



Addendum

Technical Supplement: Elective surgery measures

Hospital Quarterly: January to March 2011

Introduction

This document is an addendum to the Bureau's *Technical Supplement: Measures of elective surgery, July to September 2010*. Data presented here refer to patients admitted for elective surgery during January to March 2011.

The document presents changes to the methods used to calculate the median waiting time and the percentage of patients seen on time.

These changes to performance indicators will enable fairer comparisons between hospitals and allow for differences in the way hospitals record patients in their elective surgery waiting lists. The changes do not indicate any alteration of hospital performance, or that hospitals have been recording data incorrectly. They were made to enable comparisons between hospitals based on standard patient cohorts.

To accurately interpret changes in hospital wait-time performance, it is important to compare across time within categories, not between new and historic methods. Therefore, results for the current quarter should be compared to results for the same quarter last year. These have been calculated using the same methods and are shown in the tables and Performance Profiles for individual hospitals.

This document continues the Bureau's ongoing data analysis for patients in clinical urgency category 3 (non-urgent) with very short waiting times – an issue first discussed in the addendum to *Technical Supplement: Measures of elective surgery, October to December 2010*.

Small number suppression

Some hospitals conduct few surgical procedures. When these procedures are reported by urgency category, there may only be small numbers of patients in one or more of them. Small numbers in any group need to be treated cautiously to protect patient identity.

The Bureau suppresses information based on very few patients. If there are fewer than 10 patients in any group, patient numbers or percentages are replaced by a symbol, which refers to footnotes about small number suppression. The Bureau may use its discretion to suppress the next smallest values, or results for an entire hospital with few patients, if there is a risk of disclosing patient identities.

In this issue of *Hospital Quarterly*, the group referred to as staged is not suppressed if it contains fewer than 10 patients. There is no reasonable risk to privacy in reporting these small numbers because they are derived from information on how these patients were booked for surgery and this material is not publicly available.

Hospitals with a high percentage of non-urgent patients waiting one day or less to be treated

Reasons for analysis

In *Hospital Quarterly, July to September 2010* and *Hospital Quarterly, October to December 2010*, the Bureau reported wide variation between hospitals in the percentage of non-urgent patients recorded as having Not Ready For Care (NRFC) days equal to the total length of time they had been on the waiting list.

The Bureau commented that the median waiting time for patients undergoing elective surgery was considerably lower at hospitals with a high percentage of non-urgent patients who had a waiting time of one day or less. The Bureau advised that caution should be used when interpreting the performance indicators for non-urgent patients at these hospitals

To address this issue, the Bureau initiated analysis of non-urgent patient waiting times, particularly where these waiting times were very short. Although the Bureau will continue to conduct analysis to ensure comparisons between hospitals are fair, it is already apparent that there are differences between hospitals in the calculation of waiting time for staged patients who are considered NRFC, for part of their time on the waiting list. These differences may arise from patient administration software and in the way NSW Department of Health policies on the elective surgery (ES) waiting list are interpreted. It appears these differences arise from decisions within individual hospitals that comply with guidelines but differ between hospitals.

To enable fair and equitable comparison of performance benchmarks between hospitals based on equivalent groups of patients, the Bureau has begun to develop statistical methods to minimise the impact of such differences. This is particularly pertinent to median waiting time and percentage of patients seen on time, for which a set of decision rules has been derived to enable equitable comparisons of waiting time benchmarks between hospitals.

In this report, the Bureau has used three decision rules to determine whether patients should be included in median waiting time and percentage seen on time calculations, with the following patients deemed to be staged:

- Patients who were staged at time of surgery
- Patients who were staged when booked, and had a single change in urgency category
- Patients who received cystoscopy and were in the non-urgent category.

The Bureau emphasises that any apparent changes to the median waiting time for some hospitals compared with results published previously may be due to a change in calculation method rather than a change in performance. To determine whether a hospital's performance has changed, results for the current quarter should be compared with results for the same quarter last year, which have been calculated using the same methods. These are shown in the tables and Performance Profiles in *Hospital Quarterly, January to March 2011*.

Analysis of data

Patient records are provided with a List Date when added to the Waiting List Collection Online System (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 NRFC.

NRFC is termed staged if patients are not ready due to clinical reasons (for example the patient is too ill or the doctor sets a minimum period between operations)¹. NRFC is termed 'deferred' if patients are not ready due to personal reasons (for example the patient is away on holiday). Any days that the patient is recorded as being NRFC are subtracted from the total waiting time of each patient.

NSW Department of Health guidelines for recording staged patients in WLCOS have been interpreted differently across hospitals, particularly when the patient should begin accruing ready-for-care days. WLCOS data available to the Bureau do not include the date on which patients became due for their staged procedure.

The Bureau found that there are patterns present when describing cumulative waiting time. The patterns occur in the following cases:

- Hospitals where the cumulative line for non-urgent patients starts noticeably above 0% on day one
- Hospitals where the cumulative line for non-urgent patients starts slightly above 0% on day one and / or climbs very steeply for one or two more days
- Hospitals where the cumulative line for non-urgent patients starts at, or close to, 0% on day one then climbs slowly.

The target for patients in the non-urgent category to receive their surgery is within 365 days. It is to be expected that while some non-urgent patients will have short waiting times, most of them will wait longer than patients in the urgent and semi-urgent surgery categories. Therefore, the third pattern above would be more expected than the first two.

Descriptions and graphic examples of cumulative waiting time patterns are shown in [Appendix 1](#) of this addendum.

The Bureau also found two broad groupings of patients who some hospitals counted in the non-urgent category but who had short waiting times.

¹ NSW Department of Health. *Waiting Time and Elective Patient Management Policy*. Sydney (NSW): 2009.

Firstly, among patients whose waiting time included a period when they were staged, there were:

- Patients who were staged at removal date
- 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.

Secondly, the Bureau also found that some hospitals had a relatively high proportion of patients receiving cystoscopy as an elective procedure. At some hospitals, these patients were recorded as staged. At others (often where there was a high proportion of cystoscopy patients) most of these patients had a final urgency category of non-urgent but had shorter waiting times compared with other non-urgent patients. While cystoscopy is not the only procedure with these characteristics, cystoscopy contributed the most procedures to our staged group and had the most profound effect on our analysis.

The Bureau has been advised there are several options for how hospitals record patients waiting for a cystoscopy that is not required until sometime in the future. Some hospitals elect to monitor patients using WLCOS while others use in-house lists for non-admitted patients. Either system is reasonable, but overall, cystoscopy patients are typically staged when first added to the waiting list and have a low number of days recorded as ready for care. In some locations there are also non-centralised lists kept at a department or specialty level.

The Bureau found the following correlations between cumulative waiting time patterns and the numbers recorded for staged patients and non-urgent cystoscopy:

- Hospitals where the cumulative line for non-urgent patients started noticeably above 0% on day one had a high proportion of patients who were recorded as staged at Removal Date
- Hospitals where the cumulative line for non-urgent patients started slightly above 0% on day one and / or climbed very steeply for one or two more days had a high proportion of patients recorded as staged on the day of listing on the wait list but were transferred to another urgency category a day or two before receiving surgery
- Some hospitals where the cumulative line for non-urgent patients climbed steeply for one or two days also had a significant number of non-urgent cystoscopy patients; these patients had short waiting times. This number was high enough to affect cumulative waiting time. Other hospitals who had non-urgent cystoscopy patients recorded them as staged while some hospitals recorded these as outpatient procedures.

