bureau of health information

Healthcare Quarterly

Technical Supplement

Emergency department, ambulance, admitted patients and elective surgery

January to March 2018

BUREAU OF HEALTH INFORMATION

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Please note there is the potential for minor revisions of data in this report. Please check the online version at **bhi.nsw.gov.au** for any amendments.

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Contents

Introduction

This technical supplement describes the data, methods and technical terms used to calculate descriptive statistics and performance measures reported in the Bureau of Health Information's (BHI) *Healthcare Quarterly* report.

The supplement is technical in nature and intended for audiences interested in the creation and analysis of health system performance information.

A chronological account of additions and enhancements to the data and methods is available from the Technical supplements section of the BHI website **bhi.nsw.gov.au**

Emergency department

This section contains information about the data and methods used for calculating measures of emergency department (ED) activity and performance reported in *Healthcare Quarterly*.

Data sources

Emergency Department Data Collection

ED information in *Healthcare Quarterly* is based on analyses of attendance data in the Emergency Department Data Collection (EDDC). Data are extracted from the centralised data warehouse, the Health Information Exchange (HIE), administered by the NSW Ministry of Health.

EDs are reported individually for hospitals in principal referral, major or district peer groups (A1, A2, A3, B, C1 and C2). A total of 78 EDs met the reporting criteria in the January to March 2018 quarter. Five or more quarters of stable data in the EDDC are required for the ED to be reported in *Healthcare Quarterly*.

Transfer of Care Reporting System

Data for calculating the number of ambulance arrivals and transfer of care time are downloaded from the Transfer of Care Reporting System (TCRS) portal. The TCRS incorporates data drawn from the NSW Ambulance information system and from the EDDC. Transfer of care is reported for hospitals where the ambulance incident number and the date can be identified in both the NSW Ambulance data and the EDDC.

Changeover to new reporting system

EDs in NSW have progressively replaced historic information systems with more contemporary electronic record systems. Changeover to a new electronic system may impact the completeness and reliability of input data or extraction from local systems to the HIE for periods longer than one quarter.

At a facility level, during the changeover period to the new electronic information system, the only information reported by BHI in *Healthcare Quarterly* is the total number of ED presentations. Data from affected hospitals are included in total counts at the NSW, local health district (LHD) and peer group levels but are excluded from calculation of all performance measures.[1]

Quarters affected by a system changeover will be shown on time trend graphs for individual hospitals. This is to help readers of the report be aware of specific quarters when information system change is likely to be a contributor to shifts in trend between quarters.

Summary of changes

Two changes affecting ED activity and performance reporting were introduced in the January to March 2018 edition of *Healthcare Quarterly*. The first was the induction of a new ED hospital admission policy and the second was the inclusion of 44 additional EDs in activity and performance reporting at the NSW and LHD levels. Additional EDs were also included in ambulance transfer of care analyses.

Policy change: Hospital admission from ED

In June 2017, NSW Health released a new patient admission policy.[2] Prior to 1 January 2018, some patients could be classified as treated and admitted, although they were never transferred out of the ED to an inpatient ward before leaving the hospital. As of 1 January 2018, these patients have their classification changed to treated and discharged.

Inclusion of new EDs

The activity and performance measures reported in *Healthcare Quarterly* are based on 175 hospital EDs which had an electronic records system in place and reliable data in the EDDC for five or more consecutive quarters in January to March 2018. These EDs comprise the NSW totals reported in *Healthcare Quarterly*.

As EDs across NSW switch to electronic record systems, the completeness and reliability of the data are subject to routine assessments by BHI analysts. In the January to March 2018 quarter, records from 44 newly transitioned EDs with five consecutive quarters of stable data contributed to activity and performance results at the NSW and LHD levels.

These are small EDs that serve regional populations in the following LHDs: Western NSW, Southern NSW, Northern NSW, Murrumbidgee and Far West. Due to the relatively small annual number of patient visits, these EDs are classified into peer groups D and F, and activity and performance is not reported individually by BHI. Table A1 in the Appendix lists the hospitals that were added to quarterly reporting since 2010.

As a result of these changes, the number of hospitals contributing to NSW and LHD activity and performance results in *Healthcare Quarterly* increases from 131 to 175. This accounts for 19,562 more attendances to the NSW total in the January to March 2018 quarter. Analyses in the Appendix (Figure A1, Tables A2 and A3) show the impact on ED activity and performance trends at the NSW level. Results for peer groups reported in *Healthcare Quarterly* (A1, B, C1 and C2) are not affected.

The number of hospitals reported for transfer of care activity and performance is lower due to the inclusion criteria applied to the TCRS. Transfer of care is only reported for hospitals where the ambulance incident number and the date can be identified in the NSW Ambulance data and the EDDC. There are now 43 additional hospitals contributing to activity and performance results. The data for these hospitals start in January 2017 and are reported for the first time in the *Healthcare Quarterly Report* for January to March 2018 quarter.

To ensure accuracy in activity and performance comparisons between quarters in the January to March 2018 release of *Healthcare Quarterly*, information is provided on the number of EDs contributing to the results in each quarter. This facilitates the interpretation of trends by showing the reader at what point in time new EDs were introduced in quarterly reporting. Showing the fluctuations in the number of EDs contributing to results over time is meant to contextualise the reader's interpretation of changes in trends.

Indicator specifications

The definitions of the indicators included in *Healthcare Quarterly* begin on page 10.

Ambulance

This section contains information about the data and methods used for calculating measures of ambulance activity and performance that are reported in *Healthcare Quarterly*.

Data source

NSW Ambulance Computer Aided Dispatch System

The ambulance component of *Healthcare Quarterly* is based on analyses of data extracted from the NSW Ambulance Computer Aided Dispatch (CAD) system, which is used to manage and record ambulance activity and time points across the entire patient journey. The CAD system contains information from all ambulance local response areas in NSW. Information is recorded using calls, incidents, responses, transports, Emergency Department Network Access and Ambulance Release Teams as counting units.

The CAD system is a 'live' system and data is updated continuously. The NSW reporting system for CAD data is scheduled to refresh four times daily during business hours (at 6.30am, 10.30am, 2.30pm and 6.30pm). Records are checked for a rolling three-day period for any changes and updates are undertaken accordingly to reflect the changes. On the second day of the new calendar month, all records in the previous month are closed off, that is no further updating is allowed.

The priority codes included in *Healthcare Quarterly* are listed in Table 1. The following Priority Numbers have been excluded:

- 14 (Priority Error)
- 35 (ICEMS)
- 36 (ICEMS Urgent).

Measures of ambulance service activity and performance reported in *Healthcare Quarterly* are currently based on local response areas whose vehicles have an electronic system in place. These local response areas comprise the NSW totals reported in *Healthcare Quarterly*.

Results are reported for 24-hour, 24-hour with on-call, and non-24-hour local response areas which have reliable data in the CAD for five or more quarters. In the January to March 2018 quarter, a total of 150 local response areas met this reporting criterion. Data for community and volunteer ambulance local response areas are included in activity and performance totals for NSW and zones. Performance is not reported separately for this type of local response area due to the different types of services provided and data quality and completeness.

Response grid changes and non-emergency patient transport

Changes to the way in which incidents and responses are coded are known as grid changes. Three grid changes over the past five years (March 2013, April 2015 and May 2016) saw some incidents, formerly coded as priority 1, subsequently coded as priority 2. Accordingly, there was an increase in the number of priority 2 incidents and a decrease in the number of priority 1 incidents around these times.

The introduction of the Patient Transport Service in May 2014 resulted in transfer of cases requiring less urgent patient transport from NSW Ambulance to NSW HealthShare. These changes have affected some results over time, and are represented as grey bars in relevant graphs throughout the *Healthcare Quarterly* report.

Ambulance local response area types

Local response areas are functional units that deliver ambulance services. They generally comprise a station, one or more vehicles and paramedics. The size and staffing arrangements for local response areas differ across the state. In order to make fair comparisons of performance, in *Healthcare Quarterly*, local response areas are categorised into four types (Table 2). Community and volunteer local response

area data are included in activity and performance totals for NSW and zones. Performance is not reported separately for this group due to the different types of services provided and data quality and completeness.

Indicator specifications

The definitions of the indicators included in *Healthcare Quarterly* begin on page 10.

Table 1

Incident and response priority codes

Code	Priority	Description	Example	Response required
1	1A Emergency	Highest priority • Life-threatening case	Cardiac or respiratory arrest, unconscious, ineffective breathing	Immediate response • Median within 10 minutes • Under 'lights and sirens'
	1B Emergency	High priority	Unconscious	Emergency response • Under 'lights and sirens'
	1C Emergency	Priority	Breathing problems, chest or neck injury, serious haemorrhage	Emergency response • Under 'lights and sirens'
2	Urgent	Urgent	Abdominal pain	Urgent response without 'lights and sirens' within specified timeframes
3	Time-critical	Time-critical	Medical responses requested by medical practitioners	Undelayed response within specified timeframes
4–9	Non-emergency	Non-emergency	Routine transport	Routine

Table 2

Ambulance local response area types

Service type	Description
24-hour	Primarily situated in urban areas providing mostly urban, 24-hour operation. These are higher volume response areas, the majority with multiple vehicles and ambulance staff.
24-hour (with on-call)	Primarily situated in regional areas providing 24-hour operation, supplemented with on-call staff.
Non-24-hour	Primarily situated in regional and rural areas providing 8, 12 or 16-hour operation with remaining time covered by on-call staff.
Community and volunteer (volunteer ambulance officers, community first responder programs and community initiated groups)	Volunteer ambulance officers provide a first response and transport role in more remote areas. Some are attached to smaller stations, work with certified paramedics and respond in an ambulance vehicle. Members of community first responder programs are attached to emergency services, such as Fire Rescue NSW, NSW Rural Fire Service and the NSW State Emergency Service, and respond in their agency vehicle. Community-initiated groups (not attached to a response agency) can form a community first responder unit. Members agree to be available on a regular basis and respond from within the community in a private, or community-funded, vehicle.

