collaborative manner between the HHS and corporate units. This allows for ongoing benchmarking and variance analysis to occur, whilst maintaining a robust costing system with outputs that meet HHS, State and National reporting requirements. Central to this is the Hospital and Health Service Costing and Funding Network which meets once a month to discuss costing issues as they arise.

4.4 Review and approval

Queensland Health is required under the National Health Reform Agreement to provide an attestation as to the completeness and quality of the costing and activity data provided to the Commonwealth for the NHCDC. Specifically, a Statement of Assurance from jurisdictions (under Clause I40) and the Commonwealth (under Clause I41) will include commentary on:

- steps taken to promote completeness and accuracy of activity data (for example, audit tools or programs, third-party reviews, stakeholder engagement strategies);
- efforts applied to ensure the classification of activity was in accordance with the current year's standards, data plans and determinations;
- variations in activity volumes and movements between activity-based funding and block funding; and
- other information that may be relevant to users of the data, as determined by the signing officer.

To meet the requirement, a Statement of Assurance for NHCDC Round 23 (2018-2019), a Costing Survey spreadsheet which describes current clinical costing processes, feeder systems used by the HHS for costing and any changes to costing methodologies since the previous collection is sent to HHSs. The Statement of Assurance has three components:

- HHS Reconciliation Summary
- Costing Methodology Questions
- Standards Compliance Questions

The survey is completed by the HHS Clinical Costing Manager, endorsed by the Chief Finance Officer. Then a financial reconciliation is undertaken. All data is validated by the Department of Health and the HHS prior to submission to the IHPA.

Declaration

All data provided by Queensland Health to Round 23 (2018-19) of the National Hospital Cost Data Collection (NHCDC) submitted to the Independent Hospital Pricing Authority has been prepared in adherence with the Australian Hospital Patient Costing Standards (AHPCS) Version 4.0 as described in Section 3 of this statement.

Data provided to this submission has been reviewed for adherence to the AHPCS Version 4.0 and is complete and free of known material errors.

Section 3 provides details of any qualifications to our adherence to the AHPCS Version 4.0.

Assurance is given that to the best of my knowledge the data provided are suitable to be used for the primary purpose of the NHCDC, which includes development of the National Efficient Price.

Signed:

Nick Steele
Deputy Director-General
Healthcare Purchasing and System Performance
07 / 10 / 2020