In response to these findings, the Bureau developed a set of decision rules to enable fairer and more equitable comparison between hospitals, based on using an equivalent group of patients for each hospital.

Decision rules

Generation of an inferred 'staged' group

The Bureau has modified calculation of the median waiting time and percentage seen on time performance measures to aid fair and equitable comparisons between hospitals. Data used to assess the performance of each hospital over time, and to make comparisons with other hospitals, should be based on cohorts of patients and calculations of waiting time which are as consistent as possible. The Bureau has decided that, for this report:

- Patient cohorts where the recording method and the calculation of waiting time varies significantly between hospitals are not included in performance measurements based on waiting time i.e. median waiting time and percentage seen on time
- The entire cohort of patients who received elective surgery is included in the published number of elective surgery procedures carried out by each hospital.

The Elective Surgery module of *Hospital Quarterly*, the individual hospital Performance Profiles and this addendum contain data that show median waiting time and percentage seen on time calculated using both the new method and the historical method. This has been done to enable comparison with previous reports. The new method of calculating on-time performance or median waiting time makes very little difference to the figures for urgent or semi-urgent patients. Likewise, on-time performance for non-urgent patients is largely

unaffected. The biggest impact of using the new method is on published median waiting times for non-urgent patients.

The Bureau emphasises that any apparent changes to the median waiting time for some hospitals compared with results published previously may be due to a change in calculation method, rather than a change in performance. To determine whether a hospital's performance has changed, results for the current quarter should be compared to results for the same quarter last year, which have been calculated using the same methods. These are shown in the tables and Performance Profiles.

Patients deemed to be staged and excluded from all hospital- and state-level calculations of wait-time performance:

Decision rule 1: Patients who were staged at the time of surgery

Decision rule 2: Patients who were staged at the time of listing and had a single urgency change to their final urgency category

Decision rule 3: Patients receiving non-urgent cystoscopy

Some records will meet more than one decision rule. In particular, many cystoscopy records will also meet the decision rules 1 and 2 for exclusion as staged.

The number of patients in NSW in each category, based on the historic and new methods, is shown in [Table 1](#). Numbers of patients in each category and the change between methods are shown in [Table 2](#). In the January to March 2011 quarter, 8% of patients in NSW were deemed to be staged; the percentage for individual hospitals varied from 0-28%.

The new method of calculation increased the NSW reported non-urgent category median for this quarter by 34 days. Because the composition of patients at each hospital differs, this effect is much greater at some hospitals than others. For example, the change in reported median waiting time for non-urgent patients varied from a decrease of 35 days to an increase of 189 days.

The new method of calculation had little effect on reported median waiting times for urgent and semi-urgent patients. For NSW, the reported median waiting time for urgent patients increased by one day and was unchanged for semi-urgent patients. For urgent and semi-urgent patients, the change for individual hospitals ranged from a decrease of one day to an increase of four days.

[Table 3](#) shows the effect of the new method on non-urgent on-time performance and median wait times for major hospitals in NSW. The new method of calculation had little effect on percentage seen on time for all urgency categories but a substantial effect on median waiting times for non-urgent patients at some hospitals.

[Appendix 1](#) of this addendum provides examples of the impact of the decision rules on cumulative waiting time patterns.

Table 1: Total counts in urgency categories for NSW, using new and historic methods, January to March 2011

Historic urgency category	New urgency category				Total
	Urgent	Semi-urgent	Non-urgent	Staged and non-urgent Cystoscopy	
Urgent	11,431			254	11,685
Semi-urgent		13,916		358	14,274
Non-urgent			17,603	2,936	20,539
Total	11,431	13,916	17,603	3,548	46,498

Source: Waiting List Collection On-line System, NSW Health. Data extracted 18 April 2011.

Conclusion

In this report, the Bureau has modified calculation methods for median waiting time and percentage seen on time performance measures to improve the fairness and equitable basis for comparison between hospitals.

This accords with our aim of providing timely, accurate and comparable information on NSW public hospital performance.

Those patients deemed to be staged and those receiving non-urgent cystoscopy are not included in the Bureau's calculations for median waiting time and percentage of patients seen on time (the new method), however, the historic method of measuring wait times for these patients (including staged and non-urgent cystoscopy groups) is also presented.

The Bureau emphasises that any apparent change to median waiting time for some hospitals compared with results published previously may be due to a change in calculation method rather than a change in performance. To determine whether a hospital's performance has changed, results for the current quarter should be compared with results for the same quarter last year, which have been calculated using the same methods. These are shown in the tables and Performance Profiles.

Staged surgery

(Excerpt from the *Hospital Quarterly: Elective Surgery* module)

There are times when surgery is deemed necessary but should not, or cannot, take place until a clinically appropriate time interval has passed. This is called staged surgery and is an essential concept in managing elective surgery. It allows surgeons to place patients on the surgery booking system but prevents them from being admitted to hospital too soon.

Examples of staged procedures include:

Removal of pins / plates

Fractured bones can require metal pins and / or plates to hold them in place while they heal. Until the bone is healed, the pins / plates are not removed and the patient is coded Not Ready For Care.

In-vitro fertilisation (IVF)

Hormone therapy can be required before egg harvesting. A woman would be listed as Not Ready For Care while she underwent the hormone therapy in preparation for the procedure.

Cystoscopy

A small camera is used to investigate the urinary tract and bladder. Cystoscopy can be required for several reasons and be classified as either staged or not staged, depending on the reason for the test. It is often used following radiotherapy for bladder cancer to assess at intervals how the cancer responded to treatment. When used in this context it is one of the most common staged procedures.

A Bureau analysis begun in November 2010 shows hospitals record staged cystoscopy procedures on the elective surgery waiting list very differently.

A staged surgery patient is not waiting for care (unless they wait beyond the date scheduled for their procedure). Therefore, grouping staged procedures (that have a low recorded wait time) into any of the elective surgery urgency categories reduces the median wait time measurement without affecting how long patients actually wait for care.

The variation in how staged patients are recorded makes it difficult to accurately compare hospitals. In addition, hospital staff who manage the surgery booking system have different interpretations of NSW guidelines about when to record staged surgery patients as being ready for care. This means that staged patients receiving care at different hospitals will have different recorded wait times.

Comparisons between hospitals with high and low rates of staged procedures or different ways of recording cystoscopy may result in unfair or inequitable comparisons.

As a result of our analysis, the Bureau has applied the following rules to create a more level playing field for hospitals:

- All procedures the Bureau deems staged have been removed from urgent, semi-urgent and non-urgent surgery categories
- Median wait time and on-time performance figures for non-urgent surgery are presented using a new method *excluding* cystoscopy and staged procedures and the historic method, which *includes* them
- Median wait time and on-time performance figures for urgent and semi-urgent surgery categories are presented with the new method because results are not different than with the historic method
- Data from all previous quarters have been recalculated using the new method so accurate comparisons can be made over time.

