



# Technical Supplement

measures of elective surgery  
activity and performance

Hospital Quarterly: July to September 2010

# Summary

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

The elective surgery component of the *Hospital Quarterly* report is based on analyses of data extracted from the central data warehouse, the Waiting List Collection On-line System (WLCOS). This system is described in greater detail in the *Data quality assessment: elective surgery information systems for public patients at NSW hospitals* supplement at [www.bhi.nsw.gov.au](http://www.bhi.nsw.gov.au)

The Bureau reports three activity and performance indicators:

- number of patients who received an elective, or planned surgery
- the percentage of patients admitted within the recommended timeframe
- the median waiting time in days.

More detail is provided in the following section (*Activity and performance indicators*) and the online glossary ([www.bhi.nsw.gov.au](http://www.bhi.nsw.gov.au)). Indicators are presented by hospital, area health service and for NSW.

The Bureau uses SAS\* V9.1.3™ for the statistical analysis of data for *Hospital Quarterly*.

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

# Activity and performance indicators

The Bureau reports elective surgery waiting list activity using counts of patients who were admitted for their surgery within a reporting period. This information is presented by urgency category for the current quarter and as a time series over all quarters for the past five years.

Only patients who have been admitted for surgery are included in the analysis of these indicators.

This section contains details about the definitions used for the calculations of measures of elective surgery activity.

## Patients who received elective surgery by urgency category

This indicator includes a count of patients who were removed from the waiting list because they were a routine admission for surgery, or an admission for surgery contracted to a private hospital or private day procedure centre. The count does not include emergency admissions or admissions contracted to another public hospital.

Patients are reassigned by their surgeon to a clinical priority or urgency category according to rules described in the NSW Department of Health's *Waiting Time and Elective Patient Management Policy* described at [www.health.nsw.gov.au/policies/pd/2009/PD2009\\_018.html](http://www.health.nsw.gov.au/policies/pd/2009/PD2009_018.html). That document was developed 'to promote clinically appropriate, consistent & equitable management of elective patients and waiting lists in public hospitals across NSW'.

These surgical urgency categories are used across Australia as defined by the AIHW National Health Data Committee and described at [www.meteor.aihw.gov.au](http://www.meteor.aihw.gov.au)

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. When reporting by surgical urgency category, if a patient is coded as 'D' (not ready for care) when removed from the waiting list, one of the three valid urgency categories must replace this code. The urgency category used is the next most recent coding of A or B or C that the patient was recorded as. Additional information about 'not ready for care' days can be found in [Appendix 1](#), pages 5 to 7.

When reporting on surgical waiting times, numeric codes are used for urgency category and these are interchangeable with the alphabetical coding used in this document; 1 = A, 2 = B, 3 = C and 4 = D.

## Patients admitted within the recommended timeframe

This indicator provides the proportion of patients admitted within the recommended timeframe for each of the elective surgery urgency categories, presented at hospital, peer group, area health service and state level. It includes only those records which have all the following information:

- a valid Removal Date
- are coded as 'S' for Elec Surg
- are coded as '1' or '8' for Removal Status.

### Percent of patients admitted within the recommended timeframe, by urgency category

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.

### Percent of patients admitted within the recommended timeframe, all urgency categories

The numerator is the sum of the number of urgency category A patients admitted in 30 days or less plus the number of urgency category B patients admitted in 90 days or less plus the number of urgency category C patients admitted in 365 days or less. The denominator is the sum of all patients admitted from urgency category A plus all patients admitted from urgency category B plus all patients admitted from urgency category C.

### 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, presented as the cumulative percentage of patients who received elective surgery by the number of days 'ready for care' (up to 420 days). Ready for care is calculated by the difference (in days) from List Date to Removal Date minus the number of days 'not ready for care' for clinical or personal reasons.

### Median waiting time

Includes only those patient electronic records which have a Removal Date, are coded as 'S' for Elec Surg and are coded as '1' or '8' for Removal Status. If the Flag Urgency for a patient is set to 'D' (not ready for care), then the wait time variable for calculation is Ready for Care Days; otherwise the wait time variable is Commonwealth Waiting Time. Median Waiting Time is the median of the appropriate wait time variable for each of the three urgency categories.

