Safer Care Victoria

Quarter 2 2017 Report

Victorian Renal Key Performance Indicators

Victorian Renal Clinical Network

VICTORIA State Government

Victorian Renal
Key Performance Indicators
Quarter 2 2017 Report

Contents

List of abbreviations

AVF	Arterio Venous Fistula
AVG	Arterio Venous Graft
CKD	Chronic Kidney Disease
ESKD	End Stage Kidney Disease
HD	Haemodialysis
KHA-CARI	Kidney Health Australia Caring for Australasians with Renal Impairment
KPI	Key Performance Indicator
PD	Peritoneal Dialysis
RRT	Renal Replacement Therapy
VRCN	Victorian Renal Clinical Network

Introduction

The Victorian Renal Clinical Network (VRCN) established a Renal Key Performance Indicator (KPI) working group in 2011, with the purpose of developing and implementing indicators to measure the performance of Victorian renal services. The aim of the indicators is to drive service improvement and increase efficiency and consistency through the transparent comparison of agency performance.

The Renal KPI working group includes a cross section of health professionals spanning the chronic kidney disease (CKD) continuum. The group developed four key performance indicators related to CKD and dialysis. The Renal Transplant working group of the VRCN developed another two KPIs related to renal transplantation. The membership of each group is listed in Appendix 1.

The VRCN leadership group formally endorsed the six KPIs in 2012, which are detailed in Appendix 2. Formal permission to participate in the data collection and bench-marking program was obtained from the CEO of each health service. Data is collected monthly by the Department of Health and Human Services using a specifically designed website portal.

The Renal KPI working group meet regularly and remain responsible for analysing the data at the end of each quarter and ensuring that the indicators remain accurate, meaningful and relevant. Each indicator has clear definitions, parameters and targets set. Targets may be changed as performance evolves which will be assessed and determined by the KPI working group.

The Department of Health and Human Services is responsible for overseeing data entry and collating the quarterly reports. This is the seventeenth report and reviews data for the full year from July 2016 to June 2017. The Renal KPI working group is committed to provide quarterly reports to track progress in the future.

Feedback or comments on the report are welcome to ensure the report meets health services' needs and provides a useful basis for renal service evaluation. Comments should be provided to Gregory Dowling at: Gregory.dowling@dhhs.vic.gov.au

Performance

KPI 1: Proportion of new, planned patients who have received CKD education before starting dialysis

Definition

The percentage of patients that attended a Chronic Kidney Disease (CKD) education session that is documented in their medical record, before commencement of renal replacement therapy (RRT).

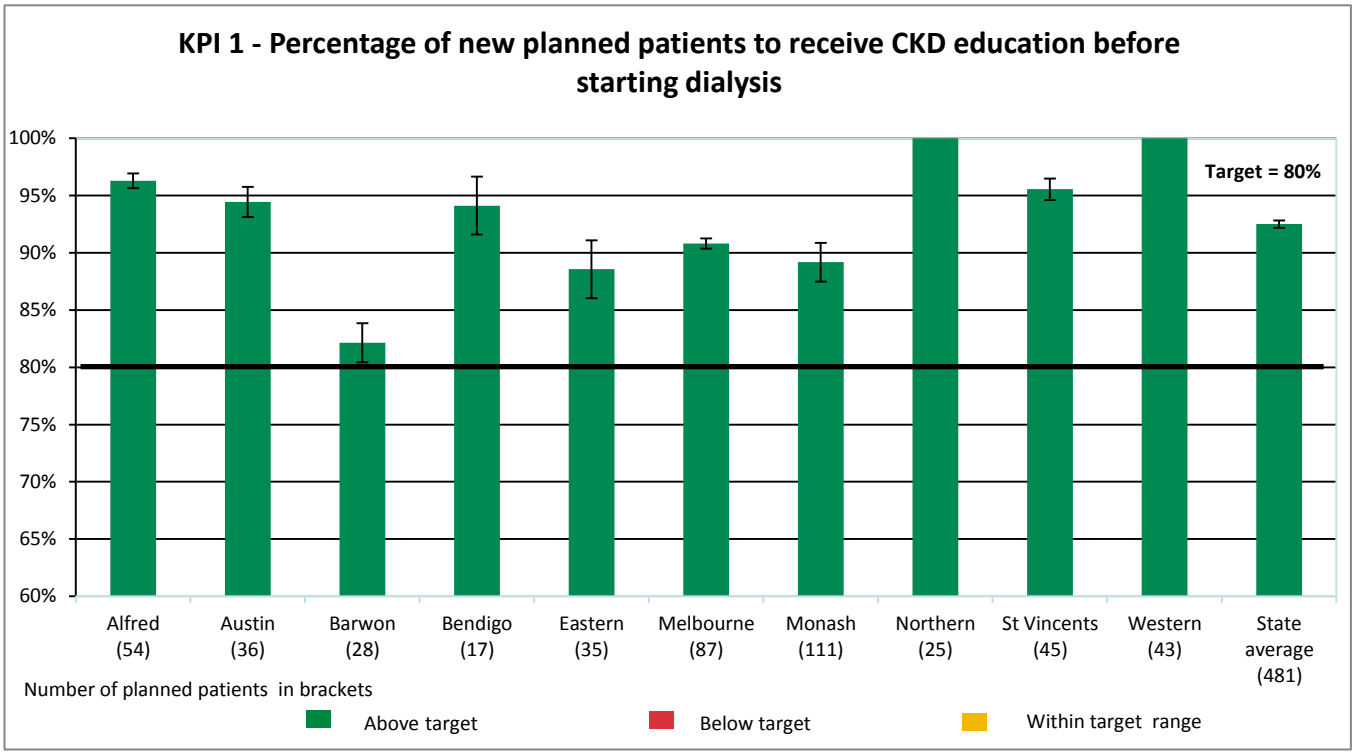
Target

80 per cent of new, planned patients who start dialysis have attended a CKD education session.

Exclusions

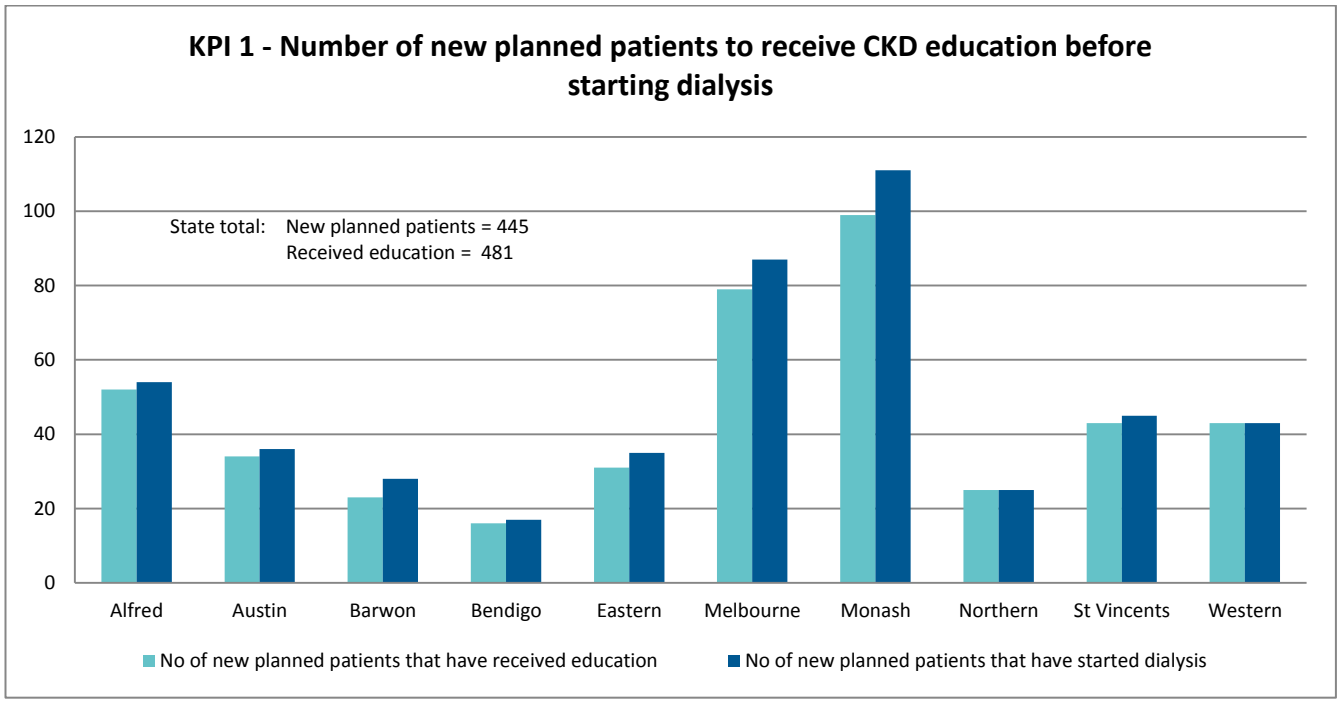
- Late referrals (patients commencing dialysis within three months of first renal consultation)
- Patients returning to dialysis with a failed transplant.

Results

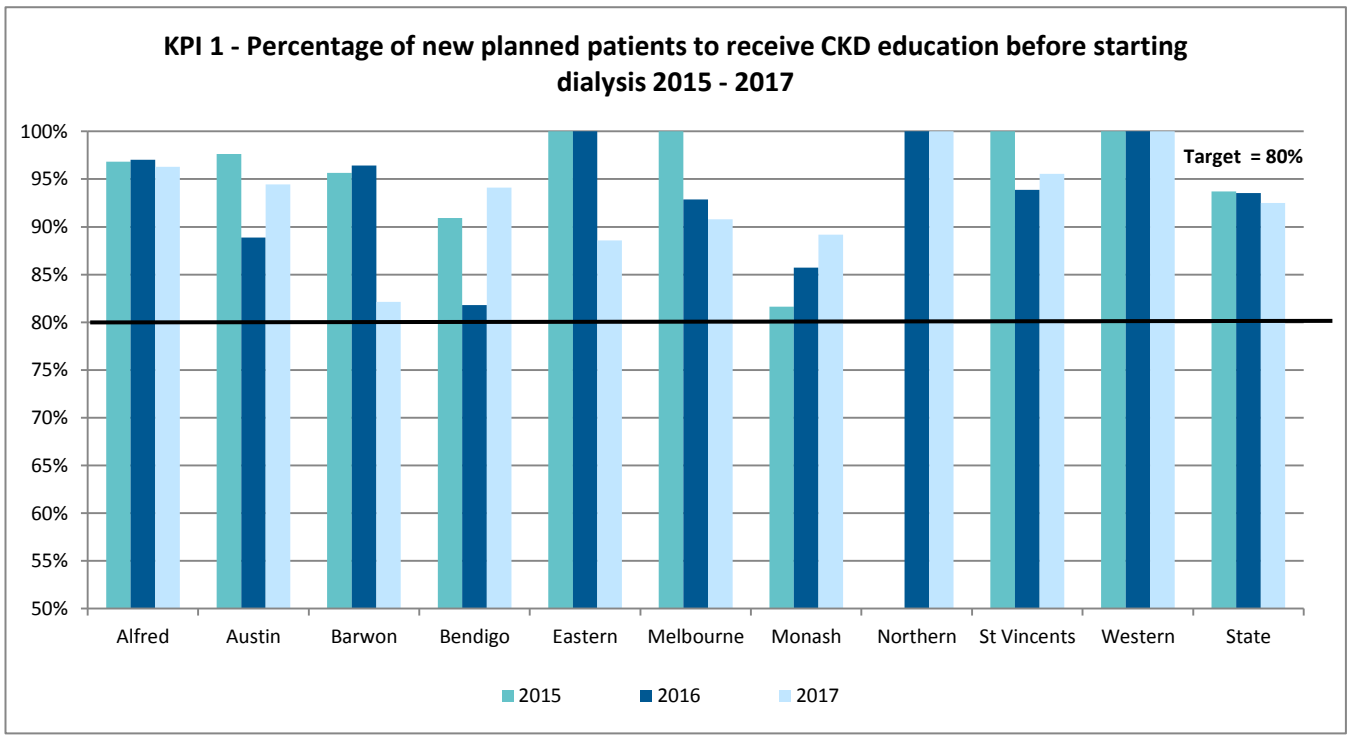


Note: Results based upon data average for the period Jul 2016 - Jun 2017

All confidence intervals used in this document are specified at the 95 per cent level.



