

# Readmission and returns to acute care following hospitalisation for eight clinical conditions, July 2015 – June 2018

Measures that assess how healthcare affects patient outcomes, such as risk-standardised readmission ratios (RSRR), make a crucial contribution to informing efforts to improve care. They should be looked at alongside other measures and used by clinicians as a tool to prompt discussion and inform the development of quality improvement initiatives.

For this report, readmission includes both readmission following hospital discharge and returns to acute care from non-acute inpatient settings. This allows for fairer comparisons given the range of different arrangements hospitals have in place for non-acute care.

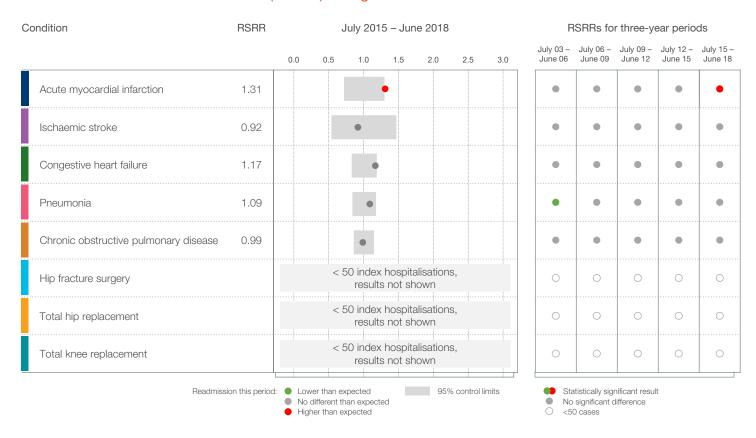
The RSRR differs from other readmission indicators principally because it is risk-adjusted and it takes into account readmission to any, rather than just the same, hospital. This includes readmissions to all hospitals, public and private, and provides a more meaningful and accurate reflection of readmissions, which are attributed to the last discharging hospital.

The RSRR calculation takes into account the volume and characteristics of adults treated in each hospital (known as the case mix), as different hospitals provide care to patients who may be more or less likely to require readmission following discharge.

For each hospital, the RSRR compares the 'observed' number of readmissions to any hospital, within 30 days of discharge for a specific clinical condition or within 60 days for specified surgical procedures, with the 'expected' number of readmissions. The expected number of readmissions is calculated based on all adults admitted with that condition to any New South Wales (NSW) hospital.

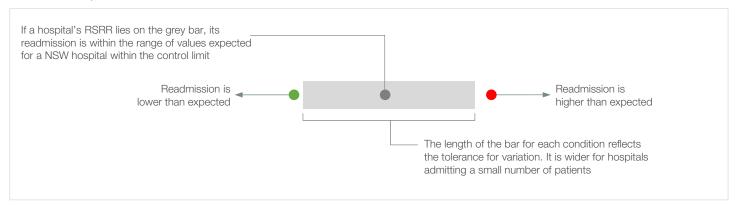
The RSRR is a ratio. A ratio of less than 1.0 indicates that readmission was lower than expected to that hospital, whereas a ratio higher than 1.0 indicates higher readmission. Small deviations from 1.0 are not considered meaningful. The RSRR is not designed to compare hospitals to each other. Rather it compares each hospital's outcomes with what would have been expected given its particular case mix.

#### Risk-standardised readmission ratios (RSRRs) for eight clinical conditions



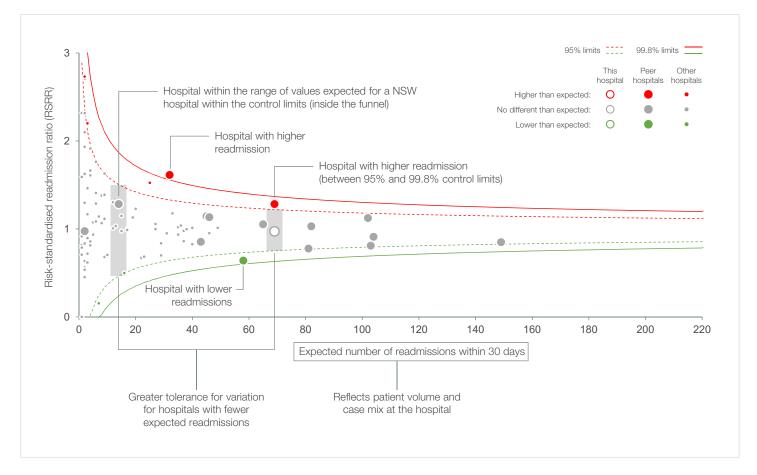


#### How to interpret the dashboard



### How to interpret a funnel plot

Funnel plots with 95% and 99.8% control limits around the NSW ratio are used to identify outlier hospitals, which are shaded in green or red. Control limits reflect the expected variation in the data.