Admitted patients

This section contains information about the data and methods used for calculating measures of activity and performance for admitted patient episodes of care.

Data source

Admitted Patient Data Collection

Admitted patient information in *Healthcare Quarterly* is based on analyses of data in the Admitted Patient Data Collection (APDC). Data are extracted from a centralised data warehouse administered by the NSW Department of Health called the Health Information Exchange (HIE).

Measures of admitted patient activity reported in Healthcare Quarterly are currently based on 222 public hospitals that have an electronic records system in place.

Hospitals are reported individually if they are classified as principal referral, major or district peer groups (A1, A2, A3, B, C1 and C2).

Summary of changes

The admitted patient data reported in the January to March 2018 edition of *Healthcare Quarterly* reflect a policy change in the definition of patient stay types. Between 1 July 2016 and 30 June 2017, all LHDs and health networks introduced a mental health stay type when classifying newly admitted or current mental health patients. The new mental health stay type comprises patients who were previously included in the acute and non-acute stay types routinely reported by BHI. From 1 July 2017, a specific code to identify mental health episodes of care is used across LHDs and health networks.

In the January to March 2018 edition of *Healthcare Quarterly*, the number of episodes, average length of stay and the number of bed days are disaggregated and reported for acute, non-acute and mental health episodes of care.

The calculation of the number of episodes, bed days and average length of stay from 1 July 2017 to 31 March 2018 is based on revised codes. Episodes with a psychiatric bed day are used to estimate the number of mental health stays prior to the introduction of the policy phase-in period on 1 July 2016. The St Vincent's Health Network is the only LHD that does not use the designated mental health code after 1 July 2017. To address this, the estimation method using psychiatric bed days is also applied to St Vincent's Health Network in the post-policy period. Appendix Table A4 presents the sensitivity analyses for estimating the number of mental health episodes of care.

Fair comparisons cannot be made with results from the policy phase-in period due to staggered implementation across LHDs that affected activity counts in the acute, non-acute and mental health categories.

Indicator specifications

The definitions of the indicators included in *Healthcare Quarterly* begin on page 10.

Elective surgery

This section contains information about the data and methods used for calculating measures of activity and performance for elective surgeries.

Data source

Waiting List Collection On-line System

The elective surgery component of *Healthcare Quarterly* is based on analyses of data extracted from the central data warehouse, the Waiting List Collection On-line System (WLCOS). WLCOS includes information on the date a patient is listed for a surgical procedure, the type of procedure required, the specialty of the surgeon, the urgency category of their surgery and whether the patient is currently ready for surgery. Some of these factors may change during the time a patient is on the waiting list.

Measures of elective surgery activity and performance reported in *Healthcare Quarterly* are currently based on 97 public hospitals that have had an electronic records system in place and reliable data in WLCOS for five or more quarters. These 97 hospitals comprise the NSW totals reported in *Healthcare Quarterly*. Hospitals are reported individually if they are in principal referral, major or district peer groups (A1, A2, A3, B, C1 and C2). In January to March 2018, a total of 79 hospitals met this reporting criterion.

Indicator definitions

The definitions of the indicators included in *Healthcare Quarterly* begin on page 10.

Suppression rules

Small numbers in any group need to be treated cautiously to protect patients' identity. BHI suppresses information if it is based on very few patients. If there are fewer than five patients in any group for admitted patient and emergency department data, patient numbers are displayed as < 5.

For ambulance reporting at the local response area level, local response areas with less than nine consecutive quarters of data and those with on average fewer than 100 responses per quarter were not included. Non-24-hour local response areas with a coefficient of variation over 10% were excluded. Local response areas that were classified as community and volunteer were also excluded. Results are shown on a non-nominal basis to illustrate intra-zone performance.

For elective surgery measures reported by urgency category, counts have been pooled with another urgency group. Because the staged procedure category is excluded from performance measure calculations, low counts in this group are not suppressed.

If there are fewer than 10 patients in any group, on-time performance and median waiting times are suppressed. If there are fewer than 100 patients in any group, the 90th percentile is suppressed.

Indicator specifications

Emergency department: Activity measures

All ED attendances	All ED attendances is the count of every record in the ED visit database of the HIE. This count includes presentations of all ED visit types including emergency presentations, planned return visits, pre-arranged admissions, some outpatient visits, private referrals, persons pronounced dead on arrival and patients in transit. This count excludes records entered in error (mode of separation = 99), telehealth and eHealth presentations (ED visit type = 12), and presentations by patients who are already admitted to the same hospital (ED visit type = 13).
Emergency presentations	Emergency presentations are records in the ED visit database of the HIE of presentations with an ED visit type of: emergency (1), an unplanned return visit for a continuing condition (3) or disaster (11). Emergency presentations in *Healthcare Quarterly* are reported by triage category.
Mode of separation	ED presentations by mode of separation includes all presentations at the ED that have a departure time recorded. Mode of separation categories include: • Treated and discharged – presentations with mode of separation: admitted and discharged as patient within ED (2) and departed with treatment complete (4). • Treated and admitted to hospital – presentations with modes of separation: admitted to a ward/inpatient unit (1), admitted and died in ED (3), admitted to a critical care ward (10), admitted via an operating theatre (11) or admitted – left at own risk (13) • Left without, or before completing, treatment –presentations with modes of separation: departed, did not wait (6) and departed – left at their own risk (7). Patients who 'did not wait' were triaged, but left the ED before treatment commenced. Patients who 'left at their own risk' were triaged and treatment had begun by a clinician or nurse, but the patient left prior to completing their treatment. • Transferred to another hospital – presentations with mode of separation: transferred to another hospital (5) or admitted and then transferred to another hospital (12) • Other – presentations with modes of separation: dead on arrival (8) or departed for another clinical service location (9). Presentations with missing mode of separation are also included in this cohort.
Triage category	A classification system based on how urgent the patient's need is for treatment: • Triage category 1: Resuscitation (for example, cardiac arrest) • Triage category 2: Emergency (for example, chest pain, severe burns) • Triage category 3: Urgent (for example, moderate blood loss, dehydration) • Triage category 4: Semi-urgent (for example, sprained ankle, earache) • Triage category 5: Non-urgent (for example, small cuts, abrasions).

Emergency department: Performance measures

Time to starting treatment in the ED

Description of measure	The time from first presenting at the ED to the time treatment started in a designated ED treatment area. Treatment time is the earlier of the following fields in the ED visit database of the HIE: • First seen by clinician time – the date and time when the patient is first seen by a medical officer and has a physical examination or treatment performed that is relevant to their presenting problem(s) • First seen by nurse time – the date and time when the patient is first seen by a nurse and has an assessment or treatment performed that is relevant to their presenting problem(s). If either 'first seen by clinician time' or 'first seen by nurse time' is more than 12 hours before presentation time or more than 31 days after presentation time, then that field is considered an error and is excluded from calculations. If both 'first seen by clinician time' and 'first seen by nurse time' are more than 12 hours before presentation time or more than 31 days after presentation time, then treatment time for that record is considered an error and excluded from calculations. If treatment time is earlier than presentation time, but 12 hours or less before presentation time, then time from presentation until treatment is set to zero. BHI does not report time from presentation to starting treatment for patients in triage category 1, because BHI considers waiting time for these patients to not be informative. Recording of presentation, triage and treatment times for patients who should be assessed or treated within two minutes (triage 1) is unlikely to be recorded precisely enough to report against a two-minute benchmark, particularly when clinicians are focused on providing immediate and essential care.
Cohort description (numerator and denominator)	Emergency presentations to NSW EDs Emergency presentations are records in the ED visit database of the HIE of presentations with an ED visit type of emergency (1), an unplanned return visit for a continuing condition (3) or disaster (11). Emergency presentations are reported by triage category.
Further details (inclusions, exclusions)	Inclusions: Patients who had a valid triage category and treatment time. Records with an ED visit type of Emergency (1), Unplanned return visit for a continuing condition (3) and Disaster (11) are included. Exclusions: Non-emergency presentations Records with a missing treatment time Records with missing or invalid information for triage category are excluded from reported counts of emergency presentations. Records with a mode of separation of Did not wait for treatment (6), Dead on Arrival (8) or Departed for other Clinical Service Location (9) If treatment time is more than 12 hours before presentation time or more than 31 days after presentation time, then that time from presentation until treatment is considered an error and set to missing. If treatment time is before presentation time by 12 hours or less, then time from presentation until treatment is set to zero.
Data source	Emergency Department Data Collection

Measures used in this report

Median time to starting treatment

Time from presentation by which half of patients started their treatment.

The other half of patients took equal to or longer than this time.

90th percentile time to starting treatment

Time from presentation by which 90% of patients started treatment.

The final 10% of patients took equal to or longer than this time.

Percentage of patients whose treatment started within clinically recommended time

The number of presentations where the time from presentation to treatment was less than, or equal to, the clinically recommended time as a percentage of the total number of presentations. The percentage is reported for emergency patients with a triage category of 2 to 5. It is reported by triage category, and for these triage categories combined.

Denominator:

All emergency presentations to NSW public hospital EDs.

Numerator:

Denominator cases where the time between arrival at the ED and treatment time was within the clinically recommended timeframe for the relevant triage category.

A patient started treatment within the clinically recommended timeframe if the time from presentation to the start of clinical treatment is less than, or equal to, the maximum waiting times recommended in the Australasian College for Emergency Medicine policy on the Australasian Triage Scale.

