Independent Hospital Pricing Authority

National Benchmarking Portal

Technical Specifications

Version 1.1 June 2022

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1. Introduction

This document specifies the data sources and preparation undertaken in the construction of the National Benchmarking Portal (NBP). The purpose of the NBP is to provide a tool for comparison between hospitals, local hospital networks, jurisdictions, and hospital peer groups throughout Australia. Consequently, the data chosen for inclusion in the NBP may be distinct from the data chosen for inclusion in other reference sources provided by IHPA, such as the National Hospital Cost Data Collection, Public Report, or in constructing the National Efficient Price (NEP) determination each year. The emphasis in constructing the NBP is providing the user with tools to understand the relationship between costs incurred at a particular hospital, or group of hospitals, and the activities performed therein. Therefore, the NBP allows the user to investigate the contributors to cost and to National Weighted Activity Units (NWAU), which are used to measure activity. This document, and the NBP will continue to be updated as techniques for measuring cost and activity change.

If you require any further information about the NBP, contact IHPA at the following address

enquiries.ihpa@ihpa.gov.au

2. Data Sources and Classifications

This section outlines the sources used to produce the data included in the National Benchmarking Portal (NBP) and the classification methodologies that have been employed in describing and measuring those data.

2.1 Data Sources

2.1.1 Activity Data

Activity data describe the treatment provided within each admission, presentation, or service event at an Australian public hospital, as well as some demographic information used to measure hospital activity. The Data Request Specifications (DRS) which list the fields submitted to IHPA within each year's activity data are provided on IHPA's website (IHPA 2022b).

The National Weighted Activity Unit (NWAU) is a standard unit for measuring hospital activity. IHPA assigns an NWAU to each admission, presentation, or service event undertaken by a hospital, for the purposes of price setting in public hospitals under the National Health Reform Agreement (NHRA) (FFR 2022). The NWAU assigned to a given episode of care is updated annually to maintain clinical currency.

For each pair of consecutive financial years, IHPA determines an NWAU version which is used to measure growth in hospital activity between those years. This NWAU version is referred to as being 'native' to the second of those financial years and is given a numbered suffix to indicate this. For example, the NWAU version designed to measure growth in hospital activity between the 2018–19 and 2019–20 financial years is referred to as NWAU19. NWAU19 is the native NWAU version for the 2019–20 financial year.

The formula used to assign NWAU to an episode of care, presentation, or service event under a given NWAU version is released annually by IHPA within the National Efficient Price (NEP) Determination. Each year's Determination is available on IHPA's website (IHPA 2022e). Calculators used to determine the NWAU of a given episode of care are also available on IHPA's website (IHPA 2022d).

2.1.2 Cost Data

The cost incurred by each hospital for undertaking each admission, presentation, or service event is provided to IHPA separately to activity through the National Hospital Cost Data Collection (NHCDC). Data request specifications (DRS) for each year's NHCDC report are available from IHPA's website (IHPA 2022f).

2.2 Classifications

2.2.1 Classifications Used for NWAU Calculations

For each stream of care undertaken by public hospitals, there is a classification system used to group similar records for the purpose of calculating NWAU. The classification systems used for

the purpose of calculating NWAU in the years covered by the National Benchmarking Portal are listed in Table 1.

In reading Table 1, note that the AR-DRG classification may be applied to all admitted episodes of care. Consequently, in instances where an admitted subacute or non-acute care record cannot be assigned an NWAU based on its AN-SNAP v4 class, a NWAU value is calculated using the AR-DRG classification. Further details regarding NWAU calculations are provided in Section 3.

Table 1: Classifications used for NWAU calculations by stream and year

Stream	Classification	Version
Admitted acute	Australian Refined Diagnosis Related Groups (AR-DRG) classification	2017–18: Version 8.0 2018–19: Version 9.0 2019–20: Version 9.0
Admitted mental health	Australian Refined Diagnosis Related Groups (AR-DRG) classification	2017–18: Version 8.0 2018–19: Version 9.0 2019–20: Version 9.0
Admitted subacute and non-acute care	Australian National Subacute and Non-Acute Patient (AN-SNAP) classification	Version 4.0
Non-admitted	Tier 2 Non-Admitted Services classification	2017–18: Version 4.1 2018–19: Version 5.0 2019–20: Version 5.0
Emergency department	Urgency Related Groups (URG) classification	Version 4.1

2.2.2 Classifications Based on the AR-DRG Classification

Several classification systems may be used for filtering the admitted care streams in the National Benchmarking Portal, other than those used for the calculation of NWAU. These are described in Table 2.

Table 2: Classifications related to the AR-DRG classification

Streams	Classification	Description
Admitted acute, and admitted mental health	Major Diagnostic Category (MDC)	A companion to the AR-DRG classification which describes the primary body system which is being treated in each hospital admission. It is generally a coarser classification than AR-DRG.
Admitted acute, admitted mental health, and admitted subacute and non-acute care	Service Related Groups (SRG) Version 6.0	A classification of admitted episodes of care developed by the NSW Ministry of Health[1]. This classification is designed to group episodes of care for the purpose of administration and planning, according to the services used during each episode of care.

2.2.3 AIHW Peer group

To enable users to identify and compare similar hospitals throughout Australia, IHPA has classified each hospital according to the Australian Institute of Health and Welfare (AIHW) Peer Group (AIHW 2015, AIHW 2021). Further detail regarding the assignment of peer groups to hospitals which could not be successfully matched to entries in these sources is available in Section 3.

2.2.4 ICD-10-AM Codes

The International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification (ICD-10-AM) is used to classify diseases and other health problems among patients in the admitted streams of care. Users may filter records according to primary diagnosis, as classified using the ICD-10-AM, on the national benchmarking portal. The ICD-10-AM Version 10.0 is used for data from 2017–18 and 2018–19, and ICD-10-AM Version 11.0 is used for data from 2019–20. More information is available via IHPA's website (IHPA 2022a).

The Emergency Department ICD-10-AM Principal Diagnosis Short List (ED short list) is used to classify diseases and other health problems which give rise to emergency department presentations. The user may filter emergency department records based on the ED short list code corresponding to the primary cause for an emergency department presentation. The version used agrees with that used for admitted services. That is, 2017–18 and 2018–19 data use the ED Short List Version 10.0 whereas data from 2019–20 use the ED Short List Version 11.0. More information on the ED short list is available via IHPA's website (IHPA 2022c).

[1] The Service Related Groups Version 6.0 grouper was provided to IHPA by the NSW Ministry of Health.

3. Data Preparation

The primary purpose of the NBP is to enable the benchmarking of hospitals and services between one establishment, LHN, or jurisdiction, to another. Consequently, data have been omitted if their inclusion would hamper accurate benchmarking, for example in instances where data are reported inconsistently across the nation. This section outlines the preparation undertaken to produce the data presented in the NBP.

NWAU is calculated according to the year in which the separation occurred (the 'native' NWAU version) and the NWAU version applying to the subsequent year. The latter is used to measure growth from one year to the next. Each NWAU version is calculated according to the NEP Determination in which it is defined.

3.1 Activity Data

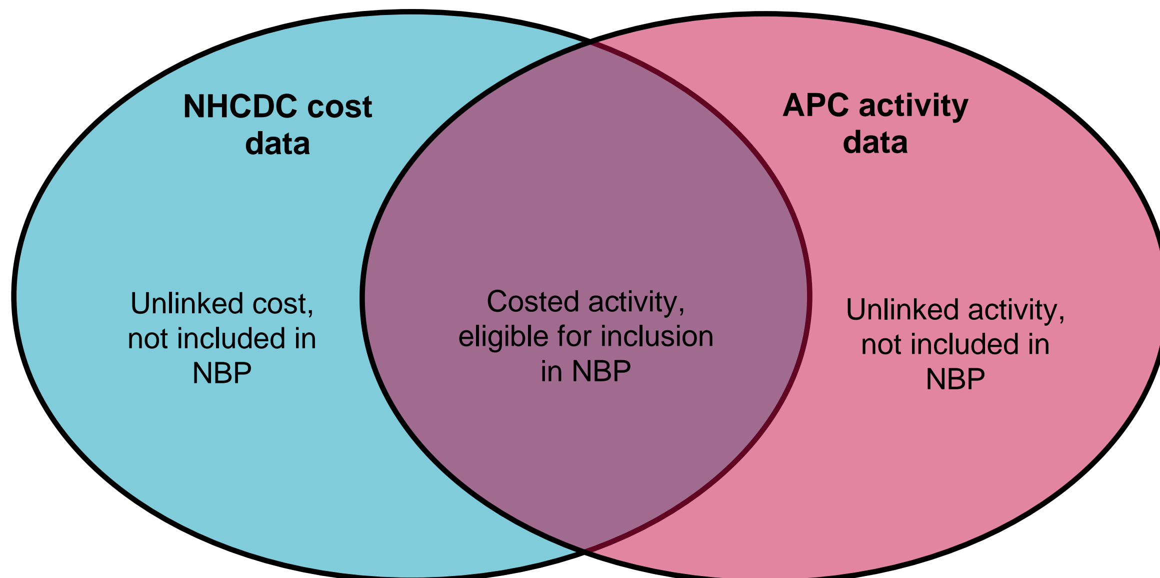
3.1.1 Admitted Acute

For the purposes of this document, admitted acute care refers to admitted patients with an admitted patient care type[2] of 'Acute care', or 'Newborn care' as assigned in the Admitted Patient Care (IHPA 2022b) (APC) data set. Records with a care type of 'Mental health care' are discussed in the 'Mental Health Care Episodes' section below.

Cost data for this stream of care are contained in the National Hospital Cost Data Collection (IHPA 2022f) (NHCDC). Cost data which cannot be linked to a record in the APC data set are not included in the admitted acute stream of the NBP, nor are APC records with no matching cost data. This is illustrated in Figure 1.

[2] AIHW METeOR 711010.

Figure 1: Overview of NBP data



In keeping with the methodology used by IHPA to set the National Efficient Price, and to produce the Public Sector Cost Report, patients who are separated from hospital after a very long stay are not included in the National Benchmarking Portal. Here, the definition of 'very long stay' is a patient admitted before the financial year preceding the one in which they are separated from hospital. For example, if a patient is discharged from hospital in 2018–19 then their record is not included in the NBP if they were admitted before July 1, 2017.

To ensure that the National Benchmarking Portal is a useful tool for comparing activity from one hospital to another, IHPA has restricted data appearing on the NBP to those that have their activity measured using the NWAU formulas in IHPA's NEP Determinations. This means that records are included only if they were reported by a hospital which was funded through ABF in the year of reporting. Similarly, records assigned to one of the Error AR-DRG classes 960Z (Ungroupable), 961Z (Unacceptable principal diagnosis), or 963Z (Neonatal diagnosis not consistent w age/ weight) do not appear in the NBP. Records within these classes receive no NWAU because they contain insufficient or contradictory data.

Finally, records only appear in the National Benchmarking Portal if their funding source allows for them being priced by IHPA subject to IHPA's remit under the National Health Reform Agreement (NHRA). In the admitted acute stream this means that records included in the NBP are funded either through the jurisdiction's health service budget (other than instances where no charge is raised due to a hospital's decision), through contracted care, through private health insurance or are self-funded. Further details on in-scope funding sources may be found in the National Efficient Price Determination on IHPA's website (IHPA 2022e).

Table 3 summarises the records not included in the NBP in the admitted acute stream. The table uses the following key:

- NA: NHCDC records to which no matching activity data could be found.
- LS: Long-stay records.
- HO: Records reported by hospitals which were not funded through ABF in the given reporting year. This excludes records in the category NA or LS above.
- OS: Records without the requisite AR-DRG information to allow for pricing, or a funding source which is out of scope under the NHRA. This excludes records in the categories NA, LS, or HO above.

Table 3: Summary of admitted acute NHCDC records not included in the NBP

Jur.	Reason for removal from admitted acute data											
	2017–18				2018–19				2019–20			
	NA	LS	HO	OS	NA	LS	HO	OS	NA	LS	HO	OS
NSW	0	2	0	40,870	0	5	3,602	37,039	0	3	0	33,455
Vic	0	1	66	37,979	0	3	60	38,683	0	3	63	36,994
Qld	0	0	58,299	23,208	0	0	60,493	21,120	0	0	53,270	20,329
SA	0	1	0	9,193	0	0	0	9,873	0	1	0	9,349
WA	131	0	12,776	19,314	0	0	12,008	19,235	0	1	11,148	19,194
Tas	34	0	3,814	4,309	0	0	4,033	4,103	0	0	3,652	3,395
NT	0	0	2,121	2,571	0	0	2,196	2,641	0	0	2,424	2,761
ACT	0	1	0	4,416	0	0	0	4,013	0	0	0	4,050
Nat.	**165**	**5**	**77,076**	**141,860**	**0**	**8**	**82,392**	**136,707**	**0**	**8**	**70,557**	**129,527**

Table 4 summarises the number of records included in the NBP by jurisdiction.

