

New Zealand Nephrology Activity Report 2014

Care Processes and Treatment Targets

Key findings
about care for people with end-stage kidney disease
treated with dialysis or kidney transplantation
in New Zealand
2014



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CONTENTS

At a glance:.....	5
Overview of dialysis and patient populations in 2014.....	7
Summary	8
1 Introduction	11
Funding and support.....	11
2 Data collection	12
3 Starting renal replacement therapy.....	13
Starting treatment: Modality.....	15
Starting treatment: Age	16
Starting treatment: Ethnicity	17
4 Prevalence of renal replacement therapy	18
Modality	19
Diabetes	21
5 Vascular access for haemodialysis	22
Prevalent vascular access.....	22
Incident vascular access (all patients starting dialysis).....	23
Incident vascular access for haemodialysis (late referrals excluded).....	24
Catheter-associated blood stream infections (CABSI)	25
6 Peritoneal dialysis	26
Delay in starting peritoneal dialysis	26
Peritoneal dialysis peritonitis rates.....	27
7 Haemodialysis adequacy, frequency, and treatment duration	28
Duration of haemodialysis	28
Frequency of haemodialysis	29
Haemodialysis adequacy.....	30
8 Anaemia treatment.....	31
9 Late specialist assessment	33
10 Transplantation	34
Kidney transplant exchange program.....	35
ABO incompatible transplantation	35
11 Supportive Care.....	36
12 Potential action points.....	38
13 Notable publications & reports arising from ANZDATA.....	39

Journal papers (in reverse date order)	39
Reports	41
14 New Zealand activities	42
Northland	42
Auckland	42
Starship	42
Counties Manukau	42
Capital Coast	43
Canterbury	43
Appendix Figures	44

At a glance:

134

kidney
transplants



66

kidneys given
after death



523

started
dialysis

72 NZ European

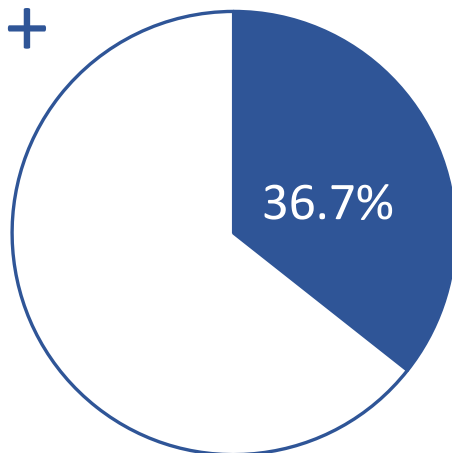
266 Māori

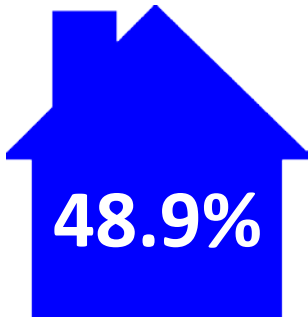
443 Pacific

Per million people
started treatment



Started treatment
age 65+
years





**Home-based
dialysis**



**28.5 months
between
episodes of
peritonitis**



61%

**started dialysis
with temporary
catheter**

**50 children
with end-stage
kidney disease**

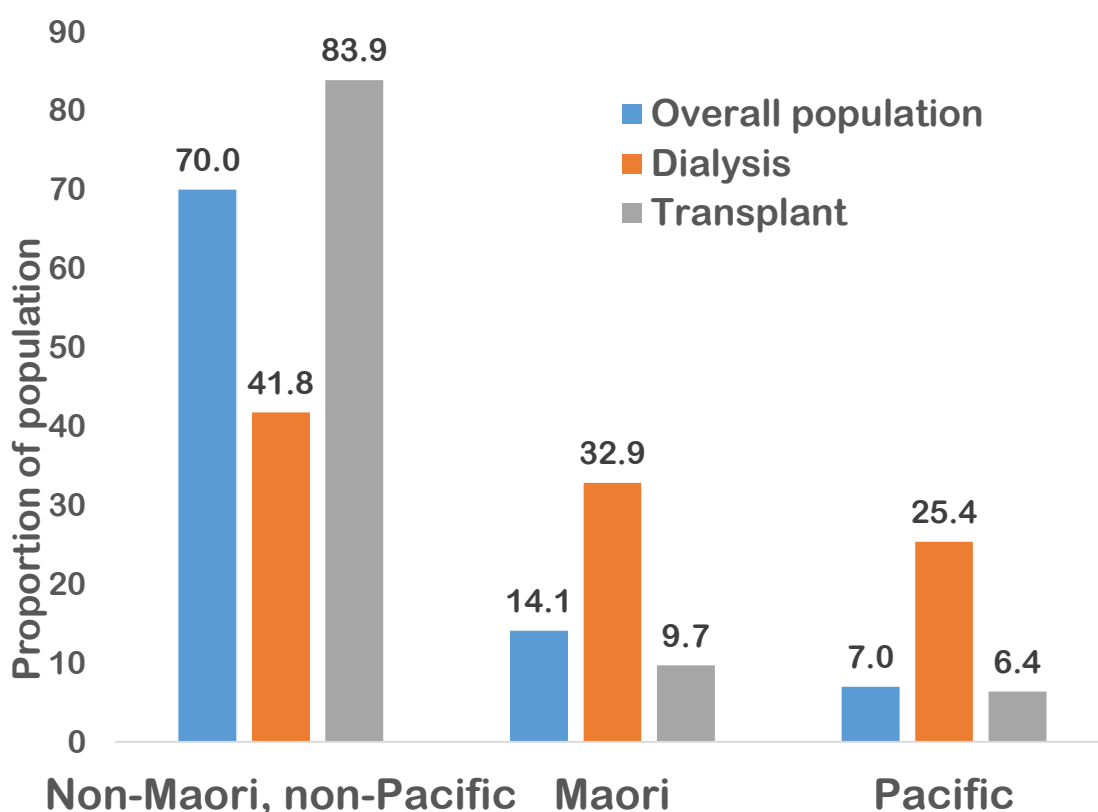


7 ABO

**incompatible
kidney transplants**



Overview of New Zealand dialysis and transplant populations in 2014



This figure shows the proportion of the 2014 New Zealand population according to ethnicity 1) overall (blue bars), 2) on dialysis treatment (orange bars) and 3) with a kidney transplant (grey bars).

It shows that while Māori represent 14% of the overall New Zealand population in the 2013 census, they represent 33% of the dialysis population and 10% of the kidney transplant population. While Pacific people are 7% of the New Zealand population per the New Zealand census, they represent 25% of the dialysis population and 6% of the transplant population.

Summary

End-stage kidney disease in New Zealand is treated with dialysis, kidney transplantation, or supportive care.

This report summarises the treatment of both adults and children with end-stage kidney disease within specialist nephrology services in New Zealand in **2014**.

This report provides information on the 11 treating District Health Boards and Starship Hospital, including the three transplanting centres (Auckland, Capital and Coast, and Canterbury DHBs).

This report is generated by a sub-committee of the National Renal Advisory Board (NRAB). The NRAB advises on and monitors renal care services in New Zealand. The NRAB represents clinical and management leaders from a range of District Health Boards together with professional and consumer groups. The NRAB consults with stakeholders to formulate advice to relevant District Health Boards and the Ministry of Health. This annual report enables the NRAB to analyse renal care standards and formulate responses to support renal care throughout New Zealand.

The National Renal Transplant Service (NRTS) was established in September 2014. The NRTS provides clinical leadership, strategic oversight, direction, and support for implementation of initiatives to improve access to kidney transplantation. A Kidney Transplant Activity New Zealand [report](#) based in part on ANZDATA is available for calendar year 2014.

Starting treatment for end-stage kidney disease in New Zealand in 2014

547 adults and children started renal replacement therapy (dialysis or kidney transplant) in 2014.

This represents 129 per million New Zealanders starting treatment for end-stage kidney disease.

While the rate of treatment is stable among non-Māori, non-Pacific patients (71-72 per million of the population [pmp] since 2010), the rate for Pacific patients is steadily increasing (321 pmp in 2011 to 443 pmp in 2014).

Overall, 159 patients starting treatment were Māori (29%) and 131 (24%) were Pacific. Disparity in treatment rates based on ethnicity persist (443 pmp for Pacific patients, 266 pmp for Māori patients, and 72 pmp for other New Zealanders).

Most patients starting treatment were aged between 45-64 years (45.5%), although a sizeable proportion were 65 years or older (36.7%). 2.8% were 24 years or younger.

14.1% of patients commenced dialysis within 3 months of their first specialist nephrology assessment.

Dialysis

523 adults and children started dialysis in 2014. Overall, 2678 New Zealanders were treated with dialysis at year end in 2014, representing a treatment rate of 635 pmp.

Most patients (65%) started dialysis treatment with haemodialysis while 35% started with peritoneal dialysis.

Overall, 1310 New Zealanders were treated with a home-based dialysis therapy (48.9%). 377 (14.0%) were treated with automated

peritoneal dialysis, 442 (16.4%) with continuous ambulatory peritoneal dialysis, and 491 (18.2%) with home haemodialysis.

Rates of facility-based haemodialysis are increasing, while peritoneal dialysis rates are decreasing. Overall, the proportion of patients treated with continuous ambulatory dialysis (CAPD) has nearly halved in the last decade (from 17.1% in 2005 to 10.2% in 2014), while rates of automated peritoneal dialysis (APD) have somewhat increased (5.9% to 8.7%).

81% of patients starting peritoneal dialysis experienced no delay in starting treatment with peritoneal dialysis, while 4.1% experienced a delay longer than 90 days.

The rate of peritoneal dialysis-related peritonitis is decreasing year on year. Patients now experience an episode of peritonitis for every 28.5 months of treatment on average. This is compared with 20.8 months in 2010.

80.6% patients treated with haemodialysis had permanent vascular access (above the tier 2 standard of 70%).

61% of patients commencing haemodialysis more than 3 months after their first specialist assessment started treatment with a temporary vascular catheter, substantially exceeding the tier 2 standard of 20%.

Patients experienced 0.95 catheter-associated bacterial infections per 1000 days of catheter use, markedly below the national standard of 4 events per 1000 days.

Transplant

134 patients received a kidney-only transplant and 4 patients received a kidney together with another organ (liver or pancreas) in 2014.

72 patients received a kidney from a living donor and 66 patients received a kidney from a deceased donor.

The rate of kidney transplantation is slowly increasing (from 26 pmp in 2010 to 32 pmp in 2014).

On average, 5.1 patients received a kidney transplant for every 100 dialysis patients.

Overall, 1628 patients had a functioning kidney transplant at the end of 2014.

Patients rarely received a kidney transplant as their first treatment for end-stage kidney disease. 24 patients were treated with pre-emptive transplantation. There was persistent disparity in access to transplantation based on ethnicity. In 2014, no Māori and 1 Pacific patient had a pre-emptive kidney transplant.

There were seven ABO blood group incompatible kidney transplants in 2014. Five occurred at the Auckland DHB (patients from Waitemata (2), Counties Manukau (1), Capital and Coast (1), Taranaki (1)) and two were done at the Canterbury DHB (patients from Canterbury (2)). There were two living donor kidney exchange chains (each comprising two kidney transplants) in 2014.

Supportive care

NZ nephrology practices for supportive care (management of end-stage kidney disease without dialysis or transplantation and symptom control in end-stage kidney disease) are summarized for the first time in the annual report.

Supportive care services are in development in most DHBs, and variably involve collaboration with palliative care teams in hospitals and the community.

Children

Eight children started treatment for end-stage kidney disease (1 haemodialysis; 7 peritoneal dialysis; 0 transplant). Three children commenced dialysis within 3 months of first specialist assessment. At year end, 50 children were treated for end-stage kidney disease overall in New Zealand (8 with automated peritoneal dialysis, 3 with hospital

haemodialysis, and 39 had a kidney transplant). No child experienced a delay in starting peritoneal dialysis. There were 4 episodes of peritoneal dialysis peritonitis among children. One child on haemodialysis had a tunnelled dialysis catheter.

Annual report development

For the first time, editable data displays in this report have been made available to users within a PowerPoint format for local use and adaptation. A patient summary of the report has been generated for the first time (a report about transplantation and a report about dialysis). New Zealand publications arising from ANZDATA are now collated annually.

Future reports

Additional plans for future reports include consideration of:

- Consider reporting measures of patient experiences of nephrology services will be in the annual report, after piloting and consultation with stakeholders including consumers.
- Plain language summaries of NZ publications arising from ANZDATA.
- Patient summaries of this annual report will be translated, if sufficient funds allow.

