

Hospital Quarterly

Technical Supplement

Elective surgery measures

July to September 2016

BUREAU OF HEALTH INFORMATION

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Please also note that 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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Summary

This supplement to the Bureau of Health Information's (BHI) public hospital elective surgery performance report describes the methods and technical terms used to calculate descriptive statistics and performance indicators reported in *Hospital Quarterly*. Recent changes to methods are also described.

Measures of elective surgery activity and performance reported in *Hospital Quarterly* are currently based on 96 public hospitals which have had an electronic records system in place and reliable data in the APDC for four or more quarters. These 96 hospitals comprise the 'NSW totals' reported in *Hospital Quarterly*. Hospitals are reported individually for hospitals in principal referral, major or district peer groups (A1, A2, A3,

B, C1 and C2). In July to September 2016, a total of 79 hospitals met this reporting criteria.

Peer group changes

In *Hospital Quarterly, July to September 2016*, elective surgery data are no longer individually reported for three hospitals due to their reallocation, from peer group C2, to lower peer groups (smaller facilities including community and multi-purpose service peer groups)¹ (Table 1). For the purposes of reporting in *Hospital Quarterly*, data for these hospitals are included in NSW and local health district (LHD) totals, and in 'Other' peer group totals.

Table 1 Changes to hospital peer group allocation and reporting, July to September 2016¹

Hospitals no longer individually reported	2016 peer group	2016 peer group name	Local health district	2011 peer group
Bellinger River District Hospital	D1a	Community hospitals with surgery	Mid North Coast	C2
Parkes District Hospital	D1a	Community hospitals with surgery	Western NSW	C2
Tumut Health Service	D1a	Community hospitals with surgery	Murrumbidgee	C2

Effect of peer group changes

The exclusion of three previously C2 hospitals from individual hospital reporting has had no effect on aggregated NSW and LHD reporting, or peer group reporting for hospital peer groups A1, A2, A3, B and C1.

This change has the effect of reducing the number of hospitals for which elective surgery data are reported individually in *Hospital Quarterly* from 82 to 79. It also has the effect of reducing the number of C2 hospitals for which emergency department data are reported individually from 28 to 25 (Table 2).

In order to make fair comparisons with the same quarter in the previous year data in *Hospital Quarterly, July to September 2016* are based on recalculations that exclude these hospitals from C2 peer group for 21 quarters. This means that measures reported in the current edition may differ slightly from previous editions of the report. Therefore caution is advised when interpreting any comparisons using previous editions.

The effect of peer group changes on selected elective surgery activity and performance measures of reallocation of four previously C2 hospitals to the 'Other' peer group is shown in Appendix tables 3 and 4.

Surgical activity and performance indicators

Data used for calculation of surgical activity and performance

The elective surgery component of *Hospital 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.

The WLCOS system is described in greater detail in the *Data Quality Assessment: information systems for elective surgery in NSW* at bhi.nsw.gov.au

Elective surgery activity and performance indicators in *Hospital Quarterly* include:

- The number of patients who received elective surgery during the quarter
- The percentage of patients admitted within the recommended timeframe
- The median waiting time in days
- The 90th percentile waiting time in days
- The number of patients waiting for elective surgery at the end of the quarter
- Waiting list measures by specialty of surgeon
- Waiting list measures for common procedures.

SAS* (currently SAS V9.3™) is used for the statistical analysis of data for *Hospital Quarterly*.

Hospitals included in Hospital Quarterly

Hospital Quarterly reports on all public hospitals which are included in WLCOS. Information is provided for individual hospitals in peer groups A1, A2, A3, B, C1 and C2. Information is suppressed for an individual hospital if patient numbers are too small to report.

Urgency category

Patients are assigned to a clinical priority or urgency category, by their surgeon, according to rules described in the NSW Ministry of Health's *Waiting Time and Elective Patient Management Policy*. That document was developed 'to promote clinically appropriate, consistent & equitable management of elective patients and waiting lists in public hospitals across NSW'.

WLCOS uses alphabetical codes to define surgical priority categories; 'A' is urgent, 'B' is semi-urgent, 'C' is non-urgent and 'D' is not ready for care (NRF). Additional information about 'not ready for care' days can be found in Appendix 1.

Some elective surgery reporting uses numbers for urgency category and these are interchangeable with the alphabetical coding used in this document; 1 = A, 2 = B, 3 = C and 4 = D.

(*) SAS Institute. The SAS System for Windows version 9.3 Cary, NC, USA.

Ready for care (surgery)

A patient is termed **'ready for care'** or **'not 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.

These could include procedures done on an outpatient basis, such as autologous blood collection, pre-operative diagnostic imaging or blood tests. Not ready for care patients are those who are not in a position to be admitted to hospital. These patients are either:

- Staged patients whose medical condition will not require or be amenable to surgery until some future date; for example, a patient who has had internal fixation of a fractured bone and who will require removal of the fixation device after a suitable time
- Deferred patients who for personal reasons are not yet prepared to be admitted to hospital; for example, patients with work or other commitments which preclude their being admitted to hospital for a time.