AUSTRALASIAN TRIAGE SCALE CATEGORY	TREATMENT ACUITY (maximum waiting time for medical assessment and treatment)	PERFORMANCE INDICATOR THRESHOLD
Triage 1: Resuscitation	Immediate	100%
Triage 2: Emergency	10 minutes	80%
Triage 3: Urgent	30 minutes	75%
Triage 4: Semi-urgent	60 minutes	70%
Triage 5: Non-urgent	120 minutes	70%

Time spent in the ED

Description of measure	The difference between presentation time and departure time. Departure time is defined as: • Actual departure time –the date and time at which the patient physically leaves the ED as recorded in the actual departure time field in the emergency visit database in the HIE. If the time recorded for actual departure is before the presentation time or more than 31 days after the presentation time, then the actual departure time field is treated as missing and the record is excluded from calculations that use actual departure time. • Ready for departure time – the date and time when the assessment and initial treatment of the person is completed such that if home arrangements of the person (including transport) were available, the person could leave the ED. It is recorded in the ready for departure time field in the emergency visit database in the HIE. • If the time recorded for ready for departure is before presentation time or more than 31 days after presentation time, then that departure time field is considered an error and treated as missing. If the time recorded for ready for departure time is missing or is later than the time recorded for actual departure time, then actual departure time is used in calculations. If both ready for departure time and actual departure time are missing, the record is excluded from calculations that use ready for departure time.
Cohort description (numerator and denominator)	All ED presentations with a valid departure time. 'All presentations' is the count of every record in the ED visit database of the HIE. This count includes presentations of all ED visit types including emergency presentations, planned return visits, pre-arranged admissions, some outpatient visits, private referrals, persons pronounced dead on arrival and patients in transit. Records are assigned to quarters of the year using the arrival date and time field.
Further details (exclusions)	Exclusions: Records entered in error (mode of separation = 99), telehealth and eHealth presentations (ED visit type = 12), and presentations by patients who are already admitted to the same hospital (ED visit type = 13). If the time recorded for ready for departure time is missing, is before presentation time or more than 31 days after presentation time, or is later than the time recorded for actual departure time, then actual departure time is used in calculations. Records with missing time to departure are excluded from calculations that use time to departure.
Data source	Emergency Department Data Collection

Measures used in this report

Median time spent in the ED	The time half the patients spent in the ED, calculated as the difference between presentation time and departure time. The other half of patients spent equal to or longer than this time.
90th percentile time spent in the ED	The time by which 90% of patients had left the ED. The remaining 10% spent equal to or longer than this time.
Percentage of patients who spent four hours or less in the ED	Denominator: All presentations to NSW public hospital EDs Numerator: Denominator cases where the time between arrival at and departure from the ED was equal to or less than four hours.

Transfer of care time

Description of measure	The difference between arrival time and the time responsibility for the patients' care was transferred from paramedics to ED staff in an ED treatment zone For more information, see *Spotlight on Measurement: Measuring transfer of care from the ambulance to the emergency department* available at **bhi.nsw.gov.au**

Cohort description (numerator and denominator)	All patients arriving by ambulance at hospitals with an ED which is included in *Healthcare Quarterly* and with records in the Transfer of Care Reporting System (TCRS).
Further details (exclusions)	Inclusions: Matched records; those where the ambulance incident number and date can be identified in both the NSW Ambulance data and the ED data. Exclusions: Hospitals with less than 50 matched records in the quarter. Caution is advised when interpreting performance results for hospitals where transfer of care could not be calculated for more than 30% of total records because records were not matched or transfer of care time was missing.
Data source	Transfer of Care Reporting System (TCRS) portal. The TCRS incorporates data drawn from the NSW Ambulance information system and from the EDDC.

Measures used in this report

Median transfer of care time	The time between arrival of patients at the ED by ambulance and transfer of responsibility for their care, for half of the patients, from paramedics to ED staff in an ED treatment zone. The other half took equal to or longer than this time.
90th percentile transfer of care time	The time between arrival of patients at the ED by ambulance and transfer of responsibility for their care for 90% of patients from paramedics to ED staff in an ED treatment zone. The final 10% of patients took equal to or longer than this time.
Percentage of patients whose care was transferred within 30 minutes	The percentage of patients who arrived by ambulance for whom responsibility for their care was transferred from paramedics to ED staff in an ED treatment zone within 30 minutes. The denominator for the percentage is the number of matched records with a valid transfer of care time.

Ambulance: Activity measures

For more information, see *Spotlight on Measurement: Measuring and reporting performance of NSW ambulance services* available at **bhi.nsw.gov.au**

Number of calls

Description of measure	Count of all calls requesting an ambulance vehicle, received by NSW Ambulance's Computer Aided Dispatch (CAD) system
CAD data element description	Count of records where 'Time_CallTakingComplete' is a valid date.

Number of incidents

Description of measure	Count of all events requiring one or more ambulance responses. An incident is a call that results in the dispatch of one or more ambulance vehicles. Incidents are prioritised as highest priority (priority 1A) — immediate response under lights and sirens required (incident is potentially life threatening), priority 1 (emergency response under lights and sirens required); urgent (priority 2) — undelayed response required without lights and sirens; time-critical (priority 3) – medical responses requested by health professionals, often pre-booked; undelayed response and non-emergency (priority 4–9).
Data element description	Count of the number of calls where at least one response vehicle is assigned.

Number of responses

Description of measure	Count of all dispatches of an ambulance service vehicle. A response is the dispatch of an ambulance vehicle. There may be multiple responses to a single incident. Responses are prioritised as per incidents. Responses include vehicles which are cancelled prior to arrival at the incident scene.
CAD data element description	When 'Time_Enroute' is a valid date

Number of patient transports

Description of measure	Count of the number of responses where a patient was transported by the ambulance service.
CAD data element description	Responses where 'Time_ArrivedAt_Scene' is a valid date AND 'Time_Depart_Scene' is a valid date AND 'Time_ArrivedAtScene' is prior to 'Time_Depart_Scene'

Ambulance: Performance (timeliness) measures

Call to ambulance arrival time

Description of measure	Call to ambulance arrival time is measured from the time the call is answered (phone pickup) to the time the first ambulance service response arrives at the incident scene.
Calculation	Difference between 'Time_phonepickup' and 'Time_First_Unit_Arrived'

Measures used in this report

Percentage of priority 1 incidents with call to ambulance arrival time within 15 minutes	Percentage of emergency (priority 1) response times where it takes less or equal to 15 minutes for the first ambulance service vehicle to arrive at the scene after the call is received.
Calculation	The number of emergency (priority 1) incidents responded to in under or equal to 15 minutes as a percentage of emergency (priority 1) incidents. Results (%) are rounded to one decimal point for reporting.
Inclusions	Responses with a priority code of 1. First ambulance service vehicle to arrive at the scene after the call answered. All values 0 and higher are acceptable.
Exclusions	Community and volunteer response areas are included in NSW and zone totals but are not reported separately.
Percentage of priority 1 incidents with call to ambulance arrival time within 30 minutes	Percentage of emergency (priority 1) incidents where it takes less or equal to 30 minutes for the first ambulance service vehicle to arrive at the scene after the call is received.
Calculation	The number of emergency (priority 1) incidents responded to in under or equal to 30 minutes as a percentage of emergency (priority 1) incidents. Results (%) are rounded to one decimal point for reporting.
Inclusions	Responses with a priority code of 1. First ambulance service vehicle to arrive at the scene after the call answered. All values 0 and higher are acceptable.
Exclusions	Community and volunteer response areas are included in NSW and zone totals but are not reported separately.
Percentage of priority 2 incidents with call to ambulance arrival time within 30 minutes	Percentage of urgent (priority 2) response times where it takes less or equal to 30 minutes for the first ambulance service vehicle to arrive at the scene after the call is received.
Calculation	The number of urgent (priority 2) incidents responded to in under or equal to 30 minutes as a percentage of urgent (priority 2) incidents. Results (%) are rounded to one decimal point for reporting.
Inclusions	Responses with a priority code of 2. First ambulance service vehicle to arrive at the scene after the call answered. All values 0 and higher are acceptable.
Exclusions	Community and volunteer response areas are included in NSW and zone totals but are not reported separately.
Percentage of priority 2 incidents with call to ambulance arrival	Percentage of all State wide urgent (priority 2) response times where it takes less or equal to 60 minutes for the first ambulance service vehicle to arrive at the scene after the call is received.

time within 60 minutes	
Calculation	The number of urgent (priority 2) incidents responded to in under or equal to 60 minutes as a percentage of urgent (priority 2) incidents Results (%) are rounded to one decimal point for reporting.
Inclusions	Responses with a priority code of 2. First ambulance service vehicle to arrive at the scene after the call answered All values 0 and higher are acceptable.
Exclusions	Community and volunteer response areas are included in NSW and zone totals but are not reported separately.

Mobilisation time

Description of measure	The time from when a call is placed in queue for an ambulance to the time the first vehicle is en route to the incident.
NSW Ambulance Business rule	WHEN: 'Time_CallEnteredQueue' IS NOT NULL AND 'Time_Enroute' IS NOT NULL AND 'Time_CallEnteredQueue' is a valid date AND 'Time_Enroute' is a valid date AND 'Time_CallEnteredQueue' is prior to 'Time_First_Unit_Enroute' AND 'Time_First_Unit_Enroute' = a.'Time_Enroute' THEN calculate time difference (in seconds) between 'Time_CallEnteredQueue' and 'Time_First_Unit_Enroute'
Further details (inclusions, exclusions)	Only the first unit en route is used in the calculation. Community and volunteer response areas are included in NSW and zone totals but are not reported separately.