The Bureau is committed to providing the public with a clear understanding of surgical waiting times in NSW. Results for each of the new and historic methods can be found for more than 80 hospitals in [Table 3](#) of this addendum

Table 2: Total counts in urgency categories by hospital, using new and historic methods, January to March 2011

	Urgent			Semi-urgent			Non-urgent			Deemed to be staged
	New method ¹	Historic method ²	Difference	New method ¹	Historic method ²	Difference	New method ³	Historic method ⁴	Difference	New method
New South Wales										
Total New South Wales	11,431	11,685	-254	13,916	14,274	-358	17,603	20,539	-2,936	3,548
Central Coast Local Health Network (CCLHN)										
Gosford Hospital	273	277	-4	434	439	-5	520	669	-149	158
Wyong Hospital	84	84	0	330	333	-3	377	419	-42	45
Far West Local Health Network (FWLHN)										
Broken Hill Base Hospital	39	39	0	87	88	-1	103	115	-12	13
Hunter New England Local Health Network (HNELHN)										
Armidale and New England Hospital	40	40	0	71	71	0	108	108	0	0
Belmont Hospital	97	117	-20	172	173	-1	232	245	-13	34
Calvary Mater Newcastle	147	149	-2	85	88	-3	45	46	-1	6
Cessnock District Hospital	42	42	0	163	163	0	52	59	-7	7
Gunnedah District Hospital	18	18	0	22	22	0	30	31	-1	1
Inverell District Hospital	*	*	*	15	16	-1	16	16	0	*
John Hunter Hospital	681	723	-42	664	699	-35	661	717	-56	133
Kurri Kurri District Hospital	27	27	0	21	21	0	298	299	-1	1
Maitland Hospital	101	101	0	210	212	-2	219	228	-9	11
Manning Base Hospital	88	89	-1	93	95	-2	342	371	-29	32
Moree District Hospital	20	20	0	24	24	0	50	51	-1	1
Muswellbrook District Hospital	13	13	0	89	89	0	24	25	-1	1
Narrabri District Hospital	16	16	0	26	26	0	*	*	*	0
Singleton District Hospital	14	14	0	30	30	0	84	87	-3	3
Tamworth Base Hospital	183	183	0	217	226	-9	221	288	-67	76
Illawarra Shoalhaven Local Health Network (ISLHN)										
Bulli District Hospital	27	27	0	18	18	0	61	61	0	0
Milton and Ulladulla Hospital	*	*	*	*	*	*	*	*	*	*
Shellharbour Hospital	64	64	0	175	175	0	470	470	0	0
Shoalhaven and District Memorial Hospital	123	125	-2	169	170	-1	368	411	-43	46
Wollongong Hospital	354	380	-26	267	287	-20	270	477	-207	253
Mid North Coast Local Health Network (MNCLHN)										
Coffs Harbour Base Hospital	15	15	0	32	32	0	17	17	0	0
Kempsey Hospital	*	*	*	43	46	-3	99	111	-12	*
Macksville District Hospital	*	*	*	*	*	*	*	*	*	*
Port Macquarie Base Hospital	236	236	0	342	342	0	429	461	-32	32

Urgent			Semi-urgent			Non-urgent			Deemed to be staged
New method ¹	Historic method ²	Difference	New method ¹	Historic method ²	Difference	New method ³	Historic method ⁴	Difference	New method

Murrumbidgee Local Health Network (MLHN)

Deniliquin Health Service	15	15	0	32	32	0	17	17	0	0
Griffith Base Hospital	56	57	-1	43	46	-3	99	111	-12	16
Tumut Health Service	*	*	*	*	*	0	27	27	0	0
Wagga Wagga Base Hospital	236	236	0	342	342	0	429	461	-32	32
Young Health Service	10	11	-1	24	25	-1	19	38	-19	21

Nepean Blue Mountains Local Health Network (NBMLHN)

Blue Mountains District Anzac Memorial Hospital	18	18	0	15	15	0	42	43	-1	1
Hawkesbury Private	66	66	0	77	77	0	115	125	-10	10
Lithgow Health Service	11	11	0	45	45	0	108	113	-5	5
Nepean Hospital	329	329	0	420	428	-8	378	402	-24	32

Northern NSW Local Health Network (NNSWLHN)

Ballina District Hospital	30	31	-1	58	58	0	38	45	-7	8
Casino and District Memorial Hospital	19	19	0	51	52	-1	112	120	-8	9
Grafton Base Hospital	119	121	-2	100	105	-5	106	110	-4	11
Lismore Base Hospital	322	331	-9	282	298	-16	278	339	-61	86
Maclean District Hospital	*	*	*	*	*	*	*	*	*	*
Murwillumbah District Hospital	68	69	-1	88	90	-2	248	287	-39	42
The Tweed Hospital	206	215	-9	181	205	-24	183	269	-86	119

Northern Sydney Local Health Network (NSLHN)

Hornsby and Ku-Ring-Gai Hospital	97	97	0	119	120	-1	256	302	-46	47
Manly District Hospital	83	86	-3	106	112	-6	68	84	-16	25
Mona Vale and District Hospital	54	55	-1	84	84	0	189	209	-20	21
Royal North Shore Hospital	565	566	-1	355	360	-5	420	464	-44	50
Ryde Hospital	38	38	0	111	111	0	154	162	-8	8

South Eastern Sydney Local Health Network (SESLHN)

Prince of Wales Hospital	289	290	-1	497	503	-6	327	341	-14	21
Royal Hospital for Women	190	190	0	174	174	0	103	104	-1	1
St George Hospital	455	477	-22	325	332	-7	214	237	-23	52
Sutherland Hospital	171	190	-19	254	255	-1	275	283	-8	28
Sydney / Sydney Eye Hospital	187	187	0	266	267	-1	609	609	0	1

Southern NSW Local Health Network (SNSWLHN)

Bateman's Bay District Hospital	13	13	0	24	25	-1	103	135	-32	33
Bega District Hospital	87	87	0	48	48	0	162	171	-9	9
Cooma Health Service	18	18	0	14	14	0	26	27	-1	1
Goulburn Base Hospital	100	100	0	106	106	0	157	159	-2	2
Moruya District Hospital	56	57	-1	51	51	0	61	64	-3	4
Pambula District Hospital	*	*	*	*	*	*	*	*	*	*
Queanbeyan Health Service	17	17	0	71	71	0	79	79	0	0

Urgent			Semi-urgent			Non-urgent			Deemed to be staged
New method ¹	Historic method ²	Difference	New method ¹	Historic method ²	Difference	New method ³	Historic method ⁴	Difference	New method

South Western Sydney Local Health Network (SWSLHN)

Bankstown / Lidcombe Hospital	183	184	-1	351	363	-12	490	656	-166	179
Bowral and District Hospital	58	59	-1	102	102	0	157	161	-4	5
Campbelltown Hospital	94	98	-4	290	311	-21	364	531	-167	192
Fairfield Hospital	70	70	0	94	96	-2	383	404	-21	23
Liverpool Hospital	556	563	-7	414	419	-5	491	620	-129	141

