

RPAH Institute of Rheumatology & Orthopaedics

Return to acute care following hospitalisation for six acute conditions and two elective surgeries

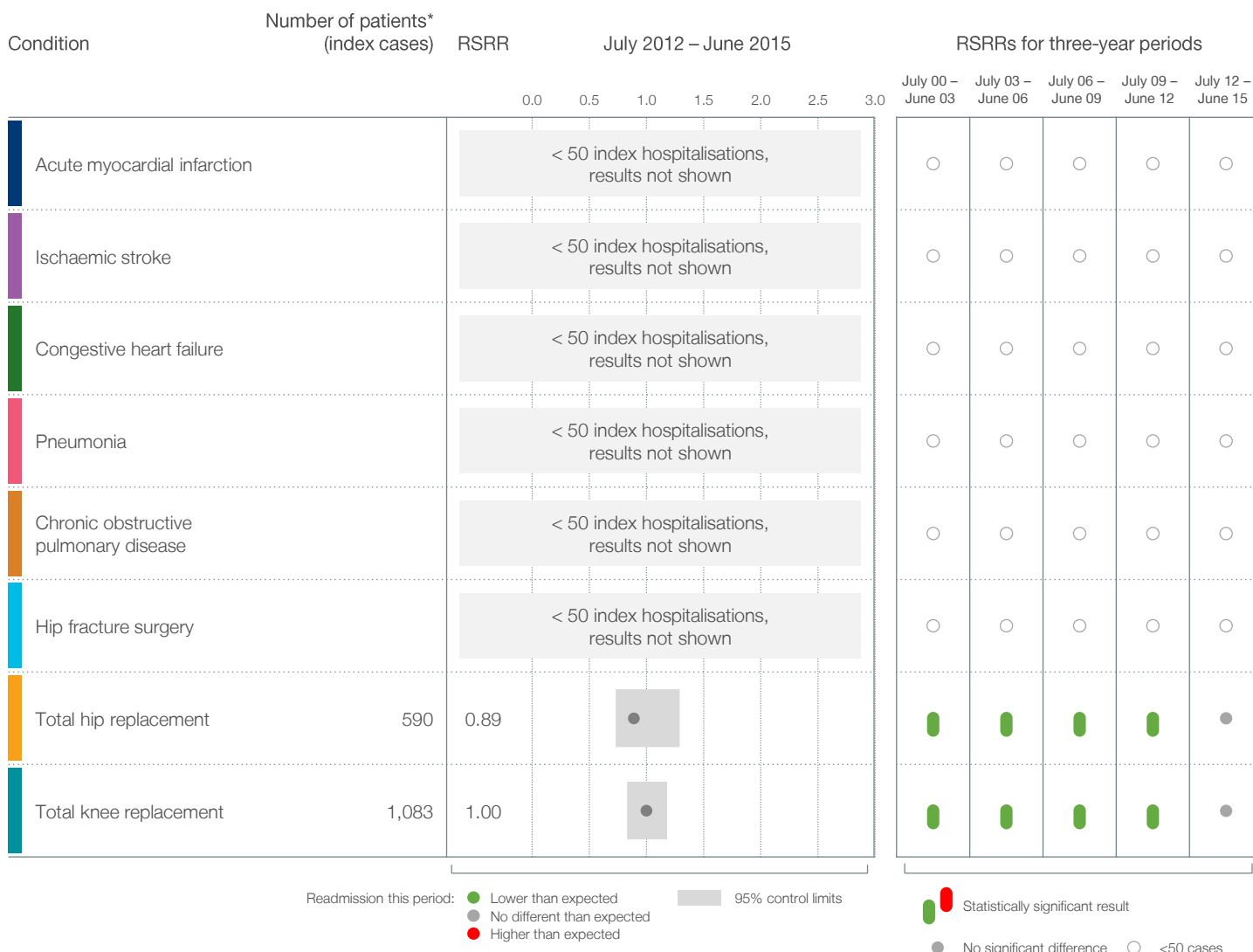
A hospital's risk-standardised readmission ratio (RSRR) is the 'observed' number of readmissions that occurred among its patient cohort divided by the 'expected' number of readmissions among its patients¹. For this report, readmission is defined as a return to acute care².

Funnel plots with 95% and 99.8% control limits around the NSW ratio are used to interpret the ratios and identify outlier hospitals – those with 'special cause' variation that may warrant further investigation. The RSRR does not enable direct comparisons between hospitals. It assesses each hospital's results given its particular case mix.

Slightly different approaches are used for the conditions. A 30-day time period is used for the six acute conditions while a 60-day period is used for the elective surgeries. The analyses focused on acute conditions only consider readmission episodes that are classed as acute emergencies while analyses for the elective surgeries also include some 'planned' readmissions, such as planned returns to theatre for wound wash-outs.

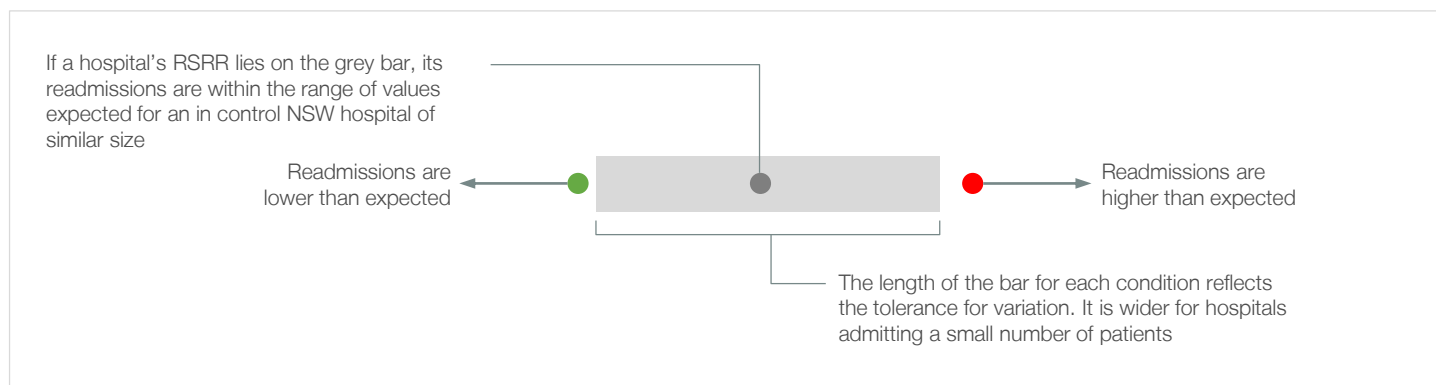
RSRRs do not distinguish readmissions that are avoidable from those that are a reflection of the natural course of illness.