Measures used in this report

Median mobilisation time	The total time from call placed in queue by which half of first vehicles were en route to priority 1 incidents. The other half took equal or longer than this time. Median (50th percentile) mobilisation times are reported for priority 1 responses.
90th percentile mobilisation time	The time by which 90% of first vehicles were en route to priority 1 incidents. The final 10% took equal or longer than this time. 90th percentile response times are reported for priority 1 responses.
Percentage of priority 1 responses mobilised within 3 minutes	Percentage of emergency (priority 1) responses (requiring at least one immediate response under lights and sirens), where the time from when a call is placed in the queue for an ambulance to the time the first vehicle is en route to the incident responded to in under or equal to three minutes

Ambulance response time

Description of measure	Ambulance response time is measured from the time a call is placed in queue (for an ambulance to be dispatched) to the time the first ambulance service response arrives at the incident scene.
NSW Ambulance Business rule	WHEN: 'Time_CallEnteredQueue' is a valid date AND 'Time_ArrivedAtScene' is valid date AND 'Time_CallEnteredQueue' is a valid date AND 'Time_ArrivedAtScene' is a valid date AND 'Time_CallEnteredQueue' is prior to 'Time_ArrivedAtScene' AND 'Time_First_Unit_Arrived' = 'Time_ArrivedAtScene' THEN calculate time difference between 'Time_CallEnteredQueue' and 'Time_First_Unit_Arrived'

Measures used in this report

Median (50th percentile) ambulance response time	The total time by which half of incidents were responded to by ambulance service vehicles. The other half took equal or longer than this time. The median is a statistical measure of the midpoint of the response time distribution. BHI uses the data for the first vehicle to arrive at the scene and the empirical distribution function with averaging to compute the median in SAS©9.
Data element description	Response time is the difference in minutes between when a call is placed in queue (for an ambulance to be dispatched) to the time the first ambulance service response arrives at the incident scene. Results (minutes) are rounded to one decimal point for reporting.
Inclusions	Responses with a priority code of 1, 1A and 2. First ambulance service vehicle to arrive at the scene after the call is placed in queue.
Exclusions	Community and volunteer response areas are included in NSW and zone totals but are not reported separately.
90th percentile ambulance response time	The time by which 90% of incidents were responded to by ambulance service vehicles. The final 10% took equal or longer than this time. The 90th percentile is a statistical measure of response time distribution. BHI uses the first vehicle to arrive at the scene and the empirical distribution function with averaging to compute the 90th percentile in SAS©9.
Data element description	Response time is the difference in minutes between when a call is placed in queue (for an ambulance to be dispatched) to the time the first ambulance service response arrives at the incident scene. Results (minutes) are rounded to one decimal point for reporting.
Exclusions	Community and volunteer response areas are included in NSW and zone totals but are not reported separately.
Percentage of priority 1A responses within 10 minutes	Percentage of emergency (priority 1A) incidents (requiring at least one immediate response under lights and sirens) responded to in under or equal to 10 minutes

Calculation	The percentage is calculated as the number of priority 1A responses where the time from when a call is placed in queue (for an ambulance to be dispatched) to the time the first ambulance service response arrives at the incident scene was less than, or equal to, 10 minutes as a percentage of the total number of priority 1A responses. Results (%) are rounded to one decimal point for reporting.
Inclusions	Responses with a priority code of 1A. First ambulance service vehicle to arrive at the scene after the call is placed in queue. All values 0 and higher are acceptable.
Exclusions	Community and volunteer response areas are included in NSW and zone totals but are not reported separately.
Number of days the median priority 1A response time was within 10 minutes	In NSW there is a target of 10 minutes for the median time within which priority 1A responses should have occurred.
Inclusions	Responses with a priority code of 1A. First ambulance service vehicle to arrive at the scene after the call is placed in queue.

Turnaround Time

Description of measure	The time from when an ambulance which is transporting a patient arrives at a hospital to when the ambulance is ready to respond to a new incident (minutes).
NSW Ambulance Business rule	WHEN: 'Destination_Name' is the name of a public hospital in NSW AND 'Time_Arrive_Destination' is a valid date AND 'Time_Call_Cleared' is a valid date AND 'Time_Arrive_Destination' is before 'Time_Call_Cleared' AND THEN calculate difference between 'Time_Arrive_Destination' and 'Time_Call_Cleared' 'Destination_City' is used whe the same 'Destination_Name' may refer to different destinations.
Inclusions	Responses with a priority code of 1 and 2. Destinations which are a public hospital in NSW All values 0 and higher are acceptable.
Exclusions	Community and volunteer response areas are included in NSW and zone totals but are not reported separately.

Measures used in this report

Median turnaround time	The time by which half of ambulances transporting a patient take from arrival at a hospital to when the ambulance is ready to respond to a new incident. The other half took equal or longer than this time.
Inclusions	Responses with a priority code of 1 and 2. Destinations which are a public hospital in NSW
90th percentile turnaround time	The time by which 90% of ambulances transporting a patient take from arrival at a hospital to when the ambulance is ready to respond to a new incident. The final 10% took equal or longer than this time.
Percent within 45 minutes	Percentage of priority 1 and 2 responses where the time from when an ambulance which is transporting a patient arrives at a hospital to when the ambulance is ready to respond to a new incident was less than, or equal to, 45 minutes as a percentage of the total number of priority 1 and 2 responses where an ambulance transporting a patient arrives at a hospital. Results (%) are rounded to one decimal point for reporting.

Admitted patients

Episode of care	A period of care in a hospital or other healthcare facility with a defined start and end. When a person is admitted to hospital they begin what is termed an admitted patient episode or 'episode of care'. Acute episodes are typically short-term admissions for immediate care or treatment. Non-acute episodes include admissions for rehabilitation, palliative care and other non-acute reasons. Patients can have more than one episode of care during the same hospital admission. For example, a patient may begin with acute care and then change to rehabilitation or palliative care.
Total episodes	The count of all records with an episode end date in the defined period.
Planned episodes	The count of all recorded admissions with an emergency status of 'non-emergency / planned' or 'regular same-day planned admission'.
Unplanned / other episodes	All episodes with an episode end date in the defined period minus planned episodes.
Babies born	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.
Stay type	Admitted patient episodes can be for 'same-day' or 'overnight' care. Same-day refers to patients who are admitted and discharged on the same day. Overnight refers to patients who spend at least one night in hospital. Admitted patient episodes can be either 'planned' or 'unplanned'. Planned refers to admissions that are arranged in advance (for example, patients who are admitted for planned elective surgery). Unplanned refers to emergency admissions (for example, for unplanned surgical patients).
Acute episodes	The count of records with episode of care type values of 1 (acute care) and 5 (newborn care).
Acute same day episodes	The count of acute episode records with an episode start date equal to the episode end date.
Acute overnight episodes	The count of the acute episode records with an episode start date that is earlier (not equal) to the episode end date.
Bed days	Bed days are calculated for all admitted patient episodes completed during the reference period. Total acute bed days is the sum of bed days for all 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.
Total acute bed days	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.
Average length of stay	The mean of total bed days for all acute episodes with an episode end date in the defined period. That is, the total number of days in hospital for all admitted patient episodes (including same-day and overnight patients) divided by the total number of admitted patient episodes. The average length of stay is usually measured from midnight.

Elective surgery: Activity measures

The number of patients who received elective surgery during the quarter	The count of patients who were removed from the waiting list during the quarter because they were a routine admission for surgery, an admission for their listed procedure as an emergency admission, or an admission for surgery contracted to a private hospital or private day procedure centre.
The number of patients waiting for elective surgery at the end of the quarter	The count of all patients who are on the waiting list at the end of the quarter.

Ready for care	Ready for care patients are those who are prepared to be admitted to hospital or to begin the process leading directly to admission. Patients ready for elective surgery and on the waiting list excludes those waiting for staged procedures. Patients ready for non-urgent surgery on the waiting list also excludes those waiting for non-urgent cystoscopy.
Not ready for care	Not ready for care patients are those who are not in a position to be admitted to hospital. Patients not ready for surgery on the waiting list includes those waiting for staged procedures, non-urgent cystoscopy, and patients currently not available for personal reasons.
Urgency category	A classification system based on how urgent the patient's need for surgery is: Urgent surgery: Admission within 30 days is desirable for a condition that has potential to deteriorate quickly and become an emergency. Semi-urgent surgery: Admission within 90 days is desirable for a condition unlikely to deteriorate quickly. Non-urgent surgery: Admission within 365 days acceptable for a condition unlikely to deteriorate quickly.
Staged surgery	Surgery that, for medical reasons, cannot take place before a certain amount of time has elapsed. BHI uses this term to define all patients that could be identified as being a staged patient for most of their time on the waiting list and all non-urgent cystoscopy patients.
Common procedure	Commonly performed elective surgery procedures.
Specialty	The area of clinical expertise held by the doctor who performed the surgery. Medical (specialty) refers to any surgery performed by a non-specialist medical practitioner.

Elective surgery: Performance measures

Elective surgery waiting time

Description of measure	The waiting period for a particular patient is defined as the time between the list date and the removal date. The time a patient waited for the initial appointment with a specialist is not included in the time a patient spent on the waiting list for elective surgery.
Cohort description (numerator and denominator)	All patients removed from the waiting list during the quarter because they were a routine admission for surgery, an admission for their listed procedure as an emergency admission, or an admission for surgery contracted to a private hospital or private day procedure centre.
Further details (inclusions, exclusions)	Exclusions: Patients who were coded as not ready for surgery (NRFC) at the time of surgery. Patients who were recorded as NRFC on the day they were entered onto the wait list and who were transferred to another urgency category within a day or two of removal date. Patients who received cystoscopy and were in the non-urgent category. The count for a hospital does not include admissions contracted to another public hospital.
Data source	Waiting List Collection On-line System (WLCOS).