## 30-day readmission following hospitalisation for acute myocardial infarction, July 2015 – June 2018

### Patient cohort, index hospitalisations<sup>1,2,3</sup>

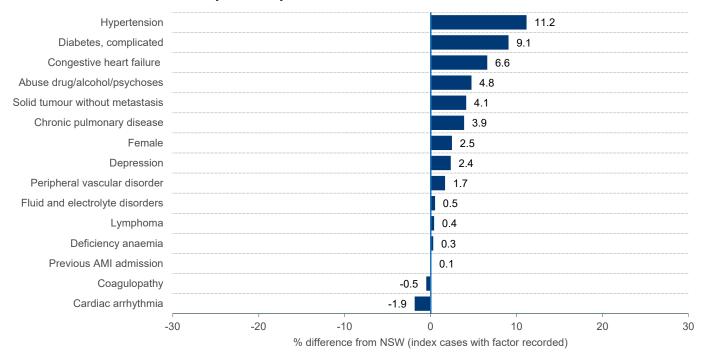
	This hospital	NSW
Total index cases for acute myocardial infarction	284	28,583
Average length of stay (days)	4.9	5.2
Patients transferred in from acute care in another hospital	149	9,182
Discharge destination		
Home	277	25,477
Other	7	3,106

### Age profile for index hospitalisations (years)4



% index cases

### Patient factors associated with 30-day acute myocardial infarction readmission<sup>5,6</sup>



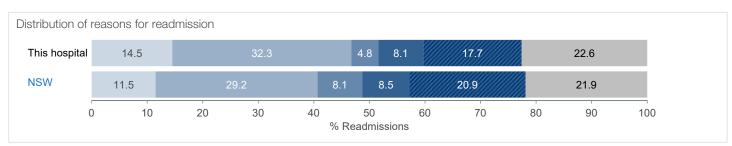


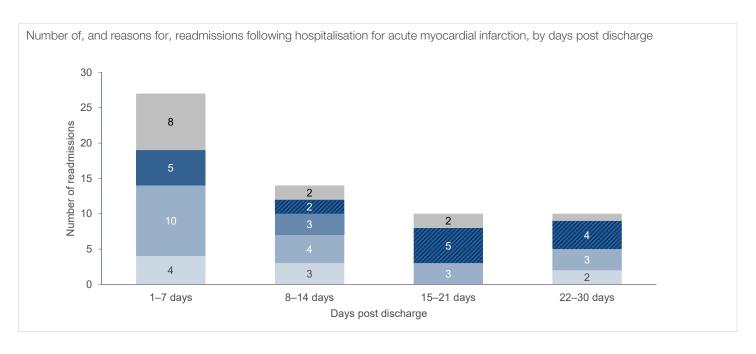
## 30-day readmission following hospitalisation for acute myocardial infarction, July 2015 – June 2018

Location of readmissions <sup>7</sup>	This hospital	NSW
Total readmissions following index hospitalisation for acute myocardial infarction	61	4,250
Returns to acute care	0	159
Readmitted following hospital discharge	61	4,091
Readmitted to the same hospital where acute care was completed	43	2,815
Readmitted to a different hospital	18	1,276
To an urban public hospital	13	
To a regional or rural public hospital	4	
To a private hospital	1	

#### Reasons for and time to readmission8



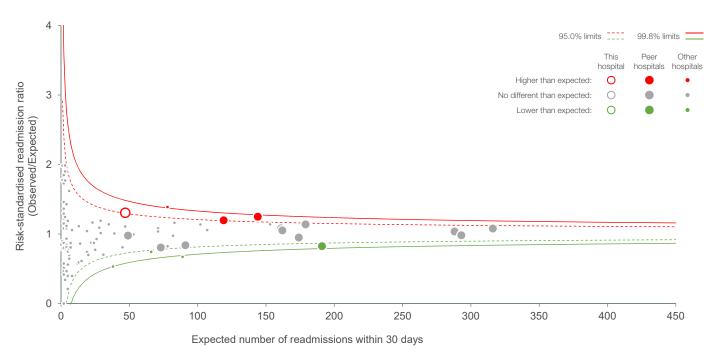




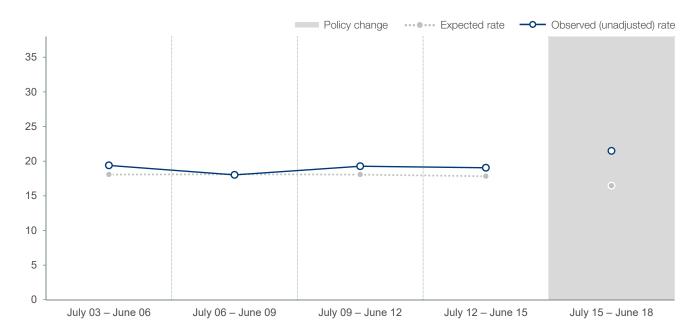


# 30-day readmission following hospitalisation for acute myocardial infarction, July 2015 – June 2018

Acute myocardial infarction risk-standardised **readmission ratios** by number of expected readmissions, NSW public hospitals<sup>9</sup>



Acute myocardial infarction, this hospital's expected **readmission rates**<sup>10</sup> and observed (unadjusted) readmission rates, July 2003 – June 2018