Note: Results based upon data for the period Jul 2016 - Jun 2017



Note: Results showing trend over time: based on 12-month averages for the previous 3 years.
2017 (Jul 16 – Jun 17), 2016 (Jul 15 – Jun16) and 2015 (Jul 14 – Jun 15)

KPI 2: Proportion of new, planned RRT patients (excluding pre-emptive live donor transplants within 2 weeks of transplant) who successfully use an arteriovenous fistula or graft access at first HD treatment

Definition

The percentage of new planned RRT patients that started treatment using an arterio venous fistula (AVF) or arterio venous graft (AVG).

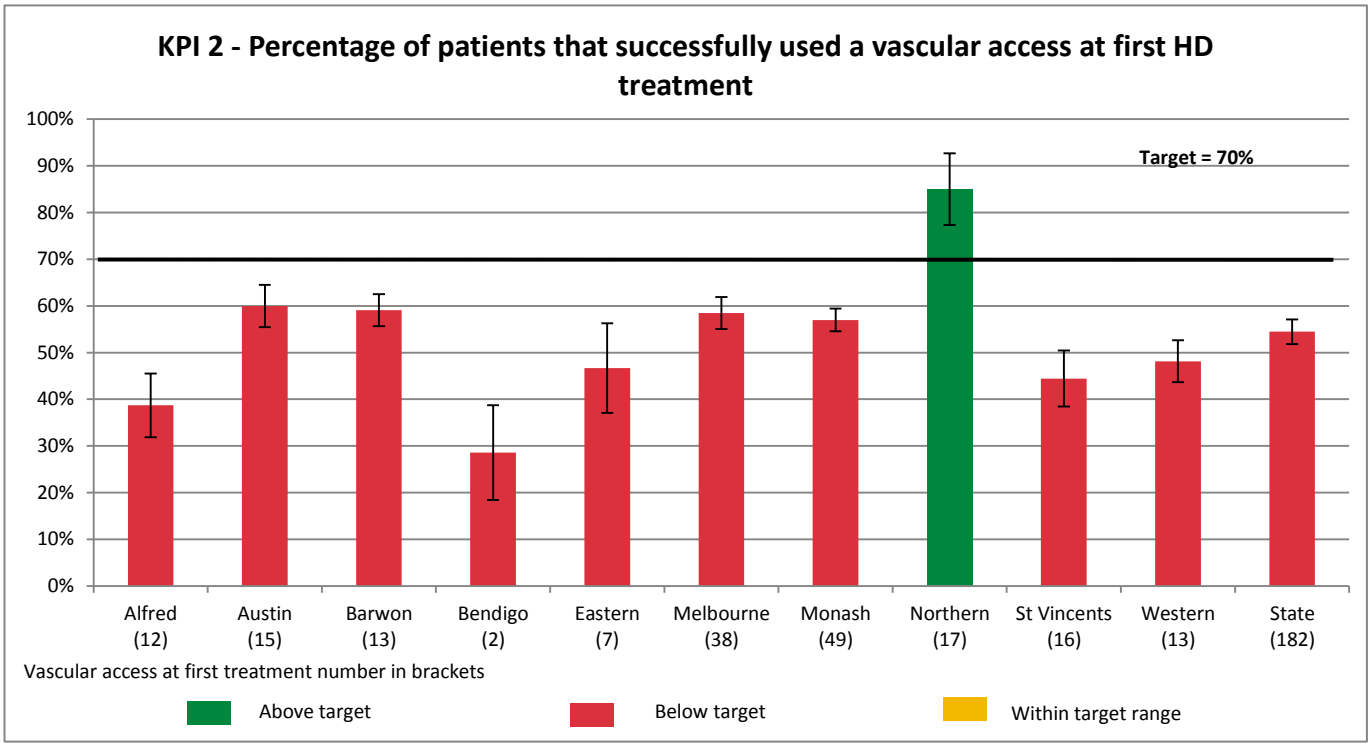
Target

70 per cent of new planned dialysis patients use a vascular access at first treatment.

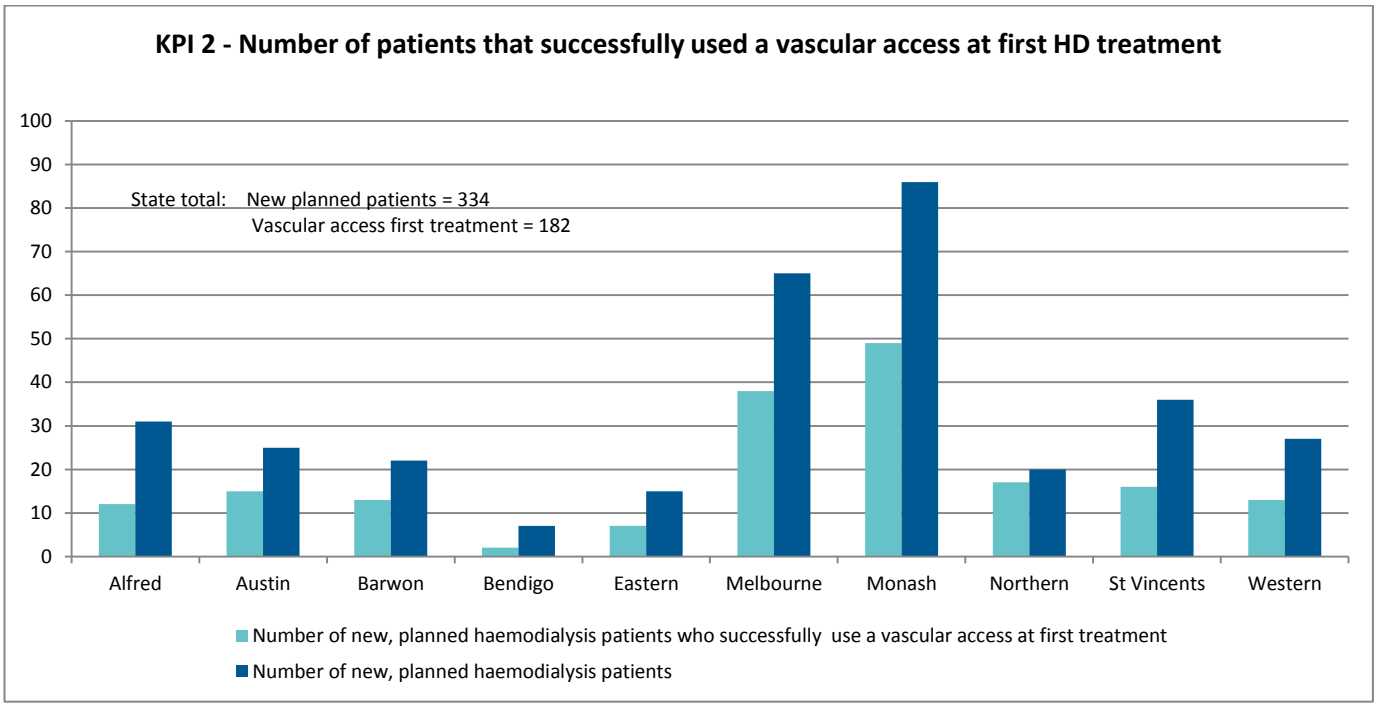
Exclusions

- Late referrals (patients commencing dialysis within three months of first renal consultation)
- Patients with a failed transplant or transferring from peritoneal dialysis (PD).

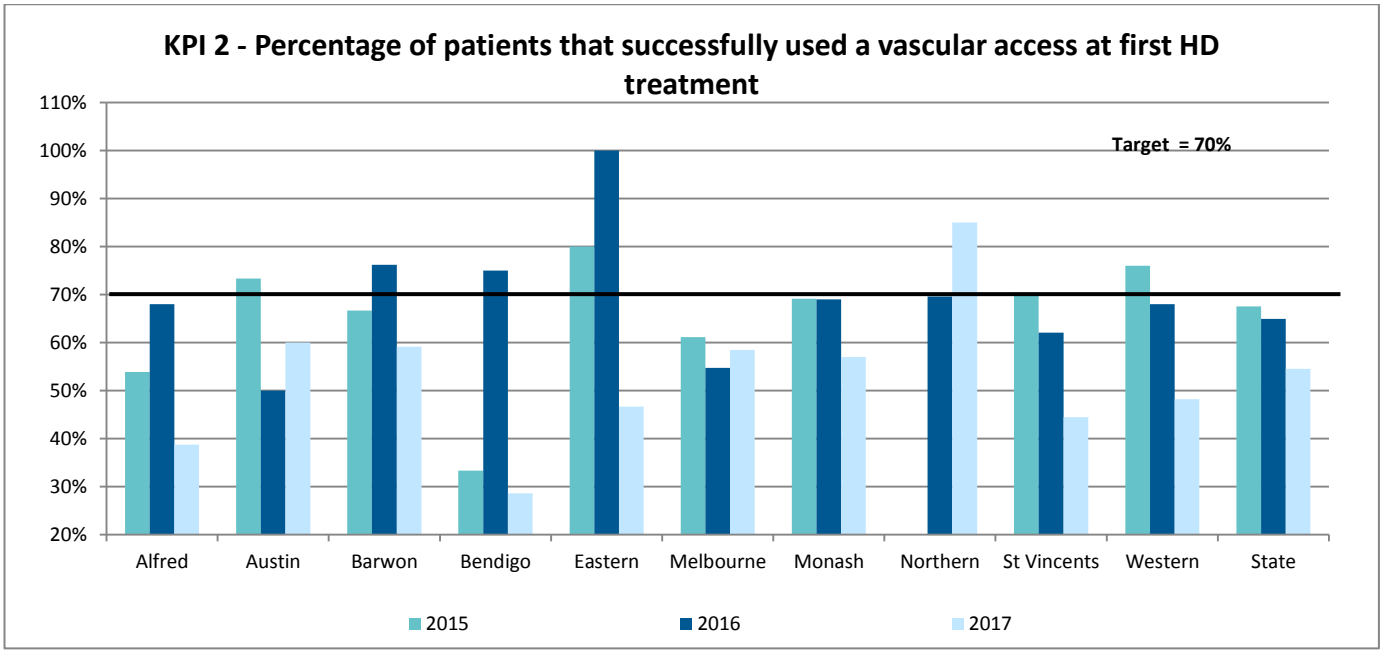
Results



Note: Results based upon data averaged for the period Jul 2016 - Jun 2017.



Note: Results based upon data for the period Jul 2016 - Jun 2017



Note: Results showing trend over time: based on 12-month averages for the previous 3 years.
2017 (Jul 16 – Jun 17), 2016 (Jul 15 – Jun 16) and 2015 (Jul 14 – Jun 15)

KPI 3: Proportion of dialysis patients who are dialysing at home

Definition

- Incident patients – the percentage of patients who are dialysing at home within six months of starting dialysis (out of total patients who started dialysis in the six months prior)
- Prevalent patients – the overall percentage of patients who are dialysing at home.