Table 4: Summary of admitted acute NHCDC records included in the NBP

Jurisdiction	2017–18	2018–19	2019–20
NSW	1,594,703	1,622,774	1.564,738
Vic	1,637,352	1,685,834	1,634,623
Qld	1,319,029	1,397,356	1,435,617
SA	370,579	378,034	378,157
WA	499,319	516,202	534,558
Tas	113,356	119,858	116,497
NT	161,010	169,027	173,690
ACT	104,674	104,498	103,884
National	**5,800,022**	**5,993,583**	**4,377,026**

Using the included records, IHPA calculates the native NWAU value for each admitted acute separation. To measure growth, IHPA also calculates, for each record, the NWAU native to the subsequent and previous year of that record. The variables used to determine each record's NWAU are determined by data in the APC data set or are drawn from the relevant NEP determination.

Before including admitted acute data in the National Benchmarking Portal, any principal diagnoses recorded in the APC data set which could not be identified in the ICD-10-AM codes are replaced with the value 'Missing', to allow for coarser aggregation of data. Table 5 summarises the small number of records impacted by year.

Table 5: Summary of separations with missing or invalid principal diagnoses in the admitted acute stream

Jurisdiction	Missing or invalid principal diagnosis		
	2017–18	2018–19	2019–20
NSW	0	0	0
Vic	0	0	0
Qld	0	0	0
SA	0	0	0
WA	0	0	0
Tas	0	0	0
NT	0	0	0
ACT	0	1	0
National	**0**	**1**	**0**

After renaming any ICD-10-AM codes to 'Missing' if necessary, admitted acute records with common data are aggregated into a single record, before being included in the NBP. Records are aggregated together in this process if they have the same values for all variables in the admitted acute NBP dimensions list, provided in Appendix A). Variables which are not in the NBP dimensions list, for example, cost and NWAU, are summed when performing the aggregation.

3.1.2 Admitted Subacute and Non-acute Care

Admitted subacute and non-acute care refers to admitted patient records with an admitted patient care type[3] of 'Rehabilitation care', 'Palliative care', 'Geriatric evaluation and management', 'Psychogeriatric care', or 'Maintenance care' as assigned in the APC data set. Cost data which cannot be linked to a record in the APC data are not included in the NBP, nor are APC records with no matching NHCDC data.

The selection of records for this stream is the same as that within the admitted acute stream, apart from palliative care data. Some palliative care cost and activity records are reported to IHPA at the level of a 'phase', which is a clinically meaningful period within an episode of care[4] via the palliative care phase-level (PCC) activity data set (IHPA 2022b). Each palliative care phase-level record in the PCC data set matches a unique episode in the APC. To view phase-level data, the user may choose to view palliative care phases on the NBP to compare statistics among records reported at the phase level. However, if the user chooses to view all records from within the admitted subacute and non-acute care stream, phase-level palliative care records are aggregated into their respective episodes so that these episodes may be compared fairly to other admitted subacute and non-acute care records. The dimensions by which admitted subacute and

[3] AIHW METeOR 711010.
[4] AIHW METeOR 681549.

non-acute episodes and phases are aggregated are distinct from those in the admitted acute stream and may be found in Appendix A).

Records in the NHCDC data set which don't link to an APC record, or a palliative care phase-level activity record, are not included in the NBP. Furthermore, if a phase-level NHCDC record matches a phase-level PCC activity record which cannot be linked to an APC episode then that record is not included in the NBP. This is done to ensure that the records being compared within the NBP are defined using the most complete data possible.

The treatment of 'very long stay' episodes in the admitted subacute and non-acute care stream is the same as that in the admitted acute stream. That is, if a palliative care phase belongs to a 'very long stay' episode in the APC data set then data for that phase of care is removed from the NBP data set, regardless of the date on which the phase of care began. This is to improve consistency of benchmarking among all palliative care records, regardless of the manner in which they are reported.

Records from hospitals which are not funded through ABF and those with funding sources outside of IHPA's remit under the NHRA are removed from the admitted subacute and non-acute stream. The funding sources included in the National Benchmarking Portal for subacute and non-acute records are the same as those in the admitted acute stream. Records with an admitted patient care type 'Psychogeriatric care' or 'Geriatric evaluation and management' which pertain to a person under the age of eighteen are removed on the basis that the price assigned to such a patient is based on the care of geriatric patients and is therefore not useful for benchmarking the care of a non-adult.

Episode-level data with an error AN-SNAP Version 4 class are removed unless they pertain to overnight paediatric palliative care (AN-SNAP v4 class 499G) or they have a valid AR-DRG class with version appropriate to the year of reporting. The former are retained because they receive a valid per diem NWAU in each year under consideration and the latter because the admitted acute NWAU calculator is used as a fallback for calculating the NWAU of admitted subacute and non-acute records.

If one or more palliative care phases within an episode of care have an error AN-SNAP Version 4 class, other than 499G (Paediatric overnight palliative care – ungroupable) then the phase level data for this episode does not appear on the NBP. If this is the case, then the cost for these phases are summed and matched to an episode-level record if possible. This episode-level record must now meet the same criteria as any other episode-level record in order to appear on the NBP.

Table 6 and Table 7 summarise the admitted subacute and non-acute records removed from the NBP. The following abbreviations are used:

- NA: NHCDC records to which no matching activity data could be found.
- LS: Long-stay episodes, or phases belonging to long-stay episodes.
- HO: Records reported by hospitals which were not funded through ABF in the given reporting year. This excludes records in the category NA or LS above.
- OS: Records without the requisite AN-SNAP or AR-DRG information to allow for pricing, those with a funding source which is out of scope under the NHRA, or patients under the age of eighteen with an admitted patient care type of 'Psychogeriatric care' or 'Geriatric evaluation and management'. This excludes records in the categories NA, LS, or HO above.

Table 6: Summary of admitted subacute and non-acute episode-level NHCDC records not included in the NBP

Jur.	Reason for removal from admitted subacute and non-acute episode-level data											
	2017–18				2018–19				2019–20			
	NA	LS	HO	OS	NA	LS	HO	OS	NA	LS	HO	OS
NSW	0	3	0	2,444	0	3	26	2,229	0	7	0	1,904
Vic	0	2	1	1,469	1	2	4	1,468	1	3	4	1,306
Qld	0	17	2,025	970	0	9	2,065	933	0	9	1,855	958
SA	0	0	0	367	0	1	0	339	0	0	0	312
WA	7	3	722	577	765	3	276	462	10	1	330	447
Tas	331	0	508	139	360	0	338	159	354	1	473	83
NT	1	2	45	41	0	5	53	55	0	1	45	35
ACT	0	0	0	153	28	0	0	301	15	2	0	258
Nat.	**339**	**27**	**3,301**	**6,160**	**1,154**	**23**	**2,762**	**5,946**	**380**	**24**	**2,707**	**5,303**

Table 7 contains a summary of the episode-level admitted subacute and non-acute records included in the NBP.

Table 7: Summary of admitted subacute and non-acute episode level included in the NBP

Jurisdiction	2017–18	2018–19	2019–20
NSW	48,746	49,399	45,042
Vic	37,000	44,639	42,754
Qld	32,941	33,575	34,430
SA	8,852	9,713	10,411
WA	10,619	11,109	11,374
Tas	2,533	2,356	2,115
NT	965	1,111	783
ACT	3,728	5,267	4,885
National	**145,384**	**157,180**	**151,794**

Table 8: Summary of admitted palliative care phase-level NHCDC records not included in the NBP

Jur.	Reason for removal from admitted palliative care phase data*											
	2017–18				2018–19				2019–20			
	NA	LS	HO	OS	NA	LS	HO	OS	NA	LS	HO	OS
NSW	0	0	0	1,204	0	0	0	1,139	209	0	0	1,093
Vic	0	0	0	474	0	0	0	408	0	0	0	309
Qld	0	0	768	276	0	0	856	298	0	0	185	138
SA	0	0	0	72	0	0	0	74	0	0	0	64
WA	0	0	0	0	0	0	0	0	0	0	0	0
Tas	0	0	0	0	2	0	0	31	527	0	0	30
NT	0	0	0	0	0	0	0	0	3	0	0	36
ACT	0	0	0	129	0	0	0	0	0	0	0	0
Nat.	**0**	**0**	**768**	**2,155**	**2**	**0**	**856**	**1,950**	**739**	**0**	**185**	**1,670**

* Record counts in this table are at the phase level, not the episode level.

Table 9 contains a summary of the admitted palliative care phases included in the NBP. Data are drawn from NHCDC records which could be matched to phase-level palliative care activity and for which that activity is priced at the phase-level on the NBP.

Table 9: Summary of admitted palliative care phases included in the NBP

Jurisdiction	2017–18	2018–19	2019–20
NSW	29,895	31,460	31,481
Vic	14,603	15,531	15,183
Qld	11,248	11,838	6,461
SA	2,371	2,918	3,492
WA	0	0	0
Tas	0	636	700
NT	0	0	1,012
ACT	1,600	0	0
National	**59,717**	**62,383**	**58,329**

IHPA has attempted to provide information about palliative care episodes at the phase level where those data are available. However, to allow for accurate benchmarking between records with data reported at the phase level and those with data reported at the episode level, IHPA also collates phases belonging to a common episode and presents this information at the episode level. When considering cost data, this involves summing the cost of constituent phases to obtain the cost of an episode. When obtaining activity data for such an episode, information is copied from the APC record to which the phase level data is matched. This process results in the loss of more granular information contained in phase-level reporting. For example, this aggregation generally results in the loss of the AN-SNAP v4 class, which is determined at the phase level for palliative care records.

IHPA calculates the native NWAU for every record in the admitted subacute and non-acute care stream. Records with cost reported at the phase level have their NWAU calculated using the admitted subacute and non-acute care NWAU formula obtained from IHPA's NEP determination (IHPA 2022e). If an episode records an NWAU of zero using the admitted subacute and non-acute care calculator, then IHPA obtains the NWAU for that record from the admitted acute NWAU formula.

Palliative care phases have NWAU calculated at the phase level using the admitted subacute and non-acute care NWAU formula for the relevant year. If one or more palliative care phase within an episode records zero NWAU due to the presence of an error AN-SNAP v4 class other than '499G' (Paediatric overnight palliative care – ungroupable) then IHPA calculates the NWAU for that episode as though the costs were reported at the episode level. If there is no such error in the AN-SNAP v4 class, then the NWAU of the episode to which the palliative phases belong is calculated by summing the NWAU of each phase within the episode.

Before uploading to the NBP, any principal diagnoses recorded in the APC data set which could not be identified with valid ICD-10-AM codes were replaced with the value 'Missing', to allow for coarser aggregation of data. Table 10 shows the number of records impacted by year.

Table 10: Summary of separations with missing or invalid principal diagnoses in the admitted subacute and non-acute care stream

Jurisdiction	Missing or invalid principal diagnosis		
	2017–18	2018–19	2019–20
NSW	11	18	2
Vic	0	0	0
Qld	0	0	0
SA	0	0	0
WA	0	0	0
Tas	0	0	0
NT	0	1	0
ACT	0	0	0
National	**11**	**19**	**2**

After renaming any ICD-10-AM codes to 'Missing' if necessary, admitted subacute and non-acute care records with common data are aggregated into a single record, before being included in the NBP. Records are aggregated together in this process if they have the same values for all variables in the admitted subacute and non-acute care NBP dimensions list in Appendix A). Variables which are not in the NBP dimensions list, for example, cost and NWAU, are summed when performing the aggregation.

3.1.3 Admitted Mental Health

The admitted mental health stream refers to admitted patient records with an admitted patient care type[5] of 'Mental health care' in the APC data set (IHPA 2022b). Cost data which cannot be linked to a record in the APC data set are not included in the NBP, nor are APC records with no matching NHCDC data.

Cost and activity records in the admitted mental health care stream may be submitted at the episode or phase level, in the same manner as palliative care records. Each admitted mental health care episode is recorded in the APC data set and in the mental health care episode (MHCE) activity data set. Records which correspond to the same admission are identified via a linking key provided in the APC and MHCE data sets. Furthermore, each episode may be matched with one or many phases, which are reported in the mental health care phase (MHCP) activity data set (IHPA 2022b). In this context, a 'phase' refers to a period within an admitted episode of care, defined in terms of the clinical goal of that period of care[6]. MHCP records are

[5] AIHW METeOR 711010.
[6] AIHW METeOR 682464.

linked to the MHCE record to which they belong via a linking key present in both data sets. Cost data for these records may be reported so that it links to MHCP, MHCE, or APC activity records.

Unlike in the admitted subacute and non-acute care setting, the user is not able to view admitted mental health care data at the phase level on the NBP at present. This is because the NWAU versions provided on the NBP at the time of writing do not allow for the calculation of NWAU at the phase level for admitted mental health care. Instead, under NEP 2017–18, 2018–19, and 2019–20, and hence in NWAU17, NWAU18, and NWAU19, admitted mental health care is priced using AR-DRGs. Consequently, costs reported at the phase level are summed and allocated to the matching episode-level activity record before uploading. The dimensions on which admitted mental health care stream data are aggregated may be found in Appendix A).

Cost data must match an APC record to be included in the NBP, to ensure that there is sufficient data for each record to allow for effective benchmarking. If an admitted mental health care record in the NHCDC matches to a record in the MHCE activity data set, then that MHCE record must also link to an APC activity record to be included. Similarly, if an NHCDC record matches to the MHCP activity data set, then that MHCP record must be successfully matched to the APC data set to be included in the NBP.