### Reference notes

- 1. Data refer to patients aged 15+ years who were discharged from this hospital to a non-acute care setting, between July 2015 and June 2018, following an acute hospitalisation with AMI as principal diagnosis (ICD-10-AM codes I21, I22).
- 2. 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 1.5x the interquartile range of all in-scope episodes in each DRG.
- 3. For episodes coded as 'Discharged by hospital' or 'Discharged on leave', patients are considered as discharged home. All other modes of separation are deemed a discharge destination other than home. Where there is a non-acute care admission within one day of any discharge, it is not considered as discharged home regardless of the mode of separation.
- 4. Age at admission date.
- 5. Comorbidities are identified from the hospital discharge records using the Elixhauser comorbidity set (plus dementia) with a one year look-back from the date of the admission. Only those conditions that were found to have a statistically significant impact on readmission (p<0.05) are shown.
- 6. Age was a statistically significant factor in the final model for acute myocardial infarction.
- 7. Readmissions include both returns to acute care from non-acute inpatient settings and readmissions following hospital discharge. Hospitals are classified as urban and regional/rural using the geocoded address of the hospital assigned to Australian Bureau of Statistics statistical areas (SA2) and the Australian remoteness index for areas.
- 8. Reasons for readmission follow the same clinical grouping as used in the previous report *Return to acute care following discharge from hospital, July 2012 June 2015.* Please refer to the previously published *Spotlight on Measurement: Measuring return to acute care following discharge from hospital, 2nd edition,* which outline the specifications used to describe reasons for readmission.
- 9. Results for hospitals with expected readmission <1 are not shown. Hospitals are classified according to the NSW Ministry of Health's peer grouping as at January 2018.
- 10. Readmission rates at an average NSW public hospital with the same case-mix.

Details of analyses are available in *Spotlight on Measurement: Measuring return to acute care following discharge from hospital,* 2nd edition and the *Technical Supplement – Readmission and returns to acute care following hospitalisation for eight clinical conditions,* July 2015-June 2018.

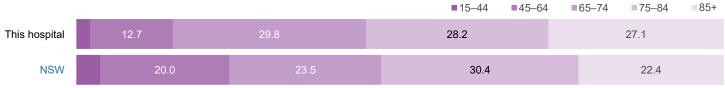


# 30-day readmission following hospitalisation for ischaemic stroke, July 2015 – June 2018

Patient cohort, index hospitalisations<sup>1,2,3</sup>

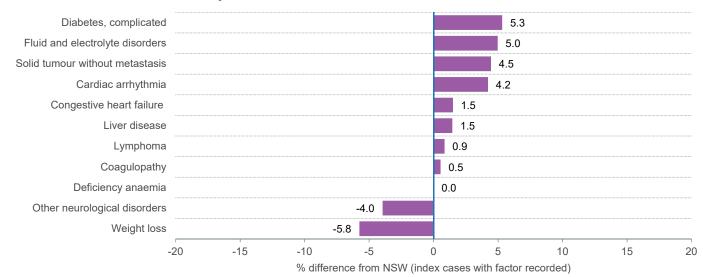
This hospital	NSW
181	16,435
8.3	7.3
5	1,916
116	8,688
65	7,747
	This hospital  181  8.3  5  116  65

Age profile for index hospitalisations (years)4



% index cases

Patient factors associated with 30-day ischaemic stroke readmission<sup>5,6</sup>



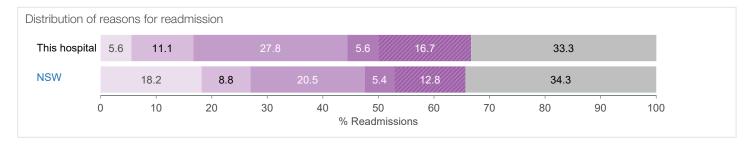


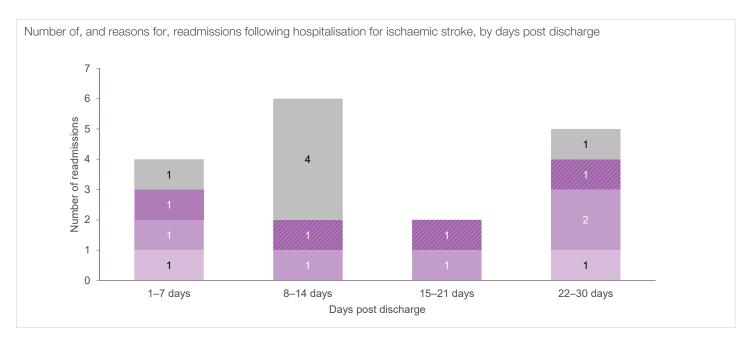
# 30-day readmission following hospitalisation for ischaemic stroke, July 2015 – June 2018

Location of readmissions <sup>7</sup>	This hospital	NSW
Total readmissions following index hospitalisation for ischaemic stroke	17	1,638
Returns to acute care	1	505
Readmitted following hospital discharge	16	1,133
Readmitted to the same hospital where acute care was completed	11	868
Readmitted to a different hospital	5	265
To an urban public hospital	4	
To a regional or rural public hospital	1	
To a private hospital	0	