Risk-standardised readmission ratios (RSRRs) for six acute conditions and two elective surgeries

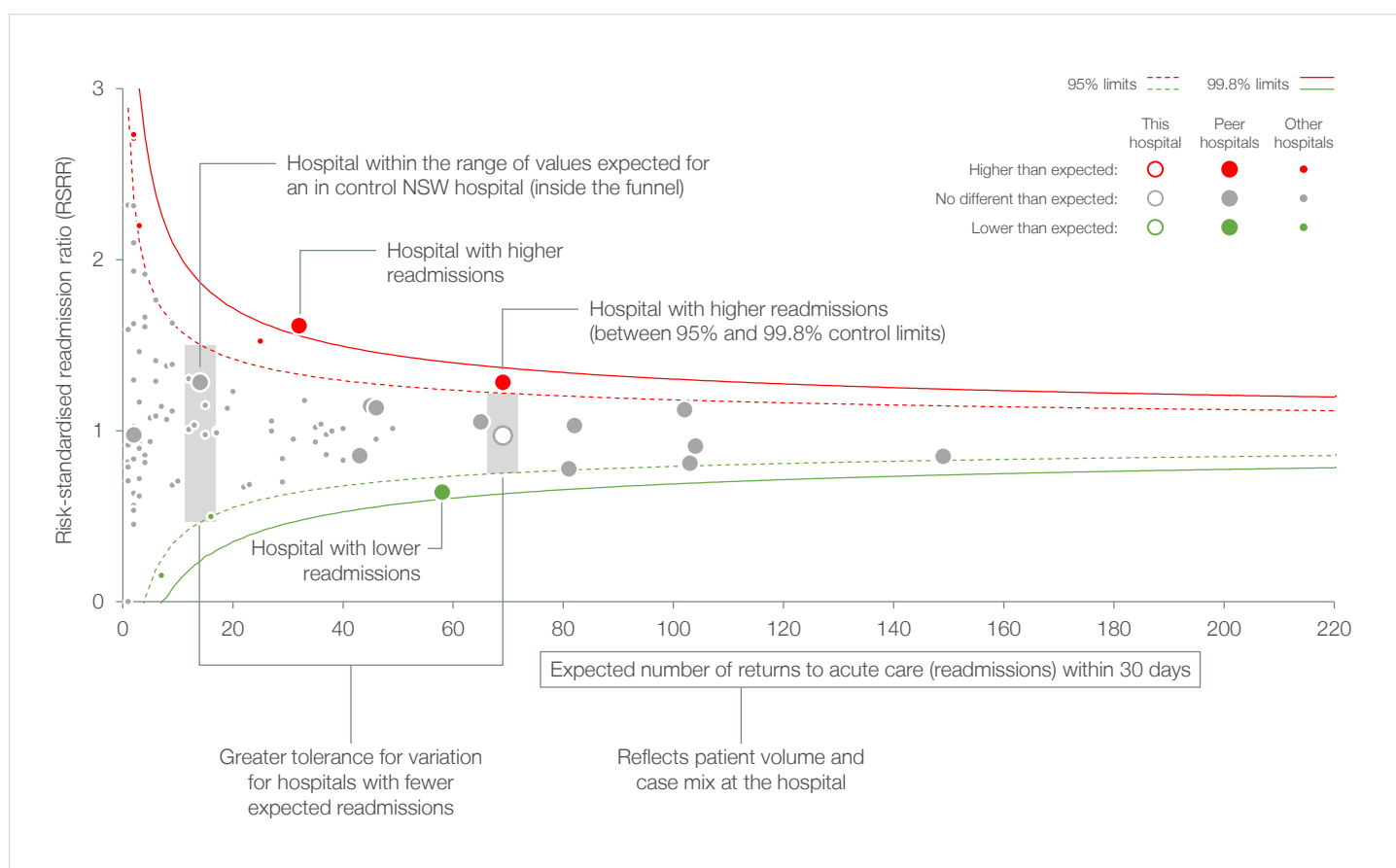


* Index cases exclude those with <30 days follow up information.

How to interpret the dashboard



How to interpret a funnel plot



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30-day return to acute care following hospitalisation for acute myocardial infarction

<50 index hospitalisations,
results not shown

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30-day return to acute care following hospitalisation for ischaemic stroke

<50 index hospitalisations,
results not shown

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30-day return to acute care following hospitalisation for congestive heart failure

<50 index hospitalisations,
results not shown

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30-day return to acute care following hospitalisation for pneumonia

<50 index hospitalisations,
results not shown

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30-day return to acute care following hospitalisation for chronic obstructive pulmonary disease

<50 index hospitalisations,
results not shown

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30-day return to acute care following hospitalisation for hip fracture surgery

<50 index hospitalisations,
results not shown

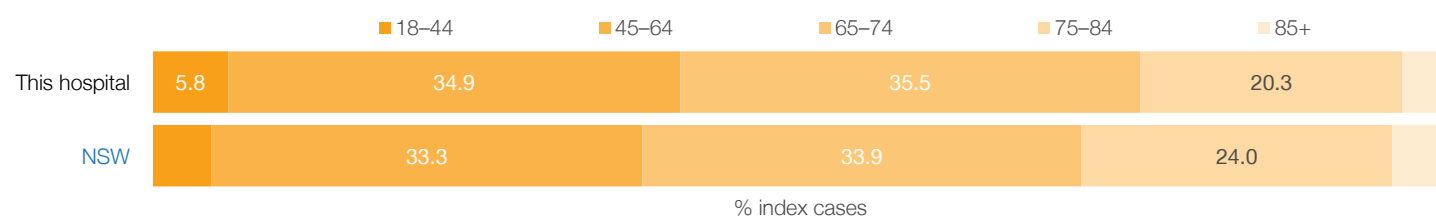
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60-day return to acute care following hospitalisation for total hip replacement