Target

(i) Incident patients – 35 per cent of dialysis patients are on home dialysis within six months of starting dialysis

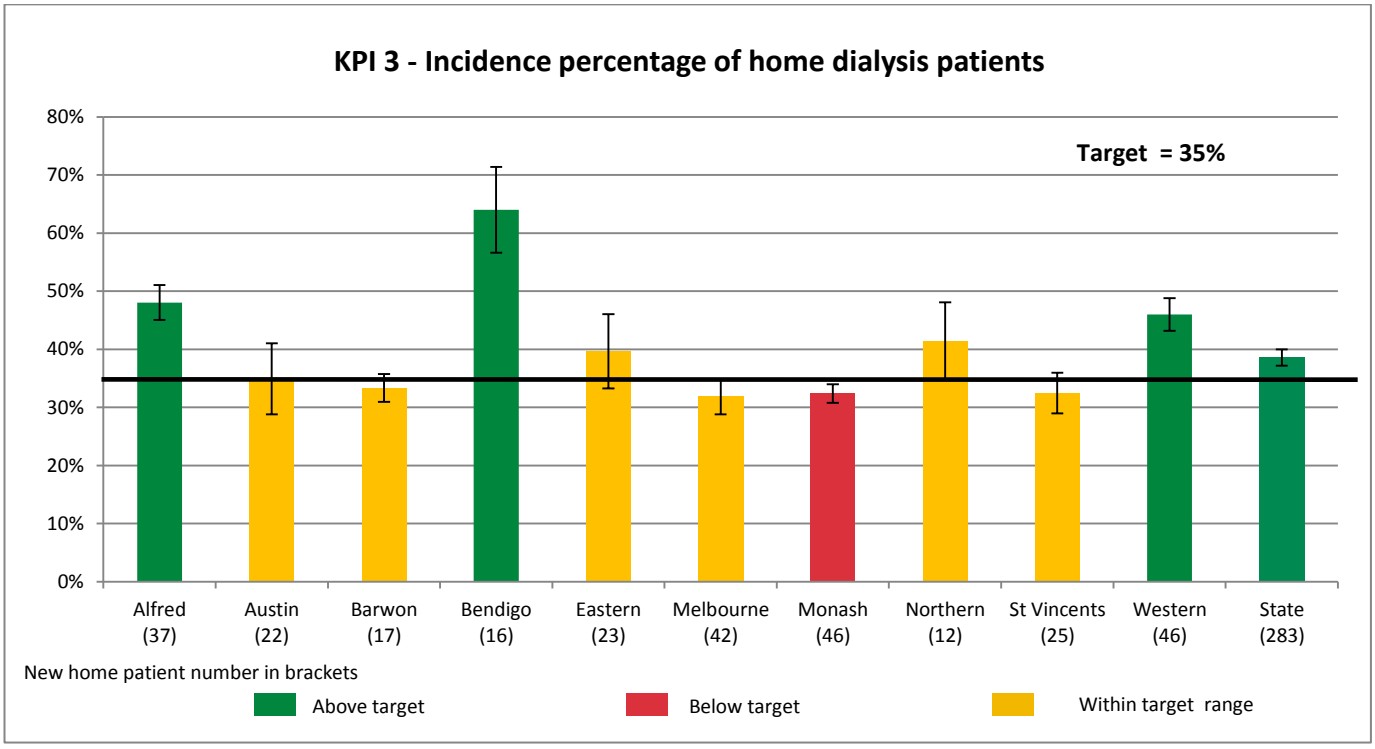
(ii) Prevalent patients – 35 per cent of dialysis patients are on home dialysis.

Exclusions

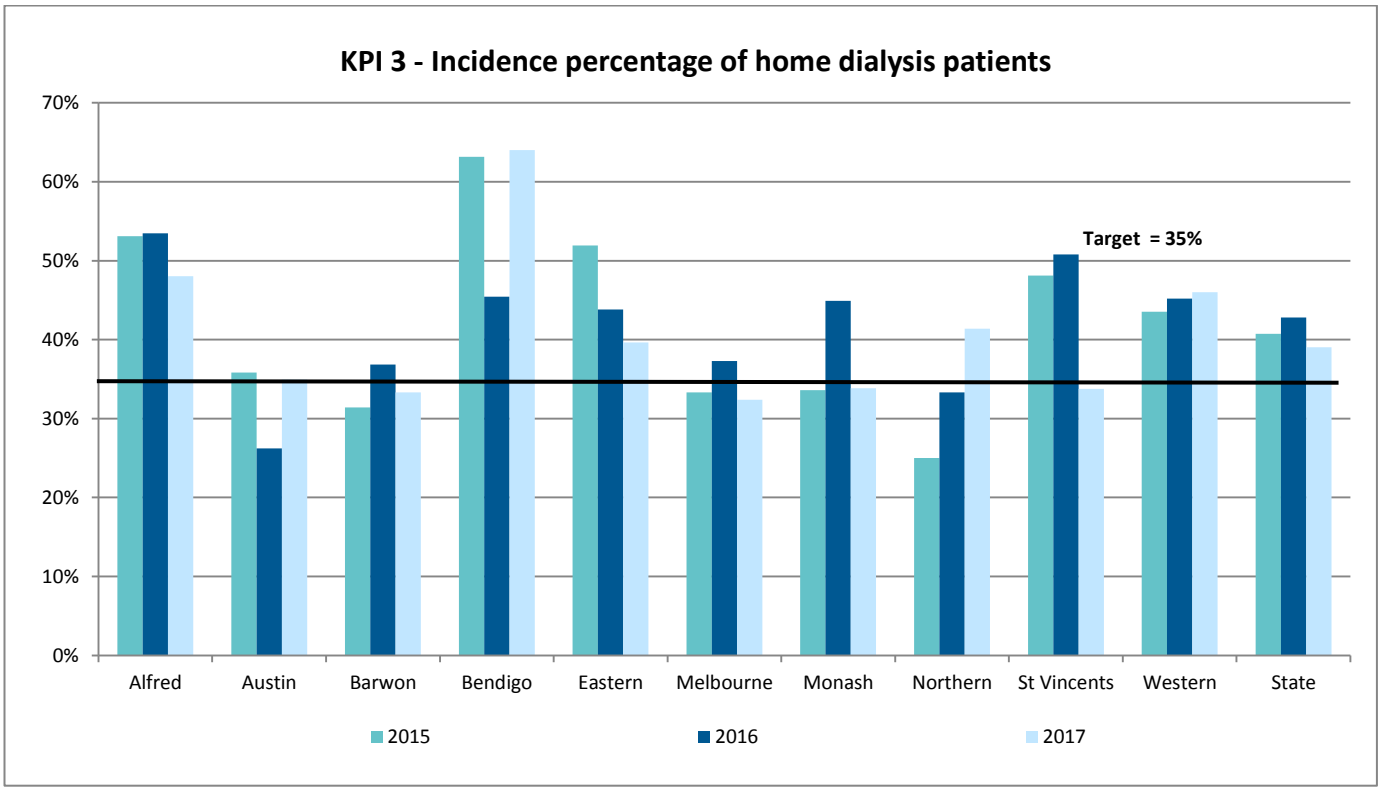
- Patients who are in home training units.

Results

Incidence

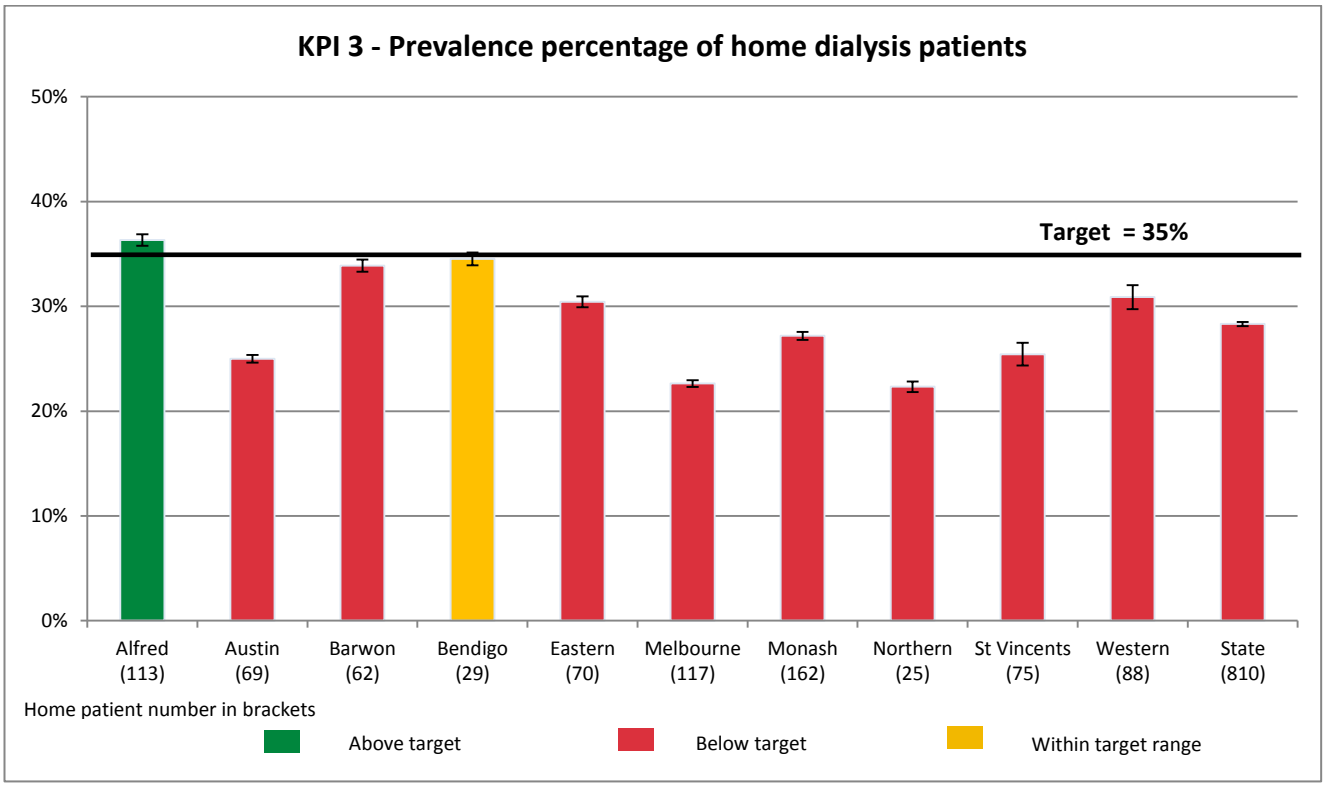


Note: Above graph represents the home incidence rate averaged for the 12 months of Jul 2016 - Jun 2017

