Monitoring the implementation of Transforming Health

Indicator Report

March 2017

Health Performance Council Secretariat

PO Box 3246 Rundle Mall ADELAIDE 5000

Telephone: 08 8226 3188

Email: HealthHealthPerformanceCouncil@sa.gov.au

Website: hpcsa.com.au

Health Performance Council

Government of South Australia

Health Performance Council

Table of contents

Table of contents 1

Executive summary 2

Acknowledgement 3

Who is the Health Performance Council? 3

What is Transforming Health? 3

How is Transforming Health being evaluated by SA Health? 4

How is the Health Performance Council monitoring the implementation of Transforming Health? 4

What indicators has the Health Performance Council chosen to monitor implementation of Transforming Health? 5

Metropolitan Adelaide public acute hospital performance charts 6

1. All patients 6
2. Culturally and linguistically diverse patients 7
3. Patients from rural and remote South Australia 8
4. Patients from lower socioeconomic status geographic areas of South Australia 9
5. Aboriginal persons 10
6. Aged persons 11
7. Patients admitted out-of-hours (night-time) 12
8. Patients admitted for cardiovascular disease 13
9. Patients admitted for hip and knee replacement 14

Appendix 1: Technical notes 15

Data sources 15

Hospitals included 15

Counting rules 15

Measures reported 16

Patient types 16

Population types 17

Quality control 17

Appendix 2: References 18

Contact officer in HPC Secretariat:
Nicholas Cugley | Phone: 8226 3694 | Email: nicholas.cugley@sa.gov.au

Executive summary

Transforming Health is a major state government initiative to improve the metropolitan Adelaide public acute hospital system, aligning new models of health care delivery with new and upgraded hospital facilities. In March 2015, SA Health's *Delivering Transforming Health – Our Next Steps* was released, outlining initial decisions, a commitment to ongoing engagement and timelines for the first changes under the program.

This Health Performance Council (HPC) indicator report monitors changes over the first two years of Transforming Health program implementation. HPC selected indicators to monitor changes in patient access and equity taken from the case for change stated in SA Health's *Our Next Steps*: (1) Too many deaths occur in our hospitals; (2) Long waiting times for discharge or placement; (3) Too many transfers between hospitals; and (4) Senior clinicians unavailable. HPC prioritised monitoring indicators that may show whether system or policy changes are causing unwarranted widening of health outcomes gaps between specific populations, particularly vulnerable groups such as Aboriginal people, culturally and linguistically diverse communities, lower socio-economic areas, aged persons and rural and remote residents.

HPC is monitoring hospitalisations (inpatient separations), average length of overnight stay, hospitalisations ending with death in hospital and hospitalisations ending with transfer to another hospital. Results are also presented by Local Health Network.

Results for the 2015-16 financial year show a decline in average length of overnight stay in metropolitan Adelaide public hospitals, as well as a decline in the in-hospital death rate. Over the same time period there was an increasing trend in episodes of care ending in hospital transfer.

The rate of inpatient hospitalisations ending with death in hospital for patients admitted at night is higher in the Central Adelaide Local Health Network (LHN) compared to the Northern Adelaide LHN and Southern Adelaide LHN.

2015-16 has seen an increase in hospitalisations for people from culturally and linguistically diverse backgrounds that end with transfer to another hospital in the Northern Adelaide LHN. There was an increase in the proportion of hospitalisations of Aboriginal inpatients ending in transfer to another hospital for the Southern Adelaide LHN.

Northern Adelaide LHN has the largest proportion of cardiovascular disease-related (stroke, chest pain and heart failure and shock) hospital activity. This LHN recorded the lowest average length of overnight stay and hospital transfer rate for this patient group.

There is a downward trend in average length of overnight stay in the Northern Adelaide, Central Adelaide and Southern Adelaide LHNs for hip and knee replacement activity. There is variation between LHNs in the hospital transfer rate, with Central Adelaide LHN around three times that of the Northern Adelaide and Southern Adelaide LHNs.

Next steps with HPC's monitoring of the implementation of Transforming Health will include bi-monthly reports on the hospital activity measures, and the addition of patient and staff experience measures. This monitoring will be a core component of the HPC's 4-yearly (2015-2018) review into the performance of the South Australian health system.

Acknowledgement

The Health Performance Council acknowledges the diverse Aboriginal peoples of South Australia and their participation in the life of South Australia. We acknowledge and respect their spiritual relationship with their respective country and we acknowledge them as the custodians of their country and that their cultural and heritage beliefs are still important to them today.

Who is the Health Performance Council?

The Health Performance Council is the South Australian Government's statutory Ministerial advisory body established under section 9 of the *Health Care Act 2008* to provide advice to the Minister for Health on the performance of the health system, health outcomes for South Australians and specific population groups and the effectiveness of community & individual engagement. We publish reviews of South Australian health system performance on our website: hpcsa.com.au.

What is Transforming Health?

Transforming Health is a major state government initiative to align new models of health care delivery with new and upgraded hospital facilities in metropolitan Adelaide, in particular the new Royal Adelaide Hospital. Development of the Transforming Health program began in June 2014 and the period 2015 to 2019 will see major changes implemented.

Key dates in the implementation of Transforming Health so far include:

Clinical Advisory Committees (Jun–Oct 2014) – Clinical Advisory Committees worked together to develop the quality principles and clinical standards of Transforming Health.

Discussion Paper (Oct–Nov 2014) – The discussion paper was released for wide consultation, including community events. More than 2000 submissions were received.

Transforming Health Summit (28 Nov 2014) – More than 600 people attended the summit and agreed that transformation is needed, beginning with the metropolitan Adelaide hospital system.

Proposals Paper (Feb 2015) – The *Delivering Transforming Health Proposals Paper* was released for feedback. SA Health received submissions from staff and clinicians; the community; unions; consumer representative organisations; research, training and education providers; and non-government organisations.

Next Steps (Mar 2015) – *Delivering Transforming Health – Our Next Steps* was released, outlining initial decisions, a commitment to ongoing engagement, and timelines of the first changes to improve our healthcare system. *Our Next Steps* outlines the Transforming Health vision to deliver the best care, first time, every time, based on six quality principles: (1) patient-centred, (2) safe, (3) effective, (4) accessible, (5) efficient and (6) equitable.

Transforming Health service changes are designed to improve the delivery of consistent quality of care in response to ten identified issues: (1) Too many deaths occur in our hospitals; (2) Senior clinicians unavailable overnight; (3) Insufficient opportunities for staff to maintain their skills, (4) Too many cancelled elective surgeries; (5) Low day surgery rates; (6) Too many procedures being performed; (7) Long waiting times for discharge or placement; (8) Too many transfers between hospitals; (9) Our health system is unable to meet some national standards; and (10) Risk to the financial sustainability of our healthcare.

More information is available from the website: transforminghealth.sa.gov.au

How is Transforming Health being evaluated by SA Health?

The National Health and Medical Research Council (NHMRC) accredited SA Academic Health Science and Translation Centre (SA Centre) has been commissioned by SA Health to bring together the state's academic, research and health care delivery agencies to advance translation of evidence into clinical care for improved health outcomes. As part of its role, the SA Centre will:

- support the Transforming Health agenda through the provision of evidence-based and evaluation-oriented strategic advice
- undertake the ongoing evaluation of system changes under Transforming Health, to ensure positive progress is being made in improving quality of care outcomes.