Patients who are not ready for surgery are coded as urgency D (NRFC) in WLCOS, with the reason recorded in the listing status variable.

Patients are not coded NRFC if their operation is postponed for reasons other than their own unavailability, for example; their surgeon is unavailable, or operating theatre time is unavailable owing to emergency workload. These patients are still **'ready for care'**.

Calculation of waiting time and ready for care days

The waiting period for a particular patient is defined as the time between the list date and the removal date. Patient records are provided with a list date when added to WLCOS and a removal date when they are taken off the hospital's booking list. Patients who are not ready for surgery are recorded as NRFC. The number of days ready for care is calculated by subtracting any days that the patient is recorded as being NRFC from the total waiting time of each patient.

There are differences between hospitals in the way hospitals calculate waiting time for patients who are considered NRFC for part of their time on the waiting list. These differences may arise from patient administration software and/or in the interpretation of NSW Ministry of Health policies on the elective surgery waiting list.

To enable fair comparisons of waiting time measures between hospitals, BHI uses three decision rules to determine whether patients should be included in elective surgery waiting time calculations. This is particularly important for measures of waiting times for elective surgery, such as median and 90th percentile waiting time and percentage of patients seen on time.

The following patients are deemed to be staged and are not included in calculation of waiting times:

- Patients who were coded as 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.

BHI deemed patients who met these criteria to have had **'staged surgery'**.

Waiting times are not appropriate measure of hospital performance when surgery is staged. The reasons for this decision, details of the analyses and historical comparisons are presented in Appendix 1.

BHI reports counts for these patients in a category deemed **'staged surgery'**.

Median and 90th percentile waiting times

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. The median is 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 the median to be admitted for surgery. BHI reports the median by urgency category, surgical specialty and common procedure.

The 90th percentile waiting time is also reported using the Commonwealth waiting time definition. The 90th percentile is 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. The other 10 percent took equal to or longer than the 90th percentile to be admitted for surgery. BHI reports the 90th percentile by urgency category. The current median and 90th percentile waiting times are compared with waiting times during the same quarter last year. In addition median and 90th percentile waiting times are compared with the median and 90th percentile waiting times of other hospitals in their peer group.

Surgical specialty

Surgical specialty in this report is the clinical expertise of the surgeon who will perform the elective surgery. The category **'Other medical'** includes medical practitioners who are not specialist surgeons.

Procedure

Procedures reported include the 15 procedures listed by the Australian Institute for Health and Welfare (AIHW) in December 2011.

See

www.meteor.aihw.gov.au/content/index.phtml/itemId/472513

In addition, BHI reports information for two other procedures, which are among the four most common procedures in NSW but are not already included in the AIHW list.

Patients who received elective surgery by urgency category

This indicator includes a 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 count for a hospital does not include admissions contracted to another public hospital.

Prior to July 2012, patients with a condition requiring surgery within 24 hours (removal status coded 2) were excluded. These patients are included in the count from July 2012.

From July 2012 counts are also presented for the same quarter in the previous five years.

The records of these patients all have the following information in WLCOS:

- A valid removal date
- A code of **'S'** for elective surgery
- Codes **'1'** or **'2'** or **'8'** for removal status.

Percentage of patients admitted within the recommended timeframe, by urgency category

This indicator provides the proportion of patients admitted within the clinically recommended timeframe for each of the elective surgery urgency categories.

The numerator is the 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. The denominator is the total number of patients admitted for elective surgery in each urgency category.

The indicator is presented at hospital, peer group, local health district and state level.

More information about clinically recommended time frames can be found in the NSW Ministry of Health's *Waiting Time and Elective Patient Management Policy*.

Percentage of patients who received elective surgery by waiting time (cumulative)

The number of 'ready for care' days that NSW patients waited for their surgery is presented graphically as the cumulative percentage of patients who received elective surgery by the number of days 'ready for care' (up to 420 days).

Patients ready for surgery on waiting list

BHI reports on patients who are on the waiting list at the end of the quarter and who are ready for their surgery. Patients whose urgency category at the end of the quarter is 'D', whose surgery is deemed staged as described in Appendix 1, or who are waiting for a non-urgent cystoscopy are not included.

The waiting time reported for these patients is the number of days ready for care, as recorded in WLCOS. Days when the patient was not ready for care are not included.

The number of patients ready for surgery on the waiting list and their waiting time is reported by urgency, specialty of surgeon and for common procedures.

Patients not ready for surgery on waiting list

BHI reports the number of patients who are on the waiting list at the end of the quarter but are not ready for surgery. The patients in this group are patients whose urgency category at the end of the quarter is 'D', whose surgery is deemed staged.