1 Introduction

The National Renal Advisory Board (NRAB) presents the 10th New Zealand Nephrology Activity Report (formerly known as the Standards and Audit Report) for the calendar year 2014. The data were derived from the Australia and New Zealand Dialysis and Transplant (ANZDATA) Registry, population data from Statistics New Zealand 2013 Census, the New Zealand Peritoneal Dialysis Registry (NZPDR), and surveys of treating units (for catheter-associated bacterial infections, nephrologist staffing levels, and supportive care service descriptions).

For the first time in its history, the report is accompanied by editable graphic displays for local use, presentation, and adaptation. A summary report for patients and families/whānau about dialysis care and kidney transplant care are also published alongside this report.

The Starship Children's Hospital service is represented separately for some analyses but is otherwise included within the data for the Auckland District Health Board.

The data are reported according to the District Health Boards which provide dialysis and transplantation services for New Zealand.

The District Health Board populations served by the 11 named District Health Boards summarised in this report are: Northland (Northland DHB), Waitemata (Waitemata DHB), Auckland (Auckland DHB & Starship Hospital), Counties Manukau (Counties Manukau DHB), Waikato (Waikato, Bay of Plenty, Lakes and Tairāwhiti DHBs), Hawkes Bay (Hawkes Bay DHB), Mid-Central (Whanganui and Mid-Central DHBs), Taranaki (Taranaki DHB), Capital & Coast (Capital & Coast, Hutt, Wairarapa and Nelson Marlborough DHBs), Canterbury (Canterbury, West Coast and

South Canterbury DHBs), Southern (Southern DHB).

The collection and collation of data for this report and for ANZDATA is critically dependent on the contribution and commitment from patients and whānau, the goodwill and hard work of all staff within the New Zealand Renal units, and from support staff at the ANZDATA registry who provide these data to New Zealand. The current dialysis care standards have been appended to the Tier Two Renal Service Specifications in the Ministry of Health's National Service Framework Library. The published standards can be reviewed at [the Ministry of Health website](#).

Funding and support

The ANZDATA registry has received important financial contributions from the New Zealand Government through the Ministry of Health/Manatū Hauora. This funding is essential to maintain data collection with the aim of improving, protecting, and promoting the health of New Zealanders treated for end-stage kidney disease and their families.

ANZDATA also received funding from the Australian Commonwealth and Kidney Health Australia.

The generation of this report receives no specific funding and is produced from in-kind support by New Zealand nephrologists. In previous years, the NZ nephrology community is indebted to leadership and contributions of Drs Kelvin Lynn, Grant Pidgeon, and Mark Marshall. The work of Dr Stephen McDonald at ANZDATA to provide New Zealand ANZDATA is acknowledged.

2 Data collection

The 2014 report includes data from the ANZDATA Registry for the calendar year ending 31 December 2014. The audit data are shown in table and graphic formats in the following pages.

ANZDATA collates demographic and clinical data about all adults and children who are treated with dialysis or a kidney transplant in Australia and New Zealand. This report only includes patients who are treated in New Zealand.

There may be minor changes in the data from previous years' reports which result from corrections and updates to the central ANZDATA database and minor changes resulting from updating of the NZ population from the 2013 census.

The raw data for the statistics are not routinely provided but available on request.

The National Renal Advisory Board welcomes feedback on this report. Comments can be sent to Dr Murray Leikis, Chair of the National Renal Advisory Board (murray.leikis@cchdb.org.nz) or Dr Suetonia Palmer (suetonia.palmer@cdhb.health.nz) who drafted the report.

New Zealand nephrology services are represented on the ANZDATA steering committee by Dr Tonya Kara (tonyak@adhb.govt.nz).

Peritoneal dialysis peritonitis rates are provided from the New Zealand Peritoneal Dialysis Registry (www.web.address) by Dr Gerald Waters (gerald.waters@waikatodhb.health.nz).

Catheter-associated bacterial infections are provided by staff at individual dialysis units.

Supportive care service descriptions were provided by the heads of all participating nephrology units. Census data about treatment of people with end-stage kidney disease who do not receive treatment with dialysis or transplantation are not collected nationally and therefore are not includable in this report.

Data for ABO incompatible kidney transplants and transplants conducted within kidney exchange chains are derived from the National Renal Transplant Service (NRTS) (nick.cross@cdhb.health.nz).

Patient summaries of this report are available at: [website](#).

Editable figures from this report (in PowerPoint format) are available for download at: [website](#). Raw data from this report (in Excel format) are available for download at: [website](#).

3 Starting renal replacement therapy

- Renal replacement therapy is treatment to replace kidney function and includes either dialysis or a kidney transplant
- 547 people started treatment for end-stage kidney disease (either dialysis or a kidney transplant) in 2014.
- 515 adults commenced dialysis and 24 adults had a kidney transplant as first treatment. 8 children started dialysis. No child received a pre-emptive kidney transplant in 2014
- The overall incidence of renal replacement therapy in New Zealand was 127 per million population (pmp) (Table 1).
- The overall incidence of treatment has been relatively stable over time, although this summary rate masks differences in treatment incidence between DHBs (Figure 1) and among people based on ethnicity and age (see sections below).
- The incidence of renal replacement therapy varied more than 4-fold across New Zealand DHBs. The highest incidences were (as in previous years) at Counties Manukau [277 pmp] and Northland [237 pmp] while the lowest incidences were at Waitemata [67 pmp] and Canterbury [72 pmp].
- The differences in population rates of starting renal replacement therapy are likely to be driven in part by distributions of age, ethnicity, and

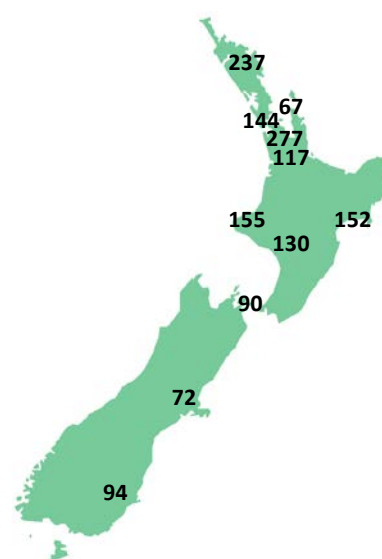


Figure 1 Patients starting renal replacement therapy (dialysis or kidney transplant) per million DHB population

clinical comorbidity, including diabetes, within the corresponding DHB populations. The determinants of end-stage kidney disease in New Zealand regions are incompletely understood.

- Most patients started treatment with dialysis. 24 patients received a kidney transplant as their first treatment (pre-emptive kidney transplant) representing 4.4% of all patients
- Among non-Māori, non-Pacific patients the rate of pre-emptive transplantation was 9.7%, the highest rate recorded between the years 2010 and 2014. The pre-emptive transplantation rate for Māori and Pacific patients remained between 0-1% during 2010-2014, with no discernible trend across time (in part due to small numbers).

Table 1 Nephrology service demographics

District Health Board region	Pop*	Incidence end-stage kidney disease		Dialysis prevalence		Transplant prevalence		Total end-stage kidney disease prevalence		Ratio dialysis: Transplant**
		Number	Rate (PMP)	Number	Rate (PMP)	Number	Rate (PMP)	Number	Rate (PMP)	
Northland	151,686	36	237	171	1127	72	475	243	1602	2.4
Waitemata	525,549	35	67	278	529	154	293	432	822	1.8
Auckland	436,347	63	144	322	738	204	468	526	1205	1.6
Counties Manukau	469,299	130	277	616	1313	155	330	771	1643	1.8
Waikato	707,157	83	117	489	692	181	256	670	947	2.7
Hawkes Bay	151,695	23	152	103	679	76	501	179	1180	1.4
Mid-Central	222,684	29	130	142	638	73	328	215	965	1.9
Taranaki	109,752	17	155	53	483	39	355	92	838	1.4
Capital Coast	600,189	54	90	245	408	275	458	520	866	0.9
Canterbury	569,952	41	72	142	249	254	446	396	695	0.6
Southern	297,423	28	94	106	356	106	356	212	713	1.0
Overall	4,241,724	539	127	2667	633	1589	377	4256	1010	1.7

*The source population is derived from the New Zealand Census 2013

** This shows the number of prevalent dialysis patients for every patient living with a kidney transplant. A number greater than 1 indicates there are more patients treated with dialysis for end-stage kidney disease than with kidney transplantation.

Incidence – the number of patients commencing dialysis treatment or pre-emptive transplantation at first treatment for end-stage kidney disease during the 2014 calendar year.

Prevalence – the number of patients receiving dialysis or transplantation treatment for end-stage kidney disease at the end of the calendar year (i.e. 31/12/2014).

PMP – Per million of the population

Unit coverage – The named District Health Boards provide dialysis and transplant services to their own population and other District Health Boards. The DHB populations being served by the central DHBs are: Northland (Northland DHB), Waitemata (Waitemata DHB), Auckland (Auckland DHB & Starship Hospital), Counties Manukau (Counties Manukau DHB), Waikato (Waikato, Bay of Plenty, Lakes and Tairāwhiti DHBs), Hawkes Bay (Hawkes Bay DHB), Mid Central (Whanganui and Mid Central DHBs), Taranaki (Taranaki DHB), Capital & Coast (Capital & Coast, Hutt, Wairarapa and Nelson Marlborough DHBs), Canterbury (Canterbury, West Coast and South Canterbury DHBs), Southern (Southern DHB) . Data for children are not shown separately.

Starting treatment: Modality

- Most patients started treatment with haemodialysis (62.2%), with 33.5% starting with peritoneal dialysis and 4.4% with a kidney transplant (Figure 2).

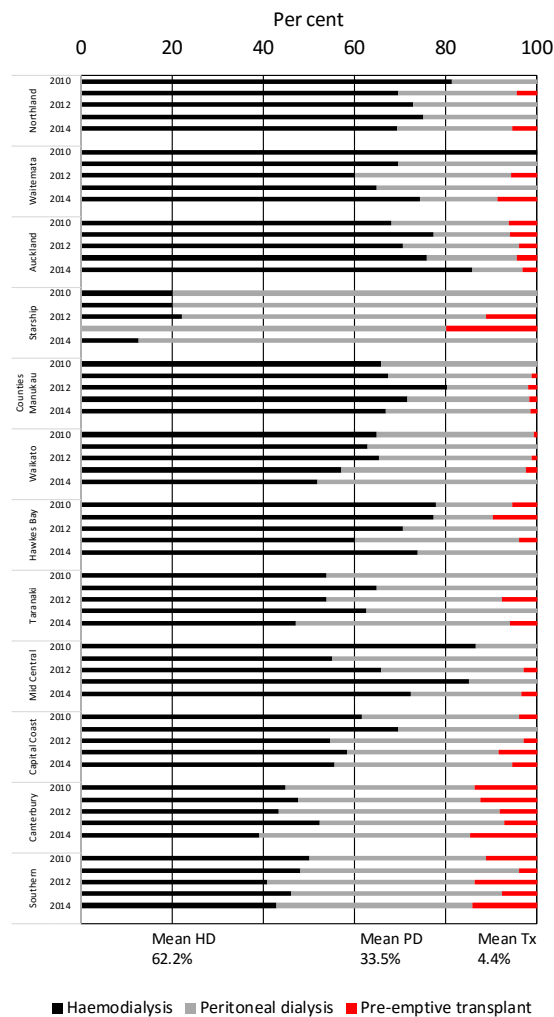


Figure 2 Treatment modality on starting renal replacement therapy, 2010-2014, by treating DHB

- Treatment modality rates have been relatively static over the past decade (Figure 3).
- The number of patients who commence renal replacement therapy with automated peritoneal dialysis remains small (appendix figure).

- In 2014, only 24 patients received a kidney transplant as their first treatment for end-stage kidney disease. This compared with 24 in 2009, 16 in 2010, 15 in 2011, 18 in 2012, and 19 in 2013.
- There is wide regional variation in rates of pre-emptive transplantation, ranging from 0% of patients at Starship, Waikato, and Hawkes Bay, to 14.3% and 14.6% at Southern and Canterbury.

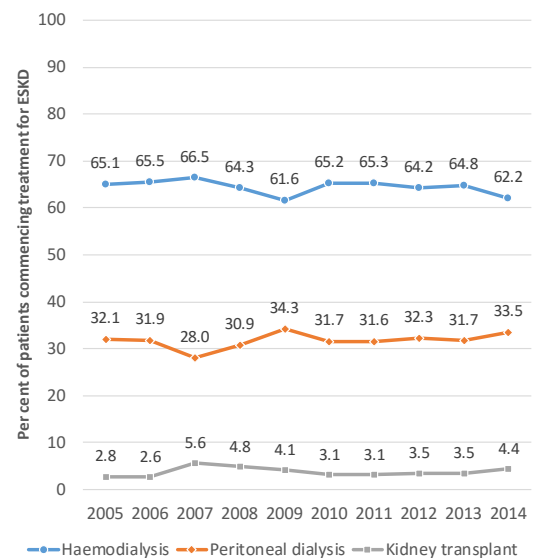


Figure 3 Treatment modality on starting renal replacement therapy, 2005-2014

- The proportion of patients starting with peritoneal dialysis varies from 11.1% at Auckland, to 48% at Waikato and 87.5% at Starship (children).