#### Reasons for and time to readmission8



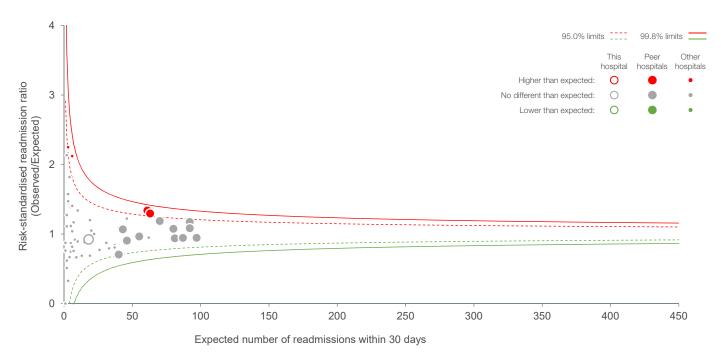




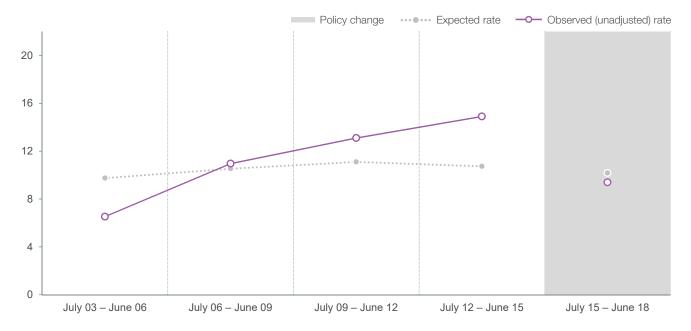


## 30-day readmission following hospitalisation for ischaemic stroke, July 2015 – June 2018

Ischaemic stroke risk-standardised **readmission ratios** by number of expected readmissions, NSW public hospitals<sup>9</sup>



Ischaemic stroke, this hospital's expected **readmission rates**<sup>10</sup> and observed (unadjusted) readmission rates, July 2003 – June 2018





#### Reference notes

- 1. Data refer to patients aged 15+ years who were discharged from this hospital to a non-acute care setting, between July 2015 and June 2018, following an acute hospitalisation with ischaemic stroke as principal diagnosis (ICD-10-AM code I63).
- 2. 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 1.5x the interquartile range of all in-scope episodes in each DRG.
- 3. For episodes coded as 'Discharged by hospital' or 'Discharged on leave', patients are considered as discharged home. All other modes of separation are deemed a discharge destination other than home. Where there is a non-acute care admission within one day of any discharge, it is not considered as discharged home regardless of the mode of separation.
- 4. Age at admission date.
- 5. Comorbidities are identified from the hospital discharge records using the Elixhauser comorbidity set (plus dementia) with a one year look-back from the date of the admission. Only those conditions that were found to have a statistically significant impact on readmission (p<0.05) are shown.
- 6. Age was not a statistically significant factor in the final model for ischaemic stroke.
- 7. Readmissions include both returns to acute care from non-acute inpatient settings and readmissions following hospital discharge. Hospitals are classified as urban and regional/rural using the geocoded address of the hospital assigned to Australian Bureau of Statistical areas (SA2) and the Australian remoteness index for areas.
- 8. Reasons for readmission follow the same clinical grouping as used in the previous report *Return to acute care following discharge from hospital, July 2012 June 2015.* Please refer to the previously published *Spotlight on Measurement: Measuring return to acute care following discharge from hospital, 2nd edition,* which outline the specifications used to describe reasons for readmission.
- 9. Results for hospitals with expected readmission <1 are not shown. Hospitals are classified according to the NSW Ministry of Health's peer grouping as at January 2018.
- 10. Readmission rates at an average NSW public hospital with the same case-mix.

Details of analyses are available in *Spotlight on Measurement: Measuring return to acute care following discharge from hospital,* 2nd edition and the *Technical Supplement – Readmission and returns to acute care following hospitalisation for eight clinical conditions,* July 2015-June 2018.

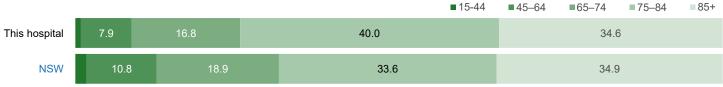


## 30-day readmission following hospitalisation for congestive heart failure, July 2015 – June 2018

### Patient cohort, index hospitalisations<sup>1,2,3</sup>

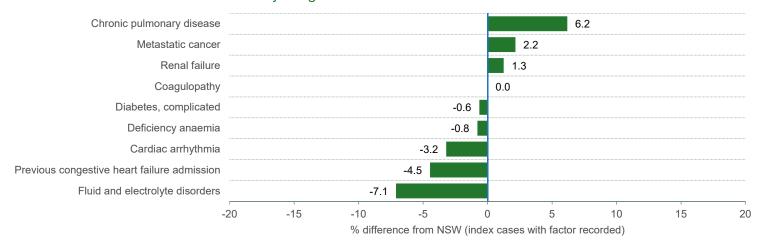
	This hospital	NSW
Total index cases for congestive heart failure	573	33,686
Average length of stay (days)	5.0	6.0
Patients transferred in from acute care in another hospital	16	2,723
Discharge destination		
Home	540	29,025
Other	33	4,661