Records that have a 'very long' length of stay are managed in the same manner as described for the admitted subacute and non-acute care stream. That is, if an episode has an admission date before the financial year prior to the year of its separation, then it is removed. If a phase is matched to such an episode in the APC data set, then it is removed, regardless of the date on which that phase began.

Using the same conventions as in the Admitted acute stream, records do not appear in the admitted mental health stream within the NBP if they are not appropriate for benchmarking purposes. Specifically, this means that records are not included if they are submitted by hospitals which are not funded through ABF, if they are assigned one of the Error AR-DRG classes 960Z (Ungroupable), 961Z (Unacceptable principal diagnosis), or 963Z (Neonatal diagnosis not consistent w age/ weight). Furthermore, records are included only if they have a funding source which is within IHPA's pricing remit under the NHRA. The funding sources for admitted mental health records which are included in the National Benchmarking Portal are the same as those for the admitted acute stream.

Table 11 and Table 13 summarise the admitted mental health episodes and phases removed from the NBP, respectively. The following abbreviations are used:

- NA: NHCDC records to which no matching activity data could be found.
- LS: Long-stay episodes, or phases belonging to long-stay episodes.
- HO: Records reported by hospitals which were not funded through ABF in the given reporting year. This excludes records in the category NA or LS above.
- OS: Records without the requisite AR-DRG information to allow for pricing, those with a funding source which is out of scope under the NHRA. This excludes records in the categories NA, LS, or HO above.

Table 11: Summary of admitted mental health care episodes not included in the NBP

Jur.	Reason for removal from mental health care episode data											
	2017–18				2018–19				2019–20			
	NA	LS	HO	OS	NA	LS	HO	OS	NA	LS	HO	OS
NSW	0	0	0	0	12	0	0	0	0	0	0	0
Vic	0	15	0	11	0	1	0	28	0	3	0	76
Qld	0	26	481	88	0	21	363	102	0	26	384	71
SA	0	0	0	0	0	2	0	1	0	10	0	29
WA	0	0	0	21	0	16	0	47	0	25	0	266
Tas	0	5	609	16	0	1	117	114	5	0	162	86
NT	0	0	0	30	0	0	0	47	0	0	0	40
ACT	0	0	0	2	0	2	0	45	0	1	0	41
Nat.	**0**	**46**	**1,090**	**168**	**12**	**43**	**480**	**384**	**5**	**65**	**546**	**609**

Table 12 summarises the admitted mental health care records included in the NBP. Data are drawn from NHCDC data which could be matched to episode-level admitted mental health activity.

Table 12: Summary of admitted mental health care episodes included in the NBP

Jurisdiction	2017–18	2018–19	2019–20
NSW	0	0	1
Vic	591	889	7,836
Qld	14,896	11,450	10,358
SA	0	50	363
WA	2,667	2,661	12,693
Tas	200	3,127	2,654
NT	1,070	1,188	1,306
ACT	107	2,091	2,289
National	**19,531**	**21,456**	**37,500**

Table 13: Summary of admitted mental health care phase NHCDC records not included in the NBP

Jur.	Reason for removal from mental health care phase data*											
	2017–18				2018–19				2019–20			
	NA	LS	HO	OS	NA	LS	HO	OS	NA	LS	HO	OS
NSW	0	0	0	297	1,421	47	0	258	124	100	0	293
Vic	0	2	0	481	0	5	0	573	0	0	0	559
Qld	0	5	43	124	0	18	1,807	133	0	10	9	15
SA	0	0	0	385	0	0	0	426	0	0	0	453
WA	0	0	0	62	0	0	0	176	0	0	0	0
Tas	0	0	0	0	0	0	0	5	0	0	0	0
NT	0	0	0	0	0	0	0	0	0	0	0	0
ACT	0	14	0	172	0	0	0	0	0	0	0	0
Nat.	**0**	**21**	**43**	**1,521**	**1,421**	**70**	**1,807**	**1,571**	**124**	**110**	**9**	**1,320**

* Record counts here are numbers of phases, whereas MHCP records are rolled up to the episode level before uploading to the NBP.

Table 14 summarises the admitted mental health care phases included in the NBP. These phases appear on the NBP after being aggregated to the episode level.

Table 14: Summary of admitted mental health care phases included in the NBP

Jurisdiction	2017–18	2018–19	2019–20
NSW	35,794	37,701	37,027
Vic	22,399	24,893	17,312
Qld	17,601	19,629	9,055
SA	7,284	7,199	6,820
WA	7,525	9,123	0
Tas	0	140	0
NT	0	0	0
ACT	5,781	2	0
National	**96,384**	**98,687**	**70,214**

IHPA calculates the native NWAU for every record in the admitted mental health stream. NWAU for records in the admitted mental health records is calculated using the same methodology as that used in the admitted acute stream. The data required for each NWAU calculation are contained either in the APC data set, or in the relevant NEP Determination (IHPA 2022e).

Before uploading to the National Benchmarking Portal, any principal diagnoses recorded in the APC data set which could not be identified with valid ICD-10-AM codes were replaced with the value ‘Missing’, to allow for coarser aggregation of data. No admitted mental health care records were impacted by this process in the years under consideration.

After renaming any ICD-10-AM codes to ‘Missing’ if necessary, admitted mental health care records with common data are aggregated into a single record, before being included in the NBP. Records are aggregated together in this process if they record the same values on all variables in the admitted mental health care NBP dimensions list in Appendix A). Variables which are not in the NBP dimensions list, for example, cost and NWAU, are summed when performing the aggregation.

3.1.4 Emergency Department

The emergency department (ED) stream refers to activity data submitted to the emergency department activity data set (IHPA 2022b) and the NHCDC cost records linked with this activity.

Only costs that can be linked to records in the emergency department activity data set are included in the emergency department stream within the NBP. Similarly, ED records with no matching cost data are not included in the National Benchmarking Portal. Only patient-level data is reported in the NHCDC, hence all data included in the National Benchmarking Portal is at the patient level, whereas some emergency services activity is reported to IHPA at the aggregate level (IHPA 2022b).

Just as in the admitted streams, records are not included in the NBP if they are not assigned an NWAU due to their being outside of IHPA’s remit under the NHRA. In the emergency department stream, this means that the record must not be funded through the Department of Veterans’ Affairs and that the patient in question is not entitled to claim damages for the emergency presentation, for example under Motor Vehicle Third Party Insurance. Similarly, emergency department records are included in the NBP only if they are reported by a hospital which was funded through ABF in the year under consideration.

Records are not included in the National Benchmarking Portal if they possess insufficient information to be assigned an NWAU. Urgency Related Groups (URG) are the primary classification used to assign an NWAU to emergency department events. However, in the years under consideration, a coarser classification, the Urgency Disposition Groups (UDG) may be used if an error URG is assigned. The UDG class of an emergency presentation is determined by that presentation’s Type of visit[7], Episode end status[8], and Triage category[9]. The criteria used to determine whether a record receives an error UDG class differ in the years of data available in the NBP. However, if all three of these variables have valid values then a non-zero NWAU is assigned. The assignment of a non-error URG requires diagnostic information in addition to the variables required to determine a UDG.

Table 15 summarises the emergency department removed from the NBP. The following abbreviations are used:

[7] AIHW METeOR 746599
[8] AIHW METeOR 746709
[9] AIHW METeOR 746627

- NA: NHCDC records to which no matching activity data could be found.
- HO: Records reported by hospitals which were not funded through ABF in the given reporting year. This excludes records in the category NA above.
- OS: Records without the requisite URG or UDG information to allow for pricing, those funded by the Department of Veterans' Affairs or those eligible for compensation via a damages claim. This excludes records in the categories NA, or HO above.

Table 15: Summary of emergency department NHCDC records not included in the NBP

Jur.	Reason for removal from emergency department data								
	2017–18			2018–19			2019–20		
	NA	HO	OS	NA	HO	OS	NA	HO	OS
NSW	0	0	89,031	0	10,486	85,188	0	0	77,073
Vic	0	0	52,872	0	0	54,102	192,781	0	48,779
Qld	0	253,106	49,678	0	261,623	49,387	0	242,940	45,737
SA	0	0	13,431	0	0	14,277	0	0	13,288
WA	1,216	99,621	23,433	38,824	17,046	23,923	38,479	15,910	22,148
Tas	451	0	6,785	523	0	6,489	514	0	6,074
NT	40	9,171	2,784	0	9,162	2,839	1	8,580	2,811
ACT	0	0	4,103	0	0	3,975	82	0	3,049
Nat.	**1,707**	**361,898**	**242,117**	**39,347**	**298,317**	**240,180**	**231,857**	**267,430**	**218,959**

Table 16 summarises the emergency department records included in the National Benchmarking Portal, by jurisdiction.

Table 16: Summary of emergency department presentations included in the NBP

Jurisdiction	2017–18	2018–19	2019–20
NSW	2,498,943	2,585,671	2,494,672
Vic	1,712,436	1,773,995	1,675,430
Qld	1,570,672	1,686,254	1,658,890
SA	493,836	511,957	516,907
WA	609,288	691,797	671,150
Tas	157,915	161,500	147,661
NT	148,951	155,380	153,392
ACT	145,563	146,733	136,628
National	**7,337,604**	**7,713,287**	**7,454,730**

The principal diagnosis field appearing on the NBP takes values from the ED short list (IHPA 2022c). If a diagnosis code appearing in the ED data set does not match a valid entry in the ED short list, then that code is replaced with the value ‘Missing’. This allows for greater aggregation and enables the user to compare all records with a missing or invalid principal diagnosis code. The records impacted are summarised in Table 17.

Table 17: Summary of presentations with missing or invalid principal diagnoses in the emergency department stream

Jurisdiction	Missing or invalid principal diagnosis		
	2017–18	2018–19	2019–20
NSW	2,175,472	59,468	49,363
Vic	328,983	86,637	79,243
Qld	506,340	134,552	112,607
SA	133,477	46,643	22,900
WA	177,164	51,150	47,864
Tas	7,273	15	9
NT	47,068	11,831	7,315
ACT	11,656	4,366	3,742
National	**3,387,433**	**394,662**	**323,043**

IHPA calculates the native NWAU for every record in the ED stream using the formula published in the relevant NEP determination (IHPA 2022e). The variables required to calculate the NWAU for each ED record are contained in the emergency department activity data set, or in the NEP determinations available on IHPA's website, other than remoteness of hospital location with respect to the Australian Statistical Geography Standard – Remoteness Area[10]. The latter is determined by IHPA using the hospital's address or by comparison to the remoteness value reported for the same hospital in APC data.

3.1.5 Non-admitted

The non-admitted (NA) stream refers to activity data submitted to IHPA via the non-admitted patient (NAP) activity data set (IHPA 2022b) and the NHCDC records identified with this activity.

Only cost data that links to the non-admitted patient activity data set are included in the non-admitted stream within the NBP. Similarly, NAP activity records with no matching cost data are not included in the NBP. Only patient-level data is reported to IHPA in the NHCDC, hence only patient-level data are included in the NBP, whereas a large portion of data in the non-admitted stream for the years under consideration is reported to IHPA through the non-admitted aggregate (NAA) data set (IHPA 2022b).

Non-admitted services which belong to one of the Tier 2 classes in Table 37 are omitted from the NBP. This is done because records receive zero NWAU due to being out of scope for activity-based funding, or because their price is bundled with the NWAU of other services. However, many of these services are delivered at high volumes. Consequently, their inclusion would make cost per NWAU statistics at certain establishments unrealistically high, preventing effective benchmarking.

[10] METeOR 697105.

Non-admitted records are not included in the NBP if they receive funding from a source that is outside of IHPA's remit under the NHRA. In the non-admitted stream this means that records included in the NBP are funded either through the jurisdiction's health service budget (other than instances where no charge is raised due to a hospital's decision) or through contracted care.

As noted in the preceding sections, non-admitted records are included in the NBP only if they are reported by a hospital which was funded through ABF in the year under consideration.

Table 18 summarises the non-admitted records removed from the NBP. The following abbreviations are used:

- NA: NHCDC records to which no matching activity data could be found.
- HO: Records reported by hospitals which were not funded through ABF in the given reporting year. This excludes records in the category NA above.
- NP: Records with Tier 2 classes listed in Table 37. This excludes the categories NA and HO above.
- OS: Records excluded due to having a funding source which is not within IHPA's remit. This excludes records in the categories NA, HO, or NP above.