St Vincent's Health Network (SVHN)

St Vincent's Hospital, Darlinghurst	352	366	-14	173	183	-10	242	291	-49	73
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Sydney Children's Hospitals Network (SCHN)

Sydney Children's Hospital	179	179	0	230	234	-4	282	299	-17	21
The Children's Hospital at Westmead	314	329	-15	373	409	-36	499	646	-147	198

Sydney Local Health Network (SYDLHN)

Canterbury Hospital	67	68	-1	223	227	-4	232	276	-44	49
Concord Hospital	358	364	-6	461	475	-14	643	987	-344	364
RPAH Institute of Rheumatology & Orthopaedics	31	31	0	49	49	0	263	263	0	0
Royal Prince Alfred Hospital	988	996	-8	826	835	-9	467	667	-200	217

Western NSW Local Health Network (WNSWLHN)

Bathurst Base Hospital	97	100	-3	131	132	-1	132	168	-36	40
Cowra District Hospital	18	18	0	44	44	0	52	52	0	0
Dubbo Base Hospital	90	91	-1	197	202	-5	340	402	-62	68
Forbes District Hospital	15	15	0	20	20	0	51	51	0	0
Mudgee District Hospital	12	12	0	28	29	-1	45	55	-10	11
Orange Base Hospital	76	77	-1	186	204	-18	296	327	-31	50
Parkes District Hospital	12	12	0	23	23	0	29	29	0	0

Western Sydney Local Health Network (WSLHN)

Auburn Hospital	137	137	0	227	228	-1	290	295	-5	6
Blacktown Hospital	149	149	0	294	298	-4	214	229	-15	19
Mount Druitt Hospital	58	58	0	191	192	-1	197	202	-5	6
Westmead Hospital (all units)	664	667	-3	550	554	-4	342	424	-82	89

1. Excluding staged procedures.
2. Including staged procedures.
3. Excluding staged procedures and non-urgent cystoscopy.
4. Including staged procedures and non-urgent cystoscopy.

Note: Patients recorded as 'deferred' when they received their surgery are allocated to 'ready for care' urgency categories as appropriate.

Source: Waiting List Collection On-line System, NSW Health. Data extracted on 18 April 2011.

Table 3: Effect of new and historic methods of calculation on on-time performance and median waiting time, by hospital and local health network, January to March 2011

	Percentage of patients treated on time		Median waiting time (days)	
	Non-urgent ¹ (new method)	Non-urgent ² (historic method)	Non-urgent ¹ ² (new method)	Non-urgent ² (historic method)
New South Wales				
Total New South Wales	92	92	217	183
Central Coast Local Health Network (CCLHN)				
Gosford Hospital	91	93	325	287
Wyong Hospital	97	97	253	238
Total CCLHN	94	94	300	255
Far West Local Health Network (FWLHN)				
Broken Hill Base Hospital	100	100	229	224
Total FWLHN	100	100	229	224
Hunter New England Local Health Network (HNELHN)				
Armidale and New England Hospital	86	86	318	318
Belmont Hospital	100	100	205	204
Calvary Mater Newcastle	98	98	195	193
Cessnock District Hospital	100	100	90	81
Gunnedah District Hospital	100	100	96	95
Inverell District Hospital	75	75	357	357
John Hunter Hospital	89	87	239	244
Kurri Kurri District Hospital	96	96	216	216
Maitland Hospital	95	95	215	205
Manning Base Hospital	95	95	281	256
Moree District Hospital	100	100	54	51
Muswellbrook District Hospital	100	100	7	7
Narrabri District Hospital	*	*	*	*
Singleton District Hospital	100	100	44	44
Tamworth Base Hospital	86	90	251	150
Other HNELHN	100	100	140	140
Total HNELHN	93	93	206	197
Illawarra Shoalhaven Local Health Network (ISLHN)				
Bulli District Hospital	98	98	198	198
Milton and Ulladulla Hospital	*	*	*	*
Shellharbour Hospital	98	98	217	217
Shoalhaven and District Memorial Hospital	84	85	313	307
Wollongong Hospital	89	94	313	124
Total ISLHN	92	93	257	222

	Percentage of patients treated on time		Median waiting time (days)	
	Non-urgent ¹ (new method)	Non-urgent ² (historic method)	Non-urgent ¹ ² (new method)	Non-urgent ² (historic method)
Mid North Coast Local Health Network (MNCLHN)				
Coffs Harbour Base Hospital	64	67	356	352
Kempsey Hospital	100	100	185	185
Macksville District Hospital	95	95	317	317
Port Macquarie Base Hospital	94	96	282	247
Other MNCLHN	100	99	194	151
Total MNCLHN	81	82	307	291
Murrumbidgee Local Health Network (MLHN)				
Deniliquin Health Service	100	100	208	208
Griffith Base Hospital	96	96	328	322
Tumut Health Service	89	89	76	76
Wagga Wagga Base Hospital	80	81	328	324
Young Health Service	100	100	110	42
Other MLHN	100	100	91	91
Total MLHN	85	86	319	309
Nepean Blue Mountains Local Health Network (NBMLHN)				
Blue Mountains District Anzac Memorial Hospital	95	95	45	45
Hawkesbury Private	67	70	349	344
Lithgow Health Service	99	99	274	251
Nepean Hospital	72	70	329	330
Other NBMLHN	92	92	221	210
Total NBMLHN	79	79	300	293
Northern NSW Local Health Network (NNSWLHN)				
Ballina District Hospital	100	100	97	92
Casino and District Memorial Hospital	100	100	81	74
Grafton Base Hospital	84	85	267	265
Lismore Base Hospital	87	87	302	298
Macleay District Hospital	†	†	†	†
Murwillumbah District Hospital	96	97	335	330
The Tweed Hospital	93	94	217	176
Total NNSWLHN	92	93	259	214
Northern Sydney Local Health Network (NSLHN)				
Hornsby and Ku-Ring-Gai Hospital	98	98	114	90
Manly District Hospital	100	100	77	64
Mona Vale and District Hospital	100	100	40	34
Royal North Shore Hospital	96	97	130	120
Ryde Hospital	95	96	125	121
Total NSLHN	97	98	113	104

Percentage of patients treated on time

Median waiting time (days)

Non-urgent ¹ (new method)	Non-urgent ² (historic method)	Non-urgent ¹ ² (new method)	Non-urgent ² (historic method)
---	--	--	--

South Eastern Sydney Local Health Network (SESLHN)				
Prince of Wales Hospital	86	87	239	234
Royal Hospital for Women	100	100	75	78
St George Hospital	77	78	303	245
Sutherland Hospital	89	89	317	316
Sydney Hospital / Sydney Eye Hospital	95	95	218	218
Total SESLHN	90	90	225	223

South Western Sydney Local Health Network (SWSLHN)				
Bankstown / Lidcombe Hospital	92	93	170	152
Bowral and District Hospital	100	100	207	198
Campbelltown Hospital	90	92	280	179
Fairfield Hospital	97	97	284	278
Liverpool Hospital	89	91	251	186
Total SWSLHN	93	93	248	197