Starting treatment: Age

- Most patients starting renal replacement therapy were aged between 45 to 65 years with 245 patients in this age group commencing treatment in 2014 (15 children and adolescents, 81 patients between 18-44 years, and 198 patients 65+ years) (Figure 4).
- Younger patients aged between 0 and 25 years experienced a dialysis incidence of 10 pmp.
- Proportionally, the highest incidence of treatment was among patients aged 65 years or older (326 pmp; 36.7% of all patients starting treatment)¹.
- 52 patients commenced dialysis at 75 years or older and 3 started treatment at 85 years or older in 2014.
- The proportion of older patients starting treatment appears to be increasing (Figure 4).

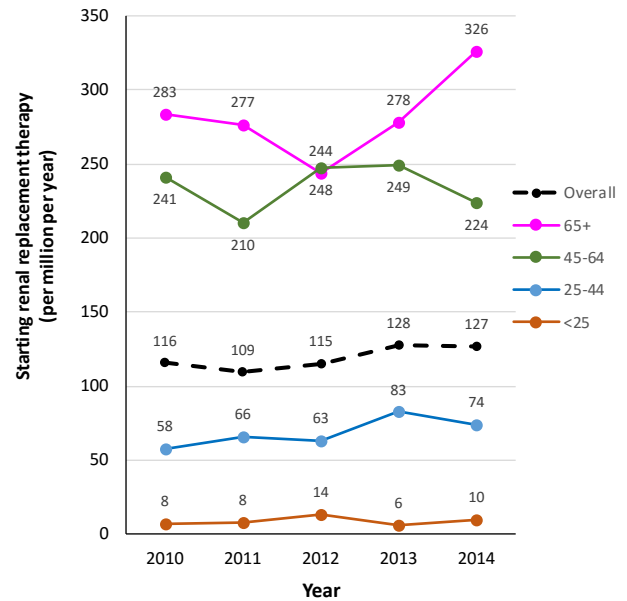


Figure 4 Starting renal replacement therapy, by age group, 2010-2014

¹In the 2012-2013 report, patients who were aged 75 years or older were erroneously excluded from data in the 65+ years age group, and therefore the

incidence of renal replacement therapy in this group appeared to be decreasing

Starting treatment: Ethnicity²

- The incidence of requiring renal replacement therapy remained substantially higher among Māori and Pacific patients than among non-Māori, non-Pacific patients. This disparity in entering end-stage kidney disease remains persistent for Māori and is worsening for Pacific patients over time (Figure 5).
- This difference in incidence based on ethnicity is likely to be partly explained by different demographic and clinical characteristics, although the role of ethnicity in development of end-stage kidney disease is incompletely understood.
- The incidence of renal replacement therapy has been stable (69-74 pmp) among non-Māori, non-Pacific patients, whereas the incidence is 266 pmp among Māori patients (3.7-fold higher) and 443 pmp among Pacific patients (6.2-fold higher). In 2013, the ratios were 4.5 among Māori and 5.5 among Pacific patients (Figure 5).
- There is considerable disparity in the opportunity to commence treatment with a kidney transplant (pre-emptive transplantation) based on ethnicity. Of the 24 patients who received a pre-emptive kidney transplant, none in 2014 identified as Māori and 1 (0.8%) identified as Pacific ethnicity (Figure 6).

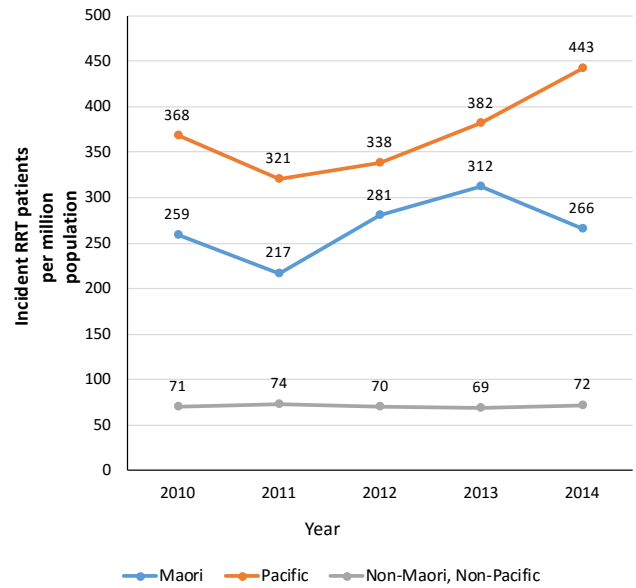


Figure 5 Starting renal replacement therapy, by ethnicity, 2010-2014

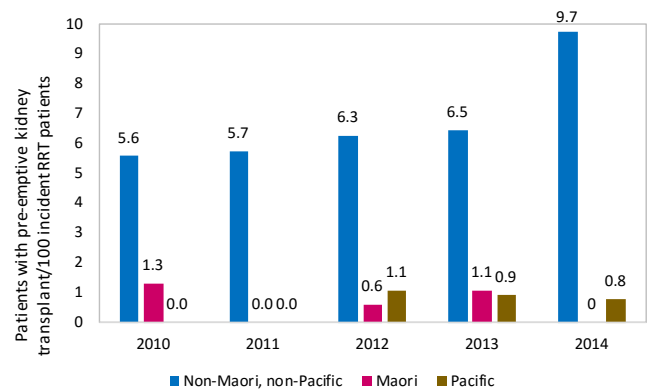


Figure 6 Pre-emptive kidney transplantation, 2010-2014, by ethnicity

² Additional analyses including Asian ethnicity are planned for future reports

4 Prevalence of renal replacement therapy

- In 2014, 4306 patients were treated with dialysis or a kidney transplant, which was an increase of 3.1% from 2013 (Figure 7).
- The prevalence of renal replacement therapy has increased from 912 pmp in 2010 to 1010 pmp in 2014. This represents an 9.7% increase over 5 years.
- The overall prevalence of renal replacement therapy continues to increase by about 3-4% year on year, showing incremental increases at all DHBs³.
- The prevalence of renal replacement therapy was highly variable across DHBs ranging from 695 pmp at Canterbury (lowest) to 1643 at Counties Manukau (highest) (Figure 8).

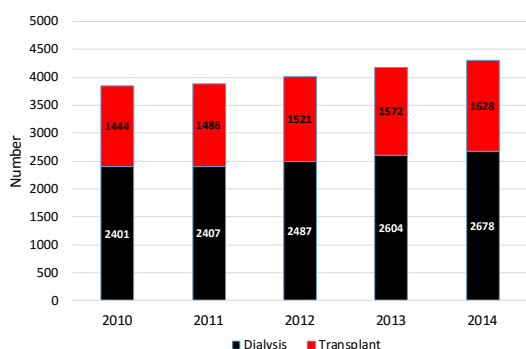


Figure 7 Prevalence of renal replacement therapy, 2010-2014

³ The apparent decreasing prevalence of renal replacement therapy at Auckland is probably related to the transfer of care for dialysis and

Prevalent ESKD patients 2010-2014

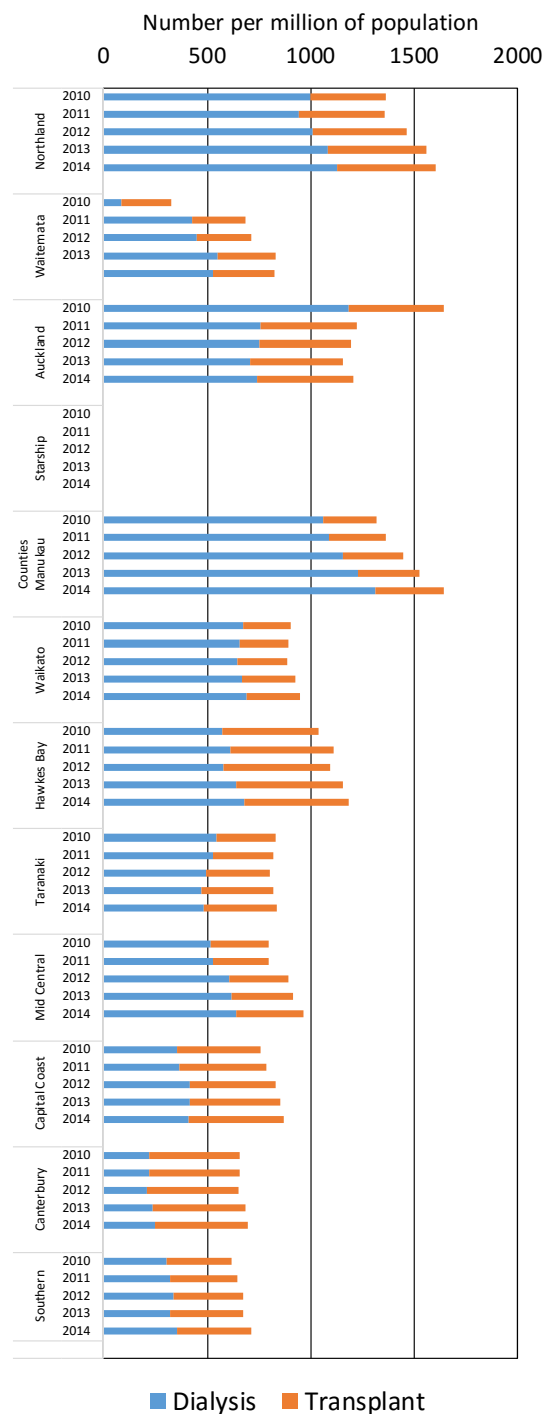


Figure 8 Prevalence of renal replacement therapy per million of DHB population, 2010-2014

transplant patients located in the Waitemata region to be relocated to the Waitemata DHB in 2009-2010.

Modality

- 2667 adult patients were treated with dialysis (633 pmp) and 1589 (377 pmp) were treated with transplantation at end of calendar year 2014.
- 11 children and adolescents were treated with dialysis and 39 were treated with kidney transplantation at end of calendar year 2014.
- Most DHBs treat more patients with dialysis than transplantation, with the exception of Starship, Capital and Coast, Canterbury, and Southern DHBs (Figure 9).

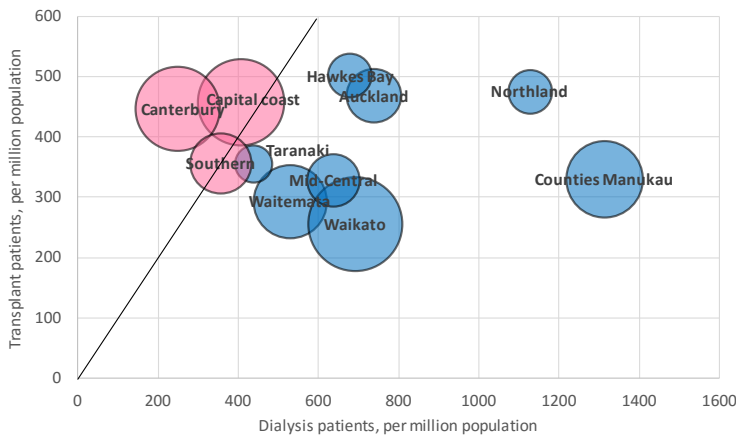


Figure 9 Scatterplot of dialysis patients pmp versus transplant patients pmp, by treating DHB

- Most patients treated with dialysis in NZ received facility-based haemodialysis within a hospital centre or satellite unit (Figure 10).
- The proportion of dialysis patients receiving facility haemodialysis treatment continued to increase year on year from 27.6% in 2005 to 31.6% in 2014 (Figure 10). This continues to be due to an increase in the number of patients treated with hospital-based dialysis, rising from 298 in 2005 (29.7% of all dialysis patients) to 491 in 2014 (34.9% of all dialysis patients).
- The proportion of dialysis patients treated with satellite dialysis has remained relatively unchanged (16.1%)

of dialysis patients in 2005 to 15.9% of patients in 2014).

