



Addendum

Technical supplement:
elective surgery measures

Hospital Quarterly: October to December 2010

BUREAU OF HEALTH INFORMATION

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This document is an addendum to the Bureau's *Technical supplement: measures of elective surgery, July to September 2010*. It adds new information for more than 80 hospitals on the proportion of category 3 patients who had a waiting time of one day or less before being admitted for elective surgery and corresponding data on the median waiting times for each surgical category. Data presented here refers to patients admitted for elective surgery during October to December 2010.

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 the WLCOS 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.

During production of *Hospital Quarterly, July to September 2010*, the Bureau noted that some NSW public hospitals had a high percentage of category 3 patients recorded with '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 in the October to December 2010 quarter, the percentage of category 3 patients

who had one day or less total waiting time ranged from 0-49% of patients.* During the October to December quarter, 17 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 a high percentage 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 4](#) of this document as well as [page 20](#) of *Hospital Quarterly: performance of NSW public hospitals, October to December 2010*.

* 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 proportion of category 3 patients waiting one day or less to be admitted, October to December 2010

	Patients treated on time		Median waiting time (days)		
	Category 3 patients	Waiting time < 1 day (%)	Category 1	Category 2	Category 3
Campbelltown Hospital	558	49%	21	66	25
Royal Prince Alfred Hospital	681	28%	6	14	14
Concord Hospital	953	28%	11	46	81
The Tweed Hospital	329	23%	18	51	137
Gosford Hospital	652	23%	15	57	283
The Children's Hospital at Westmead	705	22%	6	47	51
Liverpool Hospital	562	22%	11	60	170
Port Macquarie Base Hospital	252	19%	15	64	225
Griffith Base Hospital	125	17%	15	54	264
St Vincent's Hospital, Darlinghurst	311	15%	6	38	106
Bathurst Base Hospital	186	15%	14	59	189
Mona Vale and District Hospital	213	12%	6	18	28
Lithgow Health Service	95	12%	18	53	282
Hawkesbury Private Hospital - public contract services	103	11%	15	72	360
Hornsby and Ku-Ring-Gai Hospital	376	10%	6	30	58
Bankstown / Lidcombe Hospital	658	10%	17	63	149
Dubbo Base Hospital	425	10%	7	28	177
Royal North Shore Hospital	466	9%	6	44	117
Manly District Hospital	78	9%	7	33	59
Murwillumbah District Hospital	331	8%	18	68	324
Shoalhaven and District Memorial Hospital	393	8%	13	61	280
Orange Base Hospital	343	8%	7	61	346
Wyong Hospital	423	8%	14	39	228
Canterbury Hospital	266	8%	13	63	297
Wollongong Hospital	492	7%	10	66	48
Lismore Base Hospital	382	7%	13	50	246
Ballina District Hospital	33	6%	19	43	44
Bowral and District Hospital	170	5%	14	42	178
Blue Mountains District Anzac Memorial Hospital	39	5%	13	29	98
Ryde Hospital	150	5%	15	37	133
Coffs Harbour Base Hospital	441	4%	15	81	350
Broken Hill Base Hospital	125	4%	15	63	215
Sydney Children's Hospital	316	4%	10	17	97
Tumut Health Service	28	4%	13	63	49
Fairfield Hospital	437	3%	11	43	270
Parkes District Hospital	33	3%	13	21	17
Moree District Hospital	67	3%	2	34	97
Grafton Base Hospital	138	3%	12	35	252
Moruya District Hospital	46	2%	8	47	103
Calvary Mater Newcastle	54	2%	14	43	148

**Patients
treated on time**

Median waiting time (days)