Southern NSW Local Health Network (SNSWLHN)				
Bateman's Bay District Hospital	98	99	327	337
Bega District Hospital	83	84	349	347
Cooma Health Service	100	100	113	113
Goulburn Base Hospital	88	88	302	302
Moruya District Hospital	100	100	213	211
Pambula District Hospital	*	*	*	*
Queanbeyan Health Service	100	100	202	202
Total SNSWLHN	92	93	281	292

St Vincent's Health Network (SVHN)				
St Vincent's Hospital, Darlinghurst	90	91	144	125
Total SVHN	90	91	144	125

Sydney Children's Hospitals Network (SCHN)				
Sydney Children's Hospital	97	97	110	105
The Children's Hospital at Westmead	97	97	109	69
Total SCHN	97	97	109	89

Sydney Local Health Network (SYDLHN)				
Canterbury Hospital	84	87	318	253
Concord Hospital	98	98	141	96
RPAH Institute of Rheumatology & Orthopaedics	100	100	49	49
Royal Prince Alfred Hospital	99	100	41	18
Total SYDLHN	97	98	97	63

Percentage of patients treated on time		Median waiting time (days)	
Non-urgent ¹ (new method)	Non-urgent ² (historic method)	Non-urgent ¹ ² (new method)	Non-urgent ² (historic method)

Western NSW Local Health Network (WNSWLHN)				
Bathurst Base Hospital	96	97	269	256
Cowra District Hospital	100	100	106	106
Dubbo Base Hospital	99	100	255	197
Forbes District Hospital	98	98	306	306
Mudgee District Hospital	100	100	258	293
Orange Base Hospital	78	79	345	339
Parkes District Hospital	100	100	43	43
Other WNSWLHN	*	*	*	*
Total WNSWLHN	92	93	298	276

Western Sydney Local Health Network (WSLHN)				
Auburn Hospital	89	89	236	238
Blacktown Hospital	94	94	142	142
Mount Druitt Hospital	87	88	241	239
Westmead Hospital (all units)	87	89	124	110
Total WSLHN	89	90	164	155

(*) Values suppressed due to small numbers and to protect privacy. Suppressed data have been excluded from local health network totals.

1. Excluding staged procedures and non-urgent cystoscopy.
2. Including staged procedures and non-urgent cystoscopy.

(†) This hospital or group conducted no surgery for this urgency category in this quarter and therefore has no on-time performance value.

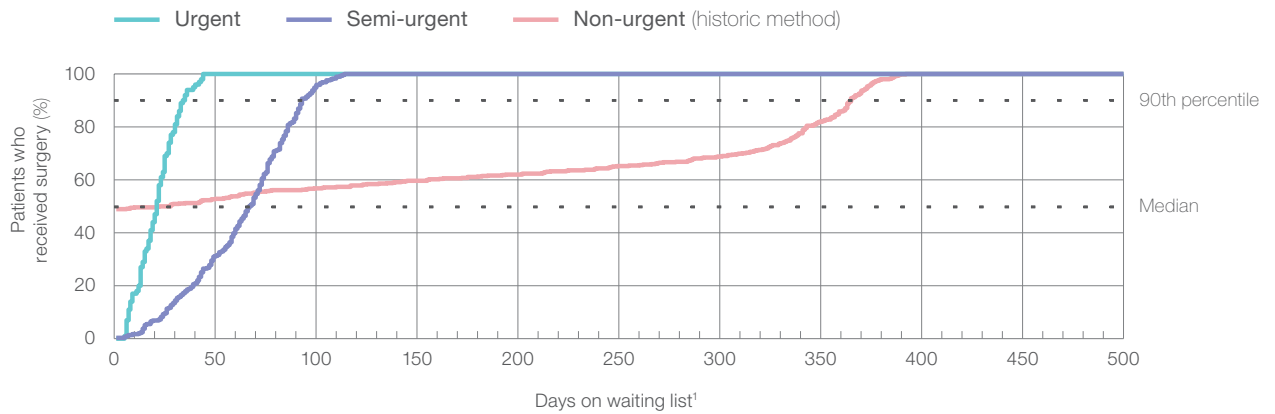
Note: All urgency categories include deferred patients as appropriate.

Note: Because staged patients are now reported separately, on-time performance and median waiting time by urgency category will differ from those reported in previous *Hospital Quarterly* reports and in the NSW Department of Health's *Quarterly Hospital Performance Report*.

Source: Waiting List Collection On-line System, NSW Health. Data extracted on 18 April 2011.

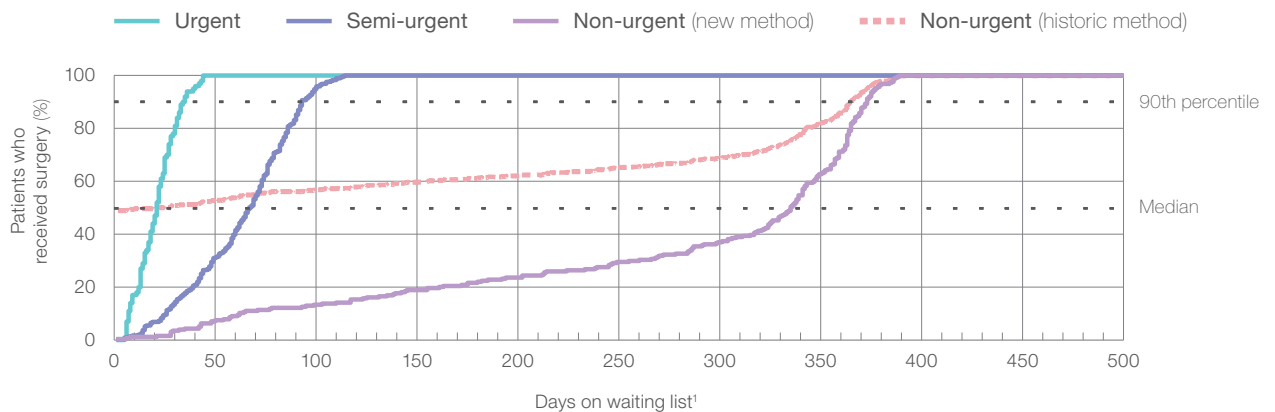
Appendix 1: Examples and decision rules for the 'staged' group of patients

Example 1: Staged at time of surgery



For these hospitals, the cumulative line for category C patients starts *noticeably* above 0% on day 1. These hospitals have a high proportion of patients who were in urgency category D when they received their surgery (see figure above).

Decision rule 1 - Patients recorded as staged at time of surgery are excluded from the new method of calculation as demonstrated in the figure below.