Measures used in this report

Median waiting time in days	The number of days it took for half of patients who received elective surgery during the period to be admitted and receive their surgery. The other half took equal to or longer than this time. Median waiting time is calculated using the Commonwealth waiting time definition. The number of days is calculated by subtracting the listing date for care from the removal date, minus any days when the patient was 'not ready for care', and also minus any days the patient was waiting with a less urgent clinical urgency category than their clinical urgency category at removal from the waiting list. BHI reports the median by urgency category, surgical specialty and common procedure.
90th percentile waiting time in days	The number of days it took for 90 percent of patients who received elective surgery during the period to be admitted and receive their surgery. BHI reports the 90th percentile by urgency category. The 90th percentile waiting time is also reported using the Commonwealth waiting time definition.

Percentage of patients admitted within the recommended timeframe

Description of measure	The proportion of patients admitted within the clinically recommended timeframe for each of the elective surgery urgency categories.
Cohort description (numerator and denominator)	Denominator: Number of patients admitted to hospital for their elective surgery within the clinically recommended timeframe, i.e. in 30 days or less for category A patients, 90 days or less for category B patients and 365 days or less for category C patients. Numerator: Total number of patients admitted for elective surgery in each urgency category

Index of ambulance local response areas by zone and local response area type

Local response area	Zone	Local response area type
Albury	Murrumbidgee Zone	24 hour LRA (with on call)
Armidale	New England Zone	24 hour LRA (with on call)
Auburn	Western Sydney	24 hour LRA
Avalon	Northern Sydney	24 hour LRA
Balgowlah	Northern Sydney	24 hour LRA
Ballina	Northern Rivers Zone	24 hour LRA (with on call)
Bankstown	South West Zone 2	24 hour LRA
Barraba	New England Zone	non 24 hour LRA
Bateau Bay	Central Coast	24 hour LRA
Batemans Bay	Southern NSW Zone	non 24 hour LRA
Bathurst	Central West Zone 1	24 hour LRA (with on call)
Bega	Southern NSW Zone	non 24 hour LRA
Belmont	Hunter Zone 1	24 hour LRA
Belrose	Northern Sydney	24 hour LRA
Beresfield	Hunter Zone 2	24 hour LRA
Birmingham Gardens	Hunter Zone 1	24 hour LRA
Blacktown	Western Sydney	24 hour LRA
Blayney	Central West Zone 1	non 24 hour LRA
Bomaderry	Illawarra	24 hour LRA (with on call)
Bondi	Sydney	24 hour LRA
Boolaroo	Hunter Zone 1	24 hour LRA
Bourke	Central and Far West Zone 2	non 24 hour LRA
Bowral	South West Zone 1	24 hour LRA (with on call)
Broken Hill	Central and Far West Zone 2	24 hour LRA (with on call)
Bulahdelah	Hunter Zone 2	non 24 hour LRA
Bulli	Illawarra	24 hour LRA
Camden	South West Zone 1	24 hour LRA
Campbelltown	South West Zone 2	24 hour LRA
Campsie	Sydney	24 hour LRA
Canowindra	Central West Zone 1	non 24 hour LRA
Cardiff	Hunter Zone 1	24 hour LRA
Caringbah	South Eastern Sydney	24 hour LRA
Casino	Northern Rivers Zone	non 24 hour LRA
Castle Hill	Western Sydney	24 hour LRA
Cessnock	Hunter Zone 2	24 hour LRA
Coffs Harbour	Mid North Coast Zone	24 hour LRA (with on call)
Coleambally	Murrumbidgee Zone	non 24 hour LRA
Colyton	Nepean Blue Mountains	24 hour LRA
Concord	Sydney	24 hour LRA
Condobolin	Central West Zone 1	non 24 hour LRA
Cooma	Southern NSW Zone	non 24 hour LRA
Coonabarabran	Central and Far West Zone 2	non 24 hour LRA
Cootamundra	Southern NSW Zone	non 24 hour LRA
Corowa	Murrumbidgee Zone	non 24 hour LRA
Cowra	Central West Zone 1	non 24 hour LRA
Dapto	Illawarra	24 hour LRA
Deniliquin	Murrumbidgee Zone	non 24 hour LRA
Doyalson	Central Coast	24 hour LRA
Drummoyne	Sydney	24 hour LRA

Local response area	Zone	Local response area type
Dubbo	Central and Far West Zone 2	24 hour LRA (with on call)
Engadine	South Eastern Sydney	24 hour LRA
Ettalong	Central Coast	24 hour LRA
Evans Head	Northern Rivers Zone	non 24 hour LRA
Fairfield	South West Zone 2	24 hour LRA
Forbes	Central West Zone 1	non 24 hour LRA
Gilgandra	Central and Far West Zone 2	non 24 hour LRA
Glen Innes	New England Zone	non 24 hour LRA
Goulburn	Southern NSW Zone	24 hour LRA (with on call)
Grafton	Northern Rivers Zone	24 hour LRA (with on call)
Green Valley	South West Zone 1	24 hour LRA
Griffith	Murrumbidgee Zone	non 24 hour LRA
Gulgong	Central West Zone 1	non 24 hour LRA
Hamilton	Hunter Zone 1	24 hour LRA
Hawkesbury River	Central Coast	24 hour LRA
Hay	Murrumbidgee Zone	non 24 hour LRA
Helensburgh	Illawarra	non 24 hour LRA
Holbrook	Murrumbidgee Zone	non 24 hour LRA
Hurstville	South Eastern Sydney	24 hour LRA
Huskisson	Illawarra	24 hour LRA (with on call)
Inverell	New England Zone	non 24 hour LRA
Junee	Murrumbidgee Zone	non 24 hour LRA
Katoomba	Nepean Blue Mountains	24 hour LRA
Kempsey	Mid North Coast Zone	24 hour LRA (with on call)
Kiama	Illawarra	24 hour LRA
Kingscliff	Northern Rivers Zone	non 24 hour LRA
Kogarah	South Eastern Sydney	24 hour LRA
Kurri Kurri	Hunter Zone 2	24 hour LRA
Lane Cove	Northern Sydney	24 hour LRA
Laurieton	Mid North Coast Zone	24 hour LRA
Lismore	Northern Rivers Zone	24 hour LRA (with on call)
Lithgow	Central West Zone 1	24 hour LRA (with on call)
Liverpool	South West Zone 1	24 hour LRA
Macksville	Mid North Coast Zone	24 hour LRA (with on call)
Maclean	Northern Rivers Zone	24 hour LRA
Macquarie Fields	South West Zone 2	24 hour LRA
Maroubra	South Eastern Sydney	24 hour LRA
Marrickville	Sydney	24 hour LRA
Mascot	South Eastern Sydney	24 hour LRA
Menai	South Eastern Sydney	24 hour LRA
Merimbula	Southern NSW Zone	non 24 hour LRA
Molong	Central West Zone 1	non 24 hour LRA
Morisset	Central Coast	24 hour LRA
Moruya	Southern NSW Zone	non 24 hour LRA
Mudgee	Central West Zone 1	non 24 hour LRA
Mullumbimby	Northern Rivers Zone	non 24 hour LRA
Murwillumbah	Northern Rivers Zone	24 hour LRA (with on call)
Muswellbrook	Hunter Zone 2	non 24 hour LRA
Nambucca Heads	Mid North Coast Zone	non 24 hour LRA
Naremburn	Northern Sydney	24 hour LRA
Narooma	Southern NSW Zone	non 24 hour LRA
Narrabeen	Northern Sydney	24 hour LRA
Nelson Bay	Hunter Zone 1	24 hour LRA
Oak Flats	Illawarra	24 hour LRA

Local response area	Zone	Local response area type
Oberon	Central West Zone 1	non 24 hour LRA
Orange	Central West Zone 1	24 hour LRA (with on call)
Paddington	Sydney	24 hour LRA
Parkes	Central West Zone 1	non 24 hour LRA
Parramatta	Western Sydney	24 hour LRA
Penrith	Nepean Blue Mountains	24 hour LRA
Picton	South West Zone 1	24 hour LRA
Point Clare	Central Coast	24 hour LRA
Port Macquarie	Mid North Coast Zone	24 hour LRA (with on call)
Queanbeyan	Southern NSW Zone	24 hour LRA (with on call)
Quirindi	New England Zone	non 24 hour LRA
Randwick	South Eastern Sydney	24 hour LRA
Raymond Terrace	Hunter Zone 2	24 hour LRA
Richmond	Nepean Blue Mountains	24 hour LRA
Riverstone	Western Sydney	24 hour LRA
Rutherford	Hunter Zone 2	24 hour LRA
Ryde	Northern Sydney	24 hour LRA
SAC	Sydney	24 hour LRA
Singleton	Hunter Zone 2	non 24 hour LRA
Springwood	Nepean Blue Mountains	24 hour LRA
St Ives	Northern Sydney	24 hour LRA
Stockton	Hunter Zone 1	24 hour LRA
Summer Hill	Sydney	24 hour LRA
Tamworth	New England Zone	24 hour LRA (with on call)
Tamworth South	New England Zone	24 hour LRA (with on call)
Tanilba Bay	Hunter Zone 1	24 hour LRA
Taree	Mid North Coast Zone	24 hour LRA (with on call)
Tenterfield	New England Zone	non 24 hour LRA
Terrigal	Central Coast	24 hour LRA
Toronto	Hunter Zone 1	24 hour LRA
Toukley	Central Coast	24 hour LRA
Tregear	Nepean Blue Mountains	24 hour LRA
Tuncurry	Mid North Coast Zone	24 hour LRA (with on call)
Tweed Heads	Northern Rivers Zone	24 hour LRA (with on call)
Ulladulla	Illawarra	24 hour LRA (with on call)
Urunga	Mid North Coast Zone	non 24 hour LRA
Wagga Wagga	Murrumbidgee Zone	24 hour LRA (with on call)
Wahroonga	Northern Sydney	24 hour LRA
Warrawong	Illawarra	24 hour LRA
Wauchope	Mid North Coast Zone	non 24 hour LRA
Wellington	Central and Far West Zone 2	non 24 hour LRA
Wollongong	Illawarra	24 hour LRA
Woolgoolga	Mid North Coast Zone	non 24 hour LRA
Wyong	Central Coast	24 hour LRA
Yamba	Northern Rivers Zone	non 24 hour LRA
Yass	Southern NSW Zone	non 24 hour LRA
Young	Southern NSW Zone	non 24 hour LRA