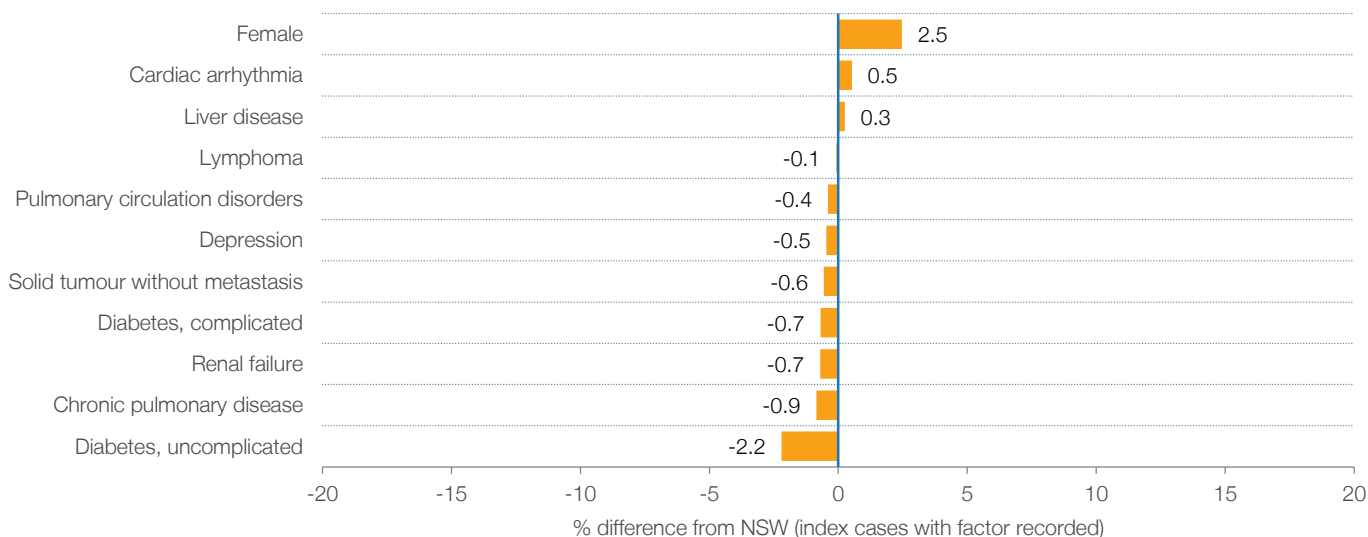
Patient cohort, index cases^{3,4}

	This hospital	NSW
Total index cases for total hip replacement	636	8,312
Average length of stay (days)	5.1	5.4
Discharge destination:		
Home	526	7,084
Other	110	1,228

Age profile for index cases (years)⁵



Factors associated with 60-day total hip replacement return to acute care⁶



*Age was a significant factor in the final model of 60-day readmission following hospitalisation for total hip replacement.

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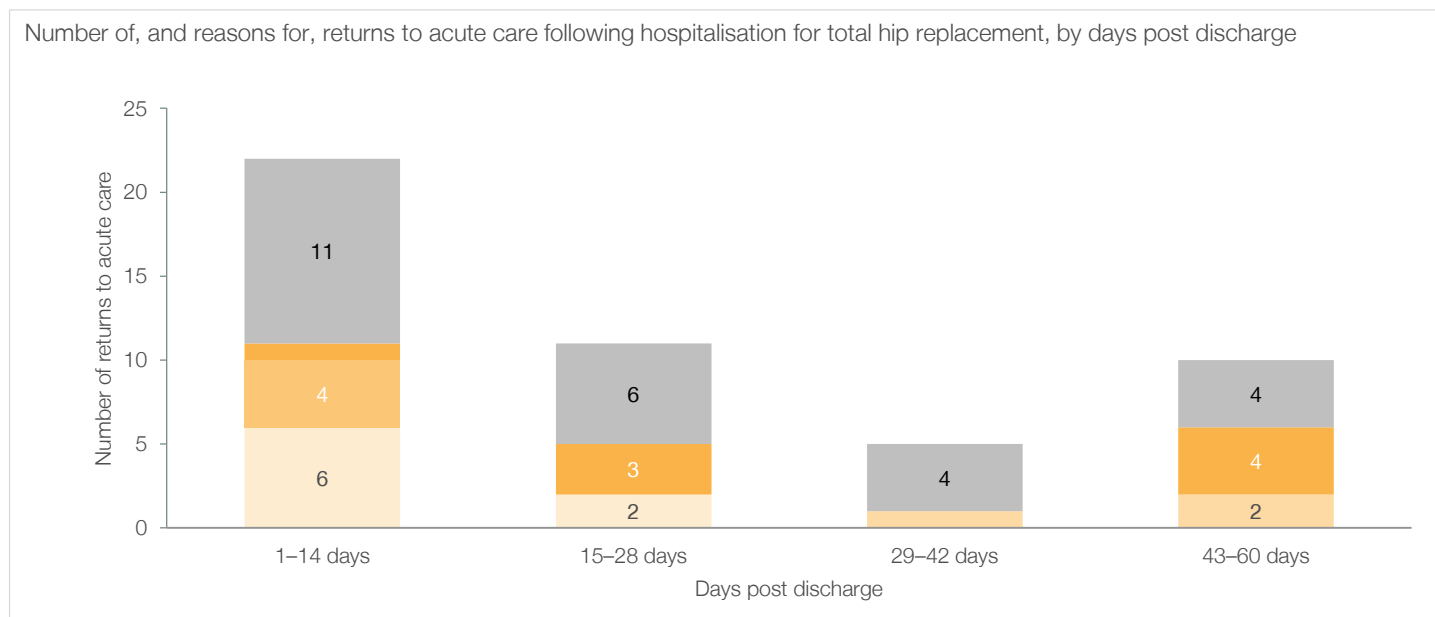
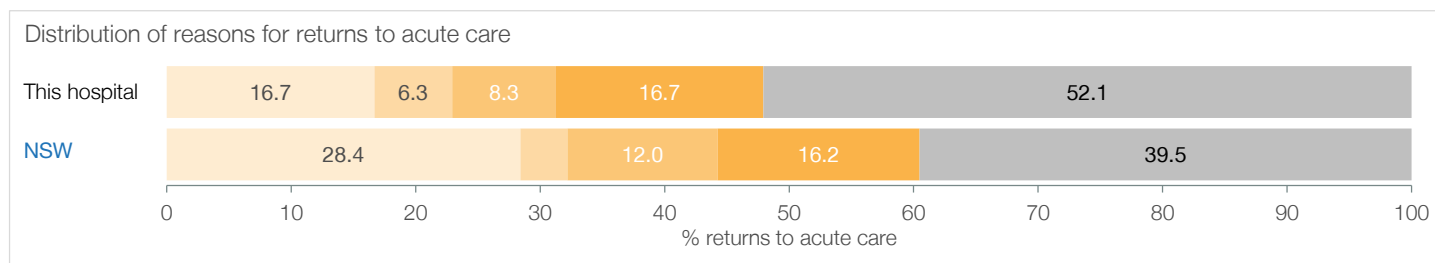
60-day return to acute care following hospitalisation for total hip replacement