The SA Centre has convened an Evaluation Working Group to provide advice and oversee the establishment of an evaluation framework, and implementation of an evaluation and reporting process. The Evaluation Working Group will (1) identify and prioritise evaluation questions and KPIs; (2) determine what evidence or data will be required to demonstrate change attributable to Transforming Health; and (3) review the Transforming Health Evaluation Report.

The group is chaired by Professor Alison Kitson, Dean of Nursing at the University of Adelaide. It has representation from universities, clinicians, system managers, consumer groups and data experts.

How is the Health Performance Council monitoring the implementation of Transforming Health?

The Health Performance Council's (HPC) monitoring of the implementation of Transforming Health supports SA Health's evaluation. It will contribute to a better understanding of the overall impact of new care models and service moves in metropolitan Adelaide public hospitals. This period of health system change is an important time for HPC to apply independent scrutiny of policy implementation and report on the performance of the South Australian health system in relation to: (1) strategic objectives that have been set or adopted within SA Health, (2) significant trends, health outcomes and future priorities of the health system, and (3) emerging gaps in service access and utilisation by specific population groups.

HPC has a set key of principles it considers in its reviews. HPC looks for situations where it appears system or policy changes may be causing unwarranted widening of health outcomes gaps between specific populations, particularly vulnerable groups such as Aboriginal and Torres Strait Islander people, culturally and linguistically diverse communities, lower socio-economic areas, aged persons and rural and remote residents.

HPC has chosen to develop monitoring of the following critical questions:

1. Is the Transforming Health aim of providing "Best Care. First Time. Every Time." being realised consistently across the system for specific population and patient groups?
2. How is patient experience changing during Transforming Health implementation?
3. How is staff engagement changing during Transforming Health implementation, with a focus on the importance of human behaviour as a critical factor in any change process?

Next steps with HPC's monitoring of the implementation of Transforming Health will include bi-monthly reports updating the hospital activity measures, and the addition of patient experience and staff engagement measures. This monitoring will be a core component of the HPC's 4-yearly (2015-2018) review into the performance of the South Australian health system.

What indicators has the Health Performance Council chosen to monitor implementation of Transforming Health?

The Health Performance Council (HPC) is monitoring hospitalisations (inpatient separations), average length of overnight stay, hospitalisations ending with death in hospital and hospitalisations ending with transfer to another hospital.

HPC selected these indicators to monitor changes in patient access and equity based on these elements described in *Delivering Transforming Health – Our Next Steps* (Section 3 and Appendix 7):

1. **Too many deaths occur in our hospitals** – SA Health identified that: (1) more deaths occur in our hospitals compared with other hospitals across Australia and (2) mortality rates vary in hospitals, overnight and on the weekend. Contributing factors include lack of senior clinical support available 24-7 and services spread too thinly across too many hospitals.
2. **Long waiting times for discharge or placement** – Patients are sometimes required to stay in hospital many days longer than other patients with the same condition, depending on which hospital they attend and the day of the week they are admitted. There are a number of reasons for this, including the lack of allied health staff and senior clinicians working on the weekend, which can delay discharge.
3. **Too many transfers between hospitals** – Several thousand patient transfers are made each year between hospitals in South Australia, often because patients are not in the right hospital to receive the treatment required for their condition. As a result, patients' treatments are delayed, leading to longer recovery times.
4. **Senior clinicians unavailable** – While senior clinicians are available on call overnight in cases of emergencies, generally there are no senior clinicians rostered overnight in our major hospitals.

Within the above areas, HPC prioritised monitoring implementation of new models of care for two clinical activity groups. One medical and one surgical group was selected for monitoring – **cardiovascular disease** (incorporating stroke, chest pain, and heart failure and shock) and **hip and knee replacement**. **After-hours (night-time)** admitted patients were also selected for closer analysis due to SA Health identifying unavailability of senior clinicians at night as a contributing factor in the delivery of consistent quality of care in its case for change for Transforming Health. HPC is also developing an after-hours (night-time *and* weekends) measure for future reports to complement its monitoring of trends in outcomes for out-of-hours admitted patients.

Within these selected aspects of hospital activity, HPC is monitoring trends between specific population groups:

- **Aboriginal and Torres Strait Islander people**
- **Culturally and linguistically diverse (CALD) communities**
- **Lower socio-economic areas**
- **Aged persons**
- **Rural and remote residents.**

The technical appendix (Appendix 1) has more detailed information on the definitions and derivations of the selected measures.

Metropolitan Adelaide public acute hospital performance charts

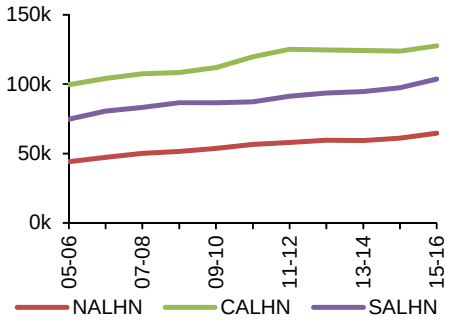
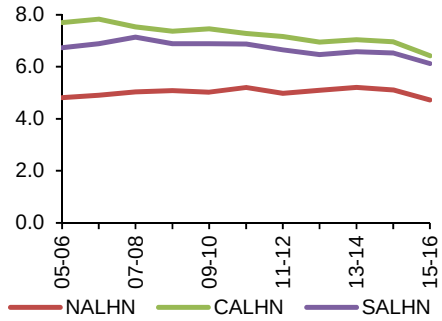
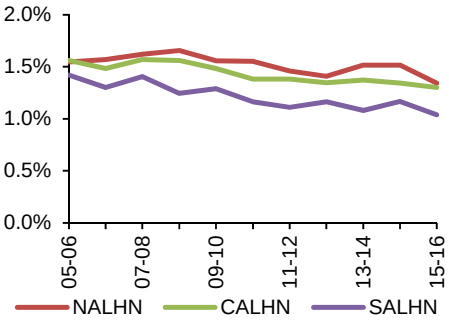
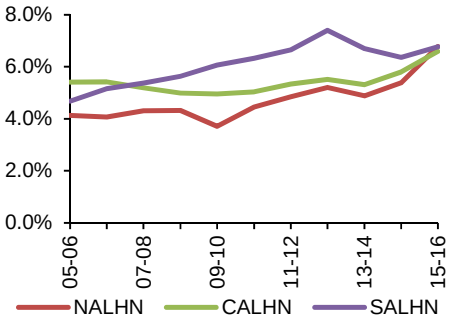
The Health Performance Council is using these indicators of inpatient activity at metropolitan Adelaide public acute hospitals to monitor emerging gaps between selected patient groups and specific population groups as SA Health implements Transforming Health. Results are charted separately for the Northern Adelaide, Central Adelaide and Southern Adelaide Local Health Networks (NALHN, CALHN and SALHN, respectively).

1. All patients

The volume of inpatient hospital activity at metropolitan Adelaide public acute hospitals has increased over the last decade, from 248,305 separations in 2005-06 to 327,512 separations in 2015-16. This represents an average annual growth rate of 2.8%, compared to South Australia's population average annual growth rate of 1.0%[1]. The average length of an overnight stay has fallen 12.3% over the same period, down from 6.5 days to 5.7 days. The proportion of inpatient deaths in metropolitan Adelaide public hospitals is relatively small compared to total activity, and has decreased from 1.3% of all hospitalisations in 2005-06 to 1.1% in 2015-16. The last ten years has seen the rate of hospitalisations ending with transfer to another hospital increase from 4.5% to 6.2%.