### Age profile for index hospitalisations (years)4



% index cases

### Patient factors associated with 30-day congestive heart failure readmission<sup>5,6</sup>



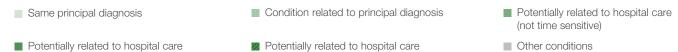


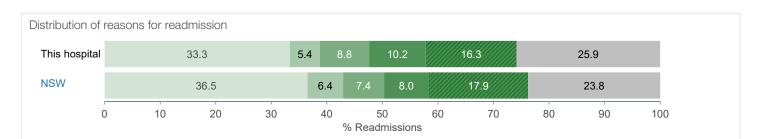
# 30-day readmission following hospitalisation for congestive heart failure, July 2015 – June 2018

This hospital	NSW
146	7,465
0	309
146	7,156
102	5,843
44	1,313
33	
5	
6	
	146 0 146 102 44 33

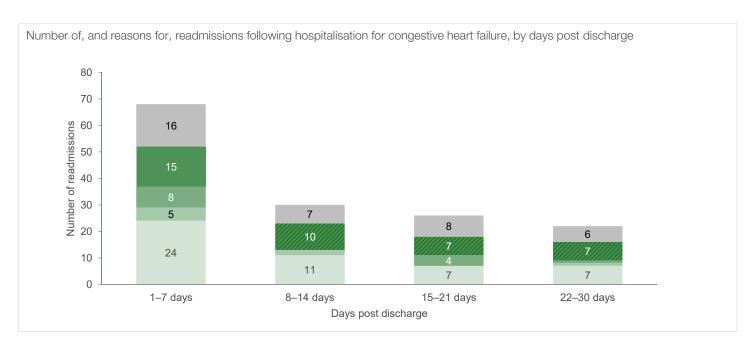
#### Reasons for and time to readmission8

(time sensitive, ≤7 days post discharge)





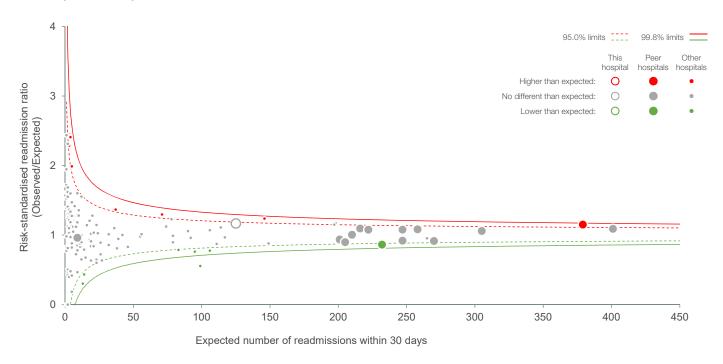
(time sensitive, 8-30 days post discharge)



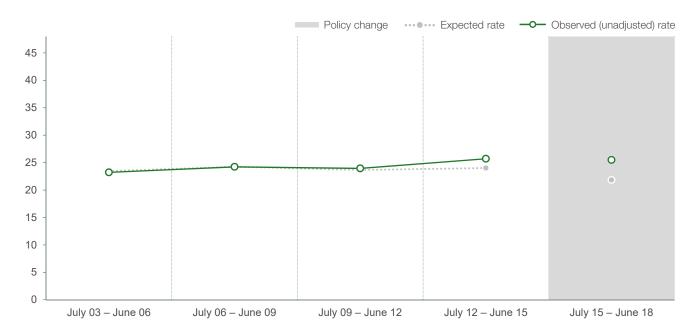


# 30-day readmission following hospitalisation for congestive heart failure, July 2015 – June 2018

Congestive heart failure risk-standardised **readmission ratios** by number of expected readmissions, NSW public hospitals<sup>9</sup>



Congestive heart failure, this hospital's expected **readmission rates**<sup>10</sup> and observed (unadjusted) readmission rates, July 2003 – June 2018





#### Reference notes

- 1. Data refer to patients aged 15+ years who were discharged from this hospital to a non-acute care setting, between July 2015 and June 2018, following an acute hospitalisation with congestive heart failure as principal diagnosis (ICD-10-AM codes I11.0, I13.0, I13.2, I50.0, I50.1, I50.9).
- 2. 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 1.5x the interquartile range of all in-scope episodes in each DRG.
- 3. For episodes coded as 'Discharged by hospital' or 'Discharged on leave', patients are considered as discharged home. All other modes of separation are deemed a discharge destination other than home. Where there is a non-acute care admission within one day of any discharge, it is not considered as discharged home regardless of the mode of separation.
- 4. Age at admission date.
- 5. Comorbidities are identified from the hospital discharge records using the Elixhauser comorbidity set (plus dementia) with a one year look-back from the date of the admission. Only those conditions that were found to have a statistically significant impact on readmission (p<0.05) are shown.
- 6. Age was not a statistically significant factor in the final model for congestive heart failure.
- 7. Readmissions include both returns to acute care from non-acute inpatient settings and readmissions following hospital discharge. Hospitals are classified as urban and regional/rural using the geocoded address of the hospital assigned to Australian Bureau of Statistical areas (SA2) and the Australian remoteness index for areas.
- 8. Reasons for readmission follow the same clinical grouping as used in the previous report *Return to acute care following discharge from hospital, July 2012 June 2015.* Please refer to the previously published *Spotlight on Measurement: Measuring return to acute care following discharge from hospital, 2nd edition,* which outline the specifications used to describe reasons for readmission.
- 9. Results for hospitals with expected readmission <1 are not shown. Hospitals are classified according to the NSW Ministry of Health's peer grouping as at January 2018.
- 10. Readmission rates at an average NSW public hospital with the same case-mix.