Location of returns to acute care⁷

	This hospital	NSW
Total readmissions following index hospitalisation for total hip replacement	48	764
Readmitted to the hospital where acute care was completed	3	417
Readmitted to a different hospital	45	347
Of these:		
To an urban public hospital	38	
To a regional or rural public hospital	0	
To a private hospital	7	

Reasons for and time to returns to acute care⁸

- Orthopaedic complications (within time specified)
- Orthopaedic complications (outside time specified)
- Potentially related to hospital care (within time specified)
- Potentially related to hospital care (outside time specified)
- Other conditions



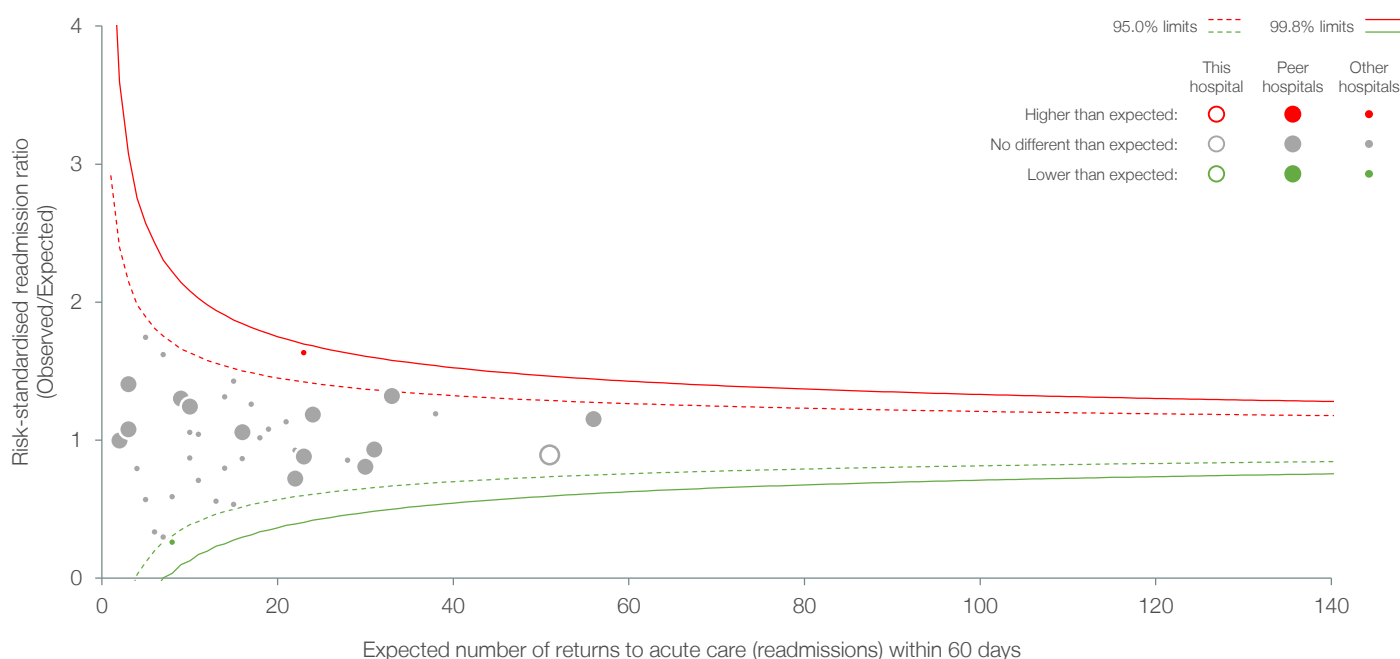
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60-day return to acute care following hospitalisation for total hip replacement

Hospital-specific RSRRs report the ratio of actual or 'observed' number of returns to acute care to the 'expected' number of returns. A competing risk regression model draws on the NSW patient population's characteristics and outcomes to estimate the expected number of returns for each hospital, given the characteristics of its patients.

An RSRR less than 1.0 indicates lower-than-expected returns to acute care, and a ratio higher than 1.0 indicates higher-than-expected returns. Small deviations from 1.0 are not considered to be meaningful. Funnel plots with 95% and 99.8% control limits around the NSW ratio are used to identify outliers.

Hospital level total hip replacement RSRR by number of expected returns to acute care (readmissions)⁹



Illustrating the effect of standardisation, July 2012 – June 2015

In order to make fair comparisons, a number of risk adjustments are made to readmission data. These take into account patient factors that influence the likelihood of returning to acute care within 60 days. The table below illustrates the effect of statistical adjustments on this hospital's results.

