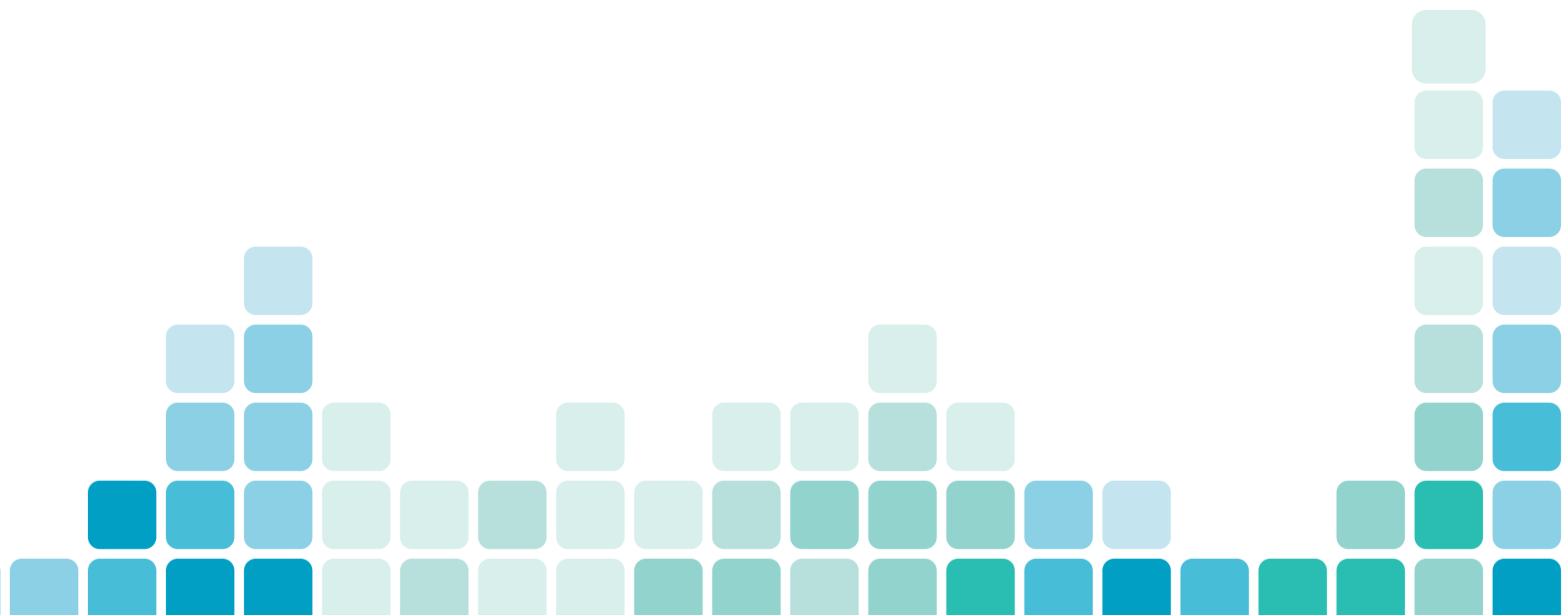


# Data Quality Assessment

elective surgery information systems for  
patients of NSW public hospitals

Hospital Quarterly: July to September 2010



# Summary

This *Data quality assessment* reviews the quality and completeness of data maintained in the Waiting List Collection On-line System (WLCOS) and used in the production of the Bureau of Health Information's *Hospital Quarterly* reports. It also identifies opportunities to use that data to better support those working in healthcare and the NSW Parliament, and enhance performance reporting for the public.

The Bureau focused on three issues related to the quality of electronic health information systems in NSW:

- 1) Relevance – whether the available data measures what matters to the public, healthcare professionals and the NSW Parliament;
- 2) Coverage – whether the data covers all patients who received elective surgery in NSW public hospitals; and
- 3) Comprehensiveness – how complete the available data fields are (given that missing data has the potential to introduce measurement error).

Accuracy of data from the hospital patient record systems has not been audited by the Bureau to determine the degree to which it reflects actual patient experiences nor has this data been assessed by the Bureau for data entry errors at source.

Based on our review of WLCOS, the Bureau is satisfied that the data WLCOS contains is sufficiently complete to be used for the *Hospital Quarterly* reports.

Over time, the Bureau will continue to undertake reviews of electronic systems used to manage elective surgery records in NSW public hospitals and to publish updated assessments of these information systems.

## Elective surgery information systems for patients of NSW public hospitals as of 15 October 2010

### Strengths

NSW Department of Health publishes a range of measures of elective surgery in NSW providing insight into waiting times and care processes.