The Central Adelaide Local Health Network (CALHN) – consisting of Hampstead Rehabilitation Centre, Pregnancy Advisory Centre, Royal Adelaide Hospital, St Margaret's Hospital and The Queen Elizabeth Hospital – makes up the majority of activity. This is followed by Southern Adelaide LHN (Flinders Medical Centre, Noarlunga Hospital and Repatriation General Hospital) and Northern Adelaide LHN (Lyell McEwin Health Service and Modbury Hospital). Women's and Children's Hospital activity is included in the calculation of metropolitan total figures in the tables below.

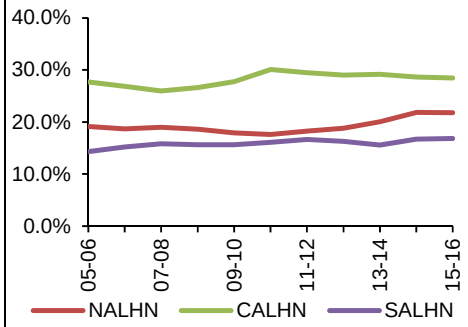
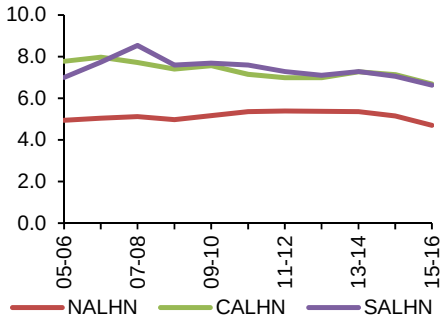
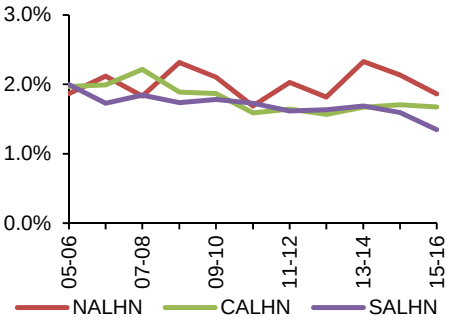
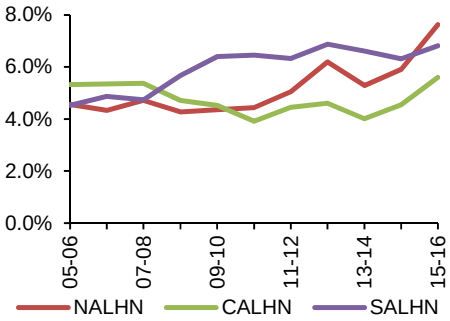
Over the last ten years, gaps between the three metropolitan Adelaide Local Health Networks' average length of stay, rate of hospitalisations ending with death in hospital and rate of hospitalisations ending with transfer to another hospital have narrowed.

Hospitalisations (inpatient separations) (total no., k=1000)	Average length of overnight stay (ALOS) (days)	Hospitalisations ending with death in hospital (%)	Hospitalisations ending with transfer to another hospital (%)
			
2005-06 metro total: 248,305 separations **2015-16 metro total: 327,512 separations**	**2005-06 metro total: 6.5 days o/n ALOS** **2015-16 metro total: 5.7 days o/n ALOS**	**2005-06 metro total: 3,348 (1.3%) died** **2015-16 metro total: 3,657 (1.1%) died**	**2005-06 metro total: 11,219 (4.5%) transferred** **2015-16 metro total: 20,186 (6.2%) transferred**

2. Culturally and linguistically diverse patients

The Health Performance Council defines culturally and linguistically diverse (CALD) persons in its monitoring as those born in non-main English speaking countries – countries *other than* Australia, New Zealand, United Kingdom, Ireland, United States of America, Canada and South Africa.

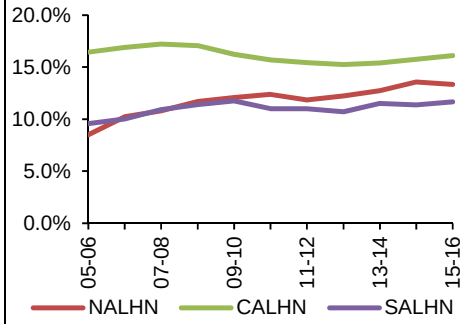
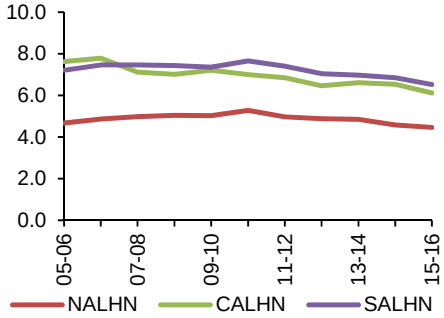
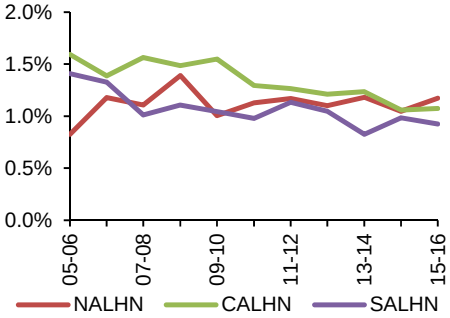
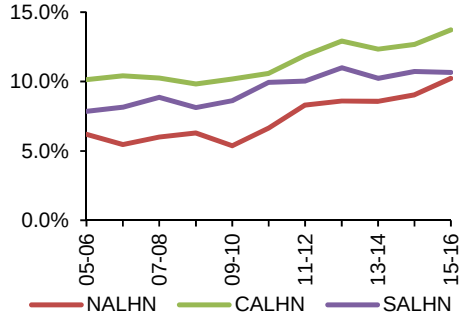
In 2015-16, persons from CALD backgrounds made up around a quarter (22.1%) of total metropolitan Adelaide public acute hospital inpatient separations, although 13.3% of South Australians were born in predominantly non-English speaking countries[2]. Trends in average length of stay and rates of in-hospital death for this population group were relatively steady over this time period. The rate of hospitalisations of CALD persons ending with a transfer to another hospital has increased over the last decade, and particularly in the Northern Adelaide Local Health Network (NALHN) from the 2011-12 financial year to present.

Hospitalisations (inpatient separations) (% CALD)	Average length of overnight stay (ALOS) (days)	Hospitalisations ending with death in hospital (%)	Hospitalisations ending with transfer to another hospital (%)
			
2005-06 metro total: 49,493 (19.9%) **2015-16 metro total: 72,274 (22.1%)**	**2005-06 metro total: 6.9 days o/n ALOS** **2015-16 metro total: 5.9 days o/n ALOS**	**2005-06 metro total: 919 (1.9%) died** **2015-16 metro total: 1,107 (1.5%) died**	**2005-06 metro total: 2,363 (4.8%) transferred** **2015-16 metro total: 4,315 (6.0%) transferred**

3. Patients from rural and remote South Australia

Hospitalisations by inpatients who live in country South Australia represented around one in seven (14.5%) of metropolitan Adelaide public acute hospital inpatient activity in 2015-16. By way of comparison, over a quarter (28.8%) of the state's population lives outside the metropolitan area[3].