Unadjusted ratio	Age and sex standardised ratio	Risk-standardised readmission ratio
0.82	0.86	0.89

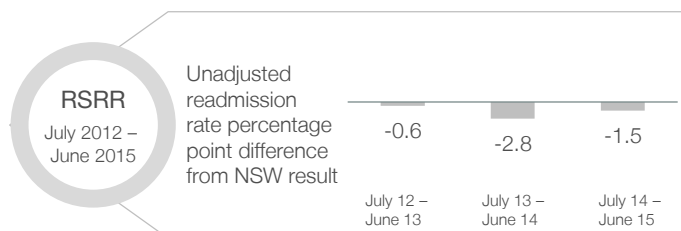
Ratio: ■ Lower than expected ■ No different than expected ■ Higher than expected

The extent to which comorbidities are coded in the patient record may affect risk adjustment. Therefore the 'depth of coding'¹⁰ has been assessed across NSW hospitals. In July 2009 – June 2012, the average depth of coding was 1.6 diagnoses in this hospital and 2.5 in NSW public hospitals; and in July 2012 – June 2015, there were 2.0 diagnoses in this hospital and 2.6 in NSW public hospitals.

Three-yearly RSRR and annual unadjusted readmission rates

The RSRR is calculated on the basis of three years of data. It takes account of differences in patient characteristics so that assessments of hospital performance are fair. To give an indication of the results within the three-year period, the figure below shows the RSRR result for July 2012 – June 2015 alongside differences between this hospital and the NSW result for annual unadjusted readmission rates.

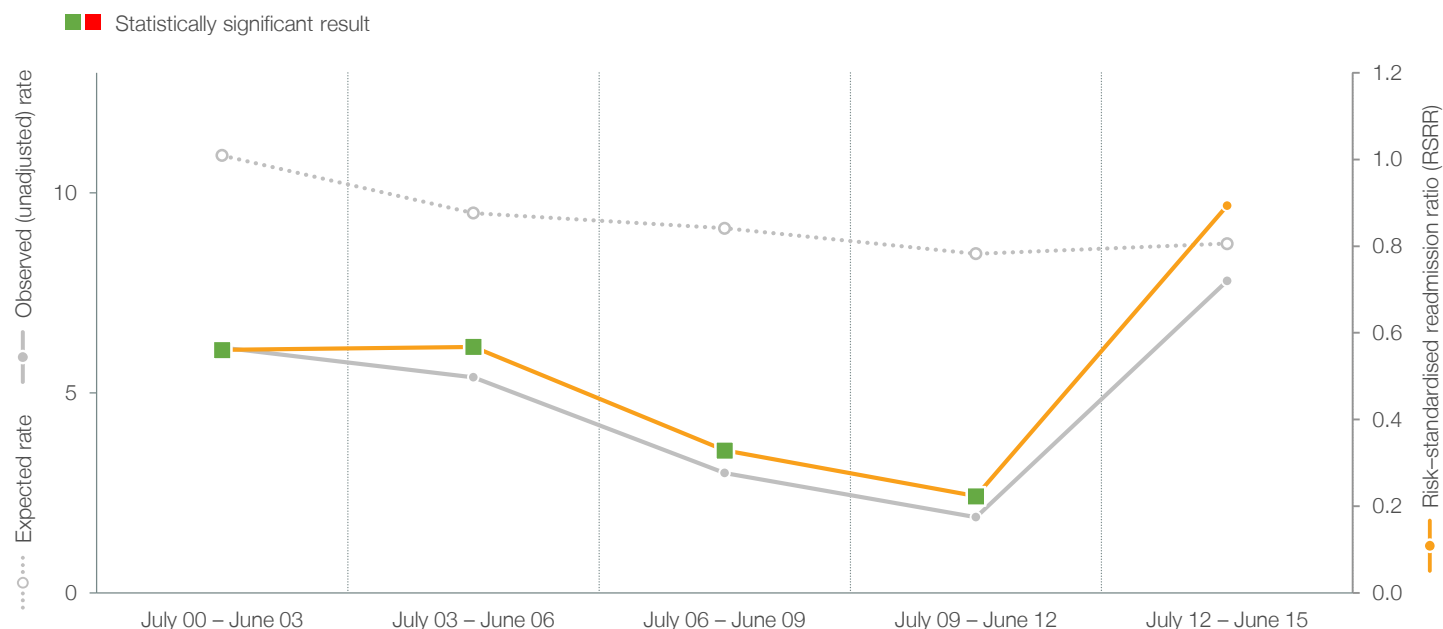
RSRR: ○ Lower than expected ○ No different than expected ○ Higher than expected



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60-day return to acute care following hospitalisation for total hip replacement

Total hip replacement, this hospital's risk-standardised readmission ratio, expected readmission rates and observed (unadjusted) readmission rates, July 2000 – June 2015



Notes

- Data refer to patients who were discharged from this hospital, between July 2012 and June 2015, following an acute hospitalisation for an elective total hip replacement (ACHI codes 49318-00, 49319-00).
- Returns to acute care are to any NSW hospital in the 30 days (for acute conditions) or 60 days (for elective surgeries) following discharge, and are attributed to the last discharging hospital. For patients whose acute hospitalisation ended in discharge home, a return to acute care involves readmission to hospital; while for patients whose acute hospitalisation ended with a 'discharge' to non-acute care, a return involved a move back into an acute care setting regardless of whether they physically left the hospital.
- For calculation of average length of stay, index admissions that were transferred in from, or transferred out to, another acute care hospital were excluded. Unreasonably long episodes are trimmed on the basis of the Diagnosis Related Group (DRG) of the episode. The trim point is the third quartile plus 1.5 x the interquartile range of all in-scope episodes in each DRG.
- Discharge destinations are based on the mode of separation of the index case. For episodes coded as 'Discharged by hospital' or 'Discharged on leave', patients are considered to be destined for their place of usual residence. All other modes of separation are deemed to indicate a discharge destination other than a patient's place of usual residence.
- Age at admission date.
- Comorbidities are identified from the hospital discharge records using the Elixhauser comorbidity set (plus dementia) with a one year look-back from the admission date of the index case. Only those conditions that were shown to have a significant impact on readmission ($P < 0.05$) are shown.
- Hospitals are classified as urban and regional/rural using the geocoded address of the hospital assigned to ABS statistical areas (SA2) and the Australian remoteness index for areas.
- Reasons for return to acute care are classified according to a draft specification made available to BHI by the Australian Institute of Health and Welfare. Principal diagnoses for the return to acute care episode, are stratified as: orthopaedic complications using various time horizons; potentially related to hospital care (i.e. complications and adverse events) using various time horizons; and, other reasons. Percentages may not add to 100% due to rounding.
- Results for hospitals with <1 expected readmission are not shown. Peer hospitals are identified according to the NSW Ministry of Health's peer grouping as of April 2012.
- The depth of coding has been defined as the average number of secondary diagnosis coded for the index cases. The one year look back method which is used for risk adjustment, to some extent accounts for possible lower depth of coding in some hospitals.