Table 18: Summary of non-admitted NHCDC records not included in the NBP

Jur.	Reason for removal from non-admitted patient data											
	2017–18				2018–19				2019–20			
	NA	HO	NP	OS	NA	HO	NP	OS	NA	HO	NP	OS
NSW	13,107	0	523,172	1,326,366	46,786	5,679	485,097	1,195,061	13,181	0	759,622	1,237,798
Vic	438,271	18,918	1,309	835,778	182	57	0	704,924	746,819	167	1,304	1,134,385
Qld	1,980	212,911	239,939	522,227	0	329,920	235,677	604,483	0	358,096	221,312	749,134
SA	40,979	4,150	897	171,910	0	5,470	1,216	319,030	0	0	1,045	585,581
WA	7,130	39,110	37,570	181,231	5,107	37,910	34,781	184,268	32,781	42,118	27,318	174,508
Tas	28,286	0	10,152	145,909	11,201	0	8,185	145,678	8,479	0	44,030	135,809
NT	11,729	4,048	1,060	17,157	0	4,858	6,829	27,081	0	4,838	9,083	30,407
ACT	5	0	174,503	167,514	7,957	0	143,058	109,808	6,557	0	139,099	104,913
Nat.	**541,487**	**279,137**	**988,602**	**3,368,092**	**71,233**	**383,894**	**914,843**	**3,290,333**	**807,817**	**405,219**	**1,202,813**	**4,152,535**

Table 19 summarises the non-admitted records included in the National Benchmarking Portal.

Table 19: Summary of non-admitted service events included in the NBP

Jurisdiction	2017–18	2018–19	2019–20
NSW	5,513,702	5,296,630	5,655,899
Vic	2,706,082	2,124,421	2,989,811
Qld	4,014,006	4,285,617	4,741,909
SA	1,232,272	1,211,595	1,109,831
WA	803,786	1,902,939	1,972,989
Tas	381,313	387,228	376,484
NT	246,846	262,288	267,164
ACT	454,726	558,124	571,766
National	**15,352,733**	**16,028,842**	**17,685,853**

IHPA calculates the native NWAU for every record in the non-admitted stream using the formula published in the relevant NEP Determination (IHPA 2022e). All information required to calculate the NWAU of each record is available in the NAP activity data set and the relevant NEP Determination, other than remoteness of hospital location with respect to the Australian Statistical Geography Standard – Remoteness Area[11]. The latter is determined by IHPA using the hospital's address or by comparison to the remoteness value reported for the same hospital in APC data.

3.2 AIHW Establishment Peer Group

The NBP lists the AIHW Peer Group of each hospital for which data are included in the NBP. This filter enables the user to compare cost and activity between similar hospitals. The references used to assign a peer group to each hospital are available via the AIHW website (AIHW 2021, AIHW 2015). Hospitals not listed in the more recent list (AIHW 2021) were grouped according to their peer group in the original AIHW peer group document (AIHW 2015), where possible. Hospitals not listed in either AIHW source were assigned the peer group Unknown. However, this category has been assigned to certain hospitals which appear in AIHW data.

It is noted in AIHW documentation (AIHW 2015) that the categories listed in Table 20 should not be considered *peer groups* due to the diverse characteristics of the establishments within those categories. However, IHPA retains the term *peer group* for these categories in accordance with AIHW terminology and to ease navigability of the NBP. The same is true of the peer group 'Unknown' which is listed in (AIHW 2021) but not in (AIHW 2015).

[11] METeOR 697105.

Table 20: Categories not considered peer groups by the AIHW

AIHW Category
Very small hospitals
Other public acute specialised hospitals
Other day procedure hospitals
Mixed subacute and non-acute hospitals
Unpeered hospitals

In some instances, the establishment identifier of a facility listed in the AIHW table did not match that of the same facility listed in IHPA's activity reporting. In most of these instances, matching was successfully performed on the basis of hospital name or a previous hospital identifier. The instances in which an establishment identifier was not used for matching are provided in Appendix C).

3.3 Service Related Groups Version 6.0

Each admitted acute record in the NBP is assigned a Service Related Group (SRG), Version 6.0 class. Service related groups (SRGs) are a classification of admitted patient care episodes, intending to capture the services used to treat that patient. They are intended for use in the planning of hospital services, for which the diagnosis and complexity information used for Diagnostic Related Groups (DRGs) would be too granular. In general, the SRG classification is a coarsening of the DRG classification, although there are some exceptions.

The Service Related Groups Version 6.0 classification was developed by the NSW Ministry of Health. Consequently, some of the methodology used is specific to NSW hospitals and this behaviour needs to be generalised to hospitals in the nation. Below, we discuss these adjustments to the Service Related Groups Version 6.0 classification for records obtained from outside NSW. The situations in which IHPA has had to make these adjustments differ according to the 'Patient Type' assigned to the record within the SRG v6 grouper. Below we describe the assignment of Patient Types and the resulting decisions.

3.3.1 Patient Type 9: Hospital Boarders, Organ Procurement, and Other

Records assigned Patient type 9 cannot be reliably grouped with similar records for the purposes of benchmarking according to the services provided to the patient. These records are subsequently assigned the SRG v6 99, *Unallocated*. Some records are assigned Patient type 9 on the basis of data specific to that record and some are so assigned on the basis of the facility in which they were admitted. In this section we describe how IHPA has managed this assignment.

Records with the admitted patient care type[12] listed in APC data as 'Other admitted patient care', 'Organ procurement – posthumous', or 'Hospital boarder' are not included in the NBP as they are not priced by IHPA. These records are summarised in Table 26 – Table 28. However, some establishments have all their records grouped to Patient Type 9 in the NSW MoH SRG v6

[12] AIHW METeOR 711010.

grouper. For these establishments, the same treatment is applied to the data included in the NBP. In this section we describe how IHPA has extended this treatment to hospitals outside NSW. The complete list of impacted hospitals is available in Appendix D).

All records from a NSW Justice Health facility are assigned to Patient type 9. The Forensic Hospital (NSW) is not included in this provision, or in Appendix D) because this facility has historically been distinguished from Justice Health facilities through use of a different establishment identifier. There were no establishments from other jurisdictions in IHPA's data with a similar profile to Justice Health facilities from NSW, so the facilities in Appendix D) are the only ones impacted by this decision.

Within the NSW MoH grouper, all records from a facility within the NSW Health hospital peer group (NSW MoH 2016) 'Mothercraft', are assigned to Patient type 9. All facilities within this NSW MoH hospital peer group are within the AIHW peer group known as *Early Parenting Centres* (AIHW 2015). Therefore, any records from a facility belonging to the *Early Parenting Centres* is assigned to Patient type 9. The impacted facilities are listed in Appendix D).

Within the NSW MoH grouper, all records with the NSW Health hospital peer group 'Other Ungrouped' (NSW MoH 2016) are assigned to Patient type 9. This impacts all facilities with an AIHW peer group of *Drug and Alcohol Hospitals* or *Unknown*. Consequently, any records from establishments in Australia with an AIHW peer group *Drug and Alcohol Hospitals* or *Unknown* are assigned to Patient Type 9. This treatment does not extend to facilities with AIHW peer group *Unpeered*. The complete list of impacted facilities is provided in Appendix D).

There were an additional four NSW hospitals within the NSW MoH peer group 'Other Ungrouped' (NSW MoH 2016), which do not lie in any of the AIHW peer groups listed above. These are listed in Appendix D). These hospitals belong either to the AIHW peer groups *Outpatient* or *Mixed Subacute and Non-acute*. However, there are NSW facilities within these AIHW peer groups for which records are not assigned to Patient type 9. Therefore, the assignment of Patient type 9 to all records was not extended to all facilities in the AIHW Peer Groups *Outpatient* or *Mixed Subacute and Non-acute*.

All records assigned Patient type 9 are assigned to SRG v6 99, *Unallocated*.

3.3.2 Patient Type 2: Psychiatric Admission in Designated Facility

If a hospital is not listed as being restricted to delivering records within the SRG v6 99, *Unallocated* in the previous section, then records from that hospital may be assigned to Patient Type 2: psychiatric admission in designated facility. The NSW MoH SRG v6 grouper contains certain behaviour specific to NSW hospitals. IHPA has generalised this behaviour to hospitals throughout the nation. We describe this generalisation below.

To undertake this generalisation, IHPA needed to determine which private hospitals would be considered to be psychiatric hospitals and which would be considered to be private hospitals with a specialist psychiatric unit. A private hospital is considered to be a psychiatric hospital on the basis of that establishment's self-description. A private (non-psychiatric) hospital was deemed to have a psychiatric unit if there was at least one psychiatric care day from that facility in 2018–19 or 2019–20. The list of hospitals in each category is provided in Appendix E).

A record from a public hospital is assigned to Patient type 2 if it satisfies the following:

1) The record has not been assigned Patient type 9.
2) Either:

- The record has admitted patient care type[13] of 'Mental health care' or
- The record comes from a public hospital within the AIHW Peer Group *Psychiatric* or
- The record comes from a public hospital and has at least one psychiatric care day or
- The record comes from a hospital listed as a private psychiatric hospital in Appendix E) or
- The record comes from a facility listed as a private hospital with a psychiatric unit in Appendix E), and has at least one psychiatric care day.

All records with Patient type of 2 are assigned SRG 83, *Specialist Mental Health*.

3.3.3 Patient Type 1: Acute and Patient Type 3: Unqualified Newborn

If a record has not been assigned to Patient type 9, then it is assigned to Patient type 1: acute, if it satisfies one of the following two criteria:

1) Admitted patient care type[14] is 'Acute care' and
   a) Adjacent AR-DRG (ADRG) is not equal to Z60, *Rehabilitation*[15] and
   b) Principal diagnosis does not have the prefix Z50, Care involving use of rehabilitation procedures, Z74, Problems related to care-provider dependency, or Z75, Problems related to medical facilities and other health care.
2) Admitted patient care type is equal to 'Newborn care' and record has at least one qualified day[16].

If a record has admitted patient care type 'Newborn care' and does not have at least one qualified day, then that record is assigned Patient type 3: unqualified newborn. All such records are assigned to SRG v6 74, *Unqualified Neonate*.

Records having Patient type 1 may be assigned to SRG v6 73, *Qualified Neonate* or SRG v6 75, *Perinatology*, depending on the facility in which the admission takes place. SRG v6 75, *Perinatology*, contains only records with time within a neonatal intensive care unit (NICU). Below we list our methodology for determining which records have some number of NICU hours.

IHPA does not maintain records of NICU facilities at Australian hospitals. Hospitals from NSW which are eligible to have records grouped into SRG v6 75 are exactly those chosen by NSW MoH in designing SRG v6. The NSW MoH also listed Canberra Hospital among eligible establishments and this decision has also been carried out in the NBP. For all other hospitals outside NSW, facilities deemed to have NICU facilities were those with at least 100 ICU hours delivered to patients in the neonatal care type in at least one of the years from 2018–19 to 2020–21. For the purposes of this assessment, all data were considered, not just those which were included in the NBP. The facilities deemed to have NICU facilities on this basis, are listed in Appendix F).

Records which have been assigned Patient type 3 are classed within SRG v6 74, *Unqualified Neonate*. Records assigned Patient type 1 with an admitted patient care type of 'Acute care' have their SRG class assigned on the basis of their DRG, primary diagnosis, and principal

[13] AIHW METeOR 711010.
[14] AIHW METeOR 711010.
[15] This ADRG was part of AR-DRG v8 but was assigned no NWAU as rehabilitation events should be grouped to the admitted care type 'Rehabilitation care'. This is not a valid ADRG within AR-DRG v9. Consequently, a small number of records among 2017–18 data are the only records classified within this ADRG in the NBP.
[16] AIHW METeOR 722649.

procedure. If the record has Patient type 1 and an admitted patient care type of 'Newborn care' then the SRG assignment uses the additional information of the number of ICU hours delivered and whether the record comes from a hospital with NICU facilities, as specified in Appendix F).

3.3.4 Patient Type 4: Subacute and Non-acute

Patients satisfying the one of the following two criteria were assigned Patient type 4: subacute and non-acute.

1) Admitted patient care type[17] is 'Acute care' and either:

   a) Adjacent AR-DRG (ADRG) is equal to Z60, *Rehabilitation* or

   b) Principal diagnosis has prefix Z50, Care involving use of rehabilitation procedures, Z74, Problems related to care-provider dependency, or Z75, Problems related to medical facilities and other health care.

2) Admitted patient care type is equal to 'Rehabilitation care' or 'Palliative care' or 'Geriatric evaluation and management' or 'Psychogeriatric care' or 'Maintenance care'.

If a record has been assigned Patient type 4 then its SRG is determined by the admitted patient care type of that record in the following manner:

1) If the record has admitted patient care type 'Acute care' or 'Rehabilitation care' then it is assigned SRG v6 84, *Rehabilitation*.
2) If the record has admitted patient care type 'Palliative care' then it is assigned SRG v6 86, *Palliative care*.
3) If the record has admitted patient care type 'Geriatric evaluation and management' then it is assigned SRG v6 92, *Geriatric evaluation and management*.
4) If the record has admitted patient care type 'Psychogeriatric care' then it is assigned SRG v6 85, *Psychogeriatric*.
5) If the record has admitted patient care type 'Maintenance care' then it is assigned SRG v6 87, *Maintenance*.

3.4 Cost Data

All cost data presented in the NBP were submitted to IHPA through the NHCDC (IHPA 2022f). As a rule, all NHCDC costs are included in the NBP other than costs associated with the activity which has not been included in, as described in the previous section. However, there are some costs which have not been included in the NBP, or which are modified before uploading, to improve benchmarking or to align with IHPA's practices in the pricing process. We discuss these costs and modifications in this section.