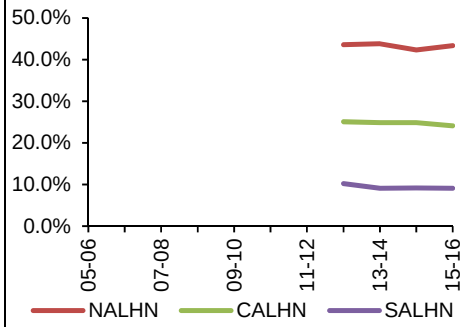
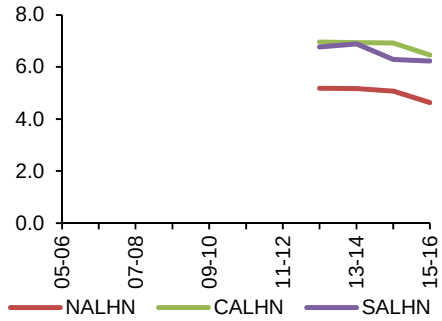
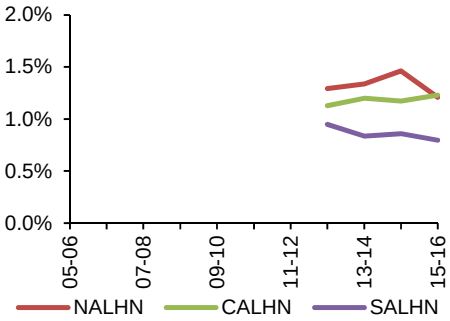
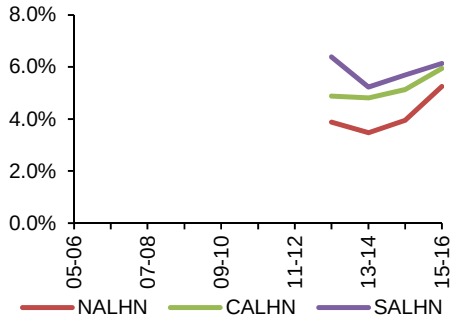
Over one in ten (10.7%) inpatient hospitalisations of country residents at metropolitan Adelaide public acute hospitals in 2015-16 ended with a transfer to another hospital. This is higher than the overall rate reported in Section 1 (6.2%). This also represents an increase of 2.7 percentage points since 2005-06. Trends in average length of stay and rates of in-hospital mortality are down over this time period.

Hospitalisations (inpatient separations) (% who live in rural & remote SA)	Average length of overnight stay (ALOS) (days)	Hospitalisations ending with death in hospital (%)	Hospitalisations ending with transfer to another hospital (%)
			
2005-06 metro total: 33,002 (13.3%) **2015-16 metro total: 47,645 (14.5%)**	**2005-06 metro total: 6.8 days o/n ALOS** **2015-16 metro total: 5.7 days o/n ALOS**	**2005-06 metro total: 403 (1.2%) died** **2015-16 metro total: 441 (0.9%) died**	**2005-06 metro total: 2,631 (8.0%) transferred** **2015-16 metro total: 5,094 (10.7%) transferred**

4. Patients from lower socioeconomic status geographic areas of South Australia

The Health Performance Council classifies the socio-economic status of geographic areas in South Australia using the Socio-Economic Index for Areas' (SEIFA) Index of Relative Socio-economic Disadvantage (IRSD) from Australian Bureau of Statistics.

Over 40% of inpatient hospitalisations in the Northern Adelaide Local Health Network (NALHN) are persons who live in the lowest 20% of socioeconomic status areas of the state. The average length of overnight stay for this specific population group was 5.4 days in 2015-16, comparable to the overall average of 5.7 days. In 2015-16, the rate of inpatient hospitalisations ending with transfer to another hospital was 5.3%, lower than the overall rate of 6.2% reported in Section 1 but has increased since 2012-13.

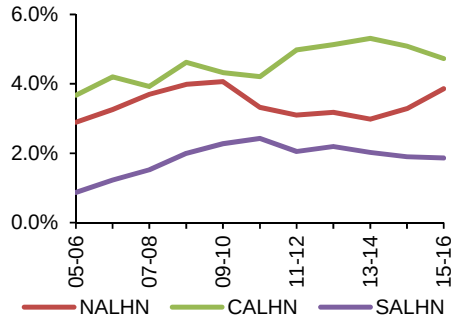
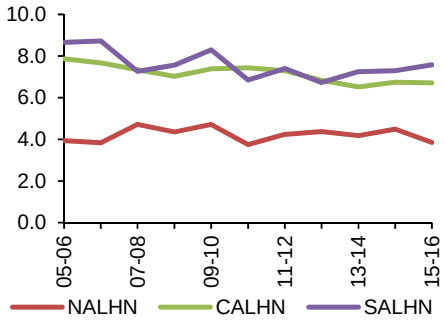
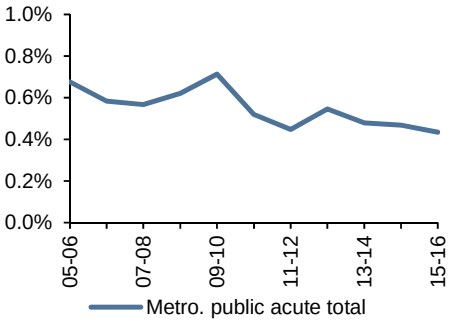
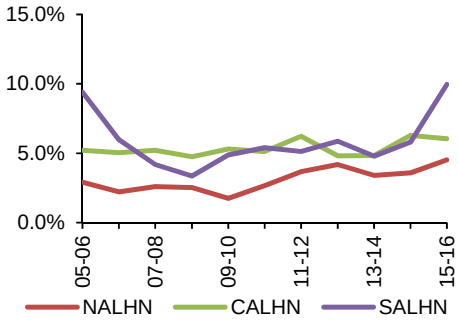
Hospitalisations (inpatient separations) (% live in lower-SES areas)	**Average length of overnight stay (ALOS) (days)**	**Hospitalisations ending with death in hospital (%)**	**Hospitalisations ending with transfer to another hospital (%)**
			
** Data prior to 2012-13 not available*	** Data prior to 2012-13 not available*	** Data prior to 2012-13 not available*	** Data prior to 2012-13 not available*
2005-06 metro total: n.a.	**2005-06 metro total: n.a.**	**2005-06 metro total: n.a.**	**2005-06 metro total: n.a.**
2015-16 metro total: 75,319 (23.0%)	**2015-16 metro total: 5.4 days o/n ALOS**	**2015-16 metro total: 802 (1.1%) died**	**2015-16 metro total: 3,990 (5.3%) transferred**

5. Aboriginal persons

The Health Performance Council respectfully uses the term 'Aboriginal', rather than 'Indigenous', to refer to people who self-identify as Aboriginal, Torres Strait Islander, or both. HPC recognises Aboriginal and Torres Strait Islander people as two separate groups. However, this document refers to Aboriginal persons in recognition that Aboriginal people are the original inhabitants of South Australia. We also acknowledge the complexity and diversity of the Aboriginal communities of South Australia, recognising each has its own beliefs and practice.