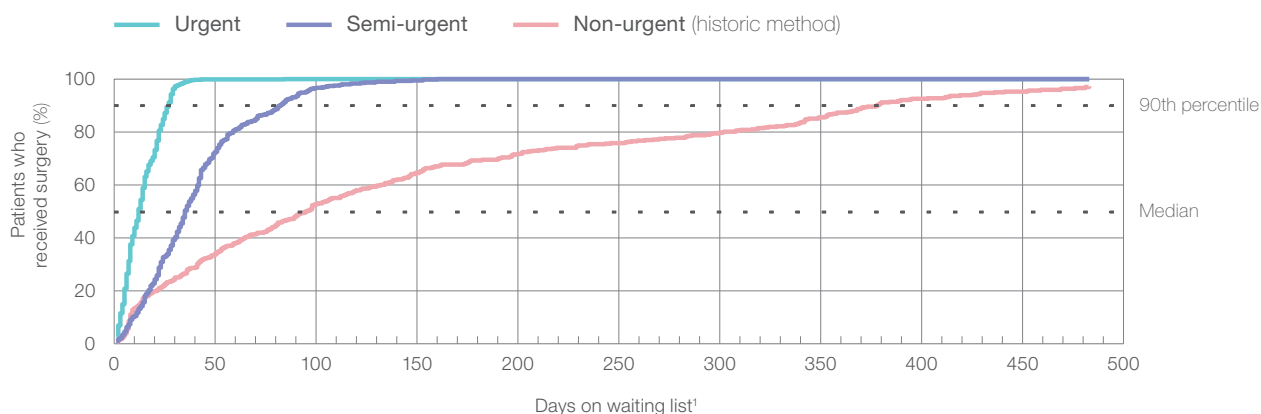


1. Excludes the total number of days the patient was coded as 'not ready for care'.

Note: Patients recorded as 'deferred' when they received their surgery are allocated to 'ready for care' urgency categories as appropriate.

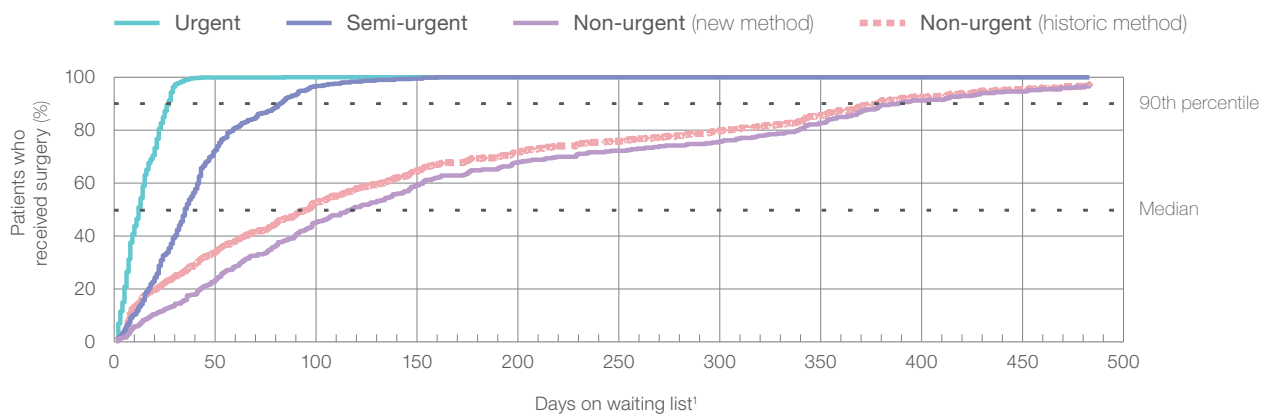
Source: Waiting List Collection On-line System, NSW Health. Data extracted on 18 April 2011.

Example 2: Staged when listed on elective surgery database



For these hospitals, the cumulative line for category C patients starts *slightly* above 0% on day 1 and / or climbs steeply for one or two days. These hospitals have a high proportion of patients who were initially listed as category D and were transferred to another urgency category a day or two before receiving their surgery (see figure above).

Decision rule 2 - Patients who were staged at time of listing and had a single urgency change while on list are excluded from the new method of calculation as demonstrated in the figure below.

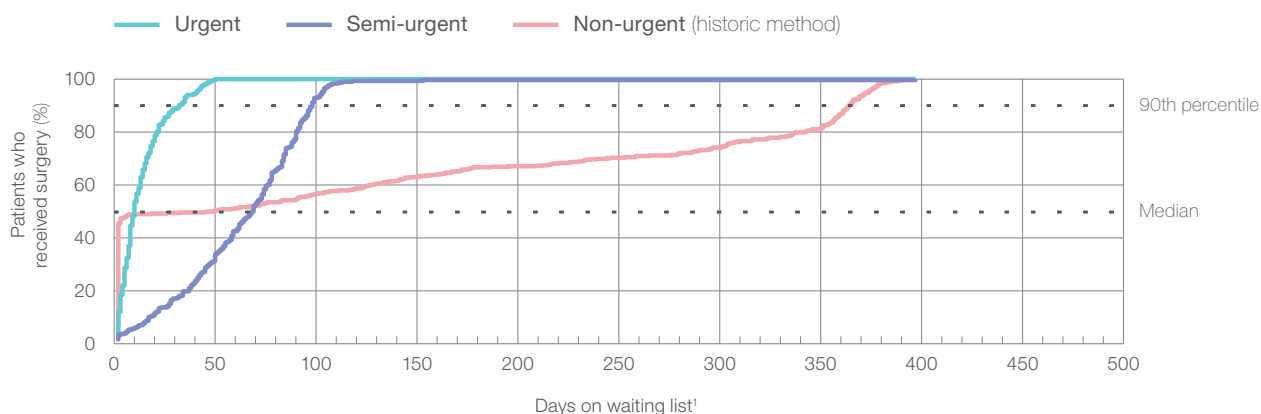


1. Excludes the total number of days the patient was coded as 'not ready for care'.

Note: Patients recorded as 'deferred' when they received their surgery are allocated to 'ready for care' urgency categories as appropriate.

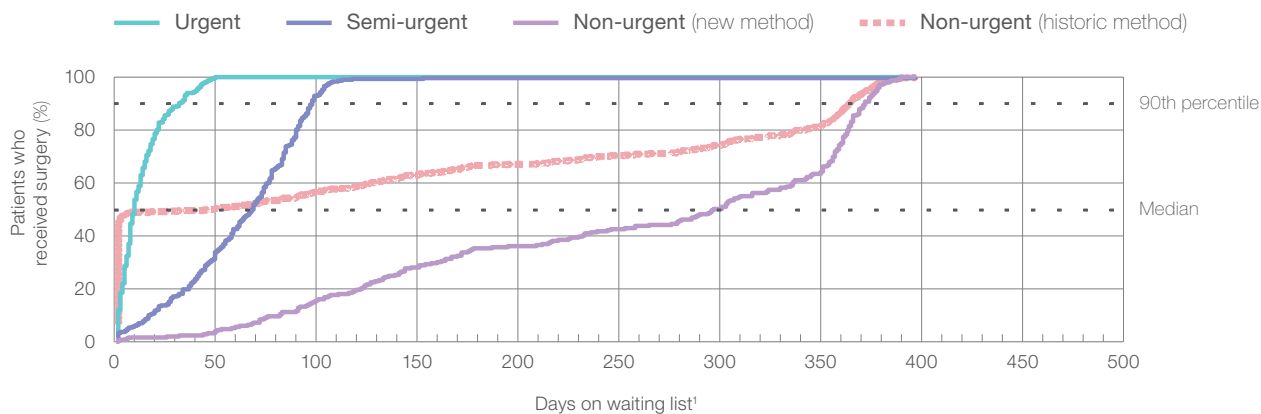
Source: Waiting List Collection On-line System, NSW Health. Data extracted on 18 April 2011.