- The number and proportion of dialysis patients treated with peritoneal dialysis (either automated or continuous ambulatory) has fallen from 38.2% of dialysis patients in 2005 to 30.4% in 2014. There has been a steady year on year increase in patients on automated peritoneal dialysis (from 185 (9.8%) in 2005 to 377 (14.0%) in 2014), while the number and proportion of patients on CAPD has fallen steadily (28.3% in 2005 to 16.4% in 2014).
- The proportion of patients treated with home haemodialysis has shown a small steady increase in the last decade from 298 to 491 patients between 2005 and 2014 (15.8% to 18.2%).
- The number of home haemodialysis patients as a proportion of all haemodialysis has remained between 25-28% over the previous decade.
- The overall proportion of dialysis patients treated with any home-based dialysis is decreasing (from 54.0% in 2005 to 48.6% in 2014).

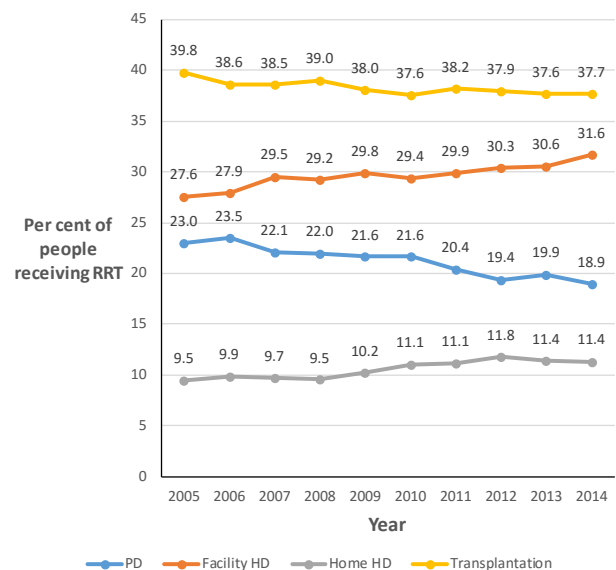


Figure 10 Prevalent modality of treatment for end-stage kidney disease, 2005-2014

- Patterns of treatment modality remained highly variable across treating DHBs (Figure 11).

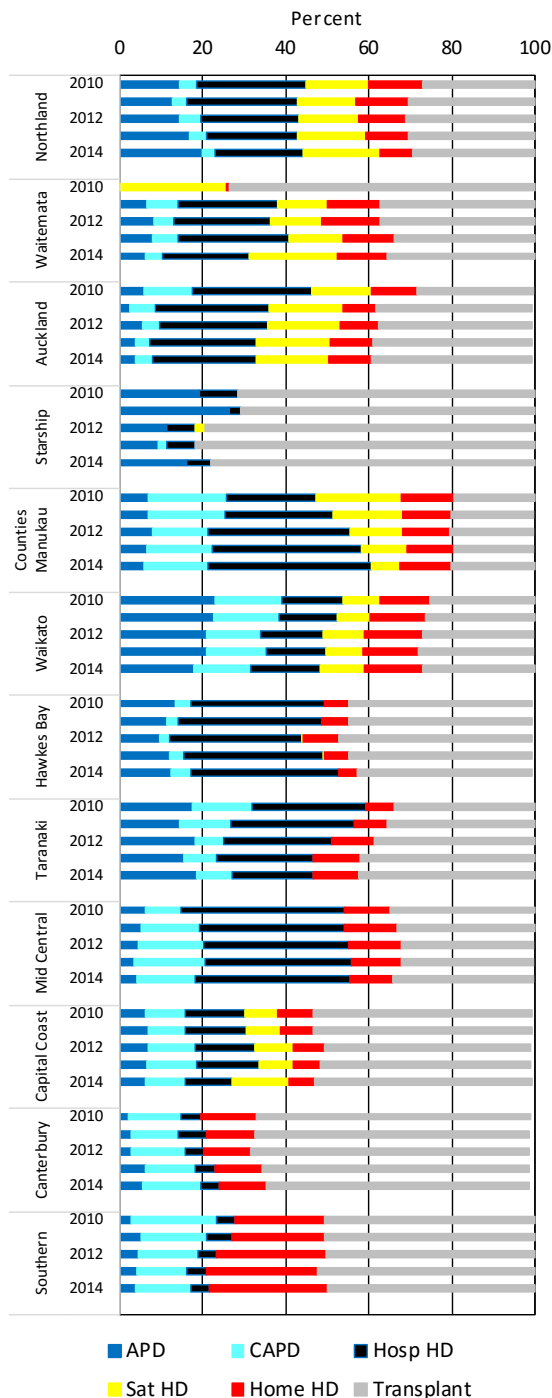


Figure 11 Prevalent treatment modality for end-stage kidney disease, by treating DHB.

- The prevalence of peritoneal dialysis ranged from 8.0% of all ESKD patients at Auckland to 31.5% at Waikato.

- The proportion treated with automated PD ranged from 19.8% in Northland and 18.5% in Taranaki to 5.5% at Canterbury and 3.8% at Southern.
- The proportion of patients who did home haemodialysis was highest at Southern (28.5%) and remained lowest at Hawkes Bay (4.4%), Capital Coast (5.9%), and Northland (7.8%).
- The modalities of treatment at Starship show variation due to the relatively smaller numbers of children treated at this centre.
- Satellite dialysis was provided to a substantial number of patients at Northland, Waitemata, Auckland, Counties Manukau, and Waikato. The proportion on satellite dialysis at Counties Manukau continues to decrease, while the numbers treated with satellite dialysis at Capital Coast, Waitemata, and Northland appear to be increasing. Regional DHBs (Hawkes Bay, Taranaki, Mid Central) and South Island (Canterbury and Southern) report no satellite facility dialysis treatment.
- As a proportion of the overall NZ population, Māori and Pacific patients are over-represented in the number of patients treated with dialysis each year, and under-represented in the number of patients who are treated with a kidney transplant (appendix figure).

Diabetes

- 54.4% of patients treated with dialysis in 2014 had a recorded diagnosis of diabetes (Figure 12).
- This proportion is increasing year on year (increased from 45% in 2005).
- The proportion of dialysis patients with a documented diagnosis of diabetes is markedly higher than among kidney transplant patients.

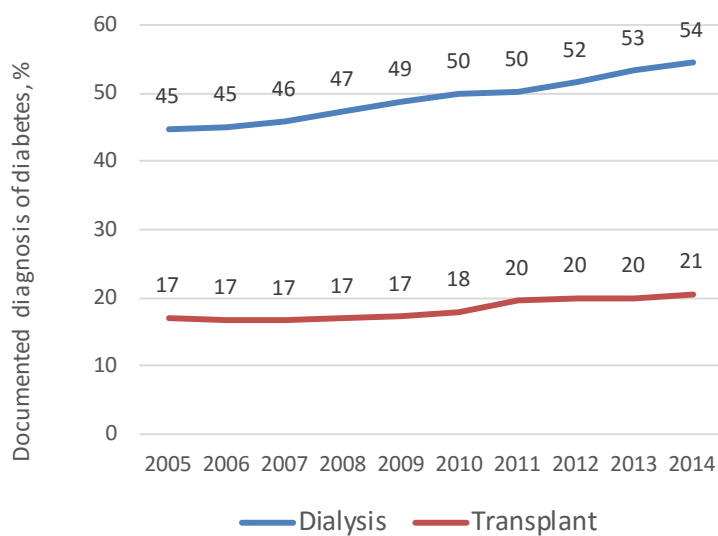


Figure 12 Proportion of patients with a documented diagnosis of diabetes, 2005-2014

5 Vascular access for haemodialysis

Prevalent vascular access

- In 2014, 80.6% of prevalent haemodialysis patients were dialyzing with permanent vascular access (either an arteriovenous fistula or graft) (Figure 13). This is above the national standard of 70%.⁴

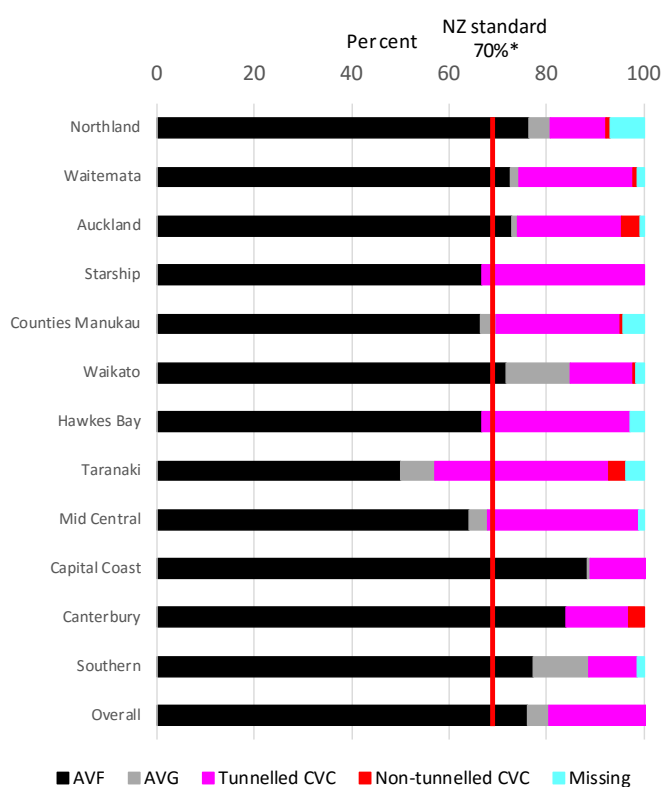


Figure 13 Prevalent haemodialysis vascular access, 2014, by treating DHB.

- Starship, Counties Manukau, Hawkes Bay, Mid Central, and Taranaki DHBs did not meet the national prevalent vascular access standard.

⁴AVF = fistula; AVG = graft; CVC = central venous catheter

- The marked variation in use of arteriovenous grafts persisted in 2014, with the proportion of patients having dialysis through an AV graft was 0% at Starship, Hawkes Bay and Canterbury, and 13.3% and 11.4% at Waikato and Southern.
- Central venous catheter use remains high with a national average of 23.1%. These were predominantly tunnelled central venous catheters for all DHBs. The central venous catheter rate ranged from 10.0% at Southern to 39.3% at Taranaki. Data were missing for 2.5% of patients.

Incident vascular access (all patients starting dialysis)

- The national incidence of permanent vascular access at commencement of dialysis remained highly variable across treating DHBs (Figure 14).
- The proportion of all patients starting haemodialysis with permanent access (either a fistula or graft) ranged between 17.7% at Hawkes Bay and 50.0% at Capital Coast and Southern. Only Capital Coast and Southern achieved the national standard of 50% of patients commencing haemodialysis with permanent vascular access.⁵
- As in previous years, very few DHBs achieved the national standard of permanent vascular access, indicating the need to review practices throughout the country.

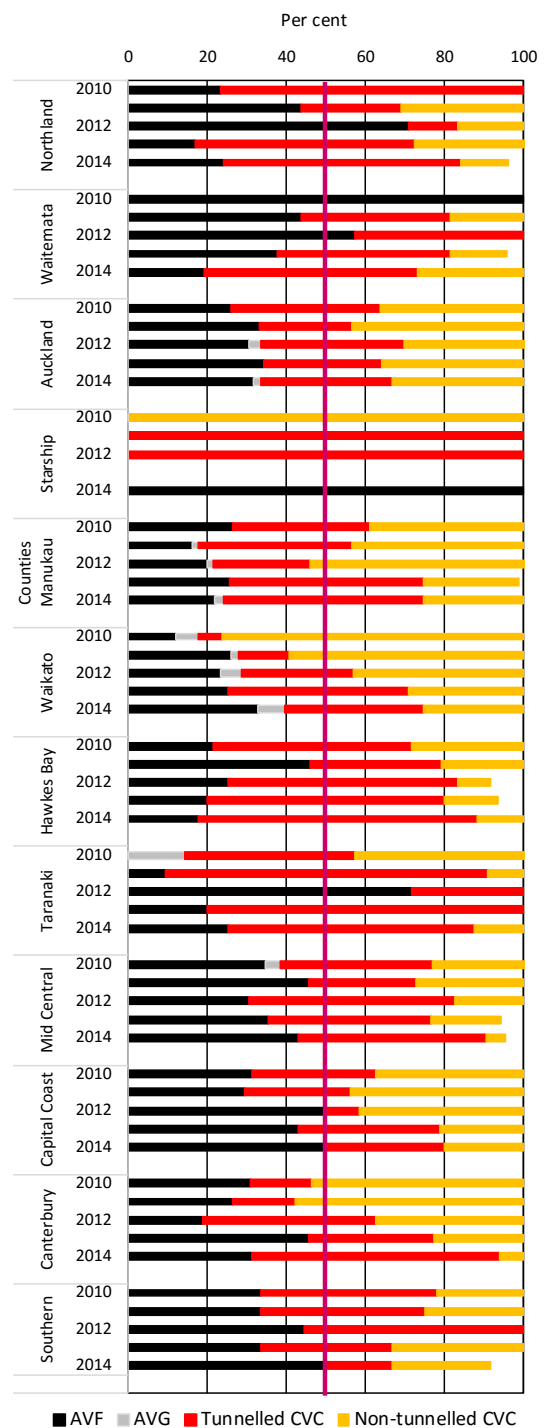


Figure 14 Dialysis vascular access in all patients starting haemodialysis as first treatment (including patients who had first specialist assessment within 3 months of starting dialysis), 2010-2014, by treating DHB.