Details of analyses are available in *Spotlight on Measurement: Measuring return to acute care following discharge from hospital, 2nd edition*.

Data source: SAPHaRI, Centre for Epidemiology and Evidence, NSW Ministry of Health.

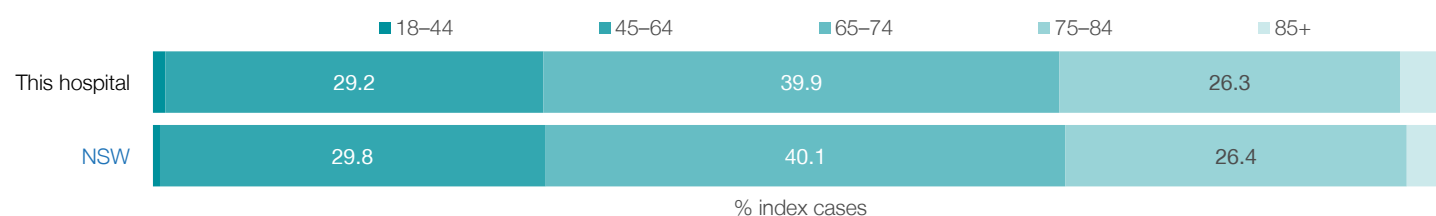
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60-day return to acute care following hospitalisation for total knee replacement

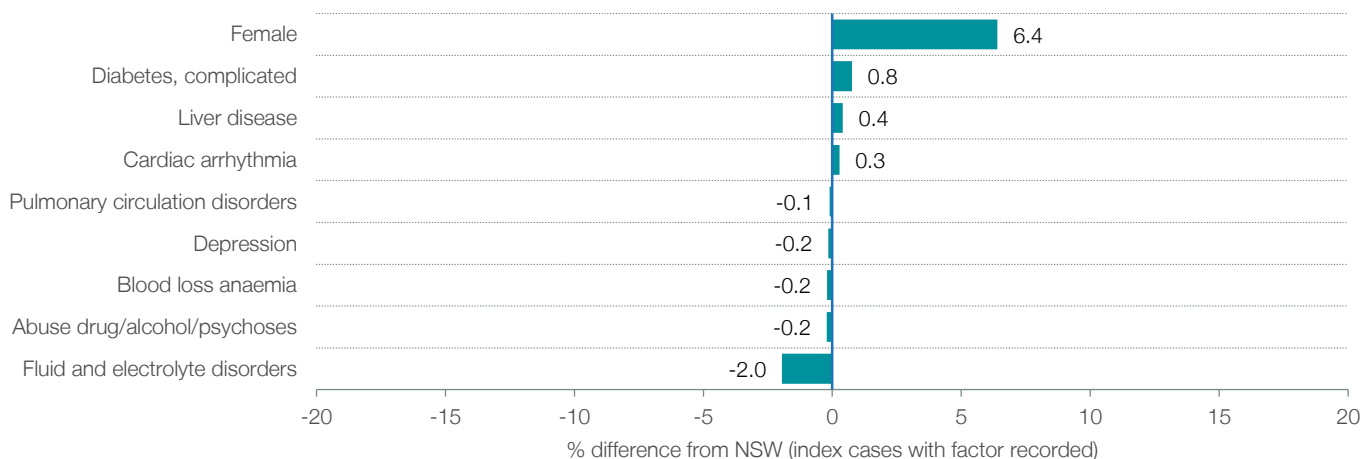
Patient cohort, index cases^{3,4}

	This hospital	NSW
Total index cases for total knee replacement	1,144	14,961
Average length of stay (days)	5.5	5.6
Discharge destination:		
Home	870	12,362
Other	274	2,599

Age profile for index cases (years)^{*5}



Factors associated with 60-day total knee replacement return to acute care⁶



*Age was a significant factor in the final model of 60-day readmission following hospitalisation for total knee replacement.