Example 3: Staged when listed on elective surgery database



Some hospitals have a high proportion of patients who were initially listed as category A,B or C and were transferred to category D on the listing date. These patients are deemed to be staged at the time of listing, and decision rule 2 is applicable (see figure above).

Decision rule 2 (continued) - Patients who were staged at time of listing and had a single urgency change while on list are excluded from the new method of calculation as demonstrated in the figure below.

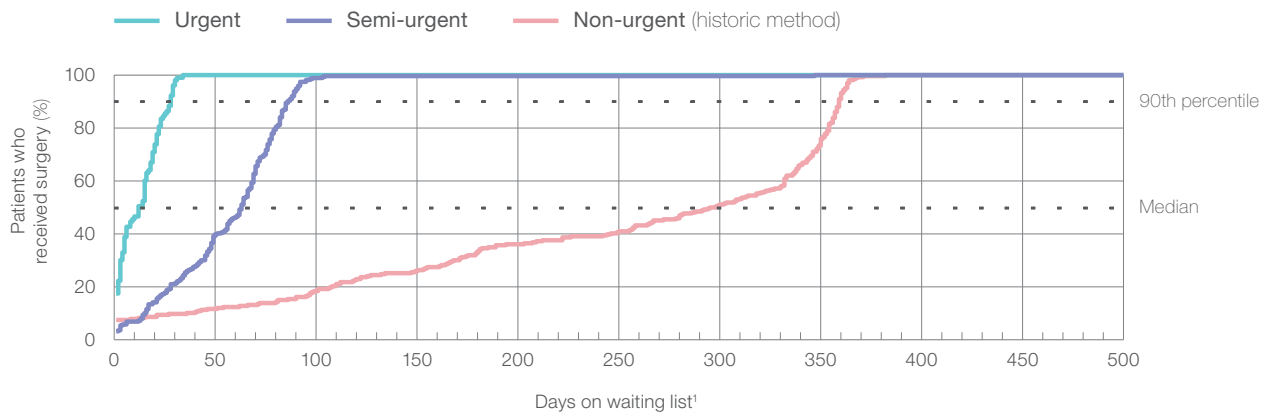


1. Excludes the total number of days the patient was coded as 'not ready for care'.

Note: Patients recorded as 'deferred' when they received their surgery are allocated to 'ready for care' urgency categories as appropriate.

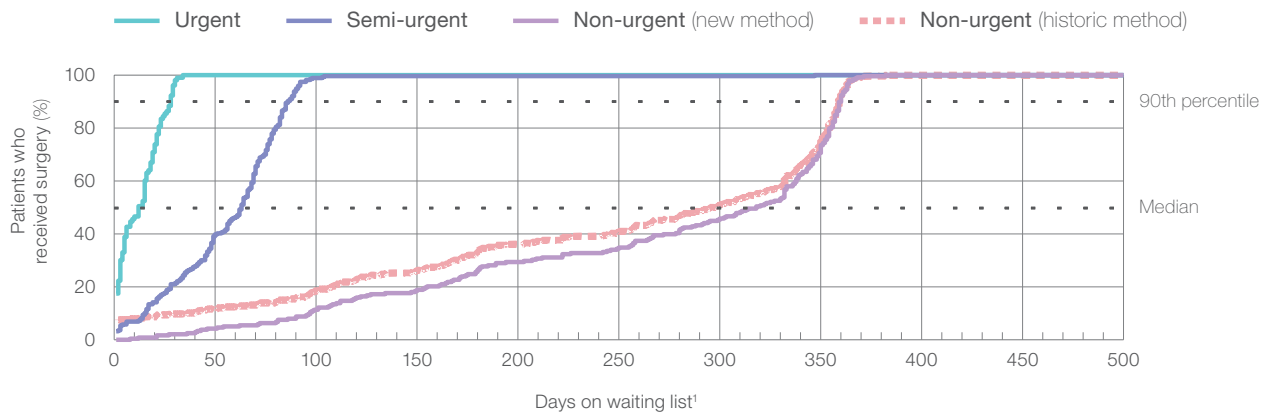
Source: Waiting List Collection On-line System, NSW Health. Data extracted on 18 April 2011.

Example 4: High proportion of non-urgent cystoscopy patients



Some hospitals have a *high proportion* of patients waiting for cystoscopy on their list, while others only have a small proportion. When hospitals have a high proportion of cystoscopy patients, many patients have a final urgency category of non-urgent but are recorded as having very short waiting times (less than 30 days) (see figure above).

Decision rule 3 - Non-urgent cystoscopy patients are excluded from the new method of calculation as demonstrated in the figure below.