Aboriginal persons represent 2.3% of the population of South Australia[4] and 3.7% of metropolitan Adelaide public acute hospital activity. The Health Performance Council noted changes in trends in proportion of separations between the Local Health Networks, particularly between Northern Adelaide and Central Adelaide over the period 2010-11 to 2015-16.

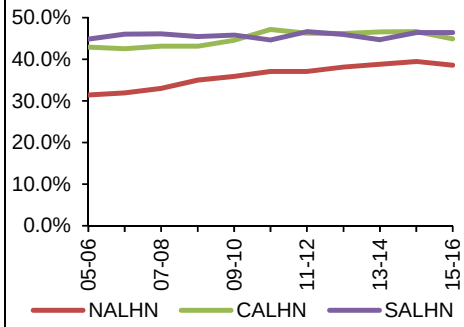
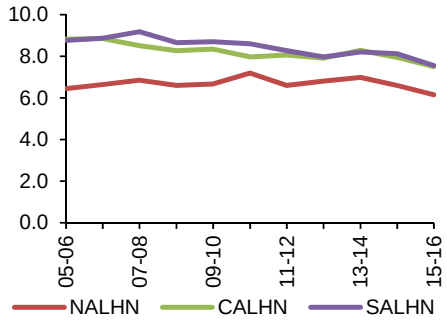
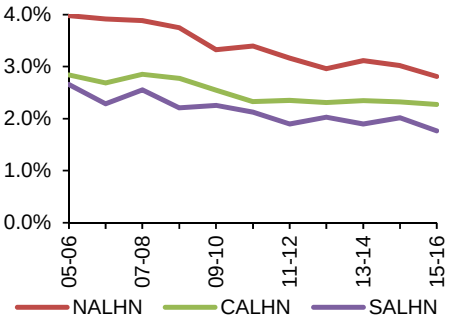
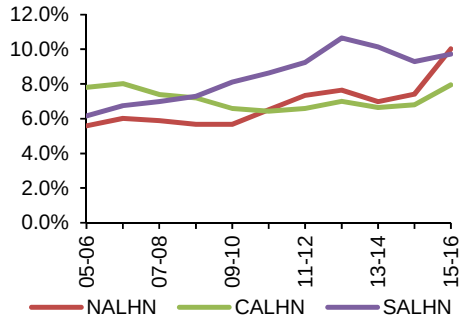
Average length of stay and in-hospital mortality rate for Aboriginal persons is trending down. In 2015-16 there was an increase in the proportion of Aboriginal hospitalisations in the Southern Adelaide Local Health Network that ended with transfer to another hospital.

Hospitalisations (inpatient separations) (% Aboriginal)	**Average length of overnight stay (ALOS) (days)**	**Hospitalisations ending with death in hospital (%)**	**Hospitalisations ending with transfer to another hospital (%)**
			
		** Numbers too small to split by LHN*	
2005-06 metro total: 6,667 (2.7%) **2015-16 metro total: 11,980 (3.7%)**	**2005-06 metro total: 7.3 days o/n ALOS** **2015-16 metro total: 6.1 days o/n ALOS**	**2005-06 metro total: 45 (0.7%) died** **2015-16 metro total: 52 (0.4%) died**	**2005-06 metro total: 356 (5.3%) transferred** **2015-16 metro total: 736 (6.1%) transferred**

6. Aged persons

The Health Performance Council defines aged person as inpatients aged 65 years and over at time of admission. This group represents 17.4% of the state's population[5] and 39.8% of hospital activity at metropolitan Adelaide public acute hospitals. Around half of inpatient activity at hospitals in the Central Adelaide and Southern Adelaide Local Health Networks are persons in this cohort.

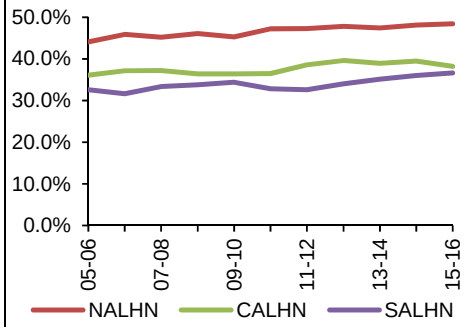
The average length of an overnight stay for patients in older age groups over the period 2005-06 to 2015-16 fell from 8.4 to 7.2 days. This is higher than the overall average length of overnight stay of 5.7 days. In-hospital deaths as a proportion of all activity for this population group has also decreased, down from 3.0% of hospitalisations in 2005-06 to 2.2% in 2015-16. This percentage is more than double the overall rate of 1.1%. The relative number of hospitalisations of patients in older age cohorts ending with transfer to another hospital is on the rise, up from 6.8% of all hospitalisations for the population group to 9.0%. This compares to the all-patient metropolitan total transfer rate of 6.2% reported in Section 1.

Hospitalisations (inpatient separations) (% aged 65+ years)	**Average length of overnight stay (ALOS) (days)**	**Hospitalisations ending with death in hospital (%)**	**Hospitalisations ending with transfer to another hospital (%)**
			
2005-06 metro total: 90,272 (36.4%) **2015-16 metro total: 130,371 (39.8%)**	**2005-06 metro total: 8.4 days o/n ALOS** **2015-16 metro total: 7.2 days o/n ALOS**	**2005-06 metro total: 2,669 (3.0%) died** **2015-16 metro total: 2,858 (2.2%) died**	**2005-06 metro total: 6,174 (6.8%) transferred** **2015-16 metro total: 11,718 (9.0%) transferred**

7. Patients admitted out-of-hours (night-time)

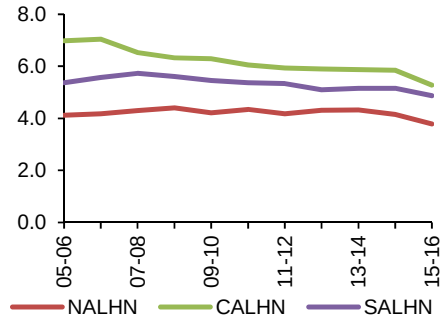
The Health Performance Council defines after hours (night-time) admissions as between 6:00pm and 8:00am, regardless of day of the week or public holidays. HPC will develop a complementary indicator that takes into account weekend admissions for future reports. The last ten years has seen a small but increasing trend in the proportion of inpatient admissions that occur at night at metropolitan Adelaide public acute hospitals, up from 37.5% of hospitalisations in 2005-06 to 40.6% in 2015-16. Average length of overnight stay and percentage of hospitalisations ending in death for this patient group has fallen, although proportion of after-hours-admitted patients being transferred to another hospital is up 2.4 percentage points from 5.8% in 2005-06 to 7.4% in 2015-16.