Patients ready for elective surgery, on the waiting list for longer than 12 months

This count is the number of patients who were on the waiting list and ready for care at the end of the quarter, and who had accrued more than 365 days ready for care.

Suppression rules

Some hospitals conduct few surgical procedures. Small numbers in any group need to be treated cautiously to protect patients' identity. BHI suppresses information based on very few patients. If there are fewer than five patients in any group, patient numbers are displayed as < 5. For 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.

Appendix

Table 2 Peer group C2 hospitals and changes, July to September 2016

C2 cohort	Hospital	Local health district	Peer group	
Up to April to June 2016	Ballina	Northern NSW	C2	
	Batemans Bay	Southern NSW	C2	
	Bellinger River	Mid North Coast	C2	
	Blue Mountains	Nepean Blue Mountains	C2	
	Casino	Northern NSW	C2	
	Cessnock	Hunter New England	C2	
	Cooma	Southern NSW	C2	
	Cowra	Western NSW	C2	
	Deniliquin	Murrumbidgee	C2	
	Forbes	Western NSW	C2	
	Gunnedah	Hunter New England	C2	
	Inverell	Hunter New England	C2	
	Kempsey	Mid North Coast	C2	
	Kurri Kurri	Hunter New England	C2	
	Lithgow	Nepean Blue Mountains	C2	
	Macksville	Mid North Coast	C2	
	Macleay	Northern NSW	C2	
	Milton	Illawarra Shoalhaven	C2	
	Moree	Hunter New England	C2	
	Moruya	Southern NSW	C2	
	Mudgee	Western NSW	C2	
	Muswellbrook	Hunter New England	C2	
	Narrabri	Hunter New England	C2	
	Parkes	Western NSW	C2	
	Queanbeyan	Southern NSW	C2	
	Singleton	Hunter New England	C2	
	Tumut	Murrumbidgee	C2	
	Young	Murrumbidgee	C2	
	July to September 2016	Ballina	Northern NSW	C2
		Batemans Bay	Southern NSW	C2
Bellinger River		Other Mid North Coast	D1a	
Blue Mountains		Nepean Blue Mountains	C2	
Casino		Northern NSW	C2	
Cessnock		Hunter New England	C2	
Cooma		Southern NSW	C2	
Cowra		Western NSW	C2	
Deniliquin		Murrumbidgee	C2	
Forbes		Western NSW	C2	
Gunnedah		Hunter New England	C2	
Inverell		Hunter New England	C2	
Kempsey		Mid North Coast	C2	
Kurri Kurri		Hunter New England	C2	
Lithgow		Nepean Blue Mountains	C2	
Macksville		Mid North Coast	C2	
Macleay		Northern NSW	C2	
Milton		Illawarra Shoalhaven	C2	
Moree		Hunter New England	C2	
Moruya		Southern NSW	C2	
Mudgee		Western NSW	C2	
Muswellbrook		Hunter New England	C2	
Narrabri		Hunter New England	C2	
Parkes		Other Western NSW	D1a	
Queanbeyan		Southern NSW	C2	
Singleton		Hunter New England	C2	
Tumut		Other Murrumbidgee	D1a	
Young		Murrumbidgee	C2	

Table 3 Effect of peer group change for four C2 hospital on selected elective surgery activity measures, July to September 2016

Total C2 peer group, July to September 2016

	Total number of elective surgical procedures	Urgent elective surgical procedures	Semi-urgent elective surgical procedures	Non-urgent elective surgical procedures	Staged elective surgical procedures
Measure after change	4,169	544	1,200	2,303	122
Measure before change	4,346	556	1,239	2,429	122
Difference (%)	-4.1	-2.2	-3.1	-5.2	0.0

Table 4 Effect of peer group change for four C2 hospital on selected elective surgery performance measures, July to September 2016

C2 peer group, July to September 2016

	Measure after change	Measure before change	Difference
Percentage of elective surgical procedures performed on time (%)			
All procedures	99.4	98.8	0.6 percentage points
Urgent (%)	99.6	100.0	-0.4 percentage points
Semi-urgent (%)	99.2	98.8	0.4 percentage points
Non-urgent (%)	99.4	98.5	0.9 percentage points
Median waiting time (days)			
Urgent	11	11	unchanged
Semi-urgent	35	35	unchanged
Non-urgent	159	163	-4 days
90th percentile waiting time (days)			
Urgent	26	27	-1 day
Semi-urgent	76	76	unchanged
Non-urgent	334	336	-2 days

References

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 http://www0.health.nsw.gov.au/policies/ib/2016/IB2016_013.html

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.

BHI supports the accountability of the healthcare system by providing regular and detailed information to the community, government and healthcare professionals. This in turn supports quality improvement by highlighting how well the healthcare system is functioning and where there are opportunities to improve.

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
- Appropriateness – the right healthcare, the right way
- 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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