3.4.1 Costs of Unqualified Newborns

Unqualified newborns are those without care interventions following birth and who are less than ten days old when discharged. If a newborn undergoes a care intervention or is ten or more days old when discharged, then they begin to accrue 'qualified days' and are no longer considered 'unqualified newborns'.

[17] AIHW METeOR 711010.

If costs are submitted for unqualified newborns, then those costs are redistributed to the childbirth episodes of care in the following manner. This process refers to costs submitted in the NHCDC which could be matched to activity in the APC data set.

1) Patients eligible to have their costs redistributed are those with admitted patient care type[18] 'Newborn care'. Patients eligible to receive these costs are those with admitted patient care type 'Acute care' and any ICD-10-AM code (not necessarily principal diagnosis) belonging to the following list, each of which indicates that the patient gave live birth.

- Z37.0, Single live birth.
- Z37.2, Twins, both live born.
- Z37.5, Other multiple births, all liveborn.
- Z37.6, Other multiple births, some liveborn.
- Z37.9, Outcome of delivery unspecified.

2) The two lists created in the previous step are joined using a linking key present in the APC data set (IHPA 2022b), where we ensure that the date of birth field of any patient in the newborn list between the admission and separation dates of any childbirth record to which it is matched.
3) For any successful matches created in the previous step, all costs from the newborn are added to the cost of the childbirth record to which it is matched.
4) For any newborn which could not be matched to a childbirth record in step 2, we group records taking place at the same hospital, and sum their costs.
5) For any childbirth records which could not be matched with a newborn record in step 2, we group records taking place at the same hospital, and sum their length of stay.
6) Dividing the output of stage 4 by the output of stage 5, we have a cost per day at each hospital at which there is a childbirth record without a matching unqualified newborn record. For each childbirth record which could not be matched to an unqualified newborn record, multiply this cost per day (specific to the hospital at which the childbirth record took place) by the length of stay of the childbirth record.

3.4.2 Costs Excluded from the NHCDC

We described above the records selected for inclusion in the NBP. Among these records all costs are included apart from those listed under the Capital works and Excluded costs line items within the NHCDC submission (IHPA 2022f). These costs are removed because they are accrued through activity which is out of IHPA's scope for IHPA's hospital service pricing responsibilities under the NHRA (FFR 2022). Consequently, these costs are not reported consistently across jurisdictions and are not suitable for benchmarking. Table 21 summarises the costs excluded in this process, after restricting to the records which are included in the NBP. Negative costs are generally due to actuarial adjustments, for example in calculating long service leave liability.

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[18] AIHW METeOR 711010.

Table 21: Excluded costs and capital works costs not included in the NBP

Jurisdiction	Excluded Costs and Capital Works		
	2017–18	2018–19	2019–20
NSW	$132,557,342	$346,954,237	$203,020,793
Vic	$0	$0	$305
Qld	$0	$0	$24,267,758
SA	$0	$0	$0
WA	$0	$0	$0
Tas	$0	$0	$0
NT	$23,170,882	$22,746,781	$9,012,137
ACT	$0	$0	-$215,160
National	**$155,728,223**	**$369,701,018**	**$236,085,833**

3.4.3 Costs Excluded from the Pricing Process

There are also costs which are included in the NBP which are not used to develop the National Efficient Price or the Price Weights in IHPA's Determinations. These costs include costs associated with Depreciation and Leasing, the Pharmaceutical Benefits Scheme (PBS), costs associated with the provision of blood services, costs reimbursed by private health insurers, and some teaching, training, and research costs. Consequently, it is expected that the cost of services appearing on the NBP may be greater than the product of NWAU for that service and the National Efficient Price (NEP) for the relevant year.

Table 22 –Table 25 summarise the costs of items that are excluded from the pricing process which are submitted to IHPA, by jurisdiction. Not all costs in Table 22 –Table 25 are accrued in the performance of the activity represented in the NBP, for instance, some will be accrued among NHCDC records not matched to activity. Therefore, these tables should be read as an estimate only, provided for the purposes of conveying the scale and locus of potential inconsistencies.

Table 22 contains costs reported within the Depreciation and Leasing line items in the NHCDC. These costs are included in the National Benchmarking Portal but are removed before pricing is undertaken.

Table 22: Depreciation and leasing costs included in the NBP, by jurisdiction

Jurisdiction	2017–18	2018–19	2019–20
NSW	$553,805,220	$596,673,861	$680,222,942
Vic	$92,623,097	$101,081,405	$100,362,929
Qld	$295,105,811	$272,276,923	$301,463,044
SA	$180,828,441	$185,845,451	$185,669,161
WA	$235,267,891	$236,356,861	$226,231,747
Tas	$25,249,983	$36,469,569	$34,464,987
NT	$33,313,664	$41,966,222	$42,838,546
ACT	$523,497	$1,484,190	$1,798,844
National	**$1,416,717,605**	**$1,472,154,481**	**$1,573,053,200**

Table 23 contains costs accrued for blood services, which are removed before Pricing is undertaken but are retained for the NHCDC Public Sector Report.

Table 23: Blood costs submitted via the NHCDC, by jurisdiction

Jurisdiction	2017–18	2018–19	2019–20
NSW	$101,022,612	$110,691,293	$110,490,675
Vic	$121,487,534	$128,436,431	$127,341,413
Qld	$44,359,020	$44,782,684	$47,742,821
SA	$0	$0	$0
WA	$0	$0	$0
Tas	$3,506,182	$2,794,039	$6,148,497
NT	$2,267,883	$2,330,506	$2,017,711
ACT	$6,606,865	$5,987,820	$4,984,505
National	**$279,250,096**	**$295,022,773**	**$298,725,622**

Table 24 contains costs reported in the NHCDC which are reimbursed through the Pharmaceutical Benefits Scheme. These costs are included in the NHCDC public sector report but not in the pricing process.

Table 24: Pharmaceutical Benefits Scheme (PBS) costs included in the NHCDC, by jurisdiction

Jurisdiction	2017–18	2018–19	2019–20
NSW	$0	$0	$0
Vic	$604,420,042	$650,322,417	$693,029,586
Qld	$328,657,636	$420,956,923	$495,455,602
SA	$148,761,356	$178,848,812	$200,753,011
WA	$181,419,804	$194,784,889	$212,780,787
Tas	$49,632,935	$46,267,111	$49,114,612
NT	$30,289,344	$27,932,844	$30,273,759
ACT	$20,164,771	$20,232,167	$22,601,783
National	**$1,363,345,887**	**$1,539,345,163**	**$1,704,009,141**

Table 25 contains the private health insurance benefits paid to private patients provided to IHPA through the Hospital Casemix Protocol (HCP) data set (DoH 2021). These are generally deducted from the in-scope costs of patients before using their costs to set the prices found in the NEP Determination. Not all records in the NHCDC can be matched to HCP data, so private health insurance benefits paid to un-matched private patients are estimated in the pricing process. Conversely, some of these costs may be accrued by records excluded from the National Benchmarking Portal. Therefore, Table 25 should be understood as an indication of the order of magnitude of costs included in the National Benchmarking Portal which may result in over-estimating cost per NWAU.

Table 25: Hospital Casemix Protocol (HCP) costs included in the NHCDC, by jurisdiction

Jurisdiction	2017–18	2018–19	2019–20
NSW	$456,226,650	$446,229,569	$392,691,039
Vic	$203,530,294	$198,713,220	$181,640,964
Qld	$110,005,019	$116,735,299	$104,796,808
SA	$59,284,172	$69,825,979	$65,688,701
WA	$22,342,324	$66,956,936	$67,938,969
Tas	$19,494,807	$18,981,461	$17,842,320
NT	$4,032,815	$4,117,331	$4,477,841
ACT	$8,745,857	$9,139,257	$8,198,098
National	**$883,661,940**	**$930,699,052**	**$843,274,740**

Not all admitted patients are included in the NBP due to their activity not being priced by IHPA. Patients with an admitted patient care type of ‘Other admitted patient care’, ‘Organ procurement – posthumous’, or ‘Hospital boarder’ are not priced by IHPA. IHPA does not price these records, so they are not reported consistently by jurisdictions. Consequently, benchmarking measures cannot be applied appropriately to these records, so we do not include their activity or costs in the NBP. The costs and of these records as submitted via the NHCDC are contained in Table 26 – Table 28.

Table 26: Summary of records with admitted patient care type 'Other admitted patient care' submitted via the NHCDC

Jurisdiction	2017–18		2018–19		2019–20	
	Separations	Cost	Separations	Cost	Separations	Cost
NSW	87	$307,489	66	$531,259	0	$0
Vic	0	$0	0	$0	0	$0
Qld	0	$0	0	$0	0	$0
SA	0	$0	0	$0	0	$0
WA	0	$0	0	$0	0	$0
Tas	423	$415,979	102	$258,836	34	$193,353
NT	0	$0	0	$0	0	$0
ACT	0	$0	0	$0	0	$0
National	**510**	**$723,467**	**168**	**$790,095**	**34**	**$193,353**

Table 27: Summary of records with admitted patient care type 'Organ procurement – posthumous' submitted via the NHCDC

Jurisdiction	2017–18		2018–19		2019–20	
	Separations	Cost	Separations	Cost	Separations	Cost
NSW	107	$4,217,561	129	$6,269,361	94	$1,084,647
Vic	142	$1,496,397	172	$2,320,558	140	$2,161,659
Qld	0	$0	0	$0	0	$0
SA	0	$0	40	$305,627	39	$338,504
WA	37	$943,643	54	$1,048,127	43	$744,326
Tas	21	$193,602	14	$115,215	16	$181,435
NT	3	$82,060	5	$100,915	2	$21,408
ACT	17	$258,594	0	$0	0	$0
National	**327**	**$7,191,857**	**414**	**$10,159,802**	**334**	**$4,531,978**

Table 28: Summary of records with admitted patient care type 'Hospital boarder' submitted via the NHCDC

Jurisdiction	2017–18		2018–19		2019–20	
	Separations	Cost	Separations	Cost	Separations	Cost
NSW	0	$0	0	$0	0	$0
Vic	0	$0	0	$0	0	$0
Qld	16,804	$7,022,549	17,228	$14,236,389	17,118	$9,404,350
SA	0	$0	0	$0	0	$0
WA	497	$2,282,685	0	$0	0	$0
Tas	1,525	$179,001	1,579	$256,296	1,486	$354,902
NT	0	$0	0	$0	0	$0
ACT	0	$0	0	$0	0	$0
National	**18,826**	**$9,484,235**	**18,807**	**$14,492,685**	**18,604**	**$9,759,252**

4. Drivers of Acute NWAU Growth

The drivers of acute NWAU growth chart is displayed on the NWAU detail page within the NBP. IHPA's intention in providing this chart is to quantify the factors contributing to annual admitted acute NWAU change among the categories of records selected by the user. The graphic refers to NWAU growth between the year prior to that selected by the user, and the year selected by the user. The NWAU version being measured is that which is native to the year selected by the user.

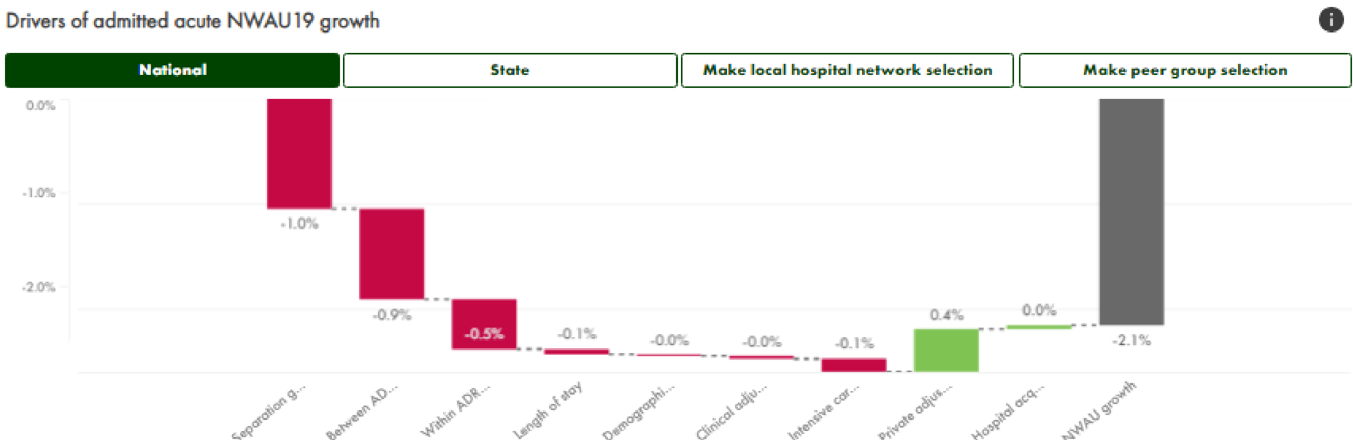
The chart only applies to the admitted acute stream, so any data displayed on this chart refers only to this stream of care. However, the user may select filters within the admitted acute stream, such as restricting to separations which have specific values of AR-DRG, SRG, and principal diagnosis. These choices will be reflected in the display of the drivers of acute NWAU growth chart.