## Appendix 1: Hospitals with a high percentage of category 3 patients waiting one day or less to be treated

Patients are provided with a List Date when added to WLOCS and a Removal Date when they are taken off the list. At the most simplistic level, the time between these two dates is the waiting period for that patient. Patients can also be recorded as 'not ready for care' due to either clinical reasons (patient too ill, doctor sets a minimum period between operations, etc) or personal reasons (patient away on holiday, etc). Any days that the patient is recorded as being 'not ready for care' days are subtracted from the total waiting time of each patient.

The Bureau noted that at some NSW public hospitals, a high percentage of category 3 patients had 'not ready for care days' equal to the total length of time they had been on the waiting list. This resulted in those patients having a waiting time of one day or less. Across the largest hospitals on WLCOS, the proportion of category 3 patients who had one day or less total waiting time ranged from 0-30% of patients.\* In the July to September 2010 quarter, 16 hospitals recorded that 10% or greater of their category 3 patients waited one day or less for admission to hospital ([Table 1](#)).

The Bureau has investigated the effect on median waiting times for hospitals with high percentages of category 3 patients waiting one day or less for admission. This has the effect of reducing median waiting time for patients undergoing elective surgery at these hospitals. In interpreting the performance indicators for category 3 patients at these hospitals, caution is advised as this may result in unfair or inequitable comparisons.

Additional detail about 'not ready to care' days can be found on page 8 of this supplement. This information is duplicated in *Hospital Quarterly, July to September 2010*.

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\* Including all 83 hospitals on WLCOS from the principal referral, paediatric specialist, ungrouped acute / tertiary referral, major metropolitan, major non-metropolitan and district groups 1 and 2 peer groups.

Table 1: Hospitals with a high percentage of category 3 patients waiting one day or less to be admitted, July to September 2010

	Patients treated on time		Median waiting time (days)		
	Category 3 patients	Waiting time < 1 day (%)	Category 1	Category 2	Category 3
Campbelltown Hospital	599	30	20	64	204
Royal Prince Alfred Hospital	695	29	7	14	13
Concord Hospital	1125	23	9	46	79
Gosford Hospital	672	23	15	57	280
Liverpool Hospital	698	21	12	56	171
The Tweed Hospital	366	20	17	55	165
Hawkesbury Private Hospital - Public Contract Services	100	19	15	65	327
The Children's Hospital at Westmead	754	18	5	47	60
Port Macquarie Base Hospital	291	17	15	62	224
Griffith Base Hospital	120	15	21	63	324
Murwillumbah District Hospital	254	15	22	62	304
Bathurst Base Hospital	150	13	11	51	216
Dubbo Base Hospital	418	13	8	22	86
St Vincent's Hospital, Darlinghurst	300	12	4	47	107
Hornsby and Ku-Ring-Gai Hospital	353	12	6	27	89
Orange Base Hospital	406	12	8	62	350
Wyong Hospital	400	9	12	45	232
Canterbury Hospital	283	8	12	55	265
Manly District Hospital	108	8	6	33	62
Royal North Shore Hospital	515	8	6	46	118
Bowral and District Hospital	197	8	16	35	71
Mona Vale and District Hospital	269	7	4	15	30
Bankstown / Lidcombe Hospital	669	7	14	62	168
Ryde Hospital	168	5	12	35	146
Macleay District Hospital	20	5	13	43	26
Lismore Base Hospital	415	5	10	54	280
Broken Hill Base Hospital	91	4	14	61	218
Lithgow Health Service	116	4	18	56	307
Shoalhaven and District Memorial Hospital	492	4	14	55	306
Fairfield Hospital	451	4	12	40	306
Sydney Children's Hospital	353	4	7	21	78
Coffs Harbour Base Hospital	539	3	18	81	354
Blue Mountains District Anzac Memorial Hospital	50	2	14	53	224
Wollongong Hospital	524	2	11	62	105
Westmead Hospital (all units)	460	2	9	43	112
Moruya District Hospital	72	1	8	28	96
RPAH Institute of Rheumatology & Orthopaedics	315	1	5	23	28
Grafton Base Hospital	175	1	10	44	283
John Hunter Hospital	736	1	11	47	209
Bega District Hospital	117	1	22	74	329