⁵Permanent arteriovenous access (an arteriovenous fistula or graft) in 50% of all patients

starting haemodialysis is a tier 2 New Zealand National Renal Advisory Board standard

Incident vascular access for haemodialysis (late referrals excluded)

- The national practice patterns for vascular access among patients starting haemodialysis (excluding those who started dialysis within 3 months of their first specialist assessment) remained highly variable across treating DHBs (Figure 15).
- In 2014, no DHB achieved the national standard of 80% of patients starting dialysis with permanent vascular access (fistula or graft).
- The proportion of patients who started haemodialysis with a non-tunnelled central venous catheter (CVC) ranged between 0% at Southern and 28% at Waitemata.

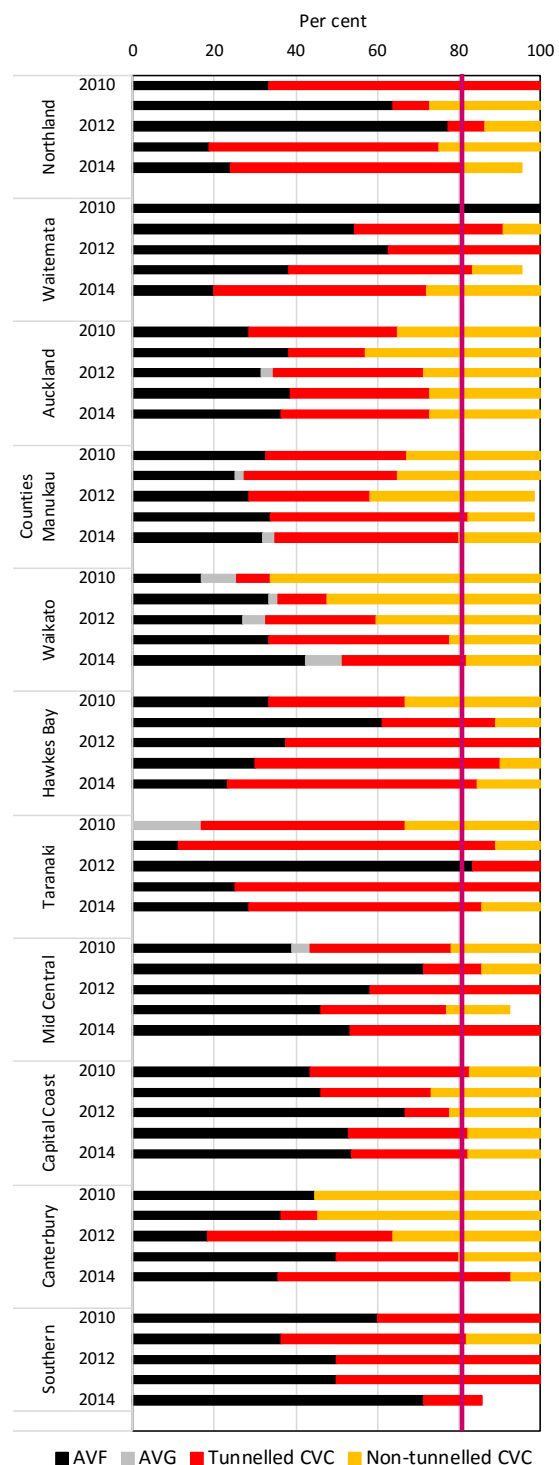


Figure 15 Dialysis vascular access in patients starting haemodialysis as first treatment (excluding patients who had first specialist assessment within 3 months of starting dialysis) 2010-2014, by treating DHB

Catheter-associated blood stream infections (CABSI)

- The rate of central venous catheter-associated blood stream infections (CABSI) are highly variable from year to year (due to small numbers), making it difficult to interpret statistical trends (Figure 16).⁶
- The average infection rate in 2014 was 0.95 infection events for every 1000 catheter-days.
- All DHBs achieved CABSI rates lower than the national standard of 4 events per 1000 catheter days.
- CABSI rates are very low at Starship Hospital. The high and increasing CABSI rate at Hawkes Bay appears to have decreased in 2014.

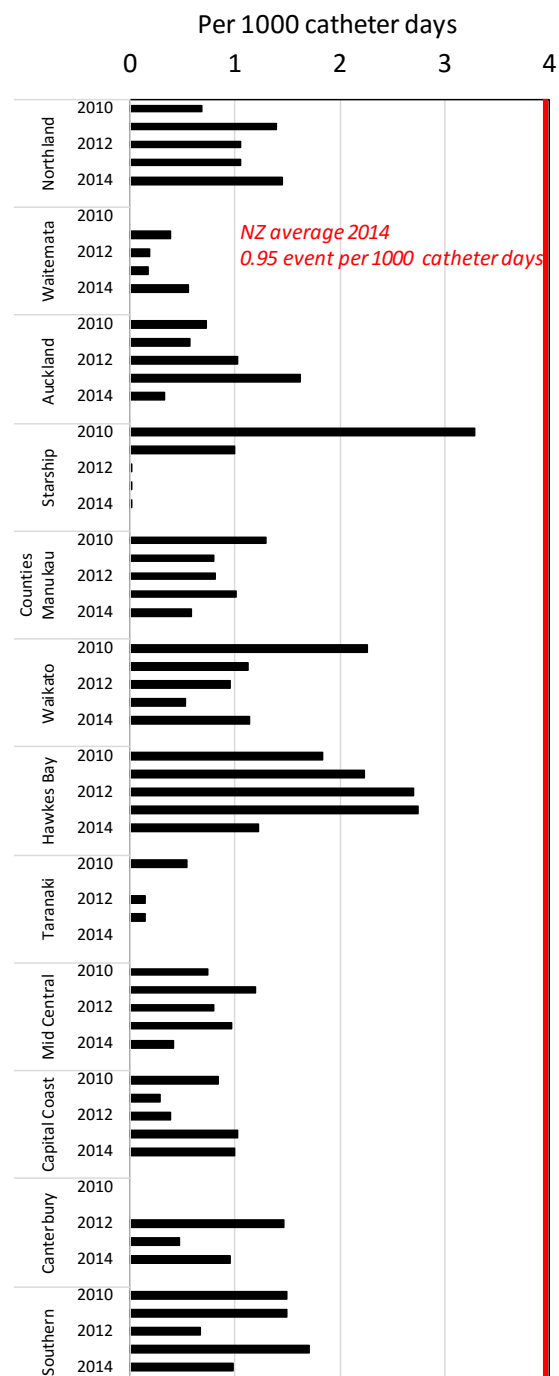


Figure 16 Catheter-associated blood stream infections (CABSI) of central venous dialysis catheters, 2010-2014, by treating DHB

⁶Data for Taranaki DHB were not provided in 2014.

6 Peritoneal dialysis

Delay in starting peritoneal dialysis

- The percentage of patients who experienced delay in starting peritoneal dialysis (PD) defined as longer than 90 days after first needing treatment for end-stage kidney disease was 4.1% in 2014. This has steadily fallen from 15.6% in 2011, 10.4% in 2012, and 8.3% in 2013 (Figure 17).
- There was no reported delay in peritoneal dialysis ≥ 90 days at Starship Hospital, Northland, Hawkes Bay, Mid Central, and Southern DHBs.
- The proportion of patients who experienced delay in starting peritoneal dialysis < 90 days was 15.1% on average across New Zealand.
- Delays longer than 90 days appear to be decreasing at Counties Manukau and Waikato DHBs.

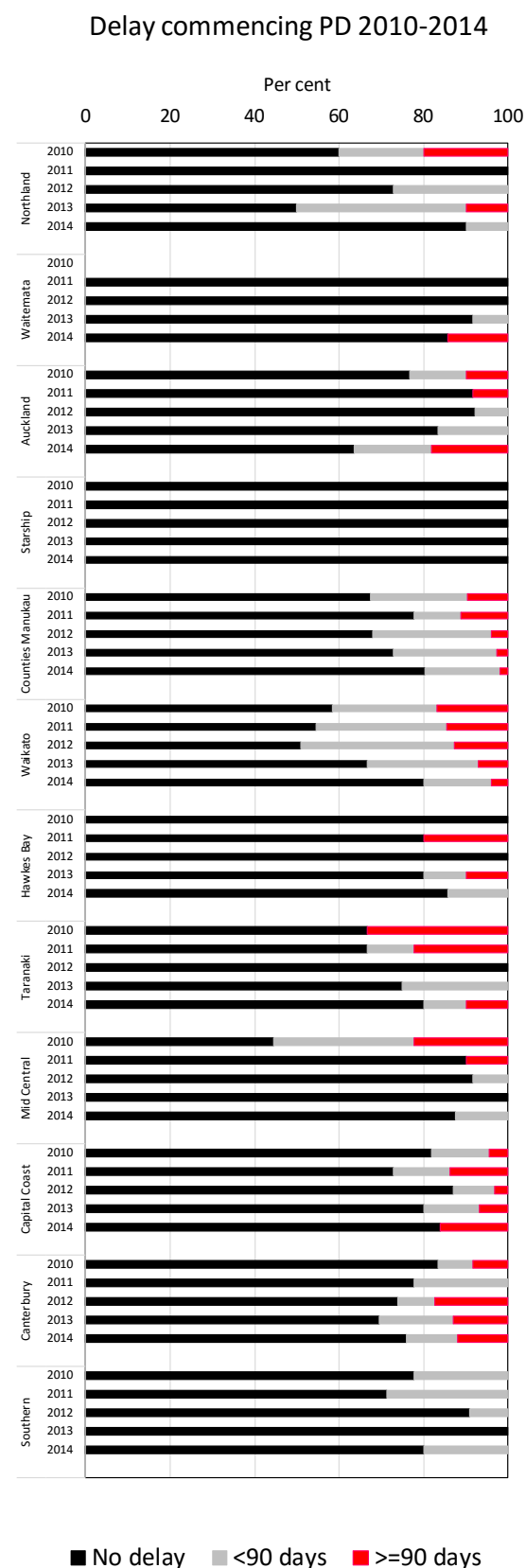


Figure 17 Delay starting peritoneal dialysis, 2010-2014, at treating DHBs

Peritoneal dialysis peritonitis rates

- Rates of PD peritonitis are decreasing over time. Patients experience an episode of peritonitis for every 28.5 months of treatment. This compared with every 20.8 months in 2010 (Figure 18).⁷⁸

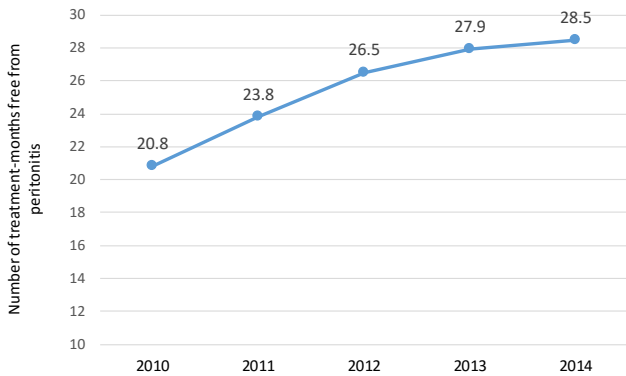


Figure 18 Rates of peritoneal dialysis-related peritonitis, 2010-2014

- All centres achieved the standard of one episode of PD peritonitis for every 18 months of treatment. There were no episodes of PD peritonitis reported at Mid Central (Figure 19).
- Wide variation in PD peritonitis rates at some treating DHBs make interpretation of trends difficult.