	Category 3 patients	Waiting time < 1 day (%)	Category 1	Category 2	Category 3
St George Hospital	235	2%	11	52	184
Tamworth Base Hospital	371	2%	11	47	145
Casino and District Memorial Hospital	128	2%	12	38	69
Royal Hospital for Women	72	1%	7	32	72
Cessnock District Hospital	80	1%	19	11	44
Mount Druitt Hospital	246	1%	10	51	266
RPAH Institute of Rheumatology & Orthopaedics	293	1%	6	23	39
Westmead Hospital (all units)	443	1%	12	35	95
Belmont Hospital	237	1%	14	51	178
Bateman's Bay District Hospital	154	1%	20	57	326
Kempsey Hospital	254	0%	15	60	141
Blacktown Hospital	304	0%	12	48	145
John Hunter Hospital	622	0%	10	47	209
Manning Base Hospital	367	0%	20	53	267
Sydney/Sydney Eye Hospital	626	0%	11	46	207
Armidale and New England Hospital	101	0%	17	55	234
Auburn Hospital	265	0%	11	70	301
Bega District Hospital	146	0%	14	72	337
Bulli District Hospital	97	0%	12	45	207
Cooma Health Service	35	0%	3	40	221
Cowra District Hospital	44	0%	6	57	122
Deniliquin Health Service	27	0%	8	51	223
Forbes District Hospital	80	0%	12	36	225
Goulburn Base Hospital	179	0%	13	31	156
Gunnedah District Hospital	38	0%	9	30	18
Inverell District Hospital	19	0%	10	55	334
Kurri Kurri District Hospital	223	0%	17	82	250
Macksville District Hospital	66	0%	24	55	268
Macleay District Hospital	17	0%	14	25	43
Maitland Hospital	223	0%	13	43	229
Milton and Ulladulla Hospital	7	0%	4	29	40
Mudgee District Hospital	67	0%	10	36	307
Muswellbrook District Hospital	19	0%	3	14	76
Narrabri District Hospital	6	0%	6	26	88
Nepean Hospital	540	0%	13	69	344
Pambula District Hospital	7	0%	9	29	285
Prince of Wales Hospital	343	0%	11	43	251
Queanbeyan Health Service	48	0%	18	64	101
Shellharbour Hospital	485	0%	22	57	189
Singleton District Hospital	86	0%	6	15	35
Sutherland Hospital	270	0%	19	61	290
Wagga Wagga Base Hospital	416	0%	16	61	338
Young Health Service	28	0%	21	80	48

Waiting times of less than one day

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 9% 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 urinary 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 'staged' surgery. A staged surgical procedure is when 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 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 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 wellbeing of people in NSW.

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Technical Supplement:

Measures of elective surgery activity

Hospital Quarterly: April to June 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 a central data warehouse. The Bureau reports two performance indicators, the proportion of patients admitted within the recommended timeframe for each elective surgery urgency category and the median waiting time in days. More detail is provided in the activity indicators and the glossary pages. Indicators are presented by hospital, area health service and for NSW.

The Bureau of Health Information used SAS* V9.1.3™ for the statistical analysis of data for the *Hospital Quarterly: April to June 2010*.

The Waiting List Collection On-line System

The Waiting List Collection On-line System (WLCOS) contains a census of patients waiting for planned treatment at the end of each month and a record of patients admitted to the facility for the planned procedure or removed from the waiting list during each month. It is provided by NSW public hospitals, public psychiatric hospitals, public multi-purpose services, and for public patients who received treatment at private hospitals and private day procedures centres.

Waiting list data is extracted from the hospital's electronic patient records system and loaded locally into the Health Information Exchange (HIE) of each area health service (Area HIE). The frequency at which these extracts occur varies from site to site (**Figure 1**) depending on the patient record systems in place at each hospital:

1. At some sites, the waiting list extract is manually initiated and then subsequently transferred to the HIE server for that area health service via the HIE file transfer utility, HIEBatch and Reflection FTP
2. At other sites, a locally provided script performs the waiting list extract and transfer to the HIE server for that area health service. This is automatically initiated at a frequency decided by each area health service.