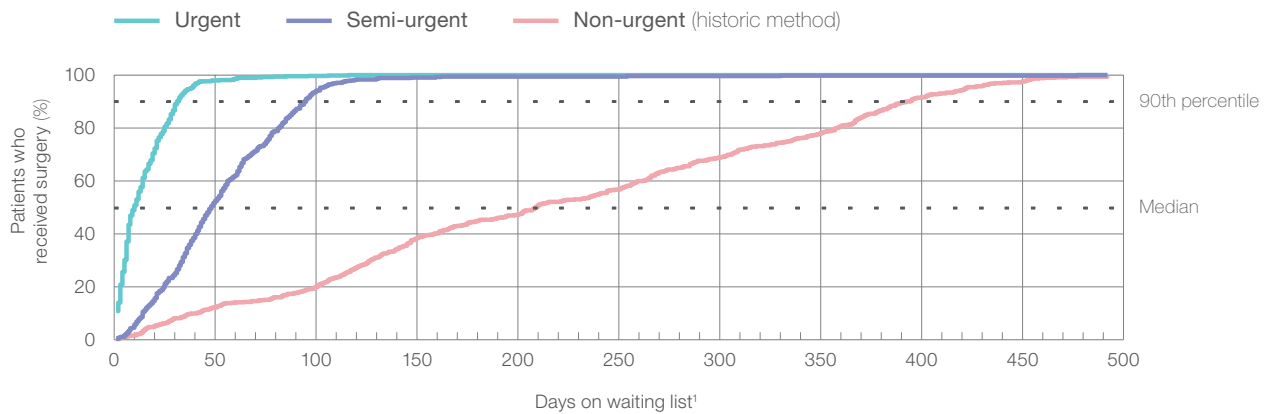


1. Excludes the total number of days the patient was coded as 'not ready for care'.

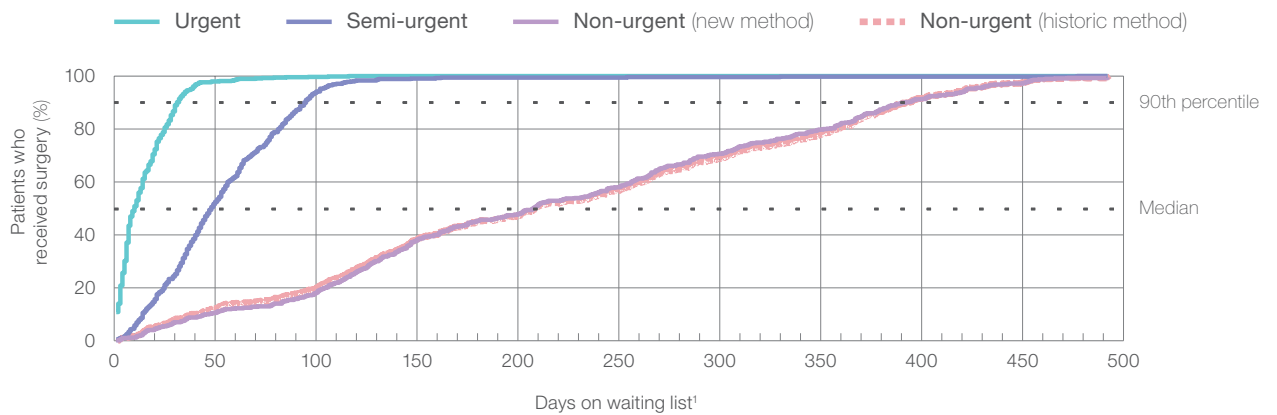
Note: Patients recorded as 'deferred' when they received their surgery are allocated to 'ready for care' urgency categories as appropriate.

Source: Waiting List Collection On-line System, NSW Health. Data extracted on 18 April 2011.

Example 5: Few staged or non-urgent cystoscopy patients



These hospitals have a *low proportion* of staged and non-urgent cystoscopy patients. Because of this, there is little effect from the three decision rules applied by the Bureau to increase comparability of elective surgery data. An example of this minimal effect is shown in the hospital cumulative waiting time graph below.



1.Excludes the total number of days the patient was coded as 'not ready for care'.

Note: Patients recorded as 'deferred' when they received their surgery are allocated to 'ready for care' urgency categories as appropriate.

Source: Waiting List Collection On-line System, NSW Health. Data extracted on 18 April 2011.

Appendix 2: Formulae for calculations

The decision rules for patients deemed to be staged

Decision Rule 1: Patients who were staged at the time of surgery

Final urgency category = D plus listing status = staged

OR

Final urgency category = D and no other urgency level recorded

OR

Final urgency category = D which was effective from listing date (urgency date = listing date or urgency date = 0).

Decision Rule 2: Patients who were staged at time of listing and had one urgency change

Previous urgency category 1 was D, effective from the date of listing (urgency date = list date or urgency date = 0) AND one change of urgency category to the final urgency category (A, B or C).

Decision Rule 3: Cystoscopy and non-urgent category

Patients with procedure = Cystoscopy (Procedure code 004) and urgency = C

Notes:

1. Urgency codes A, B, C and D correspond to urgent, semi-urgent, non-urgent and not ready for care respectively
2. Some records will meet more than one rule. In particular, many cystoscopy records will also meet the decision rules 1 and 2 for exclusion as staged
3. Listing status is only available on WLCOS for the final urgency category. It is inferred that patients who have an initial listing status of D were staged when listed, according to NSW Health policy.

Download the report

The report, *Hospital Quarterly: Performance of NSW public hospitals, January to March 2011* and related reports are available at www.bhi.nsw.gov.au

The suite of products includes:

- Three core modules on Admitted Patients, Elective Surgery and Emergency Department Care
- *Performance Profiles: Elective Surgery* (performance and activity reports for more than 80 hospitals and NSW as a whole)
- *Performance Profiles: Emergency Department* (performance and activity reports for EDs in more than 60 hospitals and NSW as a whole)
- *Data Quality Assessments*
- *Technical Supplements*



About the Bureau

The Bureau of Health Information provides the community, healthcare professionals and the NSW Parliament with timely, accurate and comparable information on 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 the people of NSW.

The Bureau is an independent, board-governed statutory health corporation. The conclusions in this report are those of the Bureau and no official endorsement by the NSW Minister for Health, the NSW Department of Health or any other NSW statutory health corporation is intended or should be inferred.

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



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.

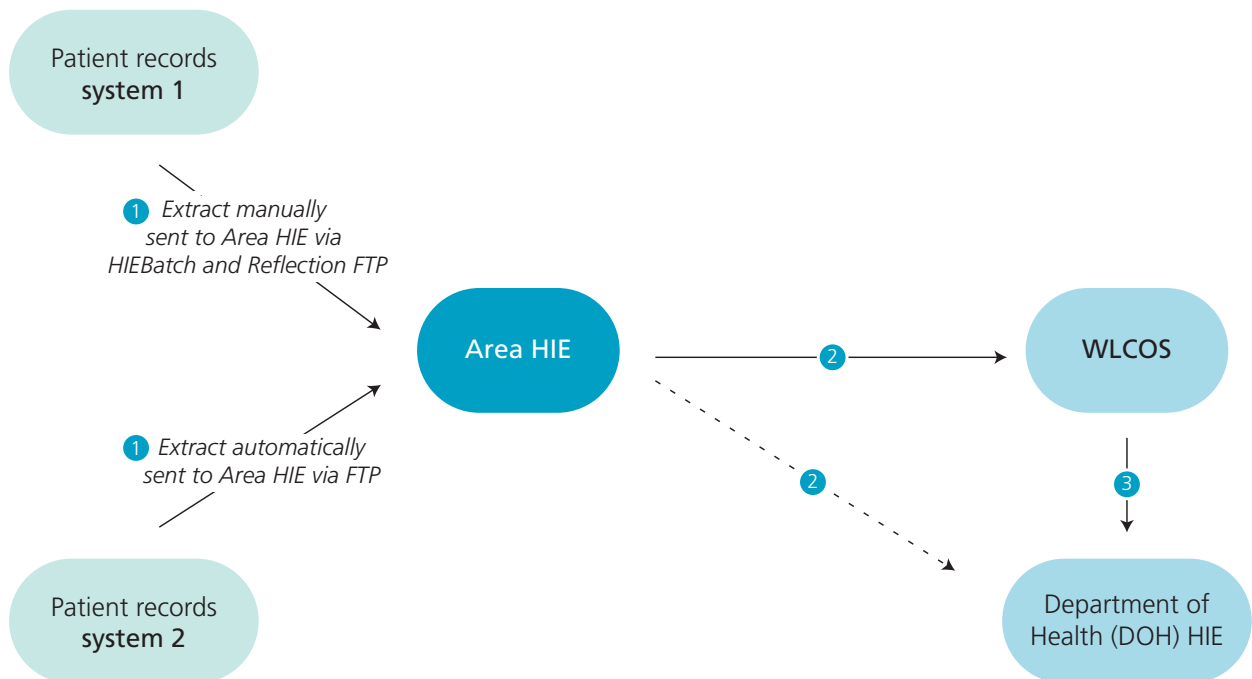
Data is automatically sent from the Area HIEs directly to WLCOS. Data is also periodically loaded into a temporary (non-useable) placeholder file in the HIE maintained by the Department of Health (DOH) from the Area HIEs.

* 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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