PD peritonitis rate 2010-2014

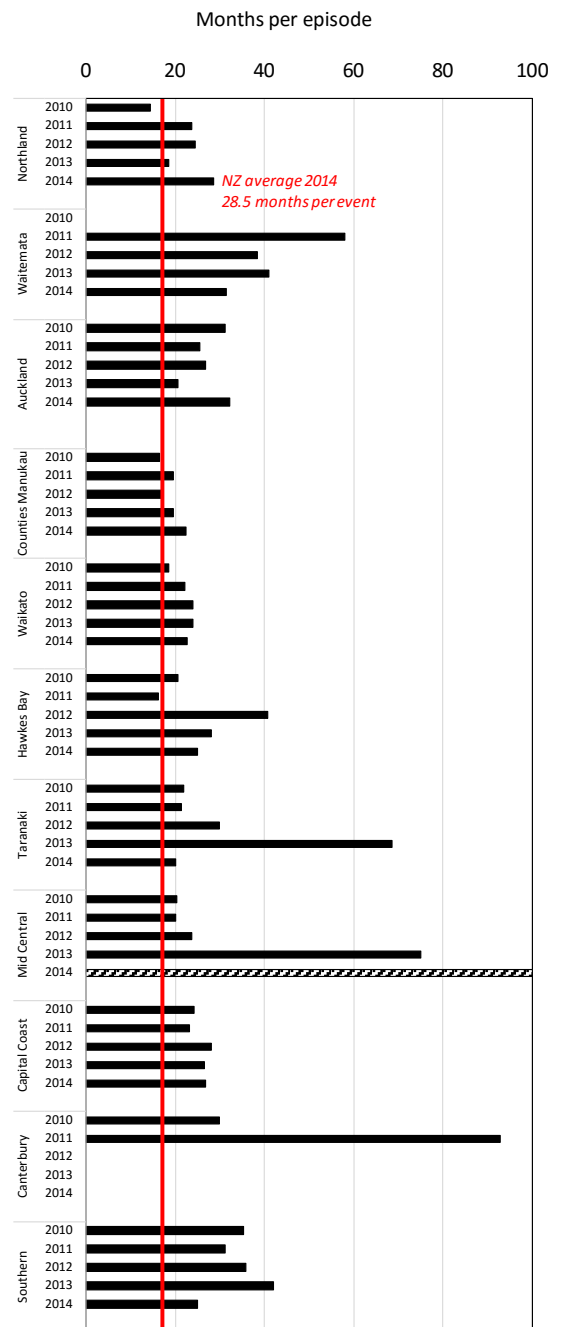


Figure 19 Peritoneal dialysis-related peritonitis rates (months per episode), 2010-2014 by treating DHB

⁷Data for Canterbury DHB were not available in 2014.

⁸ It is intended that peritonitis rates will be reported for every year of treatment rather than

per months of treatment in the 2015, consistent with international methods.

7 Haemodialysis adequacy, frequency, and treatment duration

Duration of haemodialysis

- The proportion of haemodialysis patients that were receiving ≥ 4.5 hours of haemodialysis at each treatment session continues to increase at most centres, although decreasing trends are observed at Counties Manukau, Hawkes Bay, and Taranaki (Figure 20).
- The proportion of patients receiving < 4.5 hours at each treatment session ranges from 4.8% at Canterbury to 53.6% at Taranaki.

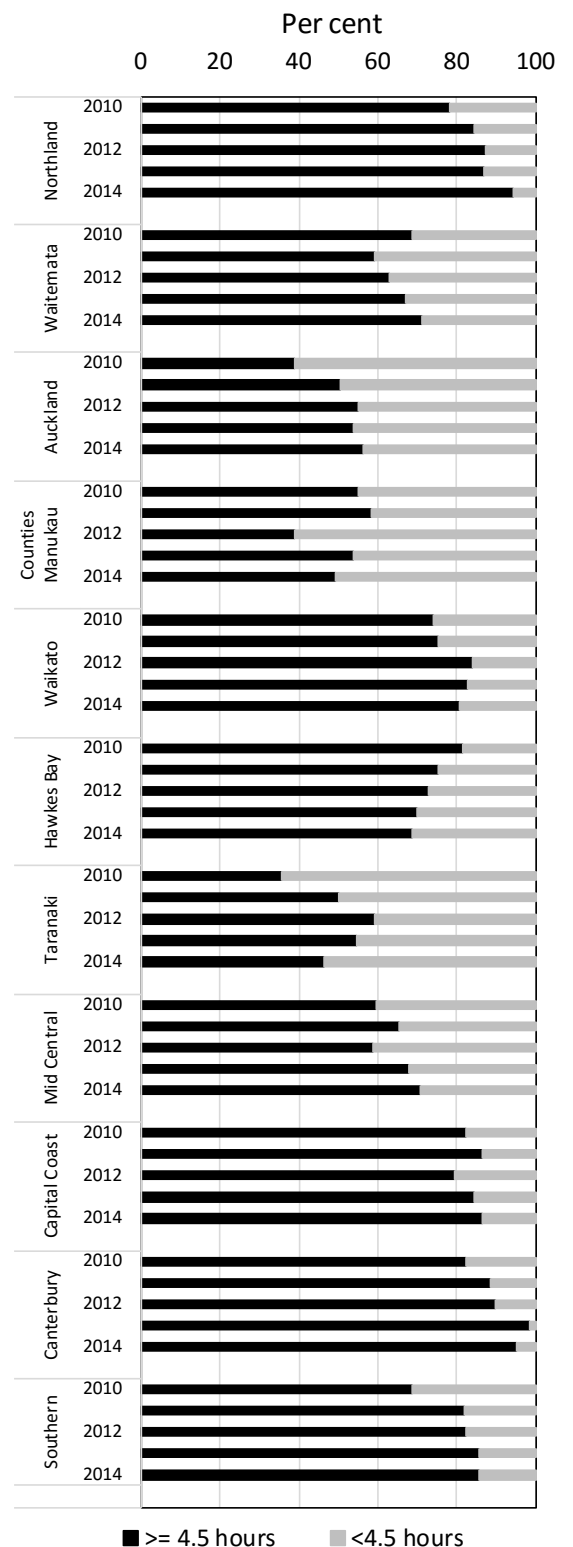


Figure 20 Proportion of haemodialysis patients receiving ≥ 4.5 hours of dialysis at each treatment session, 2010-2014, by treating DHB

Frequency of haemodialysis

- Patients rarely received haemodialysis fewer than 3 times per week during 2010-2014 (Figure 21)⁹.
- Nearly all patients were treated with haemodialysis three or more times per week.
- The proportion of patients who were treated with haemodialysis >3 times/week ranged from 0% at Starship and Waitemata to 50.8% at Canterbury.
- The change in treatment frequency categories provided by ANZDATA between 2013 and 2014 makes discerning trends difficult.

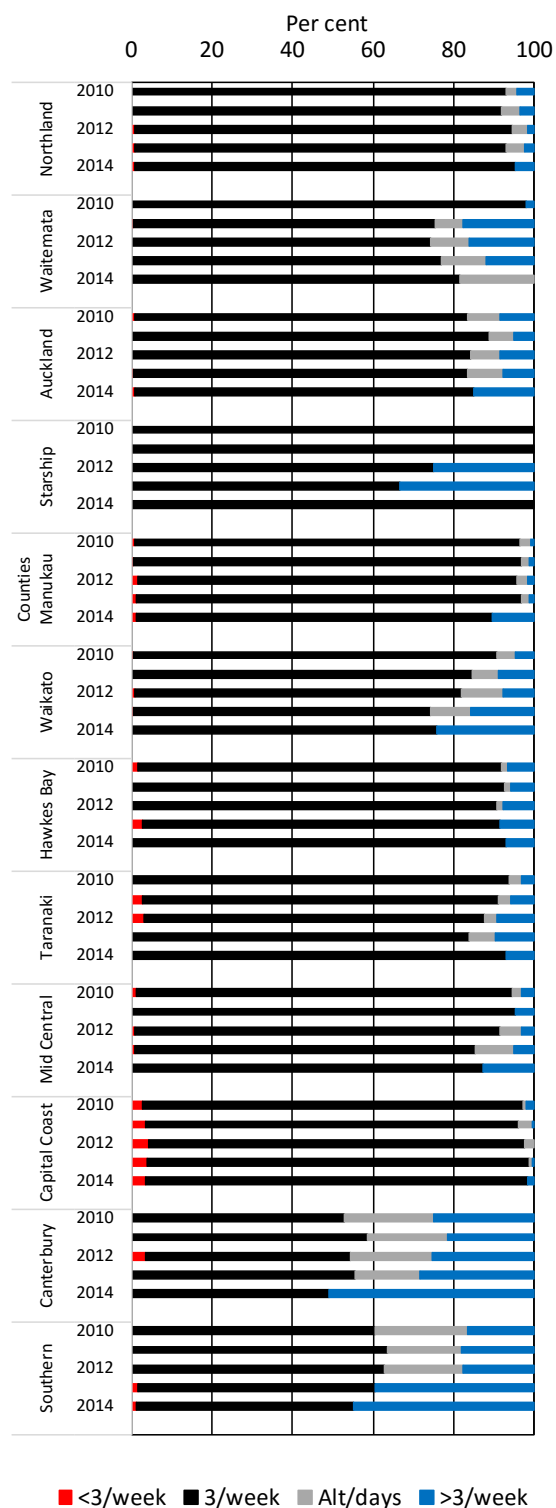


Figure 21 Frequency of haemodialysis treatment sessions, 2010-2014, at treating DHBs

⁹Data categories in 2014 were <3/week; 3/week and >3/week. The alternate day option was not used.

Haemodialysis adequacy

- Various measures of the adequacy of the haemodialysis dose are used by dialysis services. These are commonly the amount of urea removed by dialysis at each dialysis session (measured using the urea reduction ratio (URR) or Kt/V).
- Many treating DHBs do not measure or report dialysis dose. Missing data represent practice patterns and the difficulty in measuring dialysis dose for home-based haemodialysis.
- Most patients treated with haemodialysis have a reported URR ≥ 70 , when measured. This appears to be stable across DHBs, although at some DHBs, the proportion of patients with URR ≥ 70 appears to be decreasing (Figure 22).

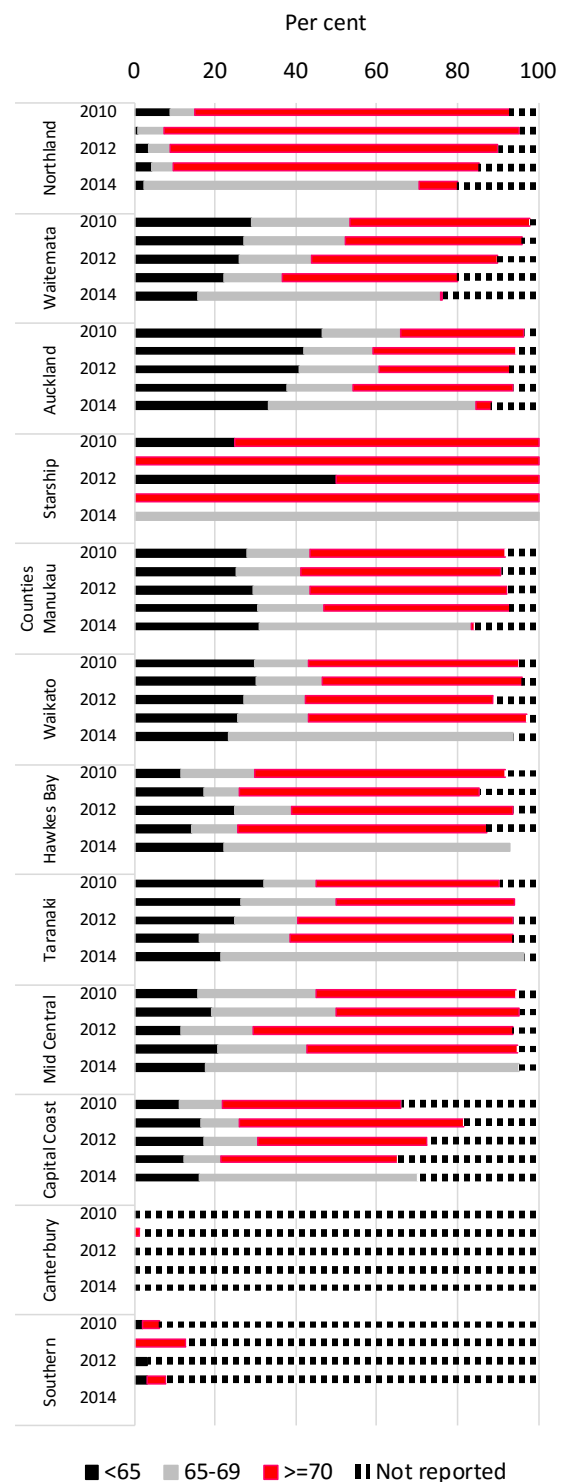


Figure 22 Proportion of haemodialysis patients with urea reduction ratio (URR) ≥ 70 , 2010-2014, by treating DHB.

8 Anaemia treatment

- The proportion of dialysis patients with a haemoglobin within the range of 100-129 g/L remains between 65-70% (Figure 23).