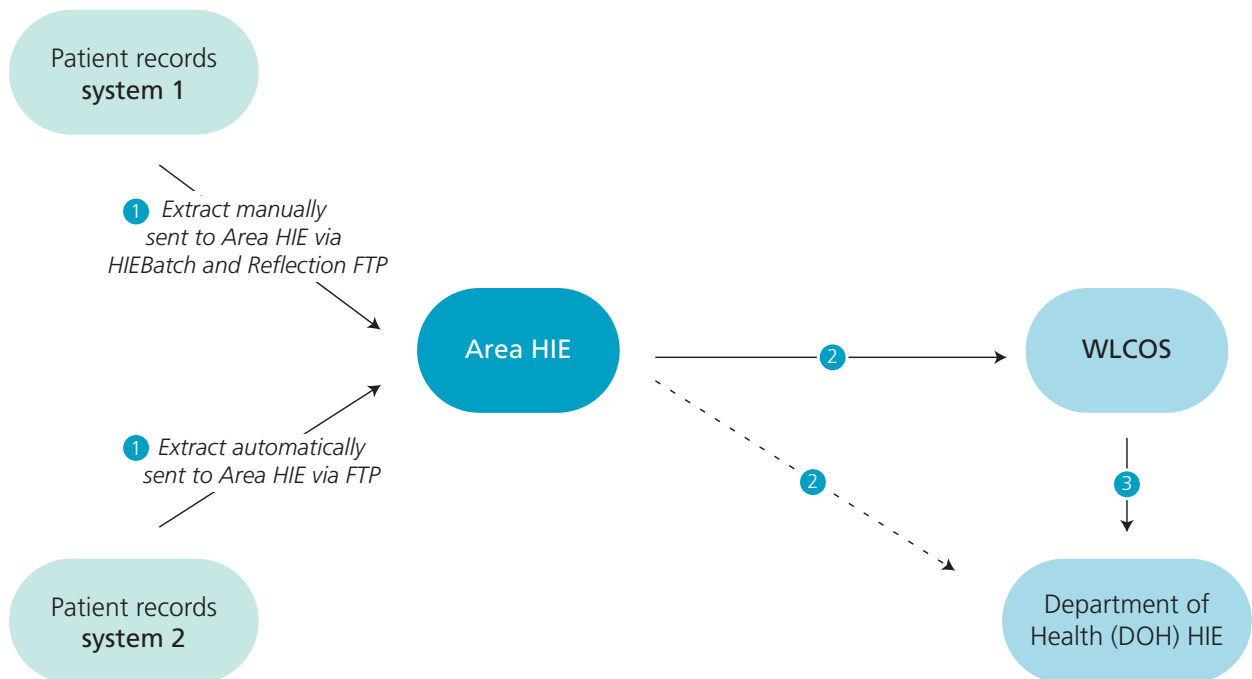
Data is automatically sent from the Area HIEs directly to WLCOS. Data is also periodically loaded into a temporary (non-useable) placeholder file in the HIE maintained by the Department of Health (DOH) from the Area HIEs.

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

A system of checks (for logic errors and missing data) is applied to the data held in WLCOS. If a discrepancy in the data is detected, this is communicated to staff in the area health service (AHS) for the affected hospital. The AHS then contacts those hospital staff responsible for the quality of the patient records at each hospital. If these discrepancies are actual errors, then the information is corrected in the patient record system by staff from the hospital and amended in WLCOS by AHS staff. Once the data checks and amendments have been completed, this validated data set is copied to the DOH HIE.

Although WLCOS contains many fields relevant to patients undergoing elective surgery, the Bureau required only a selection to allow it to calculate the elective surgery performance indicators for NSW public hospitals.

Figure 1: Populating HIE elective surgery waiting data from hospital record systems



Activity indicators

The Bureau has reported two performance indicators, both by urgency category:

- The percentage of patients admitted on time for category A, category B, category C and all categories
- Median waiting time (in days) for: category A, category B and category C.

Only patients who have been admitted for their 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 reported in the *Hospital Quarterly: April to June 2010*.

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, at each hospital, area health service and for NSW. It includes only records which have a valid Removal Date, are coded as 'S' for Elec Surg and are coded as '1' or '8' for Removal Status.

Per cent 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.

Per cent 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.

Median waiting time

Includes only those records which have a valid 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 (calculated in SAS V9.1.3™) of the appropriate wait time variable for each of the three urgency categories.

Glossary

Admission(s) – refers to the process, using registration procedures, under which a person is accepted by a hospital or an area or district health service facility as an inpatient.

Elective surgery – any form of surgery that a patient's doctor believes to be necessary but which can be delayed by at least 24 hours.

Health Information Exchange (HIE) – better known by the abbreviation HIE, this is a store of health records and information. Data from the Area HIE are used to populate the Waiting List Collection On-line System (WLCOS), which provides the data for the Bureau's reports.

Median waiting time (days) – this is the number of days it took for half of the patients who received elective surgery in the period to be admitted for, and receive, their surgery.

Patients treated on time – refers to the percentage of patients who received elective surgery within the recommended timeframe for their urgency category.

Removal status – describes the reason for the patient's removal from the waiting list; codes of 1 (routine admit) and 8 (admission contracted to a private hospital) mean that the patient received elective surgery and is therefore included in the analysis.

Removal date – the date the patient on the waiting list was admitted to the facility for the planned procedure or was removed from the waiting list.

Urgency categories – all patients on the elective surgery waiting list are allocated to an urgency category by the surgeon to whom they were referred. These categories provide a timeframe for how soon the doctor recommends the patient be admitted for their procedure:

Category 1 (A)	Admission within 30 days desirable
Category 2 (B)	Admission within 90 days desirable
Category 3 (C)	Admission within 365 days desirable

Waiting List Collection On-line System (WLCOS) – this contains a census of patients waiting for elective surgery and a record of all patients from the waiting list who received elective surgery or were removed from the waiting list.

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