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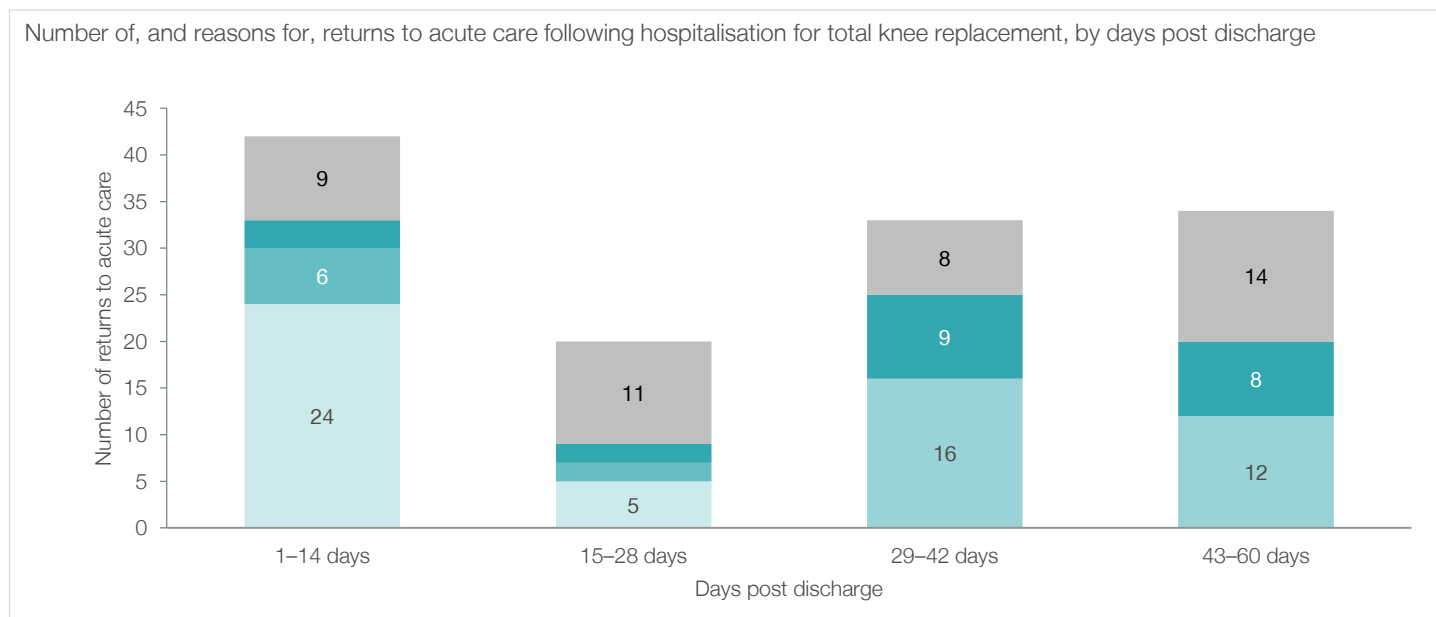
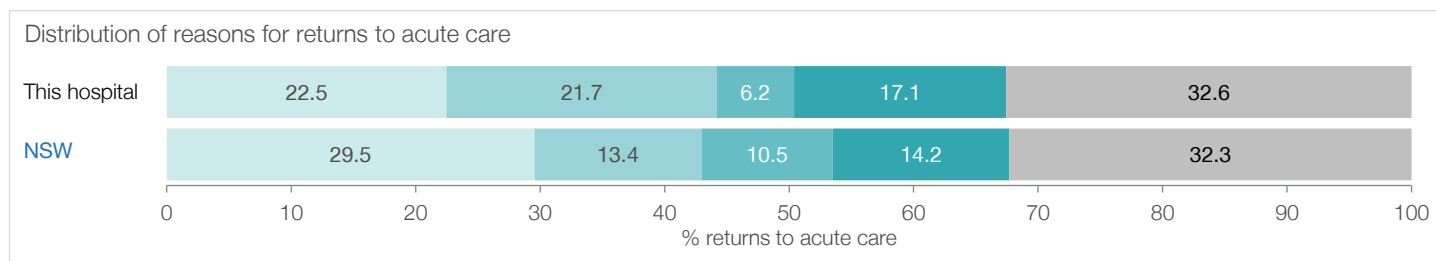
60-day return to acute care following hospitalisation for total knee replacement

Location of returns to acute care⁷

	This hospital	NSW
Total readmissions following index hospitalisation for total knee replacement	129	1,727
Readmitted to the hospital where acute care was completed	14	1,011
Readmitted to a different hospital	115	716
Of these:		
To an urban public hospital	100	
To a regional or rural public hospital	5	
To a private hospital	10	

Reasons for and time to returns to acute care⁸

- Orthopaedic complications (within time specified)
- Orthopaedic complications (outside time specified)
- Potentially related to hospital care (within time specified)
- Potentially related to hospital care (outside time specified)
- Other conditions



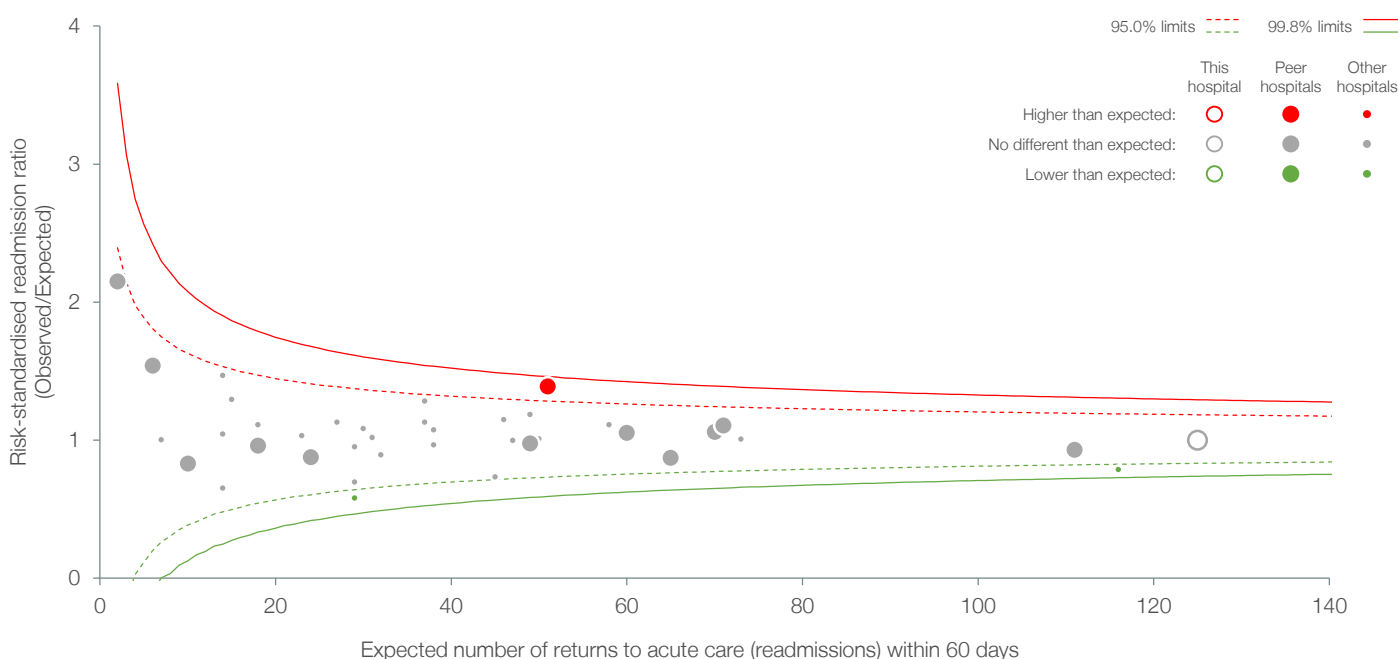
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60-day return to acute care following hospitalisation for total knee replacement