Details of analyses are available in *Spotlight on Measurement: Measuring return to acute care following discharge from hospital,* 2nd edition and the *Technical Supplement – Readmission and returns to acute care following hospitalisation for eight clinical conditions,* July 2015-June 2018.

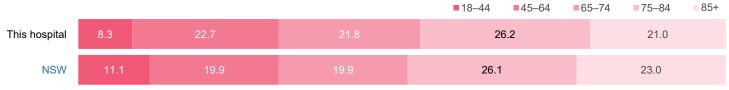


## 30-day readmission following hospitalisation for pneumonia, July 2015 – June 2018

#### Patient cohort, index hospitalisations<sup>1,2,3</sup>

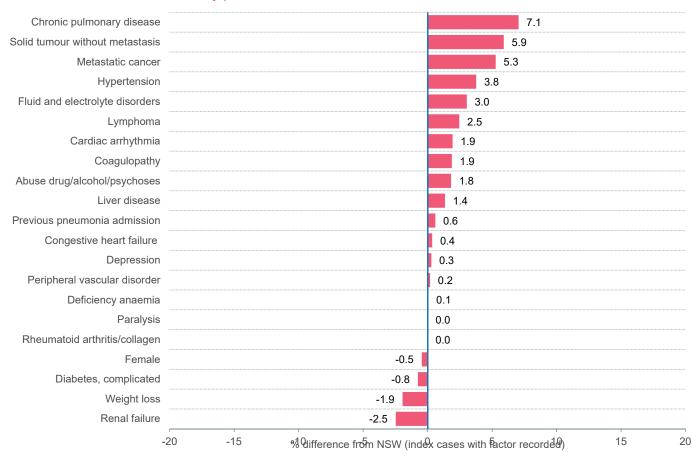
	This hospital	NSW
Total index cases for pneumonia	930	48,855
Average length of stay (days)	4.4	5.1
Patients transferred in from acute care in another hospital	40	3,190
Discharge destination		
Home	891	42,535
Other	39	6,320

### Age profile for index hospitalisations (years)4



% index cases

#### Patient factors associated with 30-day pneumonia readmission<sup>5,6</sup>



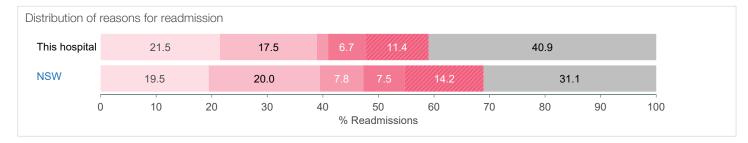


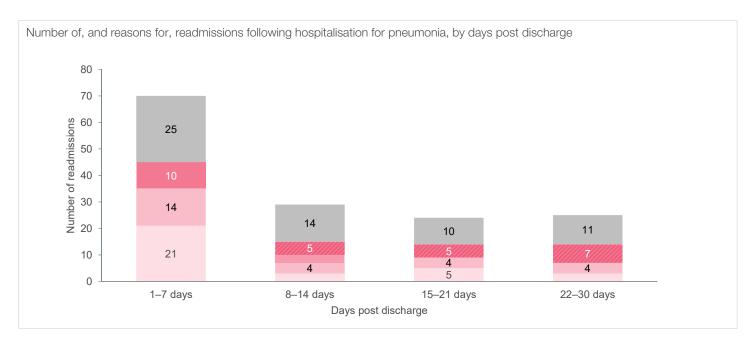
# 30-day readmission following hospitalisation for pneumonia, July 2015 – June 2018

Location of readmissions <sup>7</sup>	This hospital	NSW
Total readmissions following index hospitalisation for pneumonia	148	6,704
Returns to acute care	2	325
Readmitted following hospital discharge	146	6,379
Readmitted to the same hospital where acute care was completed	117	5,201
Readmitted to a different hospital	29	1,178
To an urban public hospital	18	
To a regional or rural public hospital	5	
To a private hospital	6	

#### Reasons for and time to readmission8



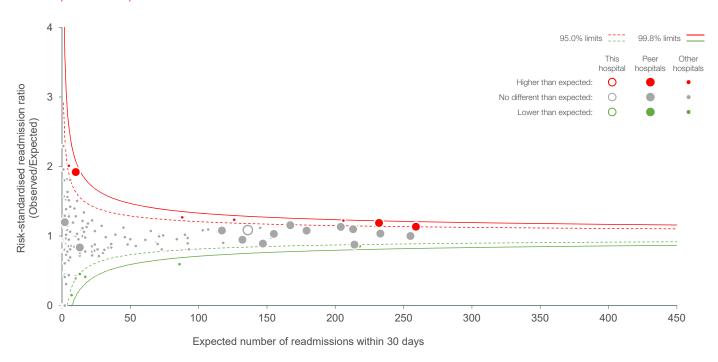




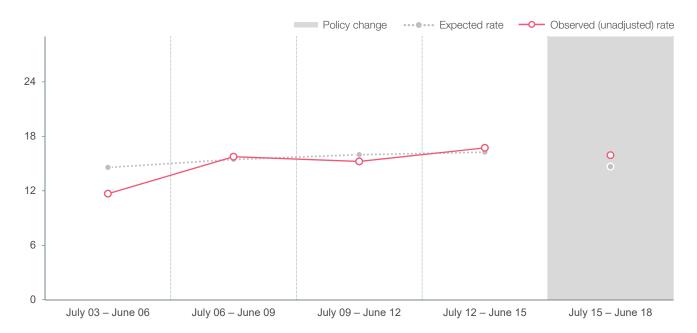


## 30-day readmission following hospitalisation for pneumonia, July 2015 – June 2018

Pneumonia risk-standardised **readmission ratios** by number of expected readmissions, NSW public hospitals<sup>9</sup>