4.1 Choosing a Cohort of Study

Before calculating separation growth, the user must select a baseline for NWAU growth based on separation growth figures for some group. This is used to attribute some amount of NWAU growth to the growth expected due to change in separations. This choice is implemented via the four tabs at the top of Figure 2. The tab chosen by the user is referred to as the $LEVEL$ in this section.

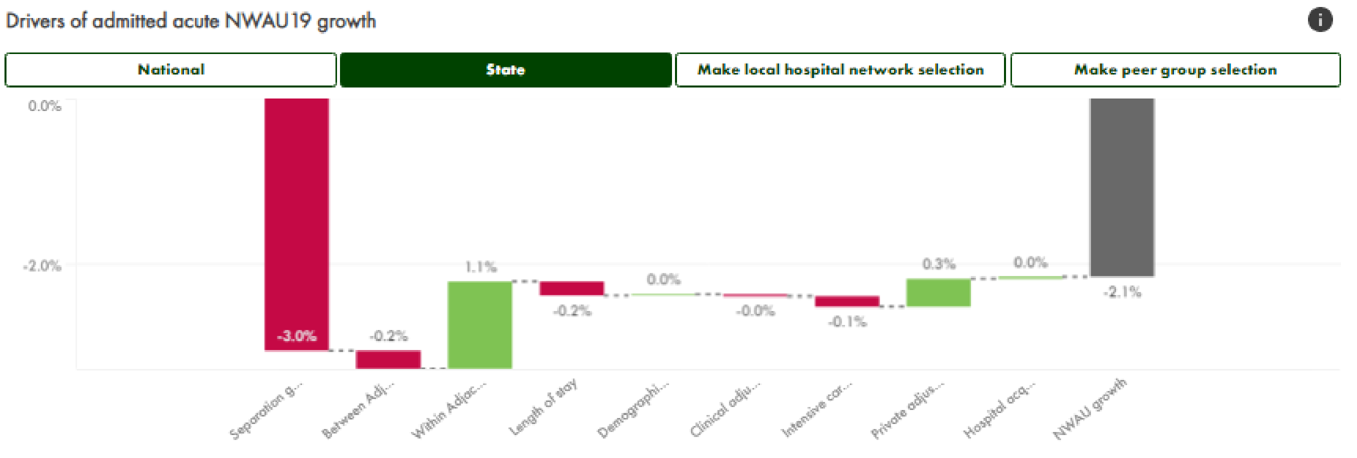
Figure 2 shows four level tabs available for selection: 'National', 'State', 'LHN' and 'Peer Group'. In this instance, the user has already filtered their data by state, so the 'State' tab is available for selection, indicating that the user may choose to view the drivers of acute NWAU growth chart using separation growth figures specific to the state or territory they have selected. The 'Local Hospital Network' and 'Peer Group' tabs are not available for selection (so they read 'Make Local Hospital Network selection' and 'Make peer group selection', respectively) because the user has not filtered their data by LHN or peer group.

Figure 2: Drivers of admitted acute NWAU growth



In Figure 2, the user has selected the 'National' tab, indicated by that tab being highlighted in green, so the growth figures are based on national separation growth benchmarks. This sets a baseline for NWAU growth based on national separation growth trends. Figure 3 shows the same data as Figure 2, after the user has selected the 'State' tab instead of the 'National' tab. The final growth figure is the same, but the contributors to that growth are the different because we start with different assumptions as to the growth which we attribute to separation change between one year and the next.

Figure 3: Drivers of admitted acute NWAU growth, observed using the state tab



In the remainder of this section, we define how each of the components of NWAU growth in Figure 2 and Figure 3 are calculated.

4.2 Accounting for Separation Growth

The first two categories attribute NWAU growth to separation growth by addressing the question 'What if NWAU growth was the same as separation growth?". The first component of NWAU growth in the chart is a growth factor equal to the total growth in separations between the two years under consideration. In this section, we refer to the year selected by the user as Y2 and the year prior to Y2 as Y1. The NWAU version under consideration is that which is native to Y2. This NWAU variable, with version native to Y2, is referred to as $NWAU$ in this section.

Separation growth for the nation and for each jurisdiction, LHN and peer group is recorded in the NBP. The user chooses which separation growth factor to use by choosing one of the four tabs at the top of Figure 2. These growth factors are calculated only among separations which are assigned a valid NWAU. Let $LEVEL$ represent the tab chosen by the user in the drivers of acute NWAU growth chart. Let $LEVEL_i$ be the ith possible value taken in the category $LEVEL$. For example, if $LEVEL$ is 'National' then there is only value of $LEVEL_i$, which is Australia, but if $LEVEL_i$ is 'State' then there are eight possible values of $LEVEL_i$; NSW, Victoria, Queensland, South Australia, Western Australia, Tasmania, Northern Territory and the ACT. We define the ith separation growth factor as follows.

$$g_i := \frac{\text{Separations with valid NWAU in } LEVEL_i \text{ in Y2}}{\text{Separations with valid NWAU in } LEVEL_i \text{ in Y1}}$$

Let x_k be the $NWAU$ of the kth separation in Y1. Let N_{Y1} be the total number of separations with valid $NWAU$ satisfying the user's filters, taking place in Y1, and let $J = \{1, \dots, N_{Y1}\}$. Fix an arbitrary order on those separations. We define

$NWAU_0 := \sum_{j \in J} x_j = \text{Total } NWAU \text{ in Y1}$

Let $LEVEL(k)$ be the value of the category $LEVEL$ to which the kth separation in Y1 belongs. For example, if $LEVEL$ is 'State' then $LEVEL(k)$ is the state in which the kth separation in Y1 took place. We define

$NWAU_1 := \sum_{j \in J} x_j g_{LEVEL(j)}$

For the final chart display, we will need to recall the difference between $NWAU_1$ and $NWAU_0$ as a proportion of $NWAU_0$. Therefore, we define,

$$\rho_{\text{Sep}} := \frac{NWAU_1 - NWAU_0}{NWAU_0}$$

This provides the reader with an indication of what $NWAU$ growth would look like if $NWAU$ grew at the same rate as separations in their chosen $LEVEL$.

Next, we consider separation growth by Adjacent AR-DRG (ADRG) within the user's chosen $LEVEL$. We suppose that separation growth has been accounted for but rescale the $NWAU$ of each ADRG according to separation growth, as follows. Let $ADRG_{i,j}$ denote the ith ADRG in $LEVEL(j)$ and

$$\rho_{ADRG_{i,j}} := \frac{\text{Valid ADRG}_{\text{i,j}} \text{ Separations in Y2}}{\text{Valid ADRG}_{\text{i,j}} \text{ Separations in Y1}}$$

We refer to $\rho_{ADRG_{i,j}}$ as the *growth ratio* of the ith ADRG in $LEVEL(j)$ and let M be the total number of distinct values in the category $LEVEL$. Now we define the function

$$\phi_{ADRG} : J \to \{\rho_{ADRG_{0,0}}, \dots, \rho_{ADRG_{23,\mathrm{M}}}\}$$
$$k \mapsto \rho_{ADRG_{i(k)}, LEVEL(k)}$$

where the kth separation belongs to $ADRG_{i(k)}$. Let x_j be the $NWAU$ of the jth separation in Y1. We define $NWAU_2$ as follows.

$$NWAU_2 := \sum_{j \in J} x_j \cdot \phi_{ADRG}(j)$$

Defining $NWAU_2$ is a means of showing reader what $NWAU$ growth would look like if the NWAU in each ADRG grew in agreement with the valid separation growth in that ADRG. We refer to this as *casemix growth* as it incorporates the type of procedures a hospital is performing but does not consider the complexity of the individuals involved or per capita changes in ICU hours, adjustments or HACs.

When incorporating the change due to casemix growth into our activity reporting, we will consider the difference between $NWAU_2$ and $NWAU_1$ as a proportion of $NWAU_0$. Therefore, we record the following value for later use.

$$\rho_{ADRG} := \frac{NWAU_2 - NWAU_1}{NWAU_0}$$

4.3 The Admitted Acute NWAU Formula

The remainder of growth is calculated by finding the difference between $NWAU_2$ and the observed $NWAU$ in Y2 in terms of the components of the NWAU formula. The formula used is

that found in the NEP determinations pertaining to the years included in the NBP (IHPA 2022e) relevant to the year selected by the user– with the exception that the $NWAU$ formula below are forced to be non-negative, which is how $NWAU$ is calculated in practice. The formulae used in the drivers of acute NWAU growth chart are as follows.

$$\text{GWAU} := PW \cdot A_{\text{Paed}} \cdot (1 + A_{\text{SPA}}) \cdot (1 + A_{\text{Ind}} + A_{\text{Res}} + A_{\text{RT}} + A_{\text{Dia}}) \cdot (1 + A_{\text{Treat}}) + A_{\text{ICU}} \cdot \text{ICU hours}$$

$$\text{NWAU} := \max\ (0\ , GWAU - (PW + A_{\text{ICU}} \cdot \text{ICU hours}) \cdot A_{\text{PPS}} - \text{LOS} \cdot A_{\text{Acc}} - PW \cdot A_{\text{HAC}})$$

where A_{Paed} = Paediatric adjustment,

A_{SPA} = Specialist Psychiatric Age adjustment,

A_{Ind} = Indigenous adjustment,

A_{Res} = Patient residential remoteness adjustment,

A_{RT} = Radiotherapy adjustment,

A_{Dia} = Dialysis adjustment,

A_{Treat} = Treatment remoteness adjustment,

A_{ICU} = Intensive Care Unit hourly NWAU rate,

A_{PPS} = Private Patient Service adjustment,

A_{Acc} = Private Patient Accommodation adjustment,

A_{HAC} = Hospital Acquired Complication adjustment,

ICU hours = Number of hours in a specified level 3 intensive care unit,

LOS = Length of stay, including any ICU hours

PW = The price weight for this episode based on the DRG and length of stay (after removing any level 3 ICU hours). This is obtained from the NEP Determination relevant to the data year under consideration.

NWAU formulae generally differ from year to year. However, the formulae used in NWAU18 and NWAU19 were the same, and these are the only versions used in the drivers of acute NWAU growth chart, so we assume we are working with the formulae listed above for the remainder of this section.

For the purposes of accounting for growth, we break down the $NWAU$ formula as follows. The term PW is broken down into two parts, which will be used to account for growth in acuity and length of stay. Next, the portion

$$P_{Demo} := PW \cdot A_{\text{Paed}} \cdot (1 + A_{\text{Ind}} + A_{\text{Res}}) \cdot (1 + A_{\text{Treat}}) - PW$$

is compared between Y1 and Y2 to measure the change in adjustments based solely on demographic factors: age, Indigenous status, remoteness of residence and remoteness of treatment. We next compare the difference in the component

$$P_{Clin} := PW \cdot A_{\text{Paed}} \cdot ((A_{\text{RT}} + A_{\text{Dia}} + A_{\text{SPA}} \cdot (A_{\text{RT}} + A_{\text{Dia}} + A_{\text{Ind}} + A_{\text{Res}})) \cdot (1 + A_{\text{Treat}})$$

to measure the change in adjustments due to clinical factors: psychiatric treatment, radiotherapy, and dialysis. In this instance, some terms involving demographic factors remain to simplify the calculation. We measure the difference in the term

$$P_{ICU} := A_{\text{ICU}} \cdot \text{ICU hours}$$

to obtain an indication of how ICU hours have impacted $NWAU$ growth, beyond what would be expected from the change in number of admissions within each ADRG. We then calculate the difference between the quantity

$$P_{Priv} \coloneqq \max(\, -GWAU \,, -\,(PW + A_{\text{ICU}} \cdot \text{ICU hours}) \cdot A_{\text{PPS}} - \text{LOS} \cdot A_{\text{Acc}})$$

measured in Y1 and Y2 to study change in the amount of $NWAU$ removed due to private patient adjustments. We do not allow NWAU to be negative so, for each episode we do now allow the amount of NWAU removed due to private patient deductions to exceed $GWAU$. The private patient deduction is calculated before the HAC deduction is taken into account. Therefore, if a private patient has a Hospital Acquired Complication (HAC), the private patient deduction is given priority when allocating the total deduction to one cause or the other. Finally, we compare the quantity

$$P_{HAC} \coloneqq \max(\, -\,PW \cdot A_{\text{HAC}} \,, -GWAU - P_{Priv}\,)$$

to determine the growth in $NWAU$ removed due to HACs. As with private patient adjustments, for each episode we do now allow the amount of $NWAU$ removed due to HACs to be greater than $GWAU + P_{Priv}$.

4.4 Acuity and Base Growth

We begin by calculating growth in the PW term of the $NWAU$ formula. The PW component is broken down into two parts. First it is estimated by the inlier weight, which is determined by a separation's DRG. The inlier weight of the jth separation in the year X is denoted $W_{In}(j, X)$.This is done as a means of taking into account acuity before we consider length of stay.

If, after taking into account separation growth, we see a large increase in the sum of inlier weights from Y1 to Y2, we interpret this information by saying that in Y2, the admissions being treated in Y2 were of a more complicated nature.