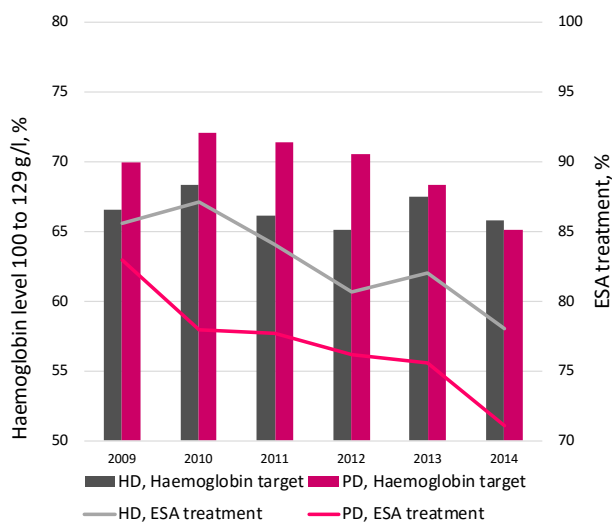


Figure 23 Erythropoiesis-stimulating agent (ESA) prescribing patterns and haemoglobin levels, 2009-2014

- The proportion of patients receiving erythropoiesis treatment is decreasing over time (and is

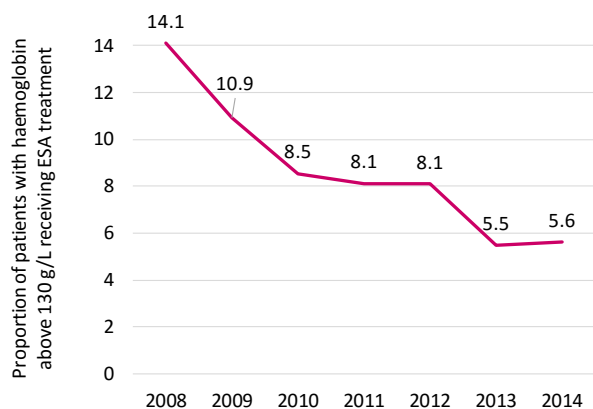


Figure 24 Proportion of dialysis patients with haemoglobin level above 130 g/L receiving ESA treatment, 2008-2014

approximately 10% lower among PD patients) (Figure 23).

- The national proportion of dialysis patients with a haemoglobin above 130 g/L who are treated with an ESA continued to fall (5.6% in 2014 compared with 14.1% in 2008) (Figure 24).

- Nationwide, 41% of patients with a haemoglobin >130 g/L continued to be prescribed an ESA, ranging from 9.1% at Canterbury to 61.5% at Hawkes Bay (Figure 25).
- The proportion of patients with a haemoglobin >130 g/L still receiving ESA has decreased progressively from 56.9% in 2010, but still remains high on average.

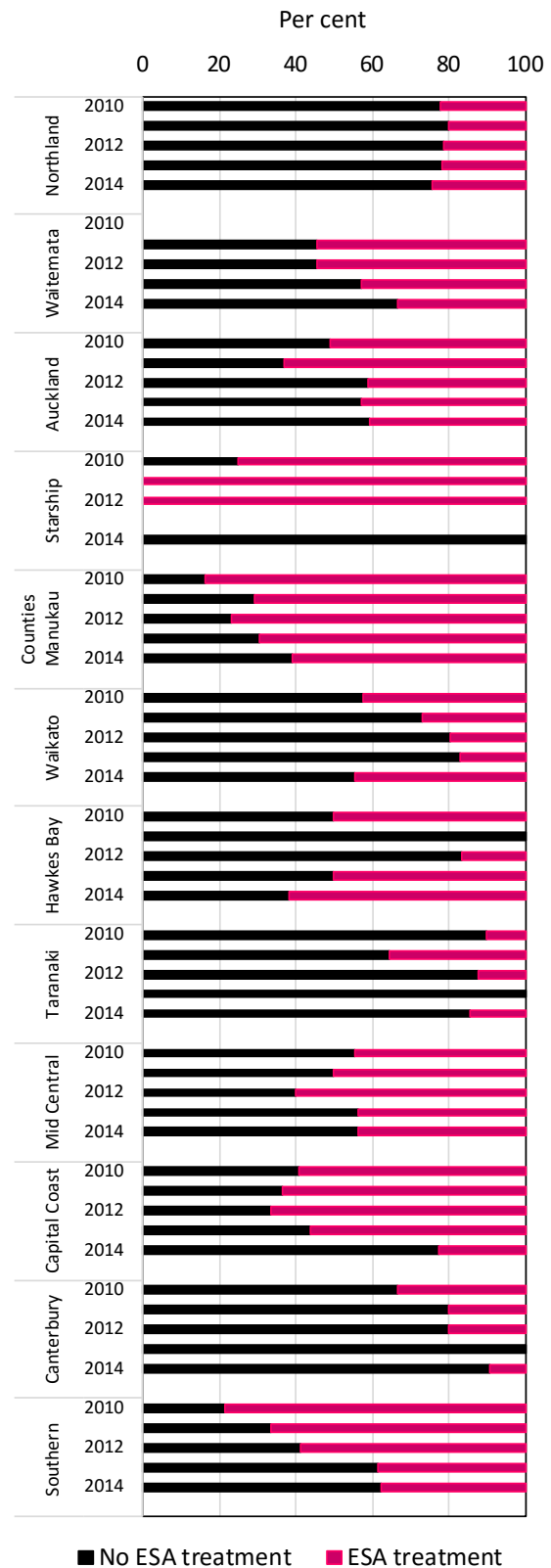


Figure 25 Proportion of dialysis patients with haemoglobin level >130 g/L according to ESA treatment

9 Late specialist assessment

- In this report, a late specialist assessment is defined as a first nephrology specialist assessment occurring within 90 days of commencing renal replacement therapy.
- Late specialist assessment may necessitate starting dialysis rather than receiving a kidney transplant as first treatment.
- Overall, 14.1% of patients started dialysis within 90 days of their first specialist assessment (compared with 14.8% in 2013) (Figure 26).
- The late assessment rate was generally <20% at all DHBs, ranging from 4.9% at Canterbury to 21.5% at Counties Manukau. The late assessment rate is likely to be multifactorial related to demography, clinical comorbidity and DHB primary and secondary care referral patterns.
- At Starship, 37.5% of children started dialysis within 90 days of first specialist assessment, although numbers were very small, and observed previously.
- There appeared to be no discernible trend in late assessment rate according to ethnicity (Table 2).

Table 2 Late specialist assessment rate 2014, by ethnicity

	Non-Māori, non-Pacific (%)	Māori (%)	Pacific (%)
2010	15	19	16
2011	22	18	26
2012	15	17	17
2013	11	15	22
2014	14	8	21

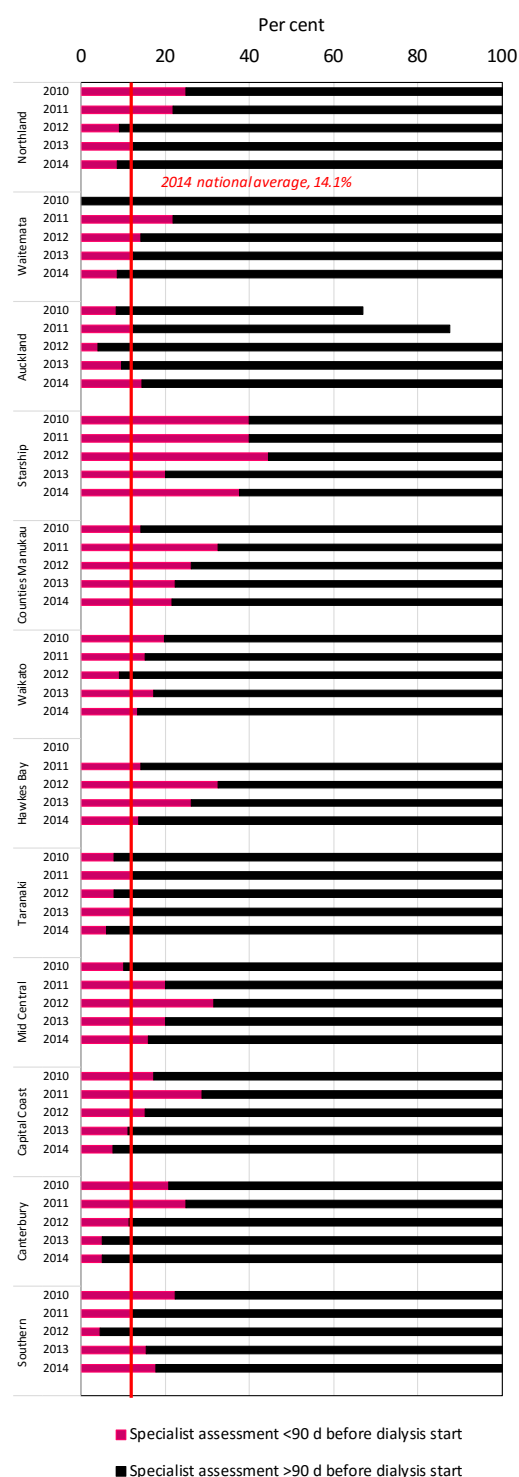


Figure 26 Late specialist assessment rates 2010-2014, by treating DHB

10 Transplantation

- Information in this report supplements the yearly report from the National Renal Transplant Service (NRTS) (established in 2014).
- Transplantation rates include kidney transplants from living donors and deceased donors. A small number of New Zealanders receive a kidney transplant together with another transplanted organ.
- There were 72 living donor kidney transplants in 2014 and 62 deceased donor kidney transplants. Two patients received a combined kidney and liver transplant and 2 patients received a combined kidney and pancreas transplant.
- Overall, kidney transplantation rates (PMP) remain relatively unchanged (Figure 27), although the number increased in 2014.

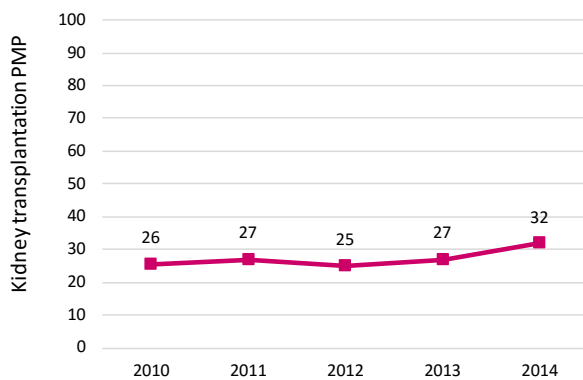


Figure 27 Number of kidney transplants pmp, 2010-2014

- Transplantation rates remained markedly variable by DHB including the proportion of living to deceased donor transplantation. Rates of transplantation appear to be falling at Hawkes Bay and

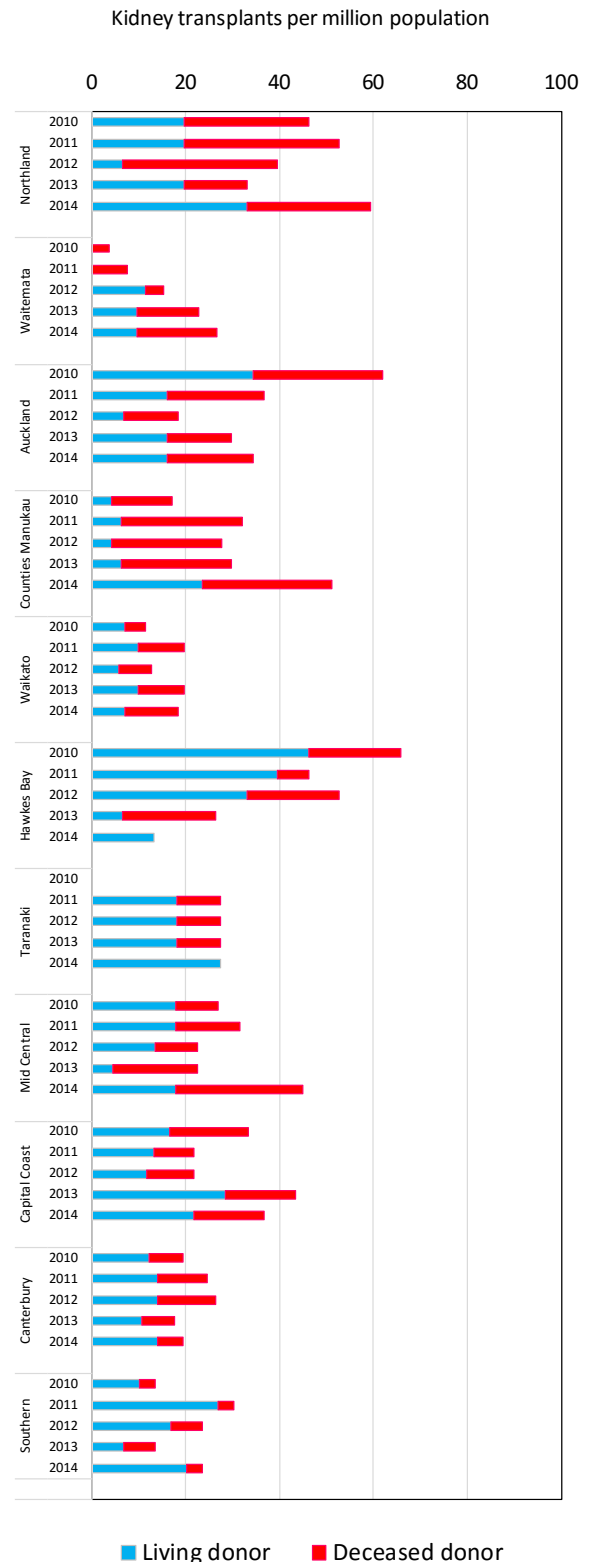


Figure 28 Kidney transplantation, PMP, by referring DHB

increasing (particularly living donation) at Counties Manukau (Figure 28).