Index of hospitals by local health district and hospital peer group

Hospital	Local health district	Hospital peer group
Armidale Hospital	Hunter New England	C1
Auburn Hospital	Western Sydney	B
Ballina District Hospital	Northern NSW	C2
Bankstown-Lidcombe Hospital	South Western Sydney	A1
Batemans Bay District Hospital	Southern NSW	C2
Bathurst Health Service	Western NSW	C1
Belmont Hospital	Hunter New England	C1
Blacktown Hospital	Western Sydney	B
Blue Mountains District Anzac Memorial Hospital	Nepean Blue Mountains	C2
Bowral and District Hospital	South Western Sydney	C1
Broken Hill Health Service	Far West	C1
Byron Central Hospital	Northern NSW	C2
Calvary Mater Newcastle	Hunter New England	A3
Campbelltown Hospital	South Western Sydney	B
Canterbury Hospital	Sydney	B
Casino & District Memorial Hospital	Northern NSW	C2
Cessnock Hospital	Hunter New England	C2
Coffs Harbour Health Campus	Mid North Coast	B
Concord Repatriation General Hospital	Sydney	A1
Cooma Hospital and Health Service	Southern NSW	C2
Cowra Health Service	Western NSW	C2
Deniliquin Hospital and Health Services	Murrumbidgee	C2
Dubbo Base Hospital	Western NSW	B
Fairfield Hospital	South Western Sydney	B
Gosford Hospital	Central Coast	A1
Goulburn Base Hospital and Health Service	Southern NSW	C1
Grafton Base Hospital	Northern NSW	C1
Griffith Base Hospital	Murrumbidgee	C1
Gunnedah Hospital	Hunter New England	C2
Hawkesbury District Health Services	Nepean Blue Mountains	C1
Hornsby Ku-ring-gai Hospital	Northern Sydney	B
Inverell Hospital	Hunter New England	C2
John Hunter Hospital	Hunter New England	A1
Kempsey District Hospital	Mid North Coast	C2
Kurri Kurri Hospital	Hunter New England	C2
Lachlan Health Service - Forbes	Western NSW	C2
Lismore Base Hospital	Northern NSW	B
Lithgow Hospital	Nepean Blue Mountains	C2
Liverpool Hospital	South Western Sydney	A1
Macksville District Hospital	Mid North Coast	C2
Maclean District Hospital	Northern NSW	C2
Maitland Hospital	Hunter New England	B
Manly Hospital	Northern Sydney	B
Manning Hospital	Hunter New England	B
Milton Ulladulla Hospital	Illawarra Shoalhaven	C2
Mona Vale Hospital	Northern Sydney	B
Moree Hospital	Hunter New England	C2
Moruya District Hospital	Southern NSW	C2
Mount Druitt Hospital	Western Sydney	C1

Hospital	Local health district	Hospital peer group
Mudgee Health Service	Western NSW	C2
Murwillumbah District Hospital	Northern NSW	C1
Muswellbrook Hospital	Hunter New England	C2
Narrabri Hospital	Hunter New England	C2
Nepean Hospital	Nepean Blue Mountains	A1
Orange Health Service	Western NSW	B
Port Macquarie Base Hospital	Mid North Coast	B
Prince of Wales Hospital	South Eastern Sydney	A1
Queanbeyan Hospital and Health Service	Southern NSW	C2
Royal North Shore Hospital	Northern Sydney	A1
Royal Prince Alfred Hospital	Sydney	A1
Ryde Hospital	Northern Sydney	C1
Shellharbour Hospital	Illawarra Shoalhaven	C1
Shoalhaven District Memorial Hospital	Illawarra Shoalhaven	B
Singleton Hospital	Hunter New England	C2
South East Regional Hospital	Southern NSW	C1
St George Hospital	South Eastern Sydney	A1
St Vincent's Hospital Sydney	St Vincent's Health Network	A1
Sutherland Hospital	South Eastern Sydney	B
Sydney Children's Hospital, Randwick	Sydney Children's Network	A2
Sydney Hospital and Sydney Eye Hospital	South Eastern Sydney	A3
Tamworth Hospital	Hunter New England	B
The Children's Hospital at Westmead	Sydney Children's Network	A2
The Tweed Hospital	Northern NSW	B
Wagga Wagga Rural Referral Hospital	Murrumbidgee	B
Westmead Hospital	Western Sydney	A1
Wollongong Hospital	Illawarra Shoalhaven	A1
Wyong Hospital	Central Coast	B
Young Health Service	Murrumbidgee	C2

Appendices

Table A1 Emergency departments added to Healthcare Quarterly, by quarter

Cohort	Hospital	Report date	Peer Group
Cohort 1	Armidale Hospital	Jan–Mar 2010	C1
	Auburn Hospital	Jan–Mar 2010	B
	Bankstown-Lidcombe Hospital	Jan–Mar 2010	A1
	Barraba Multipurpose Service	Jan–Mar 2010	F3
	Bathurst Health Service	Jan–Mar 2010	C1
	Belmont Hospital	Jan–Mar 2010	C1
	Bingara Multipurpose Service	Jan–Mar 2010	F3
	Blacktown Hospital	Jan–Mar 2010	B
	Blue Mountains District Anzac Memorial Hospital	Jan–Mar 2010	C2
	Bowral and District Hospital	Jan–Mar 2010	C1
	Broken Hill Health Service	Jan–Mar 2010	C1
	Bulahdelah Hospital	Jan–Mar 2010	D1b
	Bulli Hospital	Jan–Mar 2010	F4
	Calvary Mater Newcastle	Jan–Mar 2010	A3
	Camden Hospital	Jan–Mar 2010	D1b
	Campbelltown Hospital	Jan–Mar 2010	B
	Canterbury Hospital	Jan–Mar 2010	B
	Cessnock Hospital	Jan–Mar 2010	C2
	Coffs Harbour Health Campus	Jan–Mar 2010	B
	Concord Repatriation General Hospital	Jan–Mar 2010	A1
	Denman Multipurpose Service	Jan–Mar 2010	F3
	Dubbo Base Hospital	Jan–Mar 2010	B
	Dungog Hospital	Jan–Mar 2010	D1b
	Fairfield Hospital	Jan–Mar 2010	B
	Glen Innes Hospital	Jan–Mar 2010	D1a
	Gloucester Soldier's Memorial Hospital	Jan–Mar 2010	D1a
	Gosford Hospital	Jan–Mar 2010	A1
	Goulburn Base Hospital and Health Service	Jan–Mar 2010	C1
	Grafton Base Hospital	Jan–Mar 2010	C1
	Griffith Base Hospital	Jan–Mar 2010	C1
	Gunnedah Hospital	Jan–Mar 2010	C2
	Guyra Multipurpose Service	Jan–Mar 2010	F3
	Hawkesbury District Health Services (public hospital services only)	Jan–Mar 2010	C1
	Hornsby Ku-ring-gai Hospital	Jan–Mar 2010	B
	Inverell Hospital	Jan–Mar 2010	C2

Cohort	Hospital	Report date	Peer Group
	John Hunter Hospital	Jan–Mar 2010	A1
	John Prior Multipurpose Service - Boggabri	Jan–Mar 2010	F3
	Kempsey District Hospital	Jan–Mar 2010	C2
	Kurri Kurri Hospital	Jan–Mar 2010	C2
	Lismore Base Hospital	Jan–Mar 2010	B
	Lithgow Hospital	Jan–Mar 2010	C2
	Liverpool Hospital	Jan–Mar 2010	A1
	Maitland Hospital	Jan–Mar 2010	B
	Manilla Hospital	Jan–Mar 2010	F3
	Manly Hospital	Jan–Mar 2010	B
	Manning Hospital	Jan–Mar 2010	B
	Merriwa Multipurpose Service	Jan–Mar 2010	F3
	Milton Ulladulla Hospital	Jan–Mar 2010	C2
	Mona Vale Hospital	Jan–Mar 2010	B
	Moree Hospital	Jan–Mar 2010	C2
	Mount Druitt Hospital	Jan–Mar 2010	C1
	Murwillumbah District Hospital	Jan–Mar 2010	C1
	Muswellbrook Hospital	Jan–Mar 2010	C2
	Narrabri Hospital	Jan–Mar 2010	C2
	Nepean Hospital	Jan–Mar 2010	A1
	Orange Health Service	Jan–Mar 2010	B
	Port Macquarie Base Hospital	Jan–Mar 2010	B
	Prince of Wales Hospital	Jan–Mar 2010	A1
	Quirindi Hospital	Jan–Mar 2010	D1b
	Royal North Shore Hospital	Jan–Mar 2010	A1
	Royal Prince Alfred Hospital	Jan–Mar 2010	A1
	Ryde Hospital	Jan–Mar 2010	C1
	Scott Memorial Hospital - Scone	Jan–Mar 2010	D1a
	Shellharbour Hospital	Jan–Mar 2010	C1
	Shoalhaven District Memorial Hospital	Jan–Mar 2010	B
	Singleton Hospital	Jan–Mar 2010	C2
	St George Hospital	Jan–Mar 2010	A1
	St Vincent's Hospital Sydney	Jan–Mar 2010	A1
	Sutherland Hospital	Jan–Mar 2010	B
	Sydney Hospital and Sydney Eye Hospital	Jan–Mar 2010	A3
	Sydney Children's Hospital, Randwick	Jan–Mar 2010	A2
	Tamworth Hospital	Jan–Mar 2010	B
	Tenterfield Hospital	Jan–Mar 2010	D1b