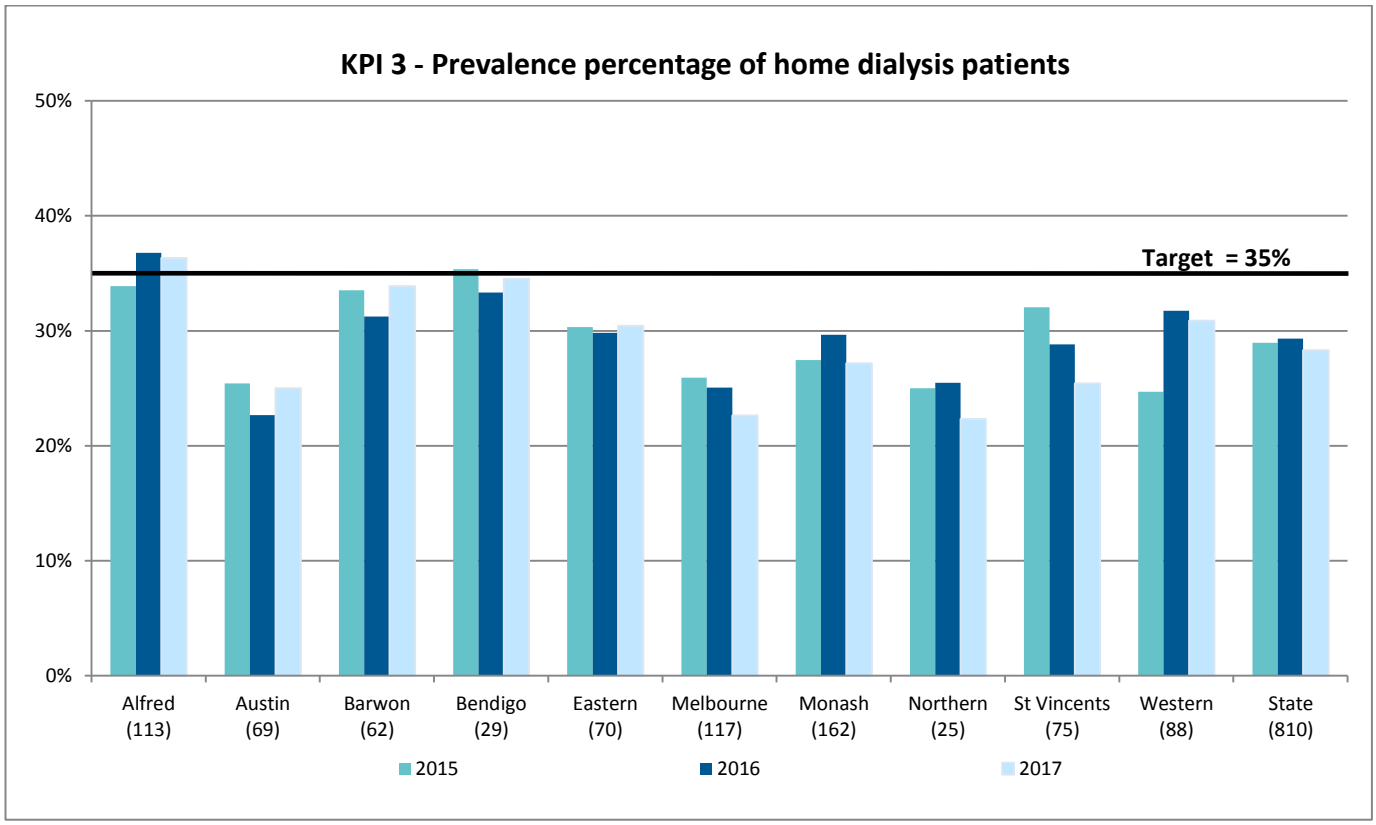


Note: Results showing trend over time: based on 12 month averages for the previous 3 years.
2017 (Jul 16 – Jun 17), 2016 (Jul 15 – Jun 16) and 2015 (Jul 14 – Jun 15)

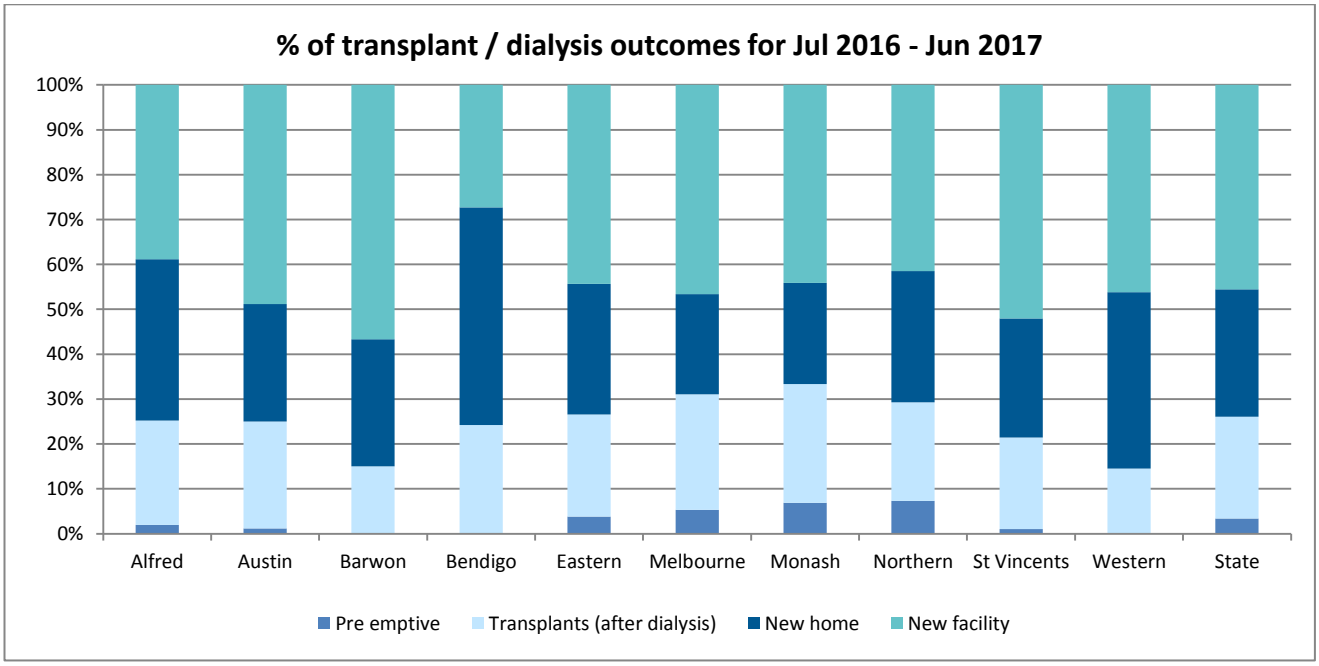
Prevalence



Note: Above graph represents the home prevalence rate averaged for the 12 months of Jul 2016 - Jun 2017



Note: Results showing trend over time: based on 12 month averages for the previous 3 years.
2017 (Jul 16 – Jun 17), 2016 (Jul 15 – Jun 16) and 2014 (Jul 14 – Jun 15).



The above graph demonstrates the percentage of all renal replacement therapy options at each hub in the twelve months to June 2017.

KPI 4: Peritonitis rates of each hub service

Definition

The average number of months between peritonitis episodes.

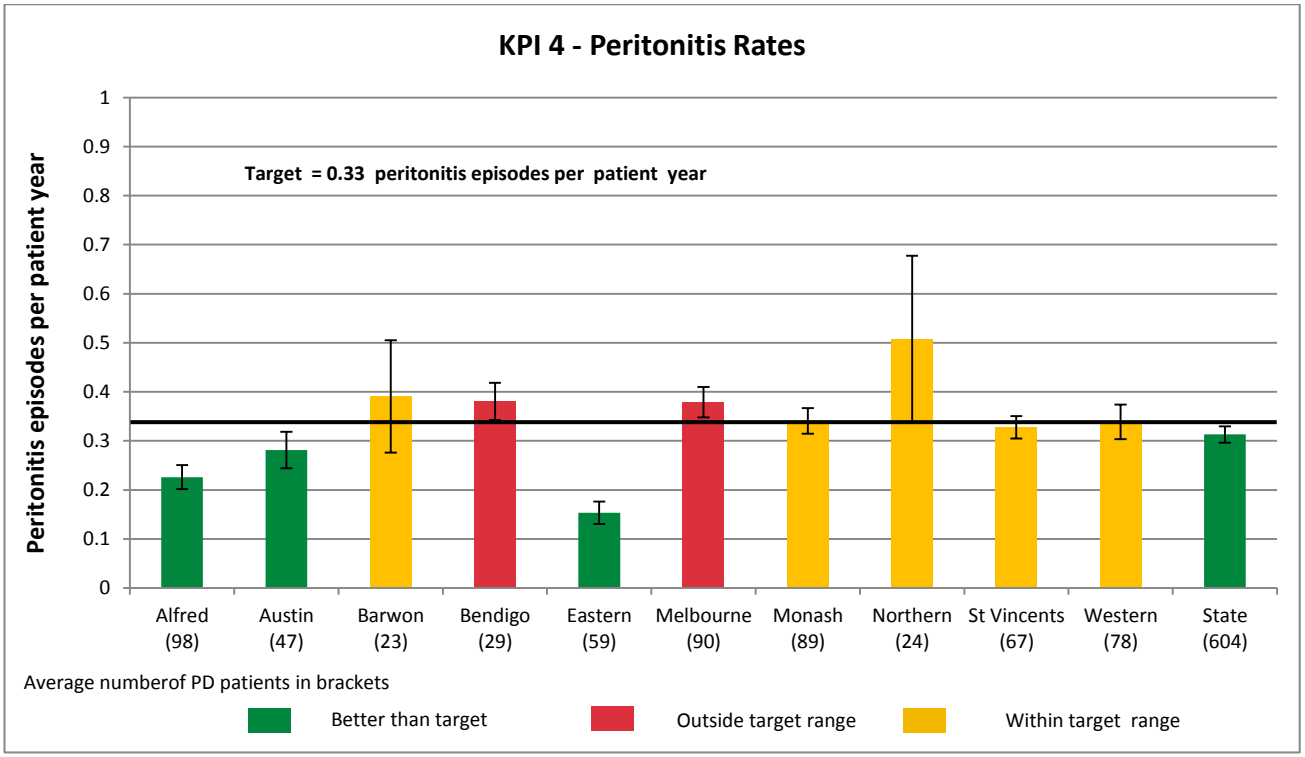
Target

A maximum of 0.33 peritonitis episodes for every patient year.

Exclusions

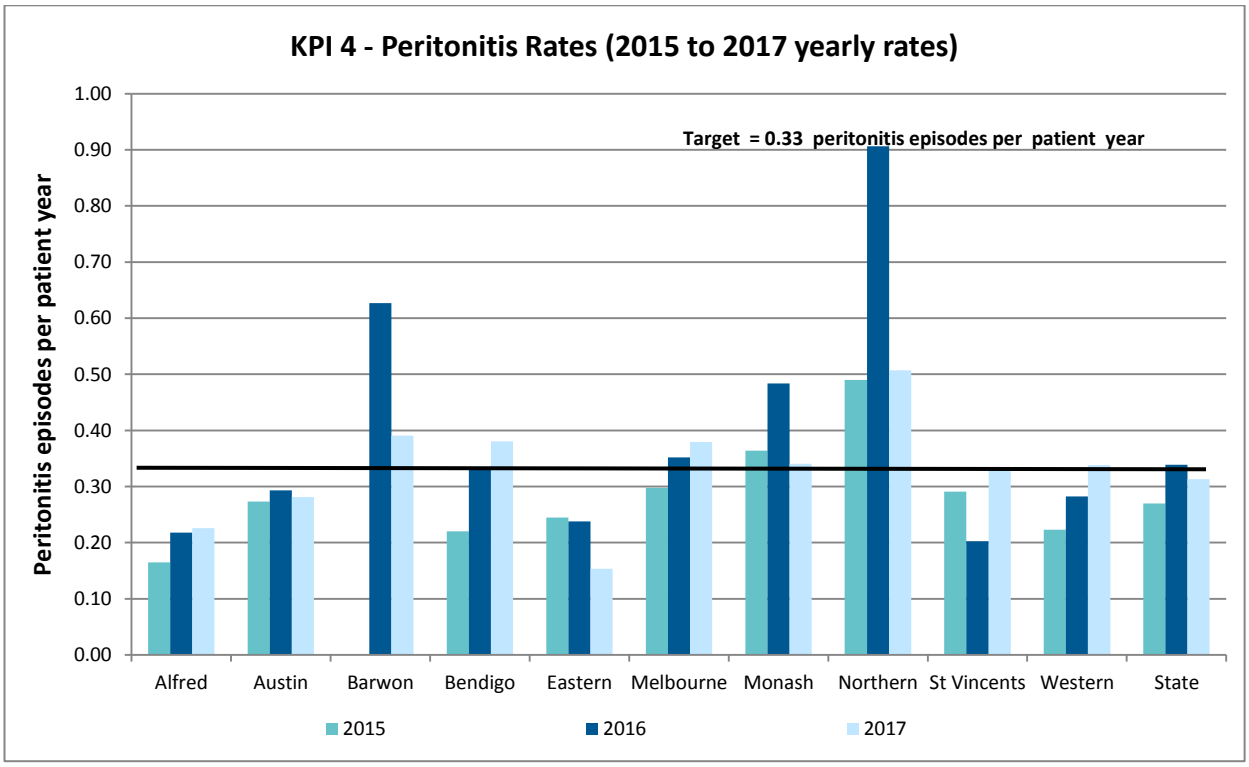
- Patients who have a catheter in situ but are still pre-dialysis.