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Hospital level total knee replacement RSRR by number of expected returns to acute care (readmissions)⁹



Illustrating the effect of standardisation, July 2012 – June 2015

In order to make fair comparisons, a number of risk adjustments are made to readmission data. These take into account patient factors that influence the likelihood of returning to acute care within 60 days. The table below illustrates the effect of statistical adjustments on this hospital's results.

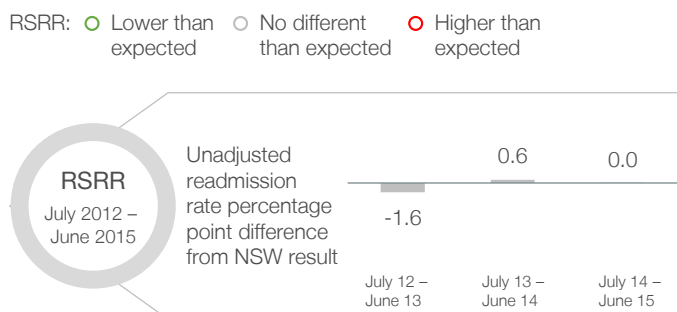
Unadjusted ratio	Age and sex standardised ratio	Risk-standardised readmission ratio
0.97	0.99	1.00

Ratio: ■ Lower than expected ■ No different than expected ■ Higher than expected

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Three-yearly RSRR and annual unadjusted readmission rates

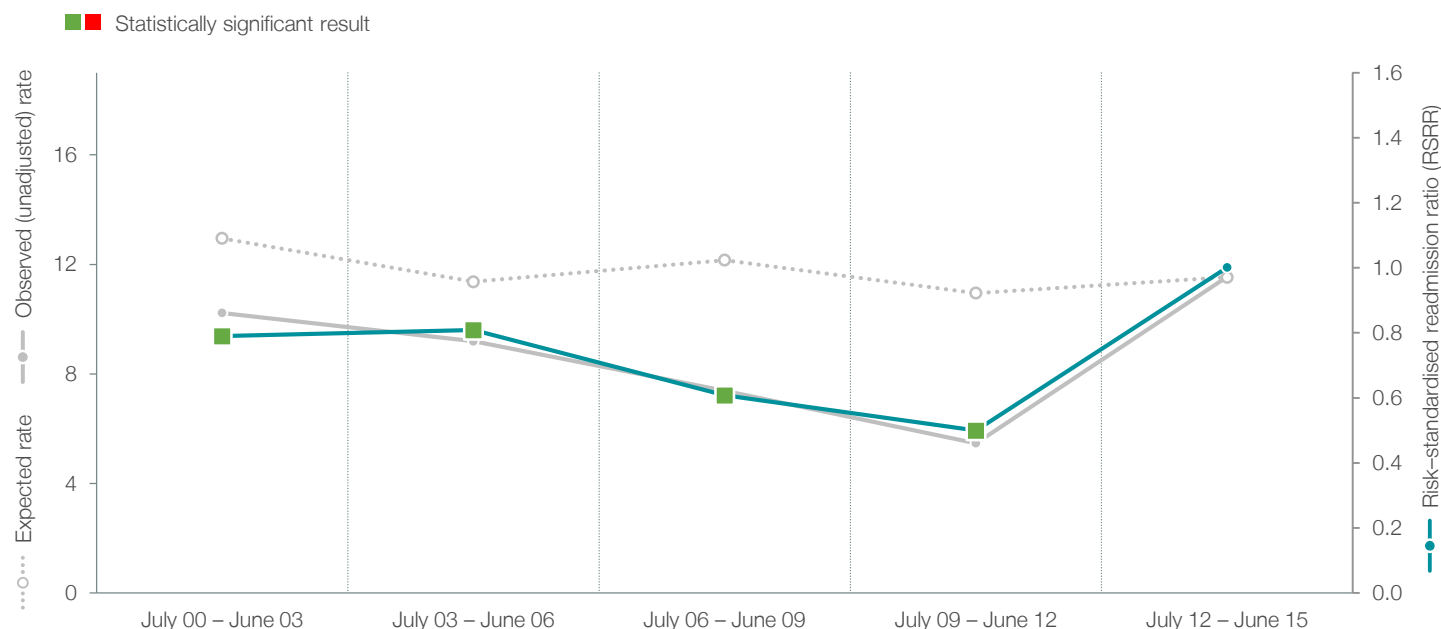
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Total knee replacement, this hospital's risk-standardised readmission ratio, expected readmission rates and observed (unadjusted) readmission rates, July 2000 – June 2015



Notes

- Data refer to patients who were discharged from this hospital, between July 2012 and June 2015, following an acute hospitalisation for an elective total knee replacement (ACHI codes 49518-00, 49519-00, 49521-00, 49521-01, 49521-02, 49521-03, 49524-00, 49524-01).
- Returns to acute care are to any NSW hospital in the 30 days (for acute conditions) or 60 days (for elective surgeries) following discharge, and are attributed to the last discharging hospital. For patients whose acute hospitalisation ended in discharge home, a return to acute care involves readmission to hospital; while for patients whose acute hospitalisation ended with a 'discharge' to non-acute care, a return involved a move back into an acute care setting regardless of whether they physically left the hospital.
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