Pneumonia, this hospital's expected **readmission rates**<sup>10</sup> and observed (unadjusted) readmission rates, July 2003 – June 2018





#### Reference notes

- 1. Data refer to patients aged 18+ years who were discharged from this hospital to a non-acute care setting, between July 2015 and June 2018, following an acute hospitalisation with pneumonia as principal diagnosis (ICD-10-AM codes J13, J14, J15, J16, J18).
- 2. 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 1.5x the interquartile range of all in-scope episodes in each DRG.
- 3. For episodes coded as 'Discharged by hospital' or 'Discharged on leave', patients are considered as discharged home. All other modes of separation are deemed a discharge destination other than home. Where there is a non-acute care admission within one day of any discharge, it is not considered as discharged home regardless of the mode of separation.
- 4. Age at admission date.
- 5. Comorbidities are identified from the hospital discharge records using the Elixhauser comorbidity set (plus dementia) with a one year look-back from the date of the admission. Only those conditions that were found to have a statistically significant impact on readmission (p<0.05) are shown.
- 6. Age was a statistically significant factor in the final model for pneumonia.
- 7. Readmissions include both returns to acute care from non-acute inpatient settings and readmissions following hospital discharge. Hospitals are classified as urban and regional/rural using the geocoded address of the hospital assigned to Australian Bureau of Statistics statistical areas (SA2) and the Australian remoteness index for areas.
- 8. Reasons for readmission follow the same clinical grouping as used in the previous report *Return to acute care following discharge from hospital, July 2012 June 2015.* Please refer to the previously published *Spotlight on Measurement: Measuring return to acute care following discharge from hospital, 2nd edition,* which outline the specifications used to describe reasons for readmission.
- 9. Results for hospitals with expected readmission <1 are not shown. Hospitals are classified according to the NSW Ministry of Health's peer grouping as at January 2018.
- 10. Readmission rates at an average NSW public hospital with the same case-mix.

Details of analyses are available in *Spotlight on Measurement: Measuring return to acute care following discharge from hospital,* 2nd edition and the *Technical Supplement – Readmission and returns to acute care following hospitalisation for eight clinical conditions,* July 2015-June 2018.

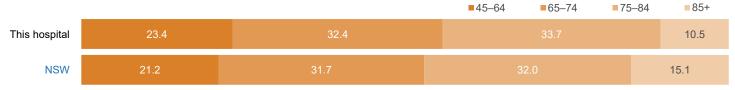


## 30-day readmission following hospitalisation for chronic obstructive pulmonary disease, July 2015 – June 2018

### Patient cohort, index hospitalisations<sup>1,2,3</sup>

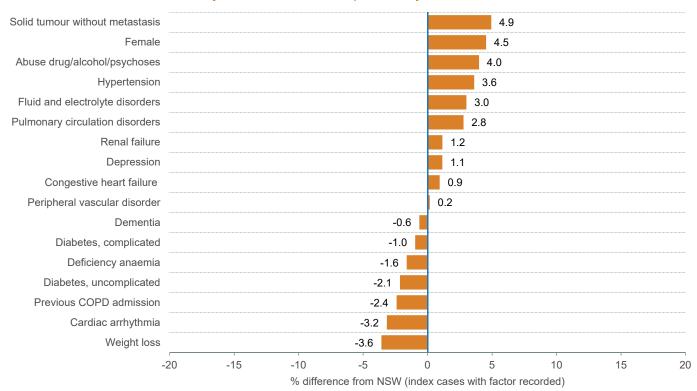
	This hospital	NSW
Total index cases for chronic obstructive pulmonary disease	876	48,336
Average length of stay (days)	3.7	4.8
Patients transferred in from acute care in another hospital	18	2,330
Discharge destination		
Home	848	43,932
Other	28	4,404

### Age profile for index hospitalisations (years)4



% index cases

#### Patient factors associated with 30-day chronic obstructive pulmonary disease readmission<sup>5,6</sup>



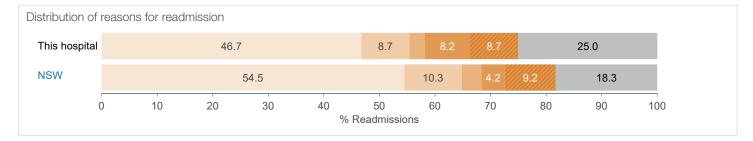


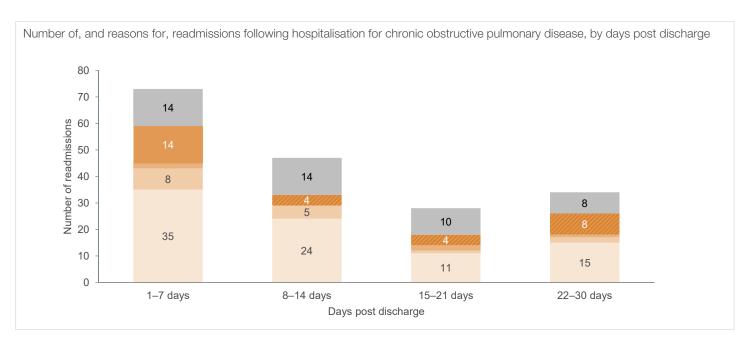
# 30-day readmission following hospitalisation for chronic obstructive pulmonary disease, July 2015 – June 2018