Let $J = \{1, \dots, N_{Y1}\}$, where N_{Y1} is defined above. Similarly, we let N_{Y2} be the number of separations in Y2 and $K = \{1, \dots, N_{Y2}\}$. Fix an order on the separations which took place in Y2. We define

$$\Delta_{Acuity} \colon= \sum_{k \in K} W_{In}(k, Y2) - \sum_{j \in J} \phi_{ADRG}(j) \cdot\ W_{In}(j, Y1)$$

Recall that $\phi_{ADRG}(j)$ is defined above to be the growth ratio of the ADRG to which the j^{th}separation in Y1 belongs. Recall that this separation growth figure is calculated by considering only valid separations within the scope of the user-defined *Sample.*

For the purposes of presenting this information in the drivers of acute NWAU growth chart, we set about presenting all differences as a proportion of the total (unscaled) $NWAU$ recorded in Y1. To this end, we define the following.

$$\rho_{Acuity} \coloneqq \frac{\Delta_{Acuity}}{NWAU_0}$$

Not every patient receives the inlier weight for their DRG, therefore we need to consider the difference between the base price weight assigned to a separation (the value PW in the $NWAU$ formula) and the inlier weight for that separation's DRG. We define the length of stay adjustment for the jth separation in the year X by

$$W_{LOS}(j, X) \coloneqq PW - W_{In}(j, X)$$

where PW is defined in the $NWAU$ formula. This value is uniquely determined by a separation's length of stay and its DRG and may be found in the NEP Determination (IHPA 2022e) relevant to the year Y2. If separation j in the year X is an inlier, then $W_{LOS}(j, X) = 0$. If separation j in the

year X is a long-stay outlier, then $W_{LOS}(j,X) > 0$. If separation j in the year X is a short-stay outlier, then $W_{LOS}(j,X) < 0$. We now define

$$\Delta_{LOS} = \sum_{k\in K} W_{LOS}(k,Y2) - \sum_{j\in J} \phi_{ADRG}(j) \cdot W_{LOS}(j,Y1)$$

We define

$$\rho_{LOS} \coloneqq \frac{\Delta_{LOS}}{NWAU_0}$$

4.5 Demographic, and Clinical Adjustments

We now consider the demographic summands within the $NWAU$ formula. Specifically, we are considering only the components which pertain solely to demographic factors. Let the value $P_{Demo}(j,X)$ denote the value P_{Demo} for the NWAU calculation of the jth separation in year X. Define

$$\Delta_{Demo} = \sum_{k\in K} P_{Demo}(k,Y2) - \sum_{j\in J} \phi_{ADRG}(j) \cdot P_{Demo}(j,Y1)$$

and

$$\rho_{Demo} \coloneqq \frac{\Delta_{Demo}}{NWAU_0}$$

We now repeat the above for the clinical adjustments. Here we consider any terms in the $NWAU$ that contain only clinical adjustments or are products of clinical and demographic adjustments. Let the value $P_{Clin}(j,X)$ denote the value P_{Clin} for the $NWAU$ calculation of the jth separation in year X. Now define

$$\Delta_{Clin} = \sum_{k\in K} P_{Clin}(k,Y2) - \sum_{j\in J} \phi_{ADRG}(j) \cdot P_{Clin}(j,Y1)$$

and

$$\rho_{Clin} \coloneqq \frac{\Delta_{Clin}}{NWAU_0}$$

We repeat the same procedure as above for the ICU adjustment. Let the value $P_{ICU}(j,X)$ denote the value P_{ICU} for the $NWAU$ calculation of the jth separation in year X We define

$$\Delta_{ICU} = \sum_{k\in K} P_{ICU}(k,Y2) - \sum_{j\in J} \phi_{ADRG}(j) \cdot P_{ICU}(j,Y2)$$

and

$$\rho_{ICU} \coloneqq \frac{\Delta_{ICU}}{NWAU_0}$$

4.6 Private Patient and HAC Adjustments

In attributing $NWAU$ growth to the private patient and HAC adjustments, we follow the same procedure as above except that we do not allow the amount being deducted to exceed an episode's $NWAU$. For this reason, the values P_{Priv} and P_{HAC} have been defined to ensure that

$$GWAU + P_{Priv} + P_{HAC} \geq 0$$

Let the $P_{Priv}(j,X)$ denote the value P_{Priv} for the NWAU calculation of the jth separation in year X. Define

$$\Delta_{Priv} := \sum_{k \in K} P_{Priv}(k, Y2) - \sum_{j \in J} \phi_{ADRG}(j) \cdot \ P_{Priv}(j, Y1)$$

and

$$\rho_{Priv} \coloneqq \frac{\Delta_{Priv}}{NWAU_0}$$

Let $P_{HAC}(j, X)$ denote the value P_{HAC} for the $NWAU$ calculation of the jth separation in year X. Define

$$\Delta_{HAC} = \sum_{k \in K} P_{HAC}(k, Y2) - \sum_{j \in J} \phi_{ADRG}(j) \cdot \ P_{HAC}(j, Y1)$$

and

$$\rho_{HAC} \coloneqq \frac{\Delta_{HAC}}{NWAU_0}$$

For reference we define

$$\Delta_{Total} \coloneqq \Delta_{Acuity} + \Delta_{LOS} + \ \Delta_{Demo} + \Delta_{Clin} + \Delta_{ICU} + \Delta_{Priv} + \Delta_{HAC}$$

4.7 Construction of the Drivers of Acute NWAU Growth Chart

The growth proportions which appear in the drivers of acute NWAU growth chart on the NWAU detail page of the NBP are described in Table 29, along with the labels of each item as it appears in Figure 2 and the NBP.

Table 29: Descriptions of each component of the drivers of acute NWAU growth chart

Value	Title in NBP	Interpretation
ρ_{Sep}	Separation growth	This is what NWAU growth between Y1 and Y2 would be if NWAU growth was the same as the overall growth in separations.
ρ_{ADRG}	Between ADRG changes	After taking into account total separation growth, this is the growth in NWAU we would expect after taking into account the different growth rates of the different ADRGs.
ρ_{Acuity}	Within ADRG changes	After taking into account separation growth by ADRG, this is the growth in NWAU attributed to changes in the distribution of inlier weights within each ADRG.
ρ_{LOS}	Length of stay	After taking into account separation growth by ADRG, this is the growth in NWAU attributed to changes in the length of stay profile within each ADRG.
ρ_{Demo}	Demographic adjustments	After taking into account separation growth by ADRG, this is the growth in NWAU attributed to change in demographic factors among the cohort of separated patients.
ρ_{Clin}	Clinical adjustments	After taking into account separation growth by ADRG, this is the growth in NWAU attributed to change in clinical factors.
ρ_{ICU}	Intensive care unit	After taking into account separation growth by ADRG, this is the growth in NWAU attributed to change in number of ICU hours provided.
ρ_{Priv}	Private adjustments	After taking into account separation growth by ADRG, this is the growth in NWAU attributed to changes in private patient deductions. Private patient deductions are removed before HAC deductions are taken into consideration.
ρ_{HAC}	Hospital acquired complications	After taking into account separation growth by ADRG, this is the growth in NWAU attributed to changes in HACs. HAC deductions are removed after any private patient deduction has already been removed.
$\frac{NWAU_2 + \Delta_{Total}}{NWAU_0}$	NWAU growth	Total NWAU growth if separation growth with separation growth rates determined by the tab selected by the user. This is equal to observed admitted acute NWAU growth.

5. Alignment with Other Data Sources

This section explains some of the ways in which figures presented in the NHCDC public report, and other sources based on NHCDC data, may differ from those in the NBP. As a general rule, the NBP has been prepared to enable effective benchmarking between services. Costs and services which are not amenable to this manner of benchmarking have been omitted from the NBP but may be present in other sources.

5.1 NHCDC Report, Public Sector

Each year, IHPA publishes a report on the NHCDC data submitted by public sector hospitals (IHPA 2022f). The purpose of the NHCDC public sector report is to describe all costs submitted to IHPA via the NHCDC from public sector hospitals. This is distinct from the purpose of the NBP which is to enable accurate benchmarking between services. Therefore, the user may notice the following differences between figures within the NHCDC report and the NBP,

The NBP contains only NHCDC data which may be identified with records from IHPA's activity data sets. This is also true of the NHCDC public sector report, however, among the admitted streams, the NBP also requires that NHCDC records be identified with records from the APC data set as this contains some information necessary for effective benchmarking. NHCDC records which match activity in the MHCE, MHCP or PCC data sets (IHPA 2022b), but cannot be matched to the APC via the usual linking keys, are not included in the NBP.

Non-admitted service events in Tier 2 classes which receive no NWAU are included in the NHCDC public sector report, but not in the NBP. The number of service events impacted is summarised in Section 3.

A comparison between costs in the NHCDC and those in the NBP is provided in Table 30.

Table 30: Comparison between costs in NBP and NHCDC Report, Public Sector

Jurisdiction	2017–18 ($m)		2018–19 ($m)		2019–20 ($m)	
	NBP	NHCDC	NBP	NHCDC	NBP	NHCDC
NSW	$12,859	$13,753	$13,561	$14,695	$14,232	$15,741
Vic	$9,880	$10,723	$10,759	$11,619	$11,555	$13,234
Qld	$9,417	$10,851	$10,162	$11,635	$10,807	$12,618
SA	$3,467	$3,769	$3,759	$4,082	$3,764	$4,189
WA	$4,541	$4,954	$4,871	$5,230	$5,028	$5,424
Tas	$920	$1,137	$1,012	$1,238	$1,114	$1,338
NT	$863	$965	$943	$1,047	$1,000	$1,117
ACT	$875	$1,013	$975	$1,108	$1,052	$1,189
National	**$42,824**	**$47,165**	**$46,043**	**$50,653**	**$48,553**	**$54,849**

6. Data Masking

IHPA has implemented data masking rules to limit the risk of personal re-identification or identification of personal information through information provided in the NBP. This limits the degree to which users may obtain information about low-volume end classes and small hospitals. The following rules have been implemented:

- In any graphic pertaining to cost or NWAU per month, if there is a month in which fewer than 30 episodes of care took place then the graphic will not be displayed.
- In scatter charts representing categories other than end classes (AR-DRG, AN-SNAP v4, URG, or Tier 2 classifications) then the chart will be suppressed if any datum in the chart represents fewer than 30 separations.
- In scatter charts displaying data for an end class (AR-DRG, AN-SNAP v4, URG, or Tier 2 classifications) then end classes representing fewer than 30 separations are not displayed. All other end classes are displayed.
- In all other graphics and KPIs, no data are displayed if the user selects a combination of filters representing fewer than 30 separations.

7. References

AIHW. 2015. “Australian hospital peer groups.” *Health services series no. 66.*

—. 2021. “Hospital Resources 2019-20: Australian hospital statistics.” *Australian Insititute of Health and Welfare.* 17 August. Accessed March 21, 2022. https://www.aihw.gov.au/reports-data/myhospitals/themes/hospital-workforce.

DoH. 2021. *Australian Government Department of Health: Hospital Casemix Protocol.* 16 February. Accessed March 23, 2022. https://www1.health.gov.au/internet/main/publishing.nsf/Content/health-casemix-data-collections-about-HCP.

FFR. 2022. *Federal Financial Relations: The National Health Reform Agreement.* 3 April. Accessed April 19, 2022. https://federalfinancialrelations.gov.au/agreements/national-health-reform-agreement.

IHPA. 2022a. *Classification of Diseases and Interventions.* 14 March. Accessed March 21, 2022. https://www.ihpa.gov.au/what-we-do/classification-of-diseases-and-interventions.

—. 2022b. *Data Collection.* 14 March. Accessed March 22, 2022. https://www.ihpa.gov.au/what-we-do/data-collection.

—. 2022c. *Emergency Care.* 24 March. Accessed April 22, 2022. http://www.ihpa.gov.au/what-we-do/emergency-care.

—. 2022d. *Independent Hospital Pricing Authority: National Weighted Activity Unit Calculators.* 14 March. Accessed March 24, 2022. https://www.ihpa.gov.au/what-we-do/national-weighted-activity-unit-nwau-calculators.

—. 2022e. *National Efficient Price Determination.* 14 March. Accessed March 22, 2022. https://www.ihpa.gov.au/what-we-do/national-efficient-price-determination.

—. 2022f. *National Hospital Cost Data Collection.* 14 March. Accessed March 21, 2022. https://www.ihpa.gov.au/what-we-do/nhcdc.

NSW MoH. 2016. “NSW Ministry of Health.” *NSW Hospital Peer Groups.* 6 April. Accessed March 21, 2022. https://www1.health.nsw.gov.au/pds/ActivePDSDocuments/IB2016_013.pdf.

Appendix A) Variables Included in the NBP

This section lists the variables included in the NBP by stream. A variable has data type 'Dimension' if the user may filter data according to the values of that variable. Otherwise, the variable has data type 'Measure' and summaries of this variable are presented but the user may not filter according to common values. For example, cost within the pathology cost bucket is a 'Measure' because the user may view the total pathology cost for a group of records, but they cannot request to view all records with the same value of pathology direct costs.

NBP Variables by Stream

Table 31 lists the variables that are common to all streams of care.