Results



Note: Results based upon data average for the period Jul 2016 - Jun 2017

Improved hub performance in this KPI is reflected in a smaller bar in the above graph. If better than the benchmark value of 0.33 peritonitis episodes per patient year the bar is shaded green and reported as "better than target"



Note: Results showing trend over time: based on 12-month averages for the previous 3 years.
2017 (Jul 16 – Jun 17), 2016 (Jul 15 – Jun 16) and 2015 (Jul 14 – Jun 15)

The International Society of Peritoneal Dialysis (ISPD) 2016 guidelines recommended the peritonitis rate should be reported as number of episodes per patient-year. This is a change from the peritonitis episodes per month of the previous five reporting years. The ISPD have also recommended 0.5 episodes per year at risk as the minimum guideline for peritonitis incidence. However, as part of a continuous quality improvement program the VRCN recommended the target be lowered to 0.33 episodes per year at risk. Note lower results reported for this KPI the better the performance. Currently six hub services are now performing above the benchmark standard (i.e below target) whilst the state average remains within target range.

KPI 5: Proportion of new live donor transplants that are pre-emptive

Definition

The percentage of new live donor transplants that are pre-emptive (in which the patient requires less than two weeks of dialysis).

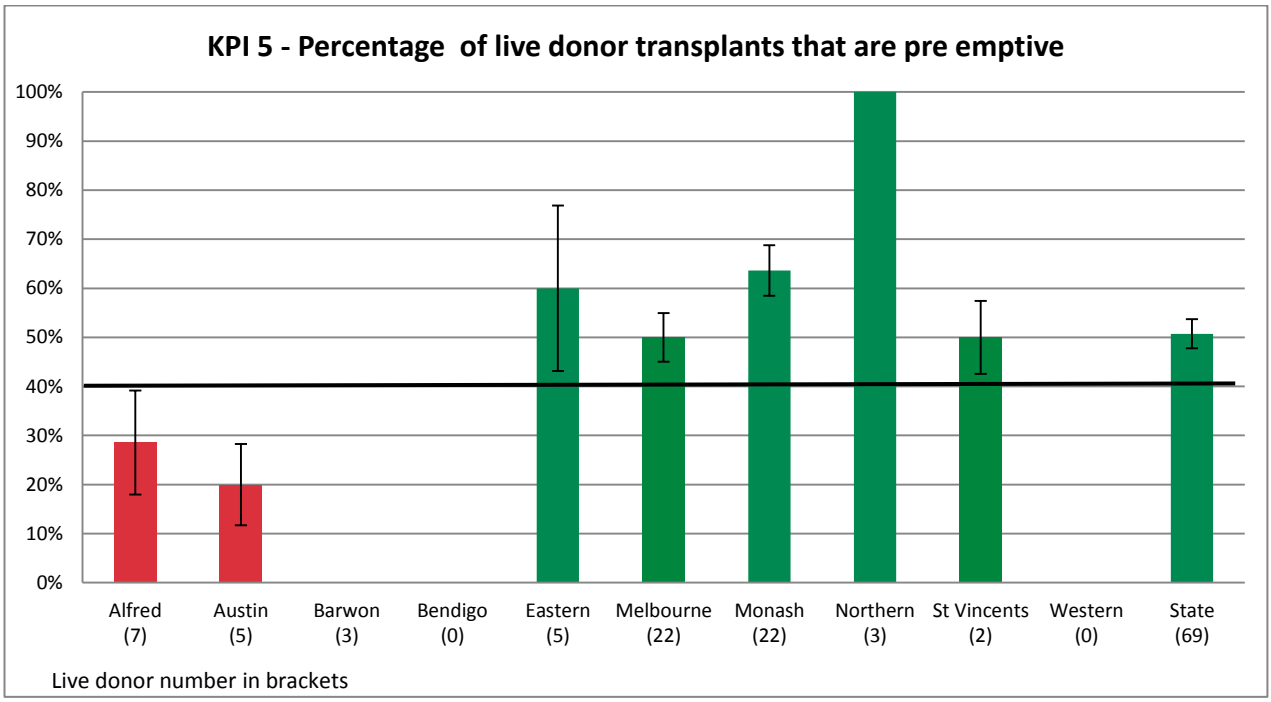
Target

40%

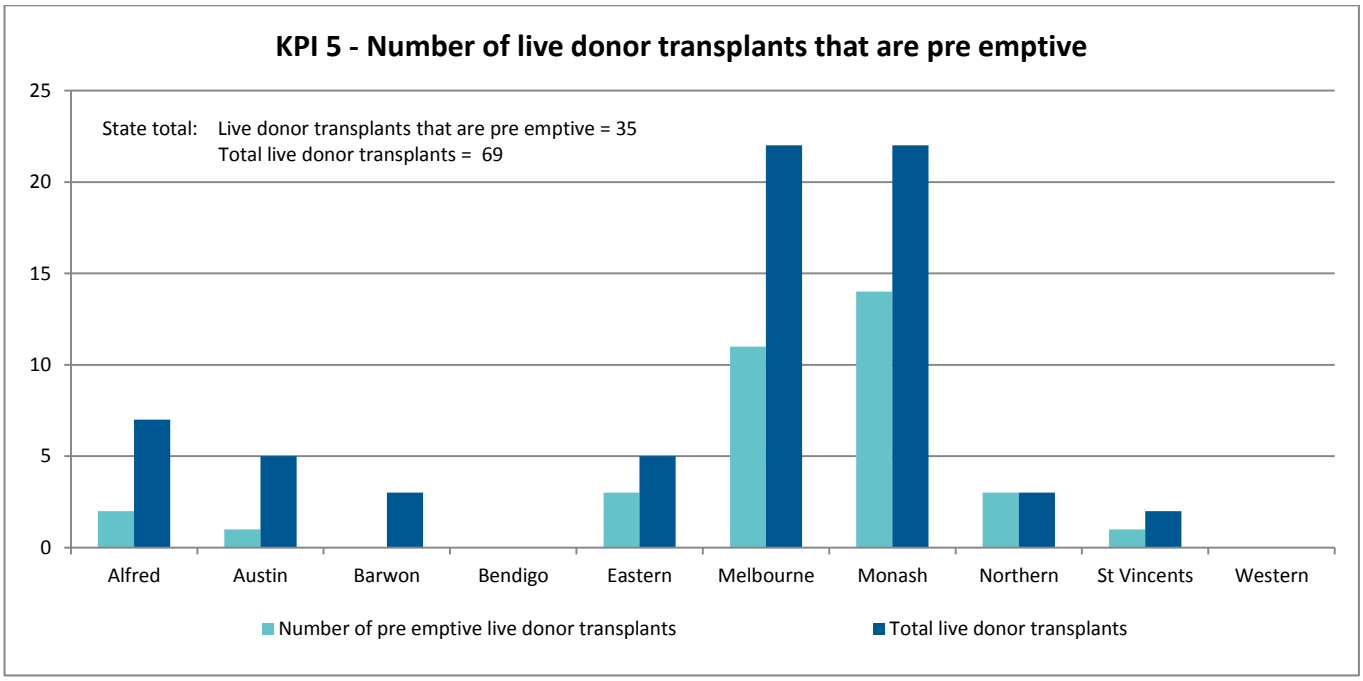
Exclusions

- Patients with failed transplants recommencing RRT
- Patients having a combined organ transplant.