Location of readmissions <sup>7</sup>	This hospital	NSW
Total readmissions following index hospitalisation for chronic obstructive pulmonary disease	182	10,241
Returns to acute care	1	233
Readmitted following hospital discharge	181	10,008
Readmitted to the same hospital where acute care was completed	153	8,472
Readmitted to a different hospital	28	1,536
To an urban public hospital	23	
To a regional or rural public hospital	5	
To a private hospital	0	

#### Reasons for and time to readmission8



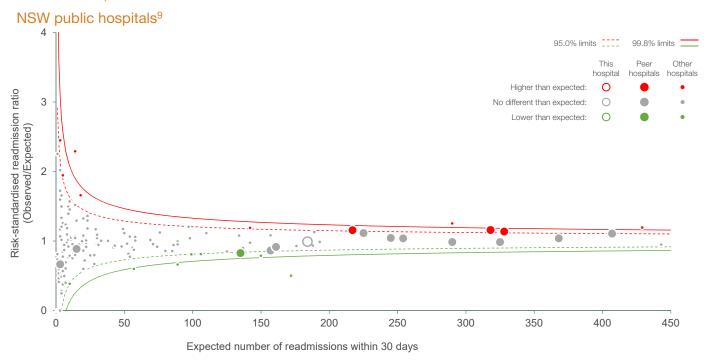




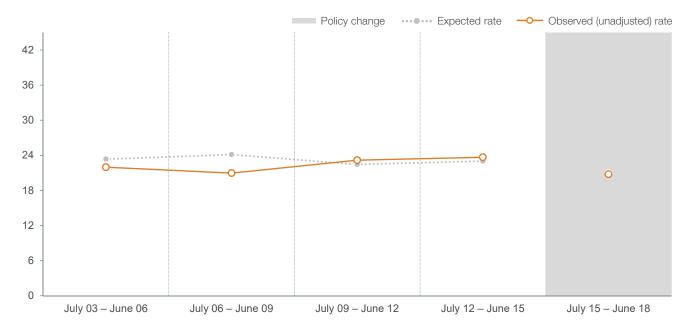


30-day readmission following hospitalisation for chronic obstructive pulmonary disease, July 2015 – June 2018

Chronic obstructive pulmonary disease risk-standardised **readmission ratios** by number of expected readmissions,



Chronic obstructive pulmonary disease, this hospital's expected **readmission rates**<sup>10</sup> and observed (unadjusted) readmission rates, July 2003 – June 2018





### Reference notes

- 1. Data refer to patients aged 45+ years who were discharged from this hospital to a non-acute care setting, between July 2015 and June 2018, following an acute hospitalisation with COPD as principal diagnosis (ICD-10-AM code J41, J42, J43, J44, J47, and J20 and J40 if accompanied by J41, J42, J43, J44 and J47 in any secondary diagnoses).
- 2. 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 1.5x the interquartile range of all in-scope episodes in each DRG.
- 3. For episodes coded as 'Discharged by hospital' or 'Discharged on leave', patients are considered as discharged home. All other modes of separation are deemed a discharge destination other than home. Where there is a non-acute care admission within one day of any discharge, it is not considered as discharged home regardless of the mode of separation.
- 4. Age at admission date.
- 5. Comorbidities are identified from the hospital discharge records using the Elixhauser comorbidity set (plus dementia) with a one year look-back from the date of the admission. Only those conditions that were found to have a statistically significant impact on readmission (p<0.05) are shown.
- 6. Age was a statistically significant factor in the final model for chronic obstructive pulmonary disease.
- 7. Readmissions include both returns to acute care from non-acute inpatient settings and readmissions following hospital discharge. Hospitals are classified as urban and regional/rural using the geocoded address of the hospital assigned to Australian Bureau of Statistics statistical areas (SA2) and the Australian remoteness index for areas.
- 8. Reasons for readmission follow the same clinical grouping as used in the previous report *Return to acute care following discharge from hospital, July 2012 June 2015.* Please refer to the previously published *Spotlight on Measurement: Measuring return to acute care following discharge from hospital, 2nd edition,* which outline the specifications used to describe reasons for readmission.
- Results for hospitals with expected readmission <1 are not shown. Hospitals are classified according to the NSW Ministry of Health's peer grouping as at January 2018.
- 10. Readmission rates at an average NSW public hospital with the same case-mix.

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

<50 index hospitalisations, results not shown

23



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

<50 index hospitalisations, results not shown



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

<50 index hospitalisations, results not shown