**Patients  
treated on time**

**Median waiting time (days)**

	Category 3 patients	Waiting time < 1 day (%)	Category 1	Category 2	Category 3
Royal Hospital for Women	117	1	7	36	84
St George Hospital	251	1	14	56	183
Belmont Hospital	281	1	20	53	247
Blacktown Hospital	340	1	11	44	140
Mount Druitt Hospital	254	0	11	58	274
Shellharbour Hospital	566	0	21	63	201
Nepean Hospital	799	0	8	66	352
Armidale and New England Hospital	152	0	21	67	317
Auburn Hospital	327	0	12	71	236
Ballina District Hospital	62	0	10	39	86
Bateman's Bay District Hospital	134	0	26	49	337
Bulli District Hospital	75	0	8	40	246
Calvary Mater Newcastle	47	0	17	57	159
Casino and District Memorial Hospital	117	0	8	35	77
Cessnock District Hospital	97	0	10	13	40
Cooma Health Service	35	0	17	54	111
Cowra District Hospital	51	0	7	37	56
Deniliquin Health Service	27	0	14	80	242
Forbes District Hospital	60	0	19	28	279
Goulburn Base Hospital	214	0	14	35	198
Gunnedah District Hospital	39	0	8	36	51
Inverell District Hospital	28	0	13	49	191
Kempsey Hospital	201	0	27	48	125
Kurri Kurri District Hospital	233	0	10	78	252
Macksville District Hospital	88	0	24	54	304
Maitland Hospital	275	0	17	56	154
Manning Base Hospital	420	0	20	66	266
Milton and Ulladulla Hospital	12	0	5	40	43
Moree District Hospital	48	0	6	29	66
Mudgee District Hospital	68	0	21	57	320
Muswellbrook District Hospital	63	0	1	12	19
Narrabri District Hospital	8	0	6	18	128
Pambula District Hospital	13	0	8	57	285
Parkes District Hospital	26	0	3	54	21
Prince of Wales Hospital	408	0	13	42	234
Queanbeyan Health Service	94	0	17	62	206
Singleton District Hospital	89	0	7	20	26
Sutherland Hospital	292	0	15	56	268
Sydney/Sydney Eye Hospital	634	0	12	42	207
Tamworth Base Hospital	387	0	13	50	168
Tumut Health Service	27	0	14	70	42
Wagga Wagga Base Hospital	560	0	21	56	324
Young Health Service	28	0	28	71	49

## Waiting times of less than one day (taken from *Hospital Quarterly, July to September 2010*)

All hospitals have some patients in each urgency category who were recorded as waiting one day or less to be admitted for surgery. The percentage of urgent (category 1), semi-urgent (category 2) and non-urgent (category 3) patients who waited one day or less are 10%, 2% and 8% respectively. In some hospitals, a substantial percentage of patients recorded as waiting one day or less were coded as 'not ready for care' for the entire period they were on the waiting list.

Patients can be appropriately coded as 'not ready for care' for either clinical reasons (patient unfit for surgery, staged operations, etc) or personal reasons (patient away on holiday, work commitment, etc). We found that these patients were most commonly waiting for gynaecological or urological (bladder and urine tract) surgery, removal of pins or plates or cataract removal. High numbers of these procedures were concentrated in a small number of hospitals.

Listing a patient as 'not ready for care' for clinical reasons may be due to booking the patient for a 'staged' surgery. A staged surgery is where there is a clinically appropriate interval before the procedure can occur and, as the patient either cannot or should not undergo the procedure any sooner, they are not technically waiting for surgery. Examples of this include:

- Fractured bones sometimes require metal pins and / or plates to hold the bones in place while they heal. Until the bone is healed, the pins / plates are not be removed and the patient is coded as 'not ready for care'
- In-vitro fertilisation (IVF) may require egg harvesting after a course of hormones. A woman would be listed as 'not ready for care' while she underwent the hormone therapy in preparation for the procedure.

Hospitals with specialties requiring staged surgery tend to have a higher percentage of patients with very short wait times. This has the effect of reducing median waiting time for patients undergoing elective surgery at these hospitals. Comparisons between these hospitals and those hospitals that perform few staged procedures may result in unfair or inequitable comparisons.



# About the Bureau

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

## The Bureau's Board

- Professor Bruce Armstrong AM (Chair)
- Professor Jane Hall
- Mrs Liz Rummery AM
- Dr Don Weatherburn
- Ms Sue West
- Dr Diane Watson (Chief Executive)

## The Bureau's Mission

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

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