Hospitalisations (inpatient separations) (% admitted at night)



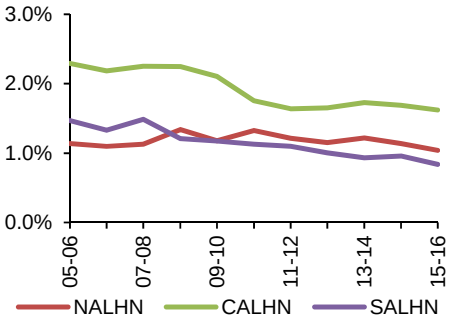
2005-06 metro total: 93,104 (37.5%)
2015-16 metro total: 132,816 (40.6%)

Average length of overnight stay (ALOS) (days)



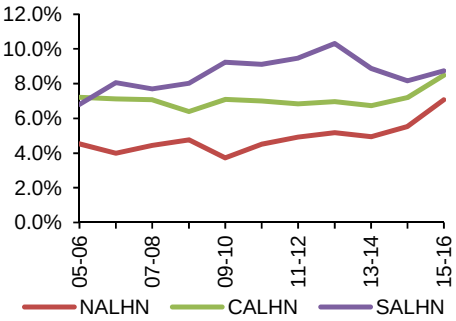
2005-06 metro total: 5.6 days o/n ALOS
2015-16 metro total: 4.6 days o/n ALOS

Hospitalisations ending with death in hospital (%)



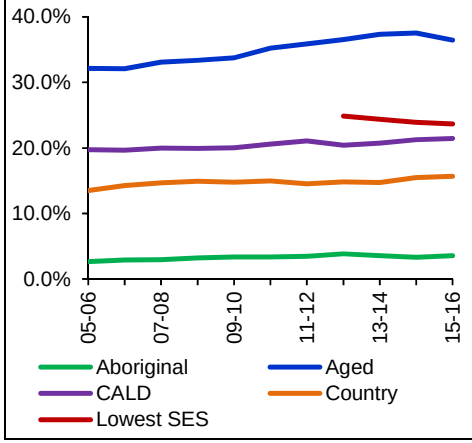
2005-06 metro total: 1,424 (1.5%) died
2015-16 metro total: 1,450 (1.1%) died

Hospitalisations ending with transfer to another hospital (%)

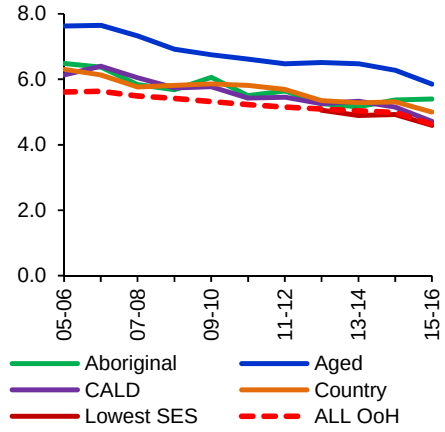


2005-06 metro total: 5,385 (5.8%) transferred
2015-16 metro total: 9,821 (7.4%) transferred

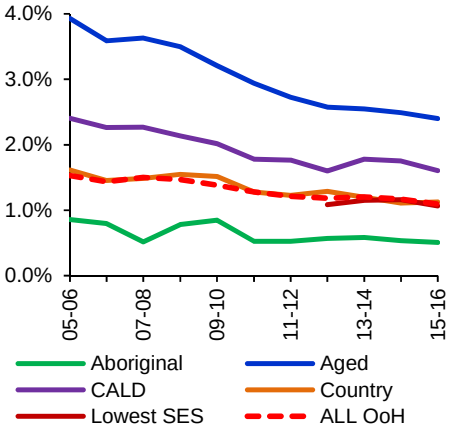
Hospitalisations where admission was at night by specific population group



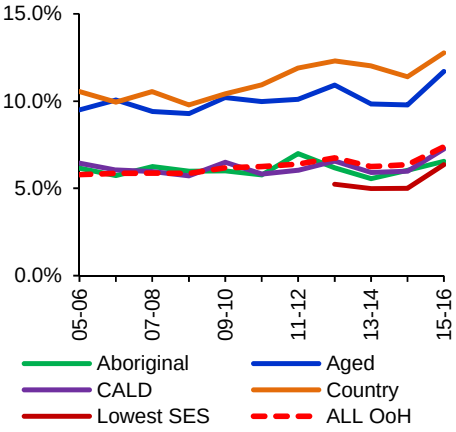
ALOS (days) for night-time admissions by specific population group



In-hospital deaths (%) for night-time adms by specific population group



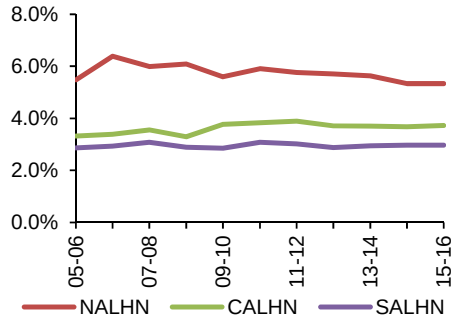
Hospital transfers (%) for night-time adms by specific population group



8. Patients admitted for cardiovascular disease

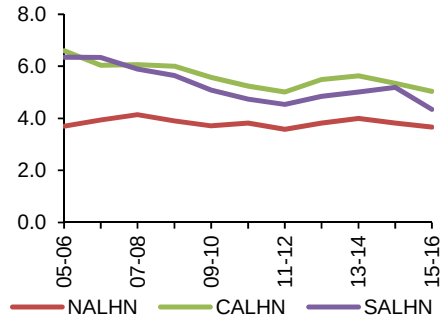
The proportion of inpatient hospitalisations for cardiovascular disease (CVD) – stroke, chest pain, and heart failure and shock – at metropolitan Adelaide public hospitals has remained relatively steady over the last decade, representing 3.5% of all inpatient hospitalisations in 2015-16. The Northern Adelaide Local Health Network (NALHN) accounts for the majority of CVD inpatient activity. Average length of overnight stay is on the decline for this patient group, as is the rate of hospitalisations that end with death in hospital. The Southern Adelaide Local Health Network (SALHN) has seen a decrease in the proportion of CVD inpatient activity that ends with a transfer to another hospital with rates now similar to those of the Central Adelaide and Northern Adelaide LHNs.

Hospitalisations (inpatient separations) (% admitted for CVD)



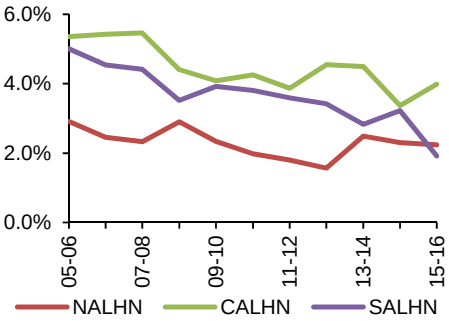
2005-06 metro total: 7,867 (3.2%)
2015-16 metro total: 11,309 (3.5%)

Average length of overnight stay (ALOS) (days)



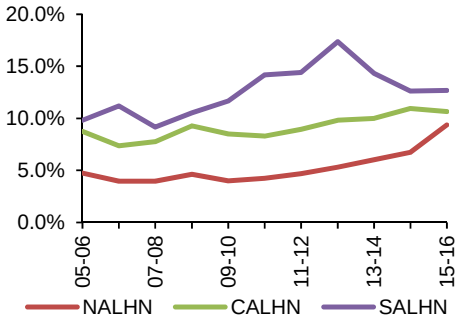
2005-06 metro total: 5.7 days o/n ALOS
2015-16 metro total: 4.4 days o/n ALOS

Hospitalisations ending with death in hospital (%)