WLCOS contains records for all patients receiving elective surgery in public hospitals in NSW as well as public patients in private hospitals; coverage is high.

Completeness of data in WLCOS is high with systems in place to check data quality.

### Opportunities

The Bureau of Health Information supports rigorous consensus and evidence-informed processes to identify meaningful performance indicators for elective surgery. These indicators should identify needs for information and inform the future design of information systems in NSW.

# Introduction

The reporting and use of performance information about elective surgery aligns with NSW initiatives to strengthen the public health system by measuring, monitoring and improving patient care experiences. In NSW, the most complete and reliable source of information about patients who have received elective surgery is WLCOS. For the purposes of this and previous *Hospital Quarterly* reports, the Bureau uses WLCOS.

The Bureau is unable to assess the quality of data being entered into patient record systems at a hospital level, and this document refers to the quality of data on WLCOS following checks and amends conducted by the NSW Department of Health.

The purpose of this document is to discuss the relevance of data available on people who had elective surgery in NSW and to assess the coverage of data in WLCOS (for example, whether all facilities and all people who received elective surgery are contained within this database). Furthermore, we assessed the completeness of data in WLCOS relevant to the *Hospital Quarterly* reports in order to gauge the degree to which incomplete data fields might contribute to error in our estimates of patient numbers, elective surgery performance in NSW facilities, and waiting times for patients.

## The Waiting List Collection On-line System

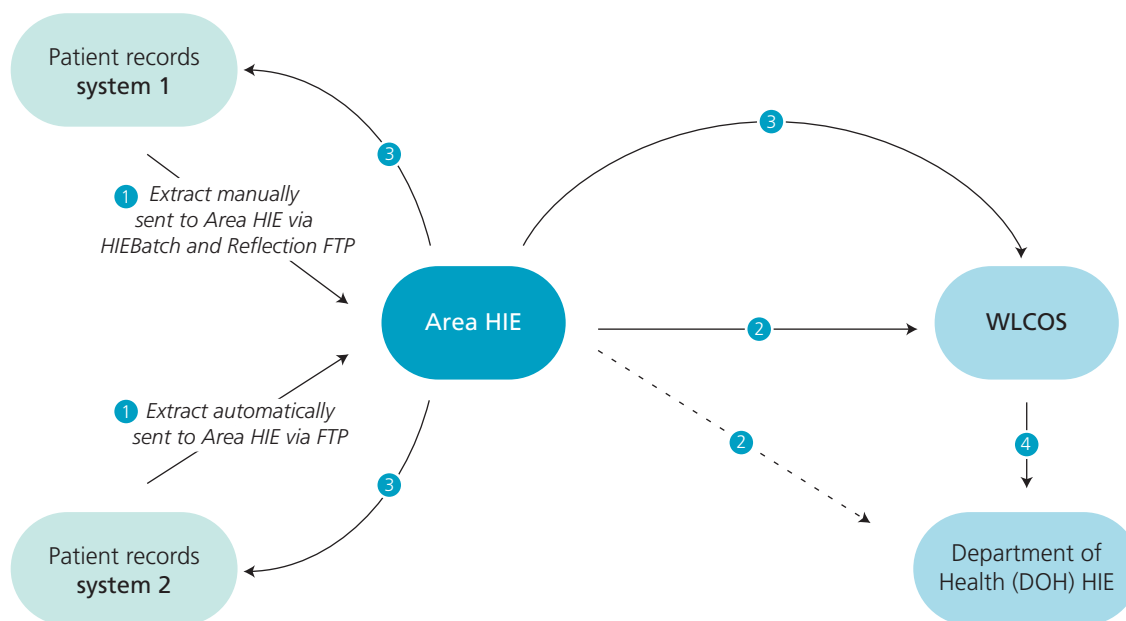
The WLCOS contains a census of patients waiting for planned treatment at the end of each month and a record of patients admitted to the facility for the planned procedure or removed from WLCOS during each month. Data are available for all patients booked on the public hospital waiting list for planned clinical care, regardless of whether that care is delivered in the public system or contracted out to a private provider.

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

- 1) At some sites, the waiting list extract is manually initiated and then transferred to the HIE server for that area health service. This is done 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 from the Area HIEs is also periodically loaded into a temporary (non-useable) placeholder file in the HIE maintained by the Department of Health (DOH).

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



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.