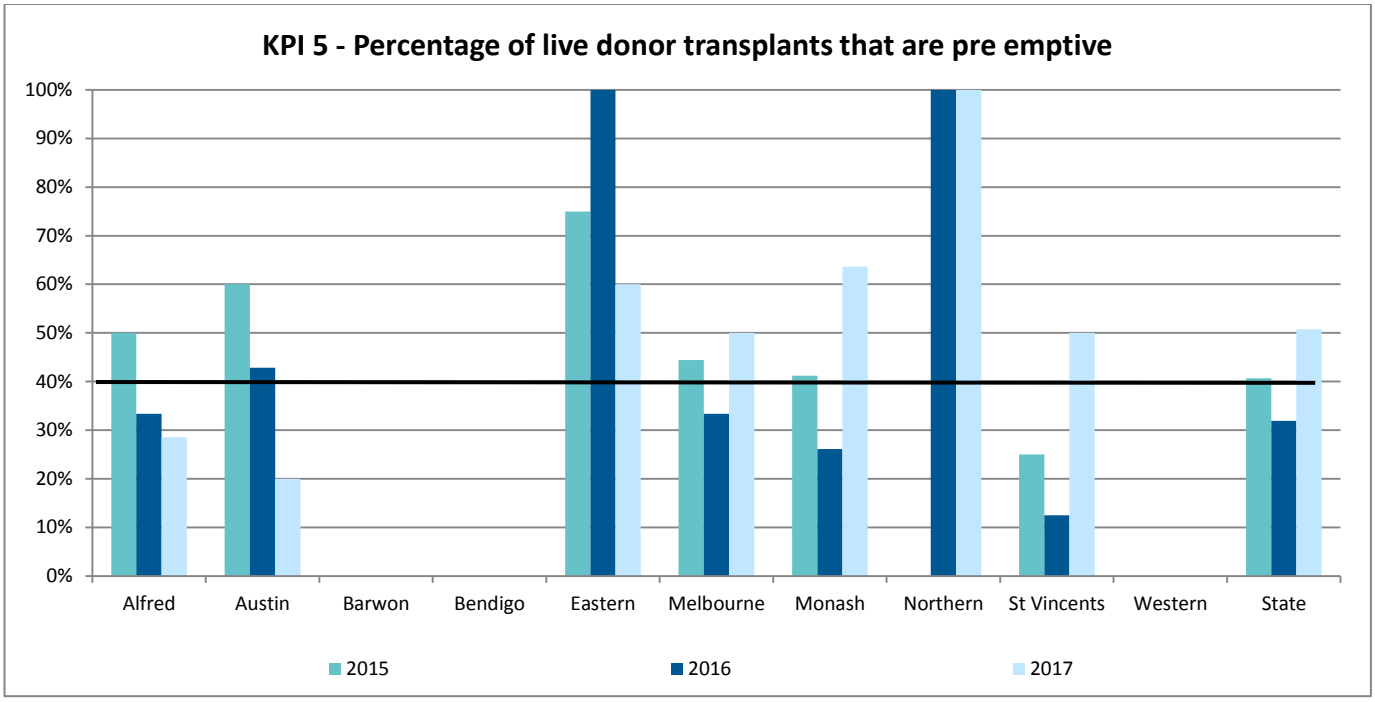
Results



Note: Results based upon data average for the period Jul 2016 – Jun 2017

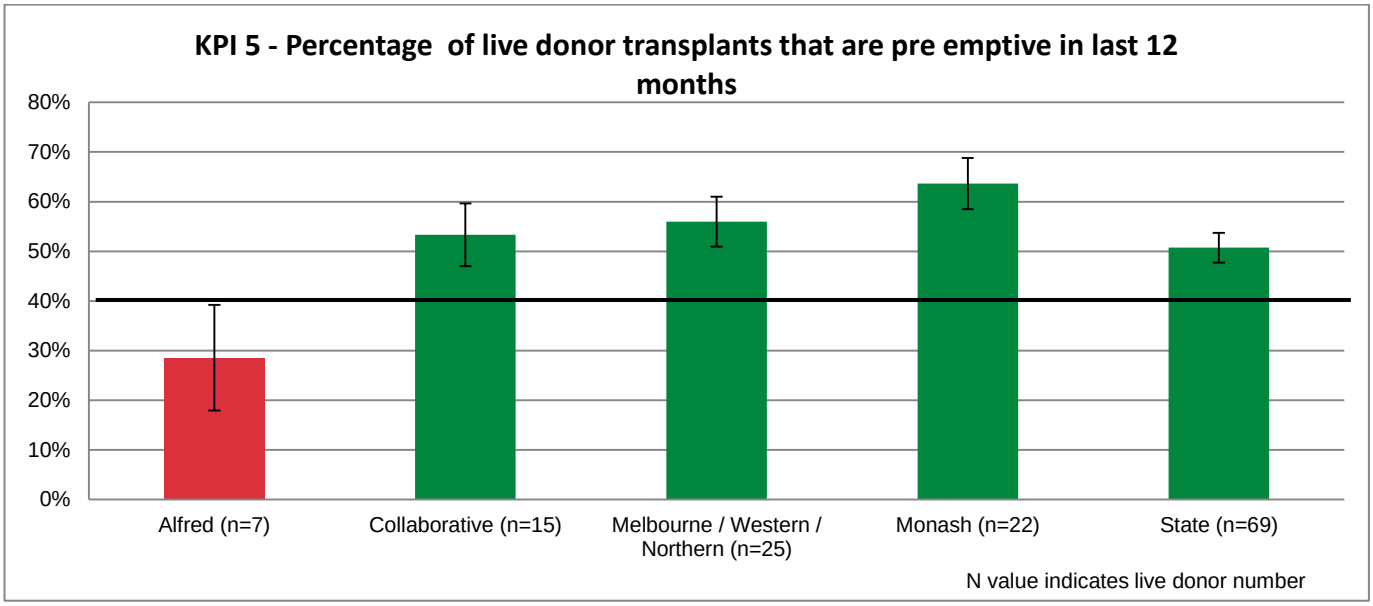


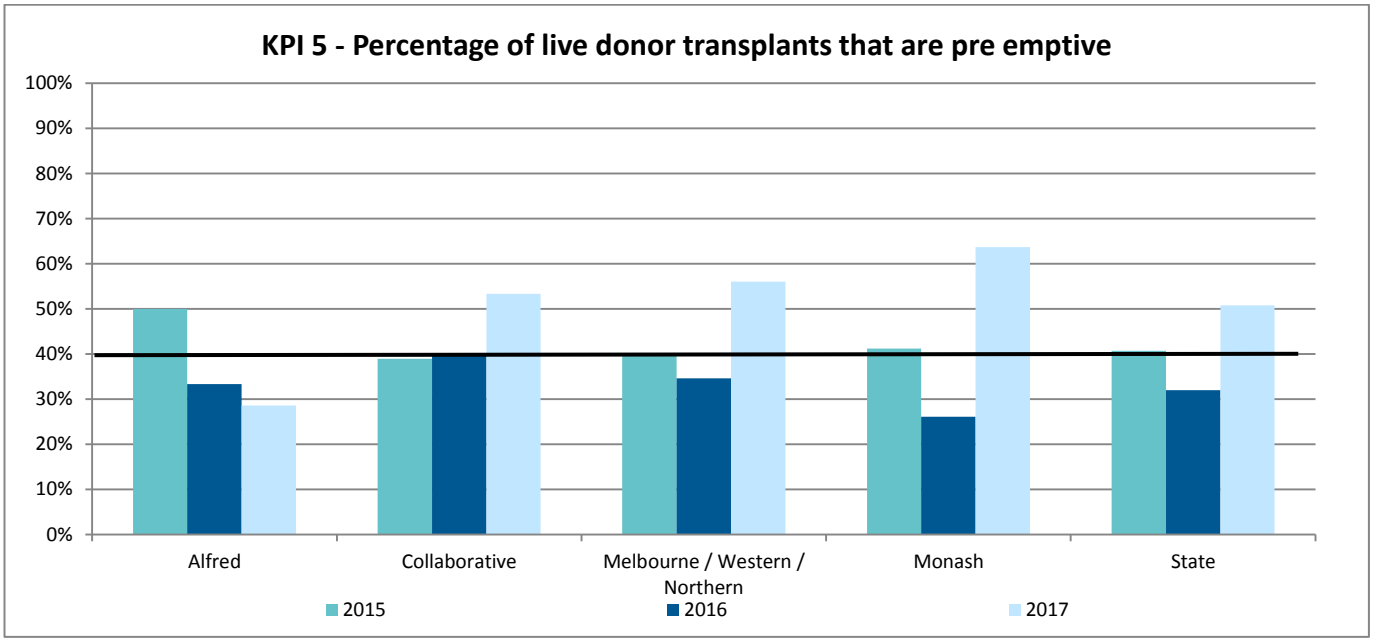
Note: Results based upon data average for the period Jul 2016 – Jun 2017



Note: Results showing trend over time: based on 12-month averages for the previous 3 years.
2017 (Jul 16 – Jun 17), 2016 (Jul 15 – Jun 16) and 2015 (Jul 14 – Jun 15)

The preferred option is to report KPI 5 activity for each hub service, however due to the low activity numbers of the smaller transplant centres their data can often appear statistically insignificant and difficult to interpret in any meaningful form. To alleviate this problem and display the data in another form, their activity was aggregated to increase the statistical robustness. These centres labelled the 'collaborative' in this report comprise (Austin, Barwon, St Vincent's, Eastern and Bendigo Health Services). Western and Northern Health had its activity numbers aggregated with Melbourne Health due to its transplant service arrangement. All other transplanting centres had their activity reported as per normal.





Note: Results based on 12-month averages for previous 3 years. 2017 (Jul 16 – Jun 17), 2016 (Jul 15 – Jun 16) and 2015 (Jul 14 – Jun 15)

KPI 6: Proportion of new end stage kidney disease (ESKD) patients under 65 years old who have had a transplant or are on the active list

Definition

The percentage of new EKSD patients under 65 years of age who have had a transplant or are on the 'active' list within:

(i) three months of requiring RRT

(ii) six months of requiring RRT.

Target

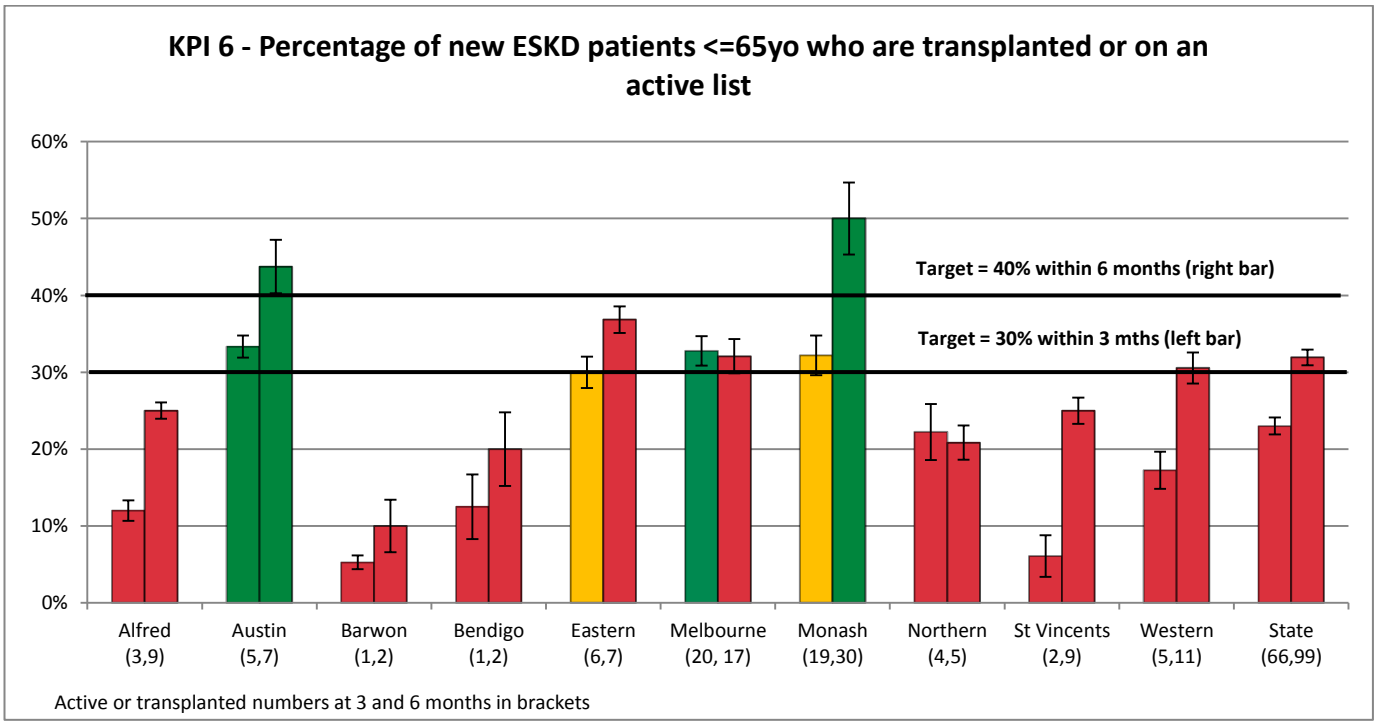
(i) 30 per cent of new ESKD patients within three months of requiring RRT

(ii) 40 per cent of new ESKD patients within six months of requiring RRT.

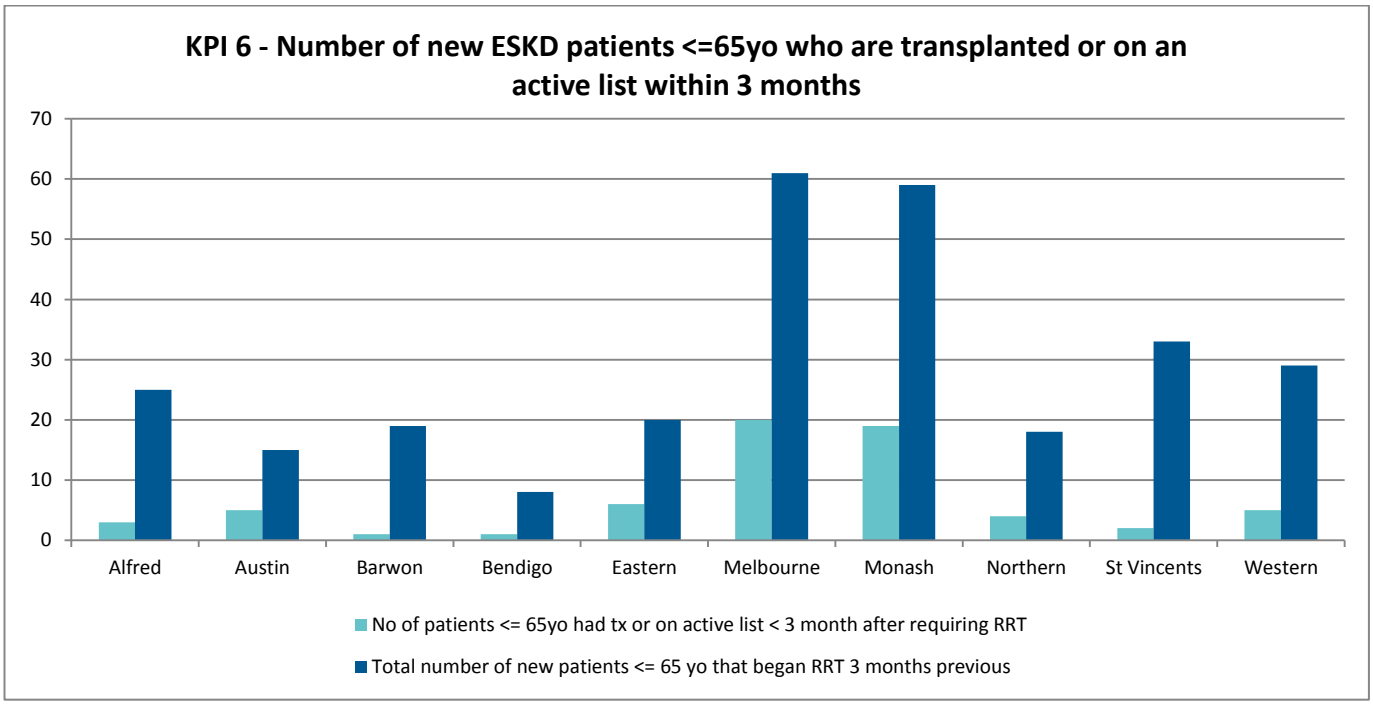
Exclusions

- Patients with a failed transplant recommencing RRT
- Patients having a combined organ transplant.