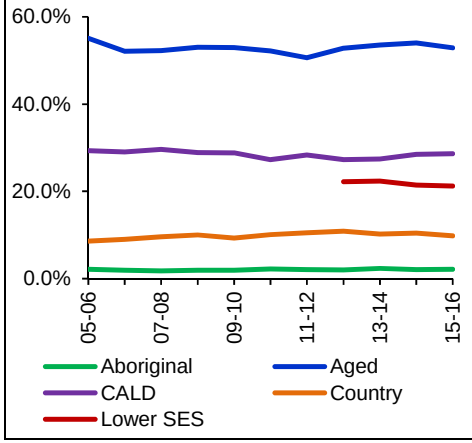
2005-06 metro total: 356 (4.5%) died
2015-16 metro total: 325 (2.9%) died

Hospitalisations ending with transfer to another hospital (%)

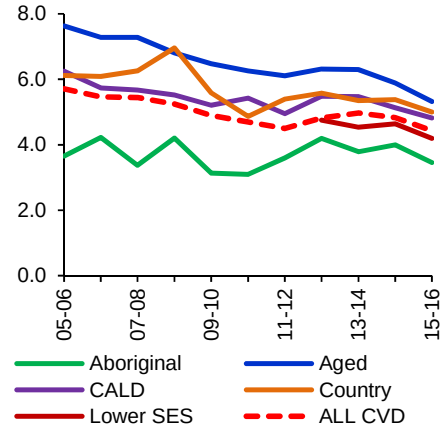


2005-06 metro total: 613 (7.8%) transferred
2015-16 metro total: 1,222 (10.8%) transferred

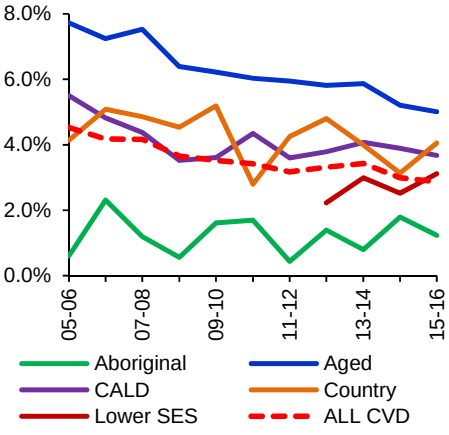
Hospitalisations for CVD by specific population group



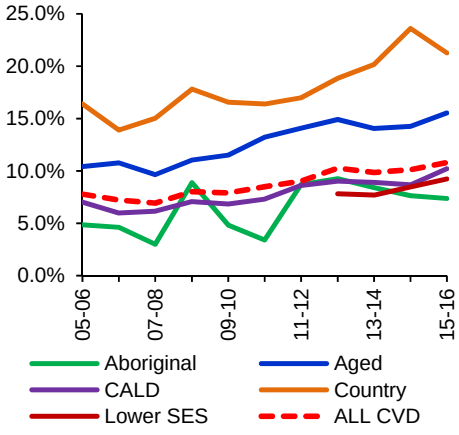
ALOS (days) for CVD admissions by specific population group



In-hospital deaths (%) for CVD by specific population group



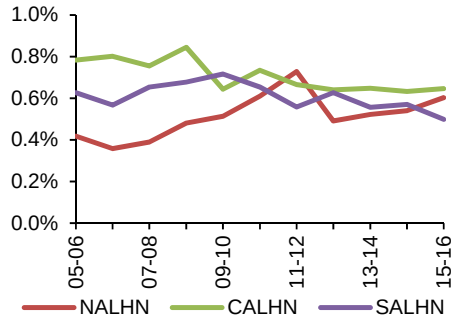
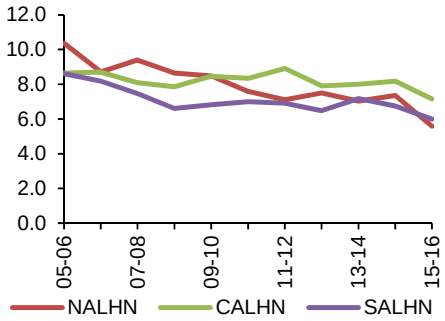
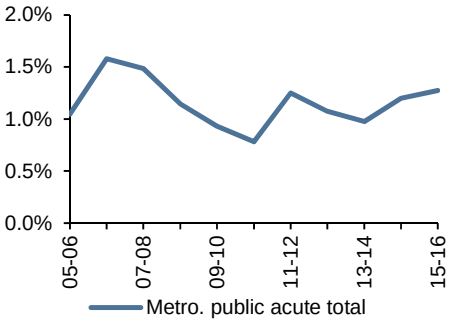
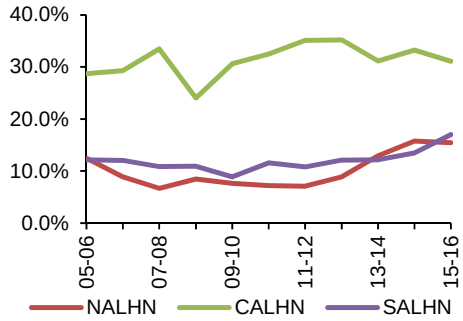
Hospital transfers (%) for CVD by specific population group



9. Patients admitted for hip and knee replacement

Safely reducing length of stay for hip and knee replacement surgery patients, particularly at the Royal Adelaide Hospital in the Central Adelaide Local Health Network (CALHN), was an early focus of SA Health in its implementation of Transforming Health[6]. The Health Performance Council is monitoring outcomes for this patient group as a priority surgical clinical activity group, although total volume of activity is relatively low.

Over the last ten years, the average length of overnight stay for hip and knee replacement inpatient hospitalisations decreased by 27.0%, down from 8.9 days in 2005-06 to 6.5 days in 2015-16. Around one third of hip and knee replacement inpatient hospitalisations across CALHN end with a transfer to another hospital, around three times the rate observed for the Northern Adelaide and Southern Adelaide LHNs.

Hospitalisations (inpatient separations) (% admitted for hip & knee replacement)	**Average length of overnight stay (ALOS) (days)**	**Hospitalisations ending with death in hospital (%)**	**Hospitalisations ending with transfer to another hospital (%)**
			
		** Numbers too small to split by LHN*	
2005-06 metro total: 1,434 (0.6%) **2015-16 metro total: 1,729 (0.5%)**	**2005-06 metro total: 8.9 days o/n ALOS** **2015-16 metro total: 6.5 days o/n ALOS**	**2005-06 metro total: 15 (1.0%) died** **2015-16 metro total: 22 (1.3%) died**	**2005-06 metro total: 304 (21.2%) transferred** **2015-16 metro total: 404 (23.4%) transferred**

There is insufficient volume of hospital inpatient activity for hip and knee replacements to break the data down further by specific population groups.

Appendix 1: Technical notes

This technical appendix is provided to explain definitions and assumptions about indicators to avoid potential misinterpretation by all readers including non-technical audiences.

Data sources

HPC's monitoring of the implementation of Transforming Health uses data sourced from SA Health's central hospital morbidity and activity database, known as the *Integrated South Australian Activity Collection* (ISAAC).

ISAAC covers all public and private hospitals in South Australia. It records details of inpatient "episodes of care" commencing with admission to hospital and concluding with a "separation" (discharge, transfer or death). ISAAC is the means by which admitted patient activity can be monitored, funded, evaluated, planned for, researched and reviewed to ensure that SA Health continues to deliver efficient and equitable health services.