### Measuring waiting list data: what matters most to stakeholders?

Because elective surgery procedures need to be planned in advance, people requiring these procedures wait to receive care. During this period of time, people are typically said to be on a waiting list, although the booking system is more complex than a simple list. People on the booking system have been allocated to one of three urgency categories by the surgeon who lists them. Each urgency category has a maximum recommended waiting time (in days) by which the patient should receive their surgery.

Historically, two measures of elective surgery performance have been publicly-reported; percentage of patients admitted to hospital within the clinically recommended time frame, and median waiting time in days for patients who have received surgery. NSW Department of Health also publicly reports on the number of patients still on the booking system, i.e. those still on the waiting list. The number of patients waiting for each surgical specialty is reported, as is the number of patients who have been waiting more than 12 months and the average waiting time in months. These three measures are reported at both a hospital and NSW

level. Finally, NSW Department of Health reports the percentage of patients who received their surgery on the day they were admitted and the percentage of 'day only' surgical admissions.

These measures add to understanding of some of the elective surgery processes and patient waiting times. They give insight into how different hospitals and departments within a hospital perform.

It is important to recognise that priorities for performance information vary between stakeholders, and that evaluations of performance from any single stakeholder group will result in unbalanced assessments. As an example, stakeholders of elective surgery are primarily interested in their role and capacity to provide high-quality care. Community-based stakeholders tend to be more interested in how performance information relates to the broader continuum of care. Other stakeholders are interested in performance indicators that relate to structural or contextual information. This supports the need to identify performance indicators that can be used for routine public reporting.

### Opportunities to improve

The Bureau of Health Information supports rigorous consensus and evidence-informed processes to identify meaningful performance indicators on elective surgery care. These indicators should reflect the needs for information among diverse stakeholders and inform the future design of information systems in NSW.

These measures should be comprehensive and cover issues such as the structure or context of care, care processes, equity and outcomes. Identifying high-priority and robust indicators can potentially focus efforts to measure, monitor and direct improvements to care, thereby resulting in better patient outcomes.<sup>1</sup>

Indicators need to be relevant to the group being measured; for example, a specific subset of appropriate indicators should be developed for use with paediatric patients. A consensus and evidence-informed process could build on existing work and reporting in NSW, but it should be more inclusive of community stakeholders to better support performance reporting that is important to patients, the broader public and the NSW Parliament.

Indicators selected should not be chosen because the data is already available for that measurement but rather, should shape what data is collected in the future. Planning and vision will be required, especially if NSW follows international examples of collecting outcome measures from health consumers themselves.

## Measuring coverage of elective surgery data

Records from 95 hospitals which conduct elective surgery in NSW are stored on WLCOS. The Bureau reports all hospitals on WLCOS belonging to peer groups A1, A2, A3, BM, BNM, C1 and C2 due to the large number of patients served. Smaller hospitals are reported as a single group.

Only records for patients receiving care at public hospitals in NSW and public patients receiving care in NSW private hospitals are stored in WLCOS; private patients receiving treatment at private facilities are not recorded. Of all elective surgeries conducted in NSW, 34% are publicly-funded.<sup>2</sup> This means that WLCOS holds records for approximately one-third of all elective surgery in NSW and, while appropriate for investigation of most publicly provided elective surgery, it is not appropriate for investigation of privately provided elective surgery.

## Measuring accuracy and completeness of elective surgery data

As an electronic database extracted from patient records, WLCOS is dependent on data entered by hospital staff. The Bureau has not assessed the accuracy of data entered into the patient record systems in hospitals. Data is extracted from these systems to the area HIEs and from these to WLCOS. At this time, the NSW Department of Health run numerous checks on the quality of data, which look for conflicting data or missing data in critical fields. The protocol following this stage is for data to be corrected at source and re-extracted into WLCOS. The NSW Department of Health has provided a list of these checks to the Bureau for review and the Bureau has judged these checks to be appropriate to maintain high levels of data quality.

The Bureau has not been able to assess the degree to which these corrections are implemented but review of the completeness of data (see below) suggests the process functions well.

The Bureau undertook work to assess the completeness of the data fields used in the calculation of measures for each of the 95 hospitals included in WLCOS. We reviewed five data fields use to generate data for *Hospital Quarterly* and the *Performance Profiles*:

- Urgency category
- Removal status
- Elective Surgery
- Commonwealth Waiting Time
- Ready for care days.

Data for patients who received elective surgery was 100% complete on 13 October 2010 for these five fields.

Based on our review of WLCOS, the Bureau is satisfied that the data WLCOS contains is sufficiently complete to be used for the *Hospital Quarterly* reports.



# References

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# 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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