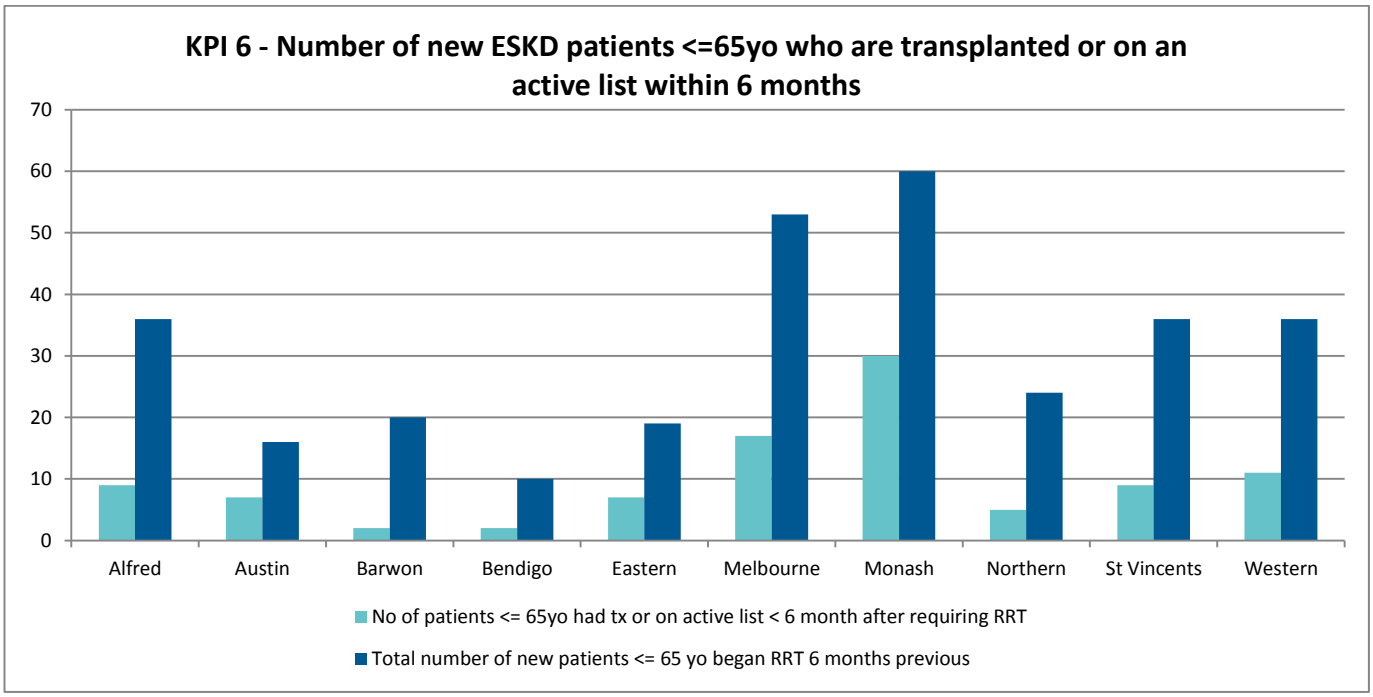
Results



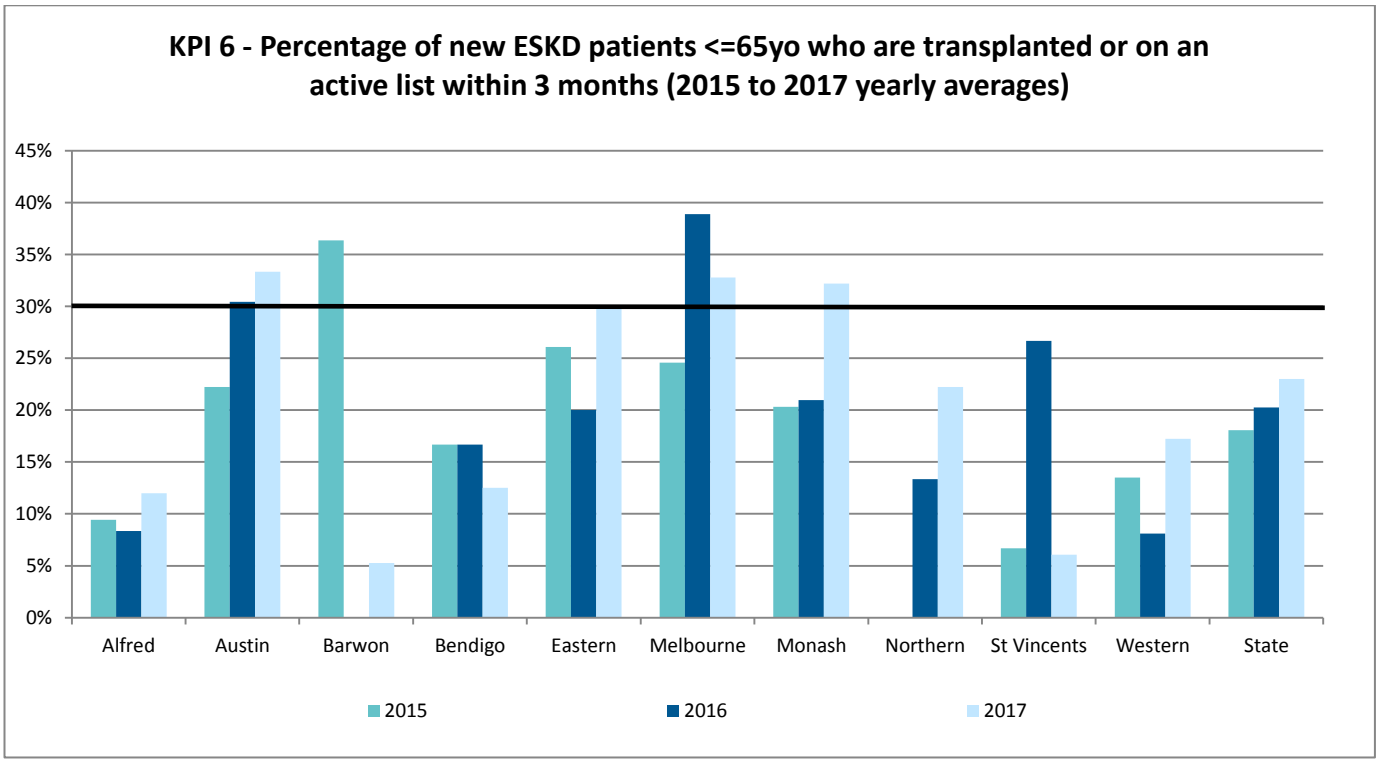
Note: Results based upon data averaged for the period Jul 2016 - Jun 2017.

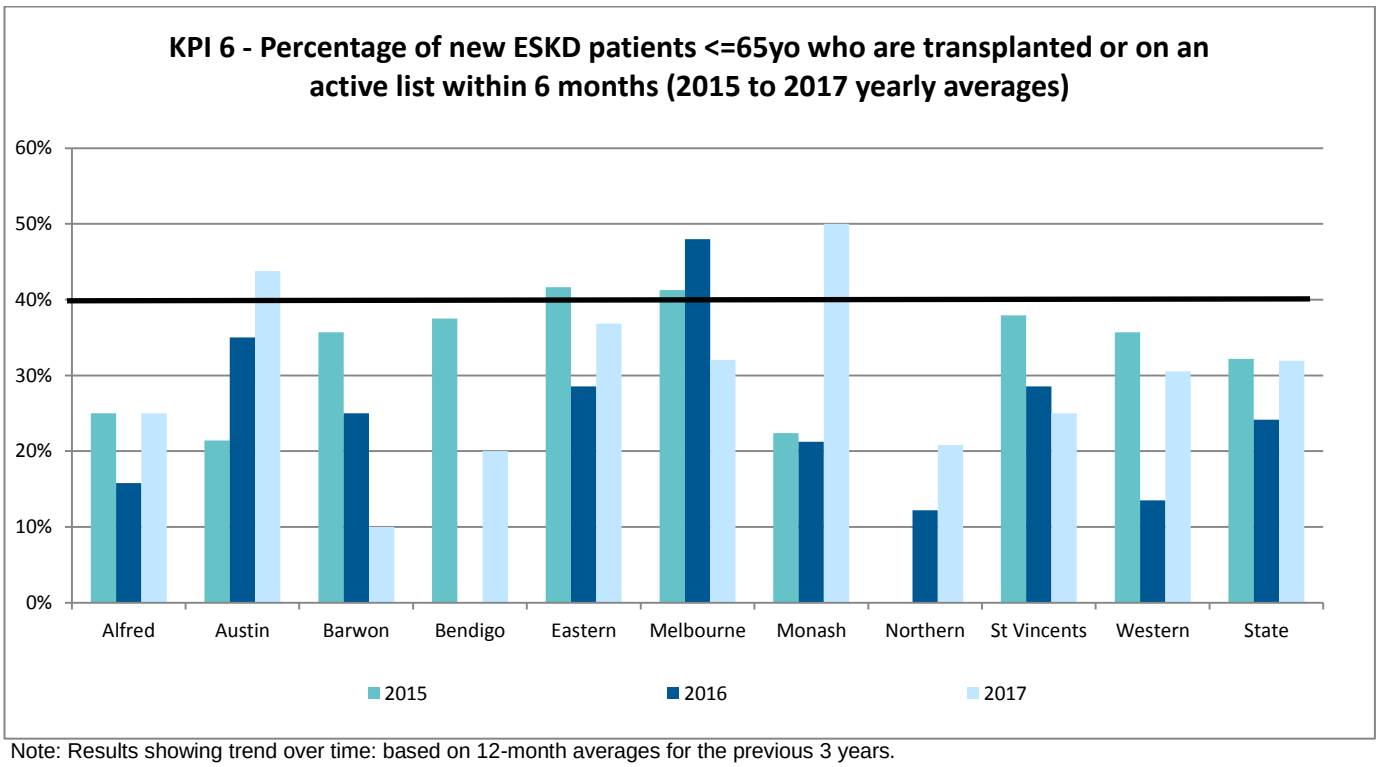


Note: Results based upon data for the period Jul 2016 - Jun 2017



Note: Results based upon data for the period Jul 2016 - Jun 2017





Note: Results showing trend over time: based on 12-month averages for the previous 3 years.
2017 (Jul 16 – Jun 17), 2016 (Jul 15 – Jun 16) and 2015 (Jul 14 – Jun 15).