Cohort	Hospital	Report date	Peer Group
	The Children's Hospital at Westmead	Jan–Mar 2010	A2
	The Tweed Hospital	Jan–Mar 2010	B
	Tingha Multipurpose Service	Jan–Mar 2010	F3
	Tomaree Hospital	Jan–Mar 2010	D1b
	Vegetable Creek Multipurpose Service - Emmaville	Jan–Mar 2010	F3
	Wagga Wagga Rural Referral Hospital	Jan–Mar 2010	B
	Walcha Multipurpose Service	Jan–Mar 2010	F3
	Warialda Multipurpose Service	Jan–Mar 2010	F3
	Wee Waa Hospital	Jan–Mar 2010	D1b
	Werris Creek Multipurpose Service	Jan–Mar 2010	F3
	Westmead Hospital	Jan–Mar 2010	A1
	Wilson Memorial Hospital - Murrurundi	Jan–Mar 2010	D1b
	Wollongong Hospital	Jan–Mar 2010	A1
	Wyong Hospital	Jan–Mar 2010	B
Cohort 2	South East Regional Hospital	Jul–Sep 2010	C1
Cohort 3	Ballina District Hospital	Jul–Sep 2011	C2
	Byron District Hospital	Jul–Sep 2011	D1b
	Casino & District Memorial Hospital	Jul–Sep 2011	C2
	Maclean District Hospital	Jul–Sep 2011	C2
	Mullumbimby District Hospital	Jul–Sep 2011	D1b
Cohort 4	Barham-Koondrook Soldiers Memorial Hospital	Jan–Mar 2013	D1b
	Batemans Bay District Hospital	Jan–Mar 2013	C2
	Boorowa Multipurpose Service	Jan–Mar 2013	F3
	Corowa Health Service	Jan–Mar 2013	D1a
	Culcairn Multipurpose Service	Jan–Mar 2013	F3
	Deniliquin Hospital and Health Services	Jan–Mar 2013	C2
	Finley Hospital	Jan–Mar 2013	D1b
	Gundagai District Hospital	Jan–Mar 2013	F3
	Hay Health Service	Jan–Mar 2013	D1b
	Hillston Multipurpose Service	Jan–Mar 2013	F3
	Jerilderie District Hospital	Jan–Mar 2013	F3
	Kyogle Memorial Hospital	Jan–Mar 2013	F3
	Lake Cargelligo Multipurpose Health Service	Jan–Mar 2013	F3
	Lockhart And District Hospital	Jan–Mar 2013	F3
	Macksville District Hospital	Jan–Mar 2013	C2
	Moruya District Hospital	Jan–Mar 2013	C2
	Murrumburrah-Harden District Hospital	Jan–Mar 2013	F3
	Queanbeyan Hospital and Health Service	Jan–Mar 2013	C2

Cohort	Hospital	Report date	Peer Group
	Temora District Hospital	Jan–Mar 2013	D1a
	Tumbarumba Multipurpose Service	Jan–Mar 2013	F3
	Tumut Health Service	Jan–Mar 2013	D1a
	West Wyalong Health Service	Jan–Mar 2013	D1b
	Young Health Service	Jan–Mar 2013	C2
Cohort 5	Batlow/Adelong Multipurpose Service	Jan–Mar 2014	F3
	Bellinger River District Hospital	Jan–Mar 2014	D1a
	Berrigan Health Service	Jan–Mar 2014	F3
	Coolamon-Ganmain Hospital	Jan–Mar 2014	F3
	Cootamundra District Hospital	Jan–Mar 2014	D1a
	Crookwell District Hospital	Jan–Mar 2014	D1b
	Dorrigo Health Campus	Jan–Mar 2014	F3
	Holbrook Health Service	Jan–Mar 2014	F3
	Junee Multipurpose Service	Jan–Mar 2014	F3
	Lachlan Health Service - Forbes	Jan–Mar 2014	C2
	Lachlan Health Service - Parkes	Jan–Mar 2014	D1a
	Mudgee Health Service	Jan–Mar 2014	C2
	Narrandera District Hospital	Jan–Mar 2014	D1a
	Yass District Hospital	Jan–Mar 2014	D1b
Cohort 6	Byron Central Hospital	Jul–Sep 2016	C2
	Cooma Hospital and Health Service	Jul–Sep 2016	C2
	Cowra Health Service	Jul–Sep 2016	C2
Cohort 7	Balranald Multipurpose Service	Jan–Mar 2017	F3
	Baradine Multipurpose Service	Jan–Mar 2017	F3
	Blayney Multipupose Service	Jan–Mar 2017	F3
	Bourke Multipurpose Service	Jan–Mar 2017	F3
	Brewarrina Multipurpose Service	Jan–Mar 2017	F3
	Canowindra Soldiers Memorial Hospital	Jan–Mar 2017	D1b
	Cobar Health Service	Jan–Mar 2017	D1b
	Collarenebri Multipurpose Service	Jan–Mar 2017	F3
	Condobolin Health Service	Jan–Mar 2017	D1b
	Coolah Multipurpose Service	Jan–Mar 2017	F3
	Coonabarabran Health Service	Jan–Mar 2017	D1b
	Coonamble Multipurpose Service	Jan–Mar 2017	F3
	Delegate Multipurpose Health Service	Jan–Mar 2017	F3
	Dunedoo Multipurpose Service	Jan–Mar 2017	F3
	Gilgandra Multipurpose Service	Jan–Mar 2017	F3
	Grenfell Multipurpose Service	Jan–Mar 2017	F3

Cohort	Hospital	Report date	Peer Group
	Gulargambone Multipurpose Service	Jan–Mar 2017	F3
	Gulgong Multipurpose Service	Jan–Mar 2017	F3
	Henty Health Service	Jan–Mar 2017	F3
	Ivanhoe Health Service	Jan–Mar 2017	F8
	Leeton Health Service	Jan–Mar 2017	D1a
	Lightning Ridge Multipurpose Service	Jan–Mar 2017	F3
	Menindee Health Service	Jan–Mar 2017	F8
	Molong Multipurpose Service	Jan–Mar 2017	D1b
	Narromine Health Service	Jan–Mar 2017	D1b
	Nimbin Multipurpose Centre	Jan–Mar 2017	F3
	Nyngan Health Service	Jan–Mar 2017	F3
	Oberon Multipurpose Service	Jan–Mar 2017	F3
	Pambula District Hospital	Jan–Mar 2017	D1a
	Peak Hill Multipurpose Service	Jan–Mar 2017	F3
	Rylstone Multipurpose Service	Jan–Mar 2017	F3
	Tibooburra Health Service	Jan–Mar 2017	F8
	Tocumwal Hospital	Jan–Mar 2017	D1b
	Tottenham Multipurpose Service	Jan–Mar 2017	F3
	Trangie Multipurpose Service	Jan–Mar 2017	F3
	Trundle Multipurpose Service	Jan–Mar 2017	F3
	Tullamore Multipurpose Service	Jan–Mar 2017	F3
	Urana Health Service	Jan–Mar 2017	F3
	Urbenville and District Multipurpose Service	Jan–Mar 2017	F3
	Walgett Multipurpose Service	Jan–Mar 2017	F3
	Warren Multipurpose Service	Jan–Mar 2017	F3
	Wellington Health Service	Jan–Mar 2017	D1b
	White Cliffs Health Service	Jan–Mar 2017	F8
	Wilcannia Multipurpose Service	Jan–Mar 2017	F3

Figure A1 Effect of including additional emergency departments on presentation trends in NSW, by quarter

