



# Technical Supplement

measures of admitted patient activity

Hospital Quarterly: July to September 2010

# Summary

This supplement to the Bureau of Health Information's recurrent public hospital performance reports describes the methods and technical terms used to compute descriptive statistics and performance indicators reported in *Hospital Quarterly*. Due to the technical nature of this narrative, it is intended for audiences interested in the creation of health information.

Admitted patient data is extracted from a centralised data warehouse administered by the NSW Department of Health called the Health Information Exchange (HIE). These records are held in the Episode ATS (Admissions, Transfers and Separations) database. Public hospital records of admitted patients are uploaded from each facility's patient administration systems to the HIE weekly, via centralised area health service information systems. Most facilities submit admitted patient records to the area health service information systems daily to allow sufficient time to identify and correct errors in accordance with data quality assurance procedures.

The NSW Department of Health also conducts regular data quality assurance procedures and requires corrected data be resubmitted by the end of the month following the initial submission. For the 2009-10 financial year, there were 230 separate facilities that submitted admitted patient data to the HIE and are included in the admitted patient activity measures in the *Hospital Quarterly* reports.

The cohort for admitted patients has changed between publication of the first and second *Hospital Quarterly*. Additional information can be found in [Appendix 1](#), pages 4 and 5.

Bureau of Health Information used SAS\* V9.1.3™ for the statistical analysis of data for the *Hospital Quarterly*.

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\* SAS Institute. *The SAS System for Windows version 9.1.3*. Cary (NC): SAS Institute; 2005.

\*\* The 'babies born' calculation uses data from the Episode table of HIE.

# Admitted patient activity

This section contains details about the definitions used for the calculations of measures of admitted patient activity reported in *Hospital Quarterly*.

<b>Total episodes</b>
The count of all records with an episode end date in the defined period.
<b>Planned episodes</b>
The count of all recorded admissions with an emergency status of 'non-emergency / planned' or 'regular same-day planned admission'.
<b>Unplanned / other episodes</b>
All episodes with an episode end date in the defined period minus planned episodes.
<b>Babies born</b>
The count of records with source of referral of 'born in hospital'; it is a subset of unplanned episodes. Unlike all other fields in the admitted patient dataset, babies born uses the Episode table of the Health Information Exchange.
<b>Acute episodes</b>
The count of records with episode of care type values of 1 (acute care) and 5 (newborn care) - see <b>Glossary</b> : Acute episode.
<b>Acute same day episodes</b>
The count of acute episode records with an episode start date equal to the episode end date.
<b>Acute overnight episodes</b>
The count of the acute episode records with an episode start date earlier (not equal) to the episode end date.
<b>Total acute bed days</b>
The sum of bed days for all acute episodes with an episode end date within the defined period. Total acute bed days for an overnight episode is the difference, in days, between the episode start date and the episode end date, minus the number of episode leave days recorded. Same day episodes count as one bed day.
<b>Average length of stay</b>
The mean of total bed days for all acute episodes with an episode end date in the defined period.

# Appendix 1: Cohort definitions for admitted patients

In *Hospital Quarterly: Performance of NSW Public Hospitals, April to June 2010*, the Bureau calculated admitted patient activity without applying any filter for facility type or for episode of care type. In October 2010, the Bureau was advised by the NSW Department of Health that admitted patient activity should only include a select group of facilities. Specifically, as shown in **Table 1**, the only facility codes included are:

- individuals admitted to public hospitals (facility code H)
- privately managed public contract hospitals (code C)
- public multi-purpose services (code M)
- public psychiatric hospitals (code S).

We were also advised that this list should also exclude those individuals with episode of care related to being a hospital boarder who does not meet the criteria of an admitted patient (code 0), non-admitted patient activity reported via a patient administration system (code 6) and donors admitted for procurement of human transplant organs (code 9).

The net effect of the new cohort definition is to lower the number of episodes reported for all admitted patient data fields in future *Hospital Quarterly* reports (**Table 2**). The Bureau has judged that the group of patients now reported on are a more appropriate group to measure admitted patient episode activity and will apply this definition in its reports.

**Table 1: Facility and episode of care codes included in the new and historic definitions for the admitted patient cohort**

	Historic definition (HQ1)	New definition (HQ2)
Facility types included	All (only C, H, M, O, R, S facilities had patients)	C, H, M, S
Episodes of care included	All (0, 1, 2, 3, 4, 5, 6, 7, 8, 9)	1, 2, 3, 4, 6, 7, 8

Table 2: Effect of two different cohort definitions on counts of admitted patient activity, by facility code, July to September 2010 data (excluding episode of care = 0, 6 and 9)

	Facility type						HQ1 totals*	HQ2 totals*
	C	H	M	O	R	S		
Total episodes	76	410,326	3,372	1	41	1,667	415,483	415,441
Planned	5	174,728	596		31	135	175,495	175,464
Unplanned	71	235,598	2,776	1	10	1,532	239,988	239,977
Babies born	-	18,038	3	-	-	-	18,041	18,041
Acute episodes	68	396,260	3,211	1	3	1,429	400,972	400,968
Same day	18	174,618	995	1	-	43	175,675	175,674
Overnight	50	221,642	2,216	-	3	1,386	225,297	225,294
Total acute bed days	244	1,346,846	12,157	1	646	38,129	1,398,023	1,397,376
Average length of stay (days)	3.6	3.4	3.8	1.0	215.3	26.7	3.5	3.5

**Note:** HQ1 definition totals refers to the method used to calculate the cohort for admitted patient activity in *Hospital Quarterly: Performance of NSW Public Hospitals April to June 2010*. HQ2 definition totals refers to the method used to calculate the cohort for admitted patient activity in *Hospital Quarterly: Performance of NSW Public Hospitals July to September 2010*.

## Babies born

Following dialogue with the NSW Department of Health, the definition used for calculation of 'babies born' has changed between publication of the Bureau's first and second *Hospital Quarterly* reports.

In *Hospital Quarterly: Performance of NSW Public Hospitals, April to June 2010*, the Episode ATS table of HIE was used for calculation of all fields. For *Hospital Quarterly: Performance of NSW Public Hospitals, July to September 2010* onwards, the Bureau will use the Episode table of HIE and apply a second filter so that only those patients with an age=0 on the Stay table of HIE are included in the calculation (Table 3).

Table 3: Effect of changing data source for babies born counts in admitted patient activity, July to September 2010 data

	Jul-Sep 2008	Oct-Dec 2008	Jan-Mar 2009	Apr-Jun 2009	Jul-Sep 2009	Oct-Dec 2009	Jan-Mar 2009	Apr-Jun 2010	Jul-Sep 2009
Babies Born (Episode ATS)	18,296	17,965	17,594	17,460	18,068	17,832	17,573	18,111	18,225
Babies Born (Episode)	18,094	17,742	17,423	17,227	17,835	17,662	17,393	17,928	18,041

# About the Bureau

The Bureau of Health Information was established by the NSW Government in 2009 as an independent, board-governed organisation. The Bureau aims to be the leading source of information on the performance of the public health system in NSW.

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## The Bureau's Mission

The Bureau provides the community, healthcare professionals and the NSW Parliament with timely, accurate and comparable information about the performance of the NSW public health system in ways that enhance the system's accountability and inform efforts to increase its beneficial impact on the health and well being of people in NSW.

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