Appendix 1 Working group members

Renal KPI working group

Associate Professor Nigel Toussaint (Chair)	Melbourne Health
Dr Scott Wilson	Alfred Health
Dr Peter Mount	Austin Health
Mr Richard Knight	Barwon Health
Dr Bill Mulley	Monash Health *(on sabbatical to Oct 17)*
Dr Joanna Ghali	Monash Health *(delegate for Dr Mulley)*
Dr David Langsford	Northern Health
Ms Nuala Barker	St Vincents Health
Ms Denise Fracchia	Western Health
Mr Gregory Dowling	Safer Care Victoria
Ms Alice Gleeson	Safer Care Victoria

Appendix 2 KPI rationales

KPI 1: Proportion of new, planned patients who have received CKD education before starting dialysis

Definition

- 'Planned' is defined as patients referred to a nephrologist within three years but prior to three months before requiring RRT
- CKD education is defined as either attending a CKD session or a one-on-one session with a member of the CKD team (not a nephrologist consultation only). This education session is to be documented in the patient's medical record
- Numerator: All new, planned patients who have received CKD education before starting dialysis
- Denominator: All new planned patients who have started dialysis
- Exclusions:
    - Late referrals (patients commencing dialysis within three months of first renal consultation)
    - Patients returning to dialysis with a failed transplant

Rationale

The Kidney Health Australia (KHA)-Caring for Australasians with Renal Impairment (KHA-CARI) Guidelines[1] for Acceptance onto Dialysis (2005) support a multidisciplinary approach to pre-dialysis education, noting that patients and their families or carers should receive sufficient information and education regarding the nature of ESKD and the options for the treatment to allow them to make an informed decision about the management of their ESKD (Level III evidence).

Recent literature[2,3,4,5,6] reinforces the potential for timely and appropriate CKD education to support informed decision making and, where elected, facilitate a planned approach to the commencement of dialysis, contributing to:

[1] Kelly, J., Stanley, M. & Harris, D. (2005) The CARI Guidelines. Acceptance onto Dialysis. Predialysis Education. Nephrology.

[2] Thomas, M. (2007) Pre-dialysis education for patients with chronic kidney disease. Nephrology. 12:S46-S48

[3] Lacson Jnr, L., Wang, W., DeVries, C., Leste, K., Hakim, R., Lazarus, M. & Pulliam, J. (2011) Effects of Nationwide Predialysis Education Program on Modality Choice, Vascular Access and Patient Outcomes. Am J Kidney Dis. 58(2):235-242

[4] Saggi, S.J., Allon, M., Bernardinin, J., Kalantar-Zadeh, K., Shaffer, R. & Mehrotra, R. (2012) Considerations in the Optimal Preparation of Patients for Dialysis. Nephrology. 8:381-389

- improved pre-dialysis care and self-management
- increased rates of permanent access
- reduced need for urgent start dialysis
- increased uptake of home therapies
- improved quality of life and reduced mortality in the first 90 days post dialysis initiation.

Potential reasons for variation between services

- Disparity of patient access to education programs relating to:
    - Inadequate resources – multidisciplinary staff, education materials, training equipment, delivery methods, data management systems and budget restraints
    - Difficulty in attending due to: distance, poor mobility, lack of transport and / or lack of support person
    - Culturally and linguistically diverse patients (interpreter, information translation often required)
- Disparity in patient uptake of education programs due to variation in
    - Psychosocial acceptance rates, e.g. increased fear or denial
    - Access to or acceptance of support, e.g. social work, psychologist
    - Collaborative relationships in CKD care, e.g. private nephrologist, primary health, Hospital Admission Risk Program
- Disparity in documentation of education provided due to
    - Variation in internal processes for defining and recording education sessions
    - No standardised definition of “appropriate” CKD education
    - Lack of Level 1 evidence
    - Lack of standardised measure for CKD education

[5] Wu, W., Wang, S., Hsu, K., Lee, C., Sun, C., Tsai, C. & Wu, M. (2009) Multidisciplinary predialysis education decreases the incidence of dialysis and reduces mortality – a controlled cohort study based on the NKF/DOQI guidelines. Nephrol Dial Transplant. 24:3426-3433

[6] Van Biesen, W., Verbeke, F. & Vanholder, R. (2009) We don’t need no education…. (Pink Floyd, The Wall) Multidisciplinary predialysis education programmes: pass or fail? Nephrol Dial Transplant. 24:3277-3279

KPI 2: Proportion of new, planned RRT patients (excluding pre-emptive live donor transplants within 2 weeks of transplant) who successfully use an arteriovenous fistula or graft access at first HD treatment

Definition

- New HD patients are those who have chronic maintenance HD as the first RRT
- 'Planned' is defined as patients referred to a nephrologist within three years but prior to three months before requiring RRT
- Vascular access is defined as either an AVF or AVG
- Successful use of an access is defined as not requiring a temporary access
- Numerator: Number of new planned patients starting HD using an AVF/AVG
- Denominator: Total number of new planned patients starting HD
- Exclusions:
    - Late referrals (patients commencing dialysis within three months of first renal consultation)
    - Patients with a failed transplant or transferring from PD

Rationale

Consideration needs to be given as to the most appropriate type of vascular access for each individual patient. However, current guidelines suggest that the arterio-venous fistula is the preferred choice of vascular access (over central or femoral venous catheters) for patients commencing haemodialysis.[7,8] When compared to the use of central venous catheters, early access creation (AVF and AVG) is associated with a significantly reduced risk of sepsis and mortality.[9]

Potential reasons for variation between services

- Timing of referral for vascular access creation by nephrologist or the renal team
- Patient reluctance to address impending dialysis necessity or reliance upon pre-emptive transplant
- Public health service waiting list times for vascular surgery
- Differences in clinical follow-up of AVF development post-operatively
- Variation in the number of public / private patients between services
- Variation in skill level and needling techniques between dialysis staff and dialysis units.

[7] The Renal Association (2011). Clinical Guidelines- Vascular Access for Haemodialysis final version. Electronic version accessed 19th November 2012. http://www.renal.org/clinical/guidelinessection/vascularaccess.aspx

[8] CARI Guidelines 2011

[9] Oliver M, J; Rothwell D, M; Fung K; Hux J, E and Lok C, E (2004). Late Creation of Vascular Access for Hemodialysis and Increased Risk of Sepsis. *Journal of the American Society of Nephrology.* 15 pp. 1936-1942.

KPI 3: Proportion of dialysis patients who are dialysing at home

Definition

- Patients dialysing at home includes nocturnal and conventional HD; and automated and continuous ambulatory PD
- Incident patients – proportion of patients at six months after starting dialysis
- Prevalent patients – proportion of total dialysis population
- Numerator (incidence): number patients that have attempted at least one month of home dialysis within six months of starting dialysis
- Denominator (incidence): all new planned patients who have started dialysis (in that particular month only) six months previous
- Numerator (prevalence): number of patients on home dialysis
- Denominator (prevalence): all new planned patients who have started dialysis
- Inclusion:
    - Patients who have successfully been on home dialysis during any of the six months
- Exclusions:
    - Patients who are in home training units

Rationale

Home dialysis maximises independence and assists in addressing current access issues, including transportation for rural patients. Further advantages include quality of life, social and economic benefits. Increasing home dialysis uptake encourages improved outcomes and lower costs, and identifying barriers to home therapies will assist in enhancing the prevalence in the state.

Potential reasons for variation between services

- Lack of infrastructure for training, support and education
- Travel distances for rural patients, educators, and technicians
- Lack of local support for patients requiring time-dependent assistance
- Lack of adequate water supply or consistent electrical means for rural patients
- Prevalence of rental accommodation / transient living arrangement in a region

KPI 4: Peritonitis rates of each hub service

Definition

- Peritonitis rate is calculated as months of PD at risk (total number of months all patients have spent on dialysis), divided by number of episodes (total number of episodes experienced by all patients), and expressed as interval in months between episodes (one per 20 patient-months).
- Relapsing peritonitis should be counted as a single episode
- Recurrent and repeat episodes should be counted (see Table 6, *ISPD guidelines 2010*, vol. 30, no. 4, p. 404)
- Numerator: number of peritonitis episodes in all patients during the month
- Denominator: total number of patient-months on PD (expressed as a whole number)
- Exclusions:
    - Patients who have a catheter in situ but are still predialysis

Rationale

Peritonitis remains the primary reason for PD failure. Peritonitis also contributes to increased hospitalisation and increased mortality.[10] For a PD program to be successful, close attention must be paid to preventing PD-related infections including peritonitis,[11] and evaluating the causes when they do occur.

Potential reasons for variation between services

- Patient training techniques and patient's ability to perform procedure and manage the treatment
- Staff to patient ratios in PD training units and clinics
- Treatment regimens for peritonitis
- Patient demographics, supports, and time already spent on peritoneal dialysis.

[10] Strippoli G, F, M; Tong A; Johnson D; Schena F, P; Craig, J, C (2004). Peritoneal Dialysis: A Systematic Review of Randomized Controlled Trials. *Journal of the American Society of Nephrology.* 15, pp. 2735-2746.

[11] Piraino B; Bernadini J; Brown E; Figueiredo A; Johnson D, W; Lye W, C; Price V; Ramalakshmi S; Szeto C, C (2011). ISPD Position Statement on Reducing the Risks of Peritoneal Dialysis- Related Infections. *Peritoneal Dialysis International*, 31, pp. 614-630.

KPI 5: Proportion of new live donor transplants that are pre-emptive

Definition

- New patients are those new to ESKD, that is, not those who have previously had a transplant
- Pre-emptive transplant is defined as patients who are transplanted requiring no or under two weeks of dialysis.
- Numerator: total number of pre-emptive new live donor transplants
- Denominator: number of new live donor transplants
- Exclusions:
    - Patients with a failed transplant recommencing RRT
    - Patients having a combined organ transplant

Rationale

Kidney transplantation remains the optimal form of renal replacement therapy for ESKD. Live donor (related or unrelated) transplantation currently represents approximately 40 % of all transplants and offers excellent patient and transplant outcomes.

Timeliness of live donor transplantation potentially avoids prolonged periods of dialysis, which carries increased risk of morbidity and significant cost. In many instances, timing of live donor transplantation can be such that complete avoidance of dialysis can be achieved – so-called ‘pre-emptive’ transplantation. The quality and efficiency of a live donor program can be measured in part by the proportion of lived donor transplants that are ‘pre-emptive’.

Potential reasons for variation between services

There is substantial variation across Victorian services in rates of live donor transplants with some services exceeding national averages and some performing live donor transplants at less than 50 % of the national average rate. Variation is potentially explained by timely access to relevant services, appropriate education of patients and potential donors and physician attitudes.

KPI 6: Proportion of new ESKD patients under 65 years old who have had a transplant or are on the active list

Definition

- New patients are those new to ESKD (not those who have previously had a transplant)
- Requiring RRT is defined as the point at which either transplantation or dialysis is required to sustain life
- Numerator: number patients ≤ 65 years old who have had a transplant or are 'active' within three or six months of requiring RRT
- Denominator: number of patients ≤ 65years old requiring RRT
- Inclusions:
    - Any patient who has been 'active' within the three or six months
    - All pre-emptive transplants
- Exclusions:
    - Patients with a failed transplant recommencing RRT
    - Patients having a combined organ transplant

Rationale

For those with ESKD that are medically, surgically and psychologically suitable early transplantation is the best life extending treatment option. Early live donor transplantation or timely listing for deceased donor transplantation is the ideal goal for these suitable individuals. This requires significant planning prior to commencement of dialysis. This KPI therefore serves as a measure of the efficiency of the work-up process and should serve to identify a variety of barriers. The less than 65 years old group has been chosen to more accurately reflect the target dialysis group for transplantation.

There will always be a proportion of patients 65 years and under that are unsuitable for transplantation due to a variety of factors such as obesity, smoking, cardiovascular, psychiatric, non-adherence and malignancy. There is an assumption that the percentage of these unsuitable patients is similar across all health services.

Patients that have either not been assessed for transplantation or not completed the transplant work up process will also be assessed as failing to meet this KPI.

Thus, the reasons for failing to meet this KPI will likely be extremely heterogeneous and reflect a variety of both unit and patient factors. Greater analysis will be essential.

Potential reasons for variation between services

- Variation in the referral patterns to nephrology and transplant service
- Differences in the processes used to make final decision regarding suitability.
- Different access to investigations, appointments and referrals to other services (such as imaging, cardiology services, psychiatry)

- Differing physician attitudes regarding suitability factors, for example surgical, medical, smoking status and weight
- Patient demographics, geographic factors and educational factors.

Reducing the variability in any or all these factors will potentially lead to greater efficiency and equity in transplantation