Table 31: Variables included on all records in the NBP

Variable	Data type	Notes
Jurisdiction	Dimension	AIHW METeOR 720081.
Hospital	Dimension	AIHW METeOR 269973.
Local Hospital Network	Dimension	AIHW METeOR 711144.
AIHW Peer Group	Dimension	AIHW METeOR 584663, also see (AIHW 2015, AIHW 2021).
Record Month	Dimension	For admitted episode-level records this is the month that a patient's episode of care ended. For admitted phase-level records this is the month that a patient's phase of care ended.
Total Records	Measure	
Ward medical costs	Measure	See Section 2 and (IHPA 2022f) for more information about cost collection.
Ward nursing costs	Measure	
Non-clinical costs	Measure	
Pathology costs	Measure	
Imaging costs	Measure	
Allied health costs	Measure	
Pharmacy costs	Measure	

Critical care costs	Measure	
Operating room costs	Measure	
Emergency department costs	Measure	
Ward supplies costs	Measure	
Special procedure suite costs	Measure	
Prosthetics costs	Measure	
On-costs	Measure	
Hotel costs	Measure	
Depreciation costs	Measure	
Patient travel costs	Measure	
NWAU	Measure	Native NWAU is displayed for all records, see Section 2 for a further explanation of NWAU versions used in the NBP. Different NWAU versions are used internally to calculate growth statistics but are not directly displayed to the user.

Table 32 lists the variables listed in the NBP for records in the admitted acute stream, other than those in Table 31.

Table 32: Variables contained in the admitted acute stream

Variable	Data type	Notes
Service Related Group Version 6.0	Dimension	See Section 3.
Principal Diagnosis	Dimension	Categorised using ICD-10-AM. Versions differ by year as specified in Section 2. Different versions are held internally and used to calculate growth statistics but are not displayed to the user.
Major Diagnostic Category (MDC)	Dimension	Version differs by year, as specified in Section 2. Different versions held internally and used to calculate growth statistics but are not displayed to the user.
Australian Refined Diagnosis Related Group (AR-DRG) classification	Dimension	Version differs by year, as specified in Section 2. Different versions held internally and used to calculate growth statistics but are not displayed to the user.

Table 33 lists the variables listed in the NBP for records in the admitted mental health care stream, other than those in Table 31.

Table 33: Variables contained in the admitted mental health care stream

Variable	Data type	Notes
Principal Diagnosis	Dimension	Categorised using ICD-10-AM. Versions differ by year as specified in Section 2. Different versions are held internally and used to calculate growth statistics but are not displayed to the user.
Major Diagnostic Category (MDC)	Dimension	Version differs by year, as specified in Section 2. Different versions held internally and used to calculate growth statistics but are not displayed to the user.
Australian Refined Diagnosis Related Group (AR-DRG) classification	Dimension	Version differs by year, as specified in Section 2. Different versions held internally and used to calculate growth statistics but are not displayed to the user.

Table 34 lists the variables listed in the NBP for records in the admitted subacute and non-acute care stream (including palliative care phases), other than those in Table 31.

Table 34: Variables contained in the admitted subacute and non-acute care stream

Variable	Data type	Notes
Service Related Group Version 6.0	Dimension	See Section 33.
Principal Diagnosis	Dimension	Categorised using ICD-10-AM. Versions differ by year, as specified in Section 2. Different versions are held internally and used to calculate growth statistics but are not displayed to the user.
Australian National Subacute and Non-Acute Patient (AN-SNAP) Version 4.0	Dimension	Version 4.0 used in each year, as specified in Section 2.

Table 35 lists the variables listed in the NBP for records in the emergency department stream, other than those in Table 31.

Table 35: Variables contained in the emergency department stream

Variable	Data type	Notes
Principal Diagnosis	Dimension	Categorised using the emergency department short list. Versions differ by year, as specified in Section 2. Different versions are held internally and used to calculate growth statistics but are not displayed to the user.
Urgency Related Group Version 4.1	Dimension	Version 4.1 used in each year, as specified in Section 2.

Table 36 lists the variables listed in the NBP for records in the non-admitted stream, other than those in Table 31.

Table 36: Variables contained in the non-admitted stream

Variable	Data type	Notes
Tier 2 Non-Admitted Services classification	Dimension	Version differs by year, as specified in Section 2. Different versions held internally and used to calculate growth statistics but are not displayed to the user.

Appendix B) Non-admitted Tier 2 Classes Omitted from the NBP

Table 37 lists the Tier 2 classes which have been omitted from the NBP on the basis that they are not assigned NWAU and would therefore distort cost per NWAU statistics. The reason that NWAU is not assigned is provided alongside the code for each Tier 2 class.

Table 37: Tier 2 classes not included in the NBP

Tier 2 class	Reason no NWAU is assigned
10.19: Ventilation – home delivered	This activity is block funded.
20.06: General practice and primary care	This activity is out of IHPA's scope under the NHRA.
30.01: General imaging	NWAU is bundled to the originating service.
30.02: Magnetic resonance imaging (MRI)	NWAU is bundled to the originating service.
30.03: Computerised tomography (CT)	NWAU is bundled to the originating service.
30.04: Nuclear medicine	NWAU is bundled to the originating service.
30.05: Pathology (microbiology, haematology, biochemistry)	NWAU is bundled to the originating service.
30.06: Positron emission tomography	NWAU is bundled to the originating service.
30.07: Mammography screening	NWAU is bundled to the originating service.
30.08: Clinical Measurement	NWAU is bundled to the originating service.
30.09: COVID-19 response diagnostics	NWAU is bundled to the originating service.
40.02: Aged care assessment	This activity is out of IHPA's scope under the NHRA.
40.08: Primary health care	This activity is out of IHPA's scope under the NHRA.
40.27: Family planning	This activity is out of IHPA's scope under the NHRA.
40.33: General counselling	This activity is out of IHPA's scope under the NHRA.

40.34: Specialist mental health	This activity is block funded.
40.62: Multidisciplinary case conference – patient not present	This class was not yet priced in the years under consideration.

Appendix C) AIHW Peer Groups Reassigned in the NBP

Table 38 lists hospitals having identifiers within IHPA's data which did not agree with those in the AIHW list. In these instances, the AIHW peer group of a hospital in IHPA's data set was identified according to hospital name or previous hospital identifier. For transparency, we provide these hospitals in the table below.

Table 38: Hospitals with discrepancy between IHPA and AIHW identifier, and their peer group assignment

Establishment	AIHW peer group listed in NBP	Reason for discrepancy
Armadale-Kelmscott Memorial Hospital	Public acute group A	Hospital identifier mismatch due to changed identifier.
Royal Perth Hospital, Wellington St. Campus	Principal referral	Hospital identifier mismatch due to changed identifier.
University of Canberra Hospital	Principal referral	Hospital identifier mismatch due to disaggregation from Canberra Hospital.
Byron Central Hospital	Public acute group C	Hospital identifier mismatch.

Appendix D) Assignment of SRG v6 99, *Unallocated* Due to Establishment

Following the practice of the NSW Ministry of Health SRG v6 grouper, records from certain establishments are assigned SRG v6 99, *Unallocated*, regardless of the content of that record. IHPA has sought to generalise this decision to hospitals throughout Australia. The resulting list of establishments from which all records are assigned SRG v6 99 Unallocated is provided in Table 39. Further information is provided in Section 3.

Table 39: Establishments with records assigned to SRG v6 99, *Unallocated*

Jurisdiction	Establishment	Reason for assigning 99 Unallocated	Notes
NSW	Bathurst Inpatient Service Grafton Inpatient Service Justice Health Long Bay Hospital Metropolitan Remand and Reception Centre Inpatient Service Silverwater Womens Inpatient Service	NSW Ministry of Health Justice Health Facility	Data formerly reported under establishment identifier for 'Justice Health (NSW)'.
Queensland	Ellen Barron Family Centre (Riverton)	AIHW Peer Group *Early Parenting Centre*	
NSW	Riverlands Drug and Alcohol Centre	AIHW Peer Group *Drug and Alcohol Hospital*	
WA	Next Step Drug and Alcohol Services	AIHW Peer Group *Drug and Alcohol Hospital*	
Queensland	Cairns Adult Community MHS Longreach Community MHS Cooktown Community MHS Innisfail Community MHS	AIHW Peer Group *Unknown*	Data for 2018–19 only. Public mental health services. Establishments not listed on AIHW Peer Group list.

	Cape York Community MHS Doomadgee Community MHS Bayside Child & Youth Community MHS Warwick Community MHS Biloela Community MHS Palm Beach Adult Community MHS Beenleigh Community MHS Bundaberg Adult Community MHS Bundaberg Child & Youth Community MHS Goondiwindi Community MHS Stanthorpe Community MHS Ipswich Adult Community MHS Redcliffe-Caboolture Crisis Assessment & Treatment Community MHS Mackay Adult Community MHS Mackay Child & Youth Community MHS Maroochydore Adult Community MHS Community Forensic MHS Inner North Brisbane Community MHS Rockhampton Adult Community MHS Logan Central Adult Community MHS Toowoomba Adult Community MHS Toowoomba Child & Youth Community MHS Dalby Community MHS Mount Isa Community MHS Whitsunday Community MHS Moranbah Community MHS		

	Fraser Coast Adult Community MHS Fraser Coast Child & Youth Community MHS Redcliffe-Caboolture Child & Youth Community MHS Townsville Adult Community MHS Townsville Adult Community Forensic MHS Bayside Adult Community MHS Nundah Community Mental Health Service Browns Plains Community MHS Ingham Community MHS Robina Community MHS Woolloongabba Community MHS Southport Adult Community MHS		
NSW	Goodooga Health Service Ivanhoe Health Service Kiama District Hospital Tibooburra Health Service	NSW Ministry of Health Peer Group *Other Ungrouped*	

Appendix E) Private Psychiatric Facilities

Table 40 lists the private establishments which are considered eligible to have their admitted episodes grouped into SRG v6 83, *Specialist Mental Health*. Hospitals are included on this list if they are either private psychiatric hospitals or not specialised private psychiatric hospitals but private hospitals with a psychiatric unit. The category into which a hospital falls is provided in the 'Type of Facility' column.

Table 40: Private psychiatric hospitals and private hospitals with psychiatric units, used in the SRG v6 grouper

Jurisdiction	Hospital	Type of facility
NSW	Northern Beaches Hospital	Private hospital with psychiatric unit.
Victoria	Albert Road Clinic	Private psychiatric hospital.
Victoria	South Eastern	Private hospital with psychiatric unit.
Victoria	Melbourne Clinic	Private psychiatric hospital.
Victoria	Wyndham Clinic	Private hospital with psychiatric unit.
Victoria	Northpark Private Hospital	Private hospital with psychiatric unit.
Queensland	Belmont Private Hospital	Private psychiatric hospital.
Queensland	Toowong Private Hospital	Private psychiatric hospital.
Queensland	Townsville Private Clinic	Private psychiatric hospital.
Queensland	Robina Private Hospital	Private hospital with psychiatric unit.
Queensland	The Cairns Clinic	Private psychiatric hospital.
Western Australia	Abbotsford Private Hospital	Private psychiatric hospital.
Western Australia	St John of God Health Care Mount Lawley	Private hospital with psychiatric unit.
Western Australia	Joondalup Health Campus	Private hospital with psychiatric unit.
Western Australia	Marian Centre	Private psychiatric hospital.

Western Australia	St John of God Midland Hospital	Private hospital with psychiatric unit.
ACT	Calvary Private Hospital	Private hospital with psychiatric unit.
ACT	Canberra Private Hospital	Private hospital with psychiatric unit.

Appendix F) Establishments with NICU Facilities

Table 41 lists the establishments with NICU facilities. These are the only establishments which are eligible to have their admitted episodes grouped into the SRG v6 75, *Perinatology*. The establishments in Table 41 which lie within NSW, and Canberra Hospital, are those designated by the NSW MoH SRG v6 grouper. All other establishments in the table below have been selected on the basis that they delivered at least 100 ICU hours to patients with admitted patient care type 'Newborn care' in at least one of the years from 2018–19 to 2020–21.

Table 41: Hospitals with a neonatal intensive care unit, used in the SRG Version 6.0 grouper

Jurisdiction	Hospital
NSW	Children's Hospital, Westmead
NSW	Royal Prince Alfred
NSW	Royal North Shore
NSW	Royal for Women
NSW	Sydney Children's Hospital
NSW	Liverpool Hospital
NSW	Nepean Hospital
NSW	Westmead Hospital
NSW	John Hunter Hospital
Victoria	South West Healthcare (Warrnambool)
Victoria	Mildura Base Hospital
Victoria	Monash Medical Centre (Clayton)
Victoria	Mercy Hospital for Women
Victoria	Royal Childrens Hospital (Parkville)
Victoria	Royal Womens Hospital (Clayton)
Victoria	Sunshine Hospital

Queensland	Mater Mothers Hospital
Queensland	Sunshine Coast University Hospital
Queensland	Townsville University Hospital
Queensland	Royal Brisbane and Women’s Hospital
Queensland	Queensland Children’s Hospital
Queensland	Gold Coast University Hospital
South Australia	Women’s and Children’s Hospital
South Australia	Flinders Medical Centre
Western Australia	King Edward Memorial Hospital for Women
Western Australia	Perth Childrens Hospital
Tasmania	Royal Hobart Hospital
ACT	Canberra Hospital
ACT	Calvary John James Hospital

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