ISAAC data is extracted via SA Health's corporate/enterprise management information reporting tool, the *Health Information Portal*.

Hospitals included

Transforming Health applies specifically to metropolitan Adelaide acute hospitals. Corporate counting rules pre-define these sites in ISAAC as the following:

- **Northern Adelaide Local Health Network:** Lyell McEwin Health Service and Modbury Hospital
- **Central Adelaide Local Health Network:** Hampstead Rehabilitation Centre; Pregnancy Advisory Centre; Royal Adelaide Hospital; St Margaret's Hospital; and The Queen Elizabeth Hospital
- **Southern Adelaide Local Health Network:** Flinders Medical Centre; Noarlunga Hospital; and Repatriation General Hospital
- **Women's and Children's Health Network:** Women's and Children's Hospital and Torrens House (2005-06 data only)
- **Other sites:** Southern Districts War Memorial Hospital is defined within ISAAC as a metropolitan Adelaide public acute hospital and therefore included. It has a very low volume of activity.

Counting rules

To ensure consistency, HPC applies pre-defined ISAAC business counting rules to the hospital activity data before extraction and further analysis. Standard business counting rules include grouping, or "bundling", episodes that experience multiple care type changes during a hospital stay into a single record. Bundling provides a more accurate picture of the number of patients actually discharged from a hospital. Standard business counting rules also excludes sameday endoscopy and chemotherapy activity.

Measures reported

- **Hospitalisations (inpatient separations):** A hospital inpatient "separation" is a completed episode of care of an admitted patient, generally concluding with their discharge from hospital (mostly to home), transfer to another healthcare facility or in-hospital death. It can also include other types of separation, such as 'administrative separation' applied for hospital activity payment purposes.

  The charts in this report show hospitalisations as raw numbers for the total (first chart) or as a percentage of this total for subsequent selected patient and population types.

- **Average length of overnight stay (ALOS):** To be consistent with the Australian Institute of Health and Welfare national reporting counting rules, HPC only counts inpatients that spent a minimum of one night in hospital when deriving this metric.

- **Hospitalisations ending with death in hospital:** The HPC reports deaths in hospitals as a crude rate (number of inpatients who died in hospital as a percentage of all separations). No adjustment is done for type of hospital or care received (such as palliative care), age or condition of patient, patient mix or other explanatory variables that may be considered in statistical models such as standardised hospital mortality ratios.

- **Hospitalisations ending with transfer to another hospital:** As with deaths in hospital, the HPC reports this indicator as a crude rate (episodes of care that conclude with transfer to another hospital as a percentage of all separations). No adjustment is done for type of hospital or care received, age or condition of patient, patient mix or other explanatory variables.

Patient types

- **Patients admitted for cardiovascular or hip and knee replacement**: HPC uses the Extended Service Related Group (ESRG) classification to report cardiovascular and hip and knee replacement inpatient activity. The ESRG classification is based on Australian Refined Diagnosis Related Group (AR-DRG) aggregations to categorise admitted patient episodes into groups representing clinical divisions of hospital activity.

  - **Cardiovascular** patients are defined by HPC in this report as episodes of care in the ESRGs of "Stroke", "Chest Pain", and "Heart Failure & Shock".

  - **Hip and knee replacement** patients are defined by HPC in this report as episodes of care in the ESRG of "Hip & Knee Replacement".

  - HPC's monitoring of the impact of Transforming Health does not include any other surgical activities. There is insufficient volume of activity to support specific population group analysis of hip replacement or fractured neck of femur procedures.

- **Patients admitted out-of-hours (night-time)**: HPC defines after hours (night-time) admissions as inpatients admitted between 6:01pm and 7:59am, regardless of day of the week or public holidays.

Population types

- **Culturally and linguistically diverse (CALD) persons**: Defined by the HPC as persons born in non-main English speaking countries. These are countries *other than* Australia (incl. external territories), New Zealand, United Kingdom (incl. Isle of Man & Channel Islands), Ireland, United States of America, Canada and South Africa.
- **Rural and remote residents**: Defined by the HPC as persons who reside within SA Health's Country Health South Australia Local Health Network (CHSALHN) boundaries.
- **Lower socioeconomic status geographic areas of South Australia:** Areas identified using the Australian Bureau of Statistics' Socio-economic Index for Areas (SEIFA), ABS 2013, 'Table 3. Statistical Area Level 2 (SA2) Index of Relative Socio-economic Disadvantage, 2011', Socio-economic Index for Areas (SEIFA), Data Cube only, 2011, cat. no. 2033.0.55.001.

  South Australian SA2s ranked in the bottom quintile (bottom 20%) within this state are:

  - **Metro:** Davoren Park, Elizabeth, Elizabeth East, Smithfield - Elizabeth North, Virginia - Waterloo Corner, Enfield - Blair Athol, Parafield Gardens, Paralowie, Salisbury, Salisbury North, Christie Downs, Hackham West - Huntfield Heights, Morphett Vale – West, Royal Park – Hendon – Albert Park, Woodville – Cheltenham, Port Adelaide, The Parks.
  - **Country:** Peterborough – Mt Remarkable, Port Pirie, Wallaroo, Ceduna, Western, Whyalla, APY Lands, Coober Pedy, Port Augusta, Millicent, Barmera, Berri, Murray Bridge, Renmark, Waikerie.

  Note that ISAAC incorporated SA2s into its reporting on 1 July 2012 and so the charts start at 2012-13 for this indicator.
- **Aboriginal persons:** The Health Performance Council respectfully uses the term 'Aboriginal', rather than 'Indigenous', to refer to people who self-identify as Aboriginal, Torres Strait Islander, or both. HPC recognises Aboriginal and Torres Strait Islander people as two separate groups. However, this document refers to Aboriginal persons in recognition that Aboriginal people are the original inhabitants of South Australia. We also acknowledge the complexity and diversity of the Aboriginal communities of South Australia, recognising each has its own beliefs and practice.
- **Aged persons:** Inpatients whose age at admission was 65 years or older.

Quality control

The HPC developed its monitoring of the implementation of Transforming Health in consultation with SA Health, sourcing data from enterprise datasets and applying standardised business counting rules. Technical information has been provided in this report so that results can be replicated. HPC validates its monitoring with relevant experts to confirm robustness of method, accuracy of findings and clarity of presentation.

Appendix 2: References

[1] Health Performance Council, State of Our Health, '1-1. Population', http://hpcsa.com.au/state_of_our_health/chapter_1/1_1, viewed 24 Feb 2017.

[2] Ibid., '1-2-1. People born overseas', http://hpcsa.com.au/state_of_our_health/chapter_1/1_2.

[3] Ibid., '1-1-1. Population by region', http://hpcsa.com.au/state_of_our_health/chapter_1/1_1.

[4] Ibid., '1-1. Population', http://hpcsa.com.au/state_of_our_health/chapter_1/1_1.

[5] Ibid., '1-1-2. Population by age and sex', http://hpcsa.com.au/state_of_our_health/chapter_1/1_1.

[6] Transforming Health, 'Pilot programs result in reduced emergency department waiting times and surgical length of stay' http://transforminghealth.sa.gov.au/pilot-programs-result-in-reduced-emergency-department-waiting-times-and-surgical-length-of-stay, released 18 Nov 2015, viewed 28 Feb 2017.