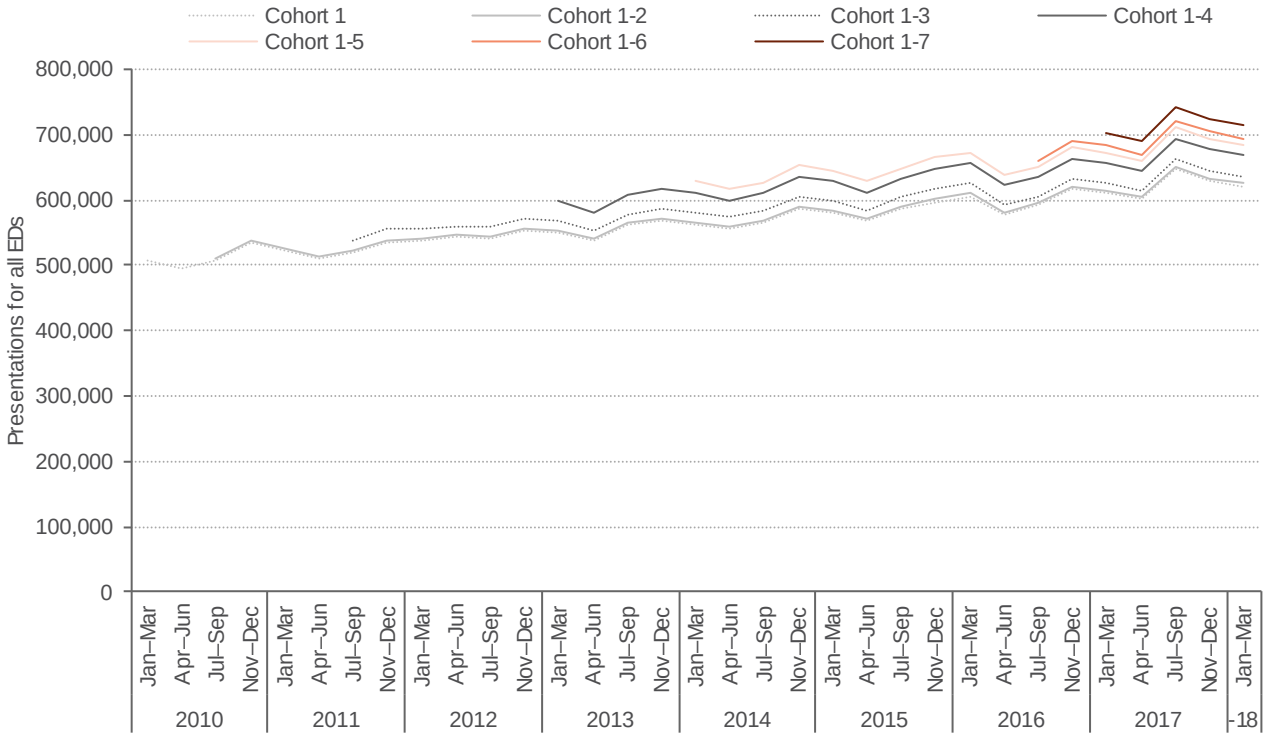

Table A2 Effect of including additional emergency departments on presentations in NSW

NSW	Quarter	Number of EDs included	Total presentations	Number of EDs in most recently added cohort	Presentations for most recently included EDs	Change from preceding cohort in total presentations (%)
Cohort 1	January to March 2010	88	507,713			
	April to June 2010	88	495,613			
Cohort 2	July to September 2010	89	510,093	1	3,118	0.6
	October to December 2010	89	538,043	1	3,253	0.6
	January to March 2011	89	526,674	1	3,430	0.7
	April to June 2011	89	512,131	1	3,028	0.6
Cohort 3	July to September 2011	94	536,955	5	14,663	2.8
	October to December 2011	94	554,546	5	16,102	3.0
	January to March 2012	94	555,335	5	15,334	2.8
	April to June 2012	94	560,449	5	14,698	2.7
	July to September 2012	94	557,980	5	14,204	2.6
	October to December 2012	94	572,540	5	15,745	2.8
Cohort 4	January to March 2013	117	598,278	23	30,378	5.3
	April to June 2013	117	581,784	23	28,247	5.1
	July to September 2013	117	607,944	23	29,228	5.1
	October to December 2013	117	617,426	23	30,917	5.3
Cohort 5	January to March 2014	131	627,581	14	17,152	2.8
	April to June 2014	131	616,747	14	16,705	2.8
	July to September 2014	131	626,906	14	16,582	2.7
	October to December 2014	131	653,019	14	17,074	2.7
	January to March 2015	131	645,531	14	16,622	2.6
	April to June 2015	131	628,687	14	16,910	2.8
	July to September 2015	131	648,830	14	16,753	2.7
	October to December 2015	131	664,922	14	17,761	2.7
	January to March 2016	131	672,677	14	16,810	2.6
	April to June 2016	130*	637,551	14	15,962	2.6
Cohort 6	July to September 2016	131	658,480	3	8,769	1.3
	October to December 2016	131	689,901	3	9,542	1.4
Cohort 7	January to March 2017	175	703,060	44	20,634	3.0
	April to June 2017	175	689,123	44	20,012	3.0
	July to September 2017	175	741,615	44	21,094	2.9
	October to December 2017	175	724,682	44	20,733	2.9
	January to March 2018	175	714,101	44	19,562	2.8

Table A3 Effect of including additional emergency departments on percentage of patients leaving within four hours in NSW, by quarter

NSW	Quarter	All EDs included	Most recently added EDs	Change from preceding cohort (percentage points)
Cohort 1	January to March 2010	62.5		
	April to June 2010	60.8		
Cohort 2	July to September 2010	58.4		
	October to December 2010	59.7	83.0	0.1
	January to March 2011	59.7	78.1	0.1
	April to June 2011	59.6	83.0	0.2
Cohort 3	July to September 2011	57.5	86.2	0.8
	October to December 2011	60.0	87.8	0.9
	January to March 2012	61.1	87.9	0.8
	April to June 2012	60.0	86.7	0.7
	July to September 2012	58.8	83.3	0.7
	October to December 2012	64.8	85.7	0.6
Cohort 4	January to March 2013	66.9	86.1	1.1
	April to June 2013	66.9	85.7	0.9
	July to September 2013	66.6	86.3	1.0
	October to December 2013	72.1	87.9	0.8
Cohort 5	January to March 2014	74.6	93.2	0.5
	April to June 2014	73.7	94.2	0.5
	July to September 2014	70.6	93.0	0.7
	October to December 2014	74.7	94.3	0.5
	January to March 2015	74.6	94.3	0.5
	April to June 2015	73.3	93.7	0.6
	July to September 2015	70.1	92.9	0.6
	October to December 2015	74.1	92.9	0.6
	January to March 2016	74.3	92.9	0.4
	April to June 2016	73.9	93.0	0.5
Cohort 6	July to September 2016	71.7	84.2	0.2
	October to December 2016	74.4	86.3	0.2
Cohort 7	January to March 2017	73.8	93.9	0.6
	April to June 2017	73.8	93.5	0.6
	July to September 2017	69.1	92.2	0.7
	October to December 2017	74.2	92.6	0.6
	January to March 2018	74.4	92.3	0.5

*Hospital merges (Sydney/Sydney Eye) and replacement of Byron/Murwillumbah by Byron Central.

Table A4 Comparison of calculation methods for summing the number of mental health episodes of care and impact on acute, non-acute and mental health episodes of care

NSW

Episode type	Estimation method for mental health episodes of care	Jul–Sep 2017	Oct–Dec 2017	Jan–Mar 2018
Acute	Mental health flag and psychiatric bed days*	464,767	449,168	431,394
	Mental health flag	465,122	449,522	431,729
	Difference	355	354	335
	Percent change	*0.1%*	*0.1%*	*0.1%*
Non-acute	Mental health flag and psychiatric bed days*	19,054	17,478	15,984
	Mental health flag	19,055	17,478	15,985
	Difference	1	0	1
	Percent change	*0.0%*	*0.0%*	*0.0%*
Mental health	Mental health flag and psychiatric bed days*	11,212	11,538	11,419
	Mental health flag	10,856	11,184	11,083
	Difference	-356	-354	-336
	Percent change	*-3.2%*	*-3.1%*	*-2.9%*
Total		**495,033**	**478,184**	**458,797**

St Vincent's Health Network

Episode type	Estimation method for mental health episodes of care	Jul–Sep 2017	Oct–Dec 2017	Jan–Mar 2018
Acute	Mental health flag and psychiatric bed days*	11,291	10,897	9,282
	Mental health flag	11,646	11,251	9,617
	Difference	355	354	335
	Percent change	*3.1%*	*3.2%*	*3.6%*
Non-acute	Mental health flag and psychiatric bed days*	19,054	17,478	15,984
	Mental health flag	19,055	17,478	15,985
	Difference	1	0	1
	Percent change	*0.1%*	*0.0%*	*0.1%*
Mental health	Mental health flag and psychiatric bed days*	356	354	336
	Mental health flag	0	0	0
	Difference	-356	-354	-336
	Percent change	*-100.0%*	*-100.0%*	*-100.0%*
Total		**12,445**	**11,973**	**10,171**

* Method used in Healthcare Quarterly. Episodes with a flag for days in a psychiatric unit are used to estimate the number of mental health stays prior to the introduction of the policy phase-in period on 1 July 2016. The St Vincent's Health Network is the only LHD that does not use the designated mental health code after 1 July 2017. To address this, the estimation method using psychiatric bed days is also applied to St Vincent's Health Network in the post-policy period.

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1. Health System Information & Performance Reporting, NSW Ministry of Health, NSW Hospital peer groups 2016, 06 April 2016 [online] [cited 04 November 2016]. Available from www1.health.nsw.gov.au/PDS/pages/doc.aspx?dn=IB2016_013
2. NSW Government. NSW Health admission policy [online]. 2017 [cited 15 April 2018]. Available from http://www1.health.nsw.gov.au/pds/ActivePDSDocuments/PD2017_015.pdf

About the Bureau of Health Information

The Bureau of Health Information (BHI) is a board-governed organisation that provides independent information about the performance of the NSW public healthcare system.

BHI was established in 2009 to provide system-wide support through transparent reporting.

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BHI manages the NSW Patient Survey Program, gathering information from patients about their experiences in public hospitals and other healthcare facilities.

BHI publishes a range of reports and tools that provide relevant, accurate and impartial information about how the health system is measuring up in terms of:

- Accessibility – healthcare when and where needed
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- Effectiveness – making a difference for patients
- Efficiency – value for money
- Equity – health for all, healthcare that's fair
- Sustainability – caring for the future.

BHI's work relies on the efforts of a wide range of healthcare, data and policy experts. All of our assessment efforts leverage the work of hospital coders, analysts, technicians and healthcare providers who gather, codify and report data. Our public reporting of performance information is enabled and enhanced by the infrastructure, expertise and stewardship provided by colleagues from NSW Health and its pillar organisations.

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