- When transplantation rates are calculated as relative to the number of treated dialysis patients, the transplantation rates remained highly variable (Figure 29).
- In 2014, the transplantation rate per 100 dialysis patients ranged from 0.3 at Hawkes Bay to 9.0 at Capital Coast. The national average was 5 per 100 dialysis patients.
- The wide variation in transplantation rates between referring DHBs is observed year on year and likely to be related to complex practice and patient-related characteristics.

Kidney transplant exchange program

- In 2014, there were two kidney exchange chains completed, providing 2 kidney transplants each.

ABO incompatible transplantation

- In 2014, there were 5 ABO incompatible kidney transplants performed at Auckland and 2 at Canterbury (Table 3).

Table 3 Summary of ABO blood group incompatible kidney transplantation

Transplant DHB	Referring DHB	Number
Auckland	Waitemata	2
Auckland	Counties Manukau	1
Auckland	Capital Coast	1
Auckland	Taranaki	1
Canterbury	Canterbury	2

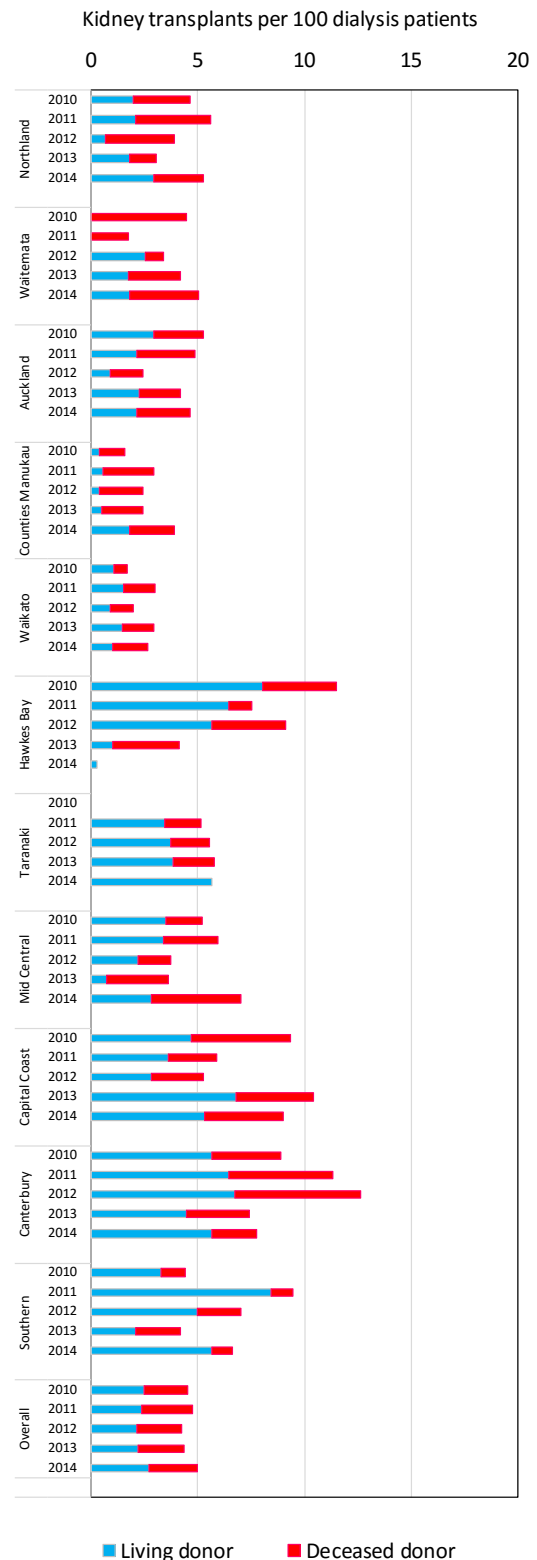


Figure 29 Kidney transplantation per 100 dialysis patients, 2010-2014, by referring DHB.

11 Supportive Care

- Supportive care includes care for people with end-stage kidney disease who choose not to have dialysis treatment, symptom management for people with end-stage kidney disease, and support for people choosing to withdraw from renal replacement therapy.
- Supportive care practices in New Zealand have been summarised for the first time in this activity report.

DHB	FTE nephrologists	Description of supportive care services to patients with ESKD
Northland	3.4	Nephrology team provide the bulk of supportive care through general clinics as well as pre-dialysis team/social worker/dietitian/psychologist as needed. Advice and support from Palliative Care team (who are very responsive). No specific supportive care/symptom clinic as such.
Waitemata	6.7	Primarily provided by renal team with as required input from Palliative Care. Nurse-led clinics for CKD patients who have not started renal replacement therapy. Also withdrawal from dialysis led by Nephrologists.
Auckland	7.8	Multidisciplinary team clinic with nephrologist, nurse specialist, dietician. Currently monthly. To increase to fortnightly in May 2016. Nurse specialist does home visits where appropriate. Liaise with community palliative care particularly where end-of-life care is occurring at home rather than in residential care. Patients are primarily those having non-dialysis care but we have seen one dialysis patient referred to discuss dialysis withdrawal. Would be great to have a social worker and specialist palliative care involvement in the clinic. We are working on improving links with community palliative care services as they often discharge our patients from their service and their perception of life expectancy and symptom burden seem to be off target (we think because they are less familiar with non-malignant disease).
Starship	2.6	Mainly from nephrology team with support of palliative care, home care etc. Depends on location as to what we do. There are children hospice services also but majority are babies who are too small to transplant failing on dialysis and with other issues such as congenital heart disease etc.
Counties Manukau	10	Renal supportive care clinic run fortnightly by a MOSS with an interest in renal supportive care. Also have a Nurse Practitioner with an interest in advanced care planning who helps any patient appropriate for ACP to complete their plan. Service is theoretically available to any renal patient but is dominated by pre-dialysis patients for renal supportive care and dialysis patients completing advanced care plans.
Waikato	6	Have developed a local program in partnership with hospice and palliative care services at Waikato. Available to regional patients but dominated by local (DHB) domiciled patients. Will look at relationship building with other palliative care services (Bay of Plenty, etc.) over next few years as part of developing a regional supportive care service. Monthly supportive care clinic at Waikato Hospital. Referrals to palliative care/hospice as clinically indicated Supportive care clinic personnel (multi-disciplinary): renal physician or advanced trainee, CKD specialist nurse, dietitian, social worker, palliative care/hospice physician or specialist nurse Debrief at end of clinic. All patients who are thought likely to die within 12 months are offered referral to this service irrespective of their treatment situation. Most patients seen have chosen non dialysis management for treatment of ESKD but our expectation is that more dialysis patients will use this service in the future.
Hawkes Bay	2.2	Nephrologist led through a low clearance clinic, with CKD nurse supported by hospice and palliative care team as needed. Close relationship with local General Practitioners.
Taranaki	1.0	Palliative care for those withdrawing from dialysis. Pre dialysis clinics (1 nephrologist and 1 nurse) for those opting not for dialysis at all.

DHB	FTE nephrologists	Description of supportive care services to patients with ESKD
Mid Central	2.4	We work closely with palliative care team. We have a combined clinic for patients who declined dialysis, high symptom burden or undecided in their treatment modality decision. Hospital palliative care is available for in-hospital patients who need immediate palliative input. Community palliative care is available if patient's symptom burden is high or if they needed support following withdrawal from dialysis.
Capital Coast	6.825	We do not have a formal supportive care service within our department but see this as an integral part of providing good clinical care to all patients with renal disease (after all our service for end stage patients is a palliative service!). For inpatients we can refer to the hospital palliative care team (SMOs/Registrars/Clinical Nurse Specialists/Nurse Practitioners) for further help and support with difficult symptom control or end of life discussions and to facilitate home comfort cares. We have a very good and close relationship with this team. For outpatients we can refer to the community hospice medical and nursing teams for supportive or palliative care.
Nelson	1.0	Renal physician and hospice, district nursing and other community teams. Ward based – nephrology. Community based - hospice service All patients who are choosing not to have dialysis or are considering stopping renal replacement therapy.
Wairau	0.2	Other services (palliative care, district nurses, remotely located dialysis nurses [Capital Cost DHB]) provide supportive care.
Canterbury	4.6	We link with Palliative Care services to support inpatient management. We offer a supportive care clinic for 3.5 hours approximately monthly, staffed by a Palliative Care physician and nephrologist. Occasional community visits with known patients. Includes care of patients treated with dialysis or choosing not to have dialysis and for symptom management. Linked to Community Palliative Care services.
Southern	2.0	Our department has a very active conservative management program, starting at pre-dialysis as well as for the dialysis program. The nephrologists lead this service and involve where appropriate: dialysis staff, ward nursing staff, liaison psychiatry, palliative care, and the hospice. There is no designated clinic at present, rather it is an active part of patient review and can occur in clinic, on the ward or in the dialysis unit. The active conservative care occurs for all aspects of management of patients under our care.

12 Potential action points

While the determinants of practice patterns and patient outcomes at each treating DHB are complex and include contributions from patient demography, clinical comorbidity, and local practices, there are persistent areas of nephrology practice highlighted in this annual report that warrant further consideration and possible action. Documenting local and national activities underway to address practice disparities and activities below current national standards is beyond the scope of this review.

Areas of potential further investigation and possible action include:

- Low permanent vascular access for incident and prevalent haemodialysis patients
- Disparities in rates of ESKD treatment among Māori and Pacific patients
- Pre-emptive kidney transplantation among Māori and Pacific patients and for children/adolescents
- Low kidney transplantation rates at some treating DHBs
- Increasing rates of hospital haemodialysis
- Decreasing rates of peritoneal dialysis
- Persistent ESA prescribing among patients with haemoglobin >130 g/L
- Data survey of District Health Boards on practices of dialysis vascular access care (including catheter locks)
- Annual surveys of practice patterns not routinely collected within ANZDATA – e.g., transition-to-adult care, viral screening, immunisation practices.
- Numbers of patients receiving supportive care as this is not captured in ANZDATA.

13 Notable publications & reports arising from ANZDATA

Journal papers (in reverse date order)

1. Kasza J, Wolfe R, McDonald SP, Marshall MR, Polkinghorne KR. Dialysis modality, vascular access and mortality in end-stage kidney disease: a bi-national registry-based cohort study. *Nephrology (Carlton)*. 2015 Dec 2. doi:10.1111/nep.12688. [Link](#)

Summary: This study asked whether different dialysis modalities offered better life-expectancy for patients. Survival with home haemodialysis, facility haemodialysis (with permanent or temporary vascular access) or peritoneal dialysis was compared in over 20,000 patients. The authors found that in the first year of dialysis treatment, home haemodialysis offered the best survival, followed by facility dialysis with permanent access. Facility dialysis with a temporary catheter and peritoneal dialysis were linked with the highest risk of death in the first 12 months.

2. Marshall MR, Polkinghorne KR, Kerr PG, Hawley CM, Agar JW, McDonald SP. Intensive hemodialysis and mortality risk in Australian and New Zealand populations. *Am J Kidney Dis*. 2016 Apr;67(4):617-28. [Link](#)

Summary: This study looked at whether more intensive haemodialysis (more frequent or longer dialysis session) was associated with better survival. In over 40,000 patients treated between 1996

and 2012, more intensive haemodialysis (either at a facility or and home) was generally linked to improved life expectancy although was still inferior to kidney transplantation.

3. Marshall MR, Polkinghorne KR, Kerr PG, Agar JW, Hawley CM, McDonald SP. Temporal changes in mortality risk by dialysis modality in the Australian and New Zealand dialysis population. *Am J Kidney Dis*. 2015 Sep;66(3):489-98. [Link](#)

Summary: This study asked whether survival of patients treated with dialysis had changed over time. The investigators compared outcomes for patients starting dialysis between 1998 and 2002 with those starting dialysis during 2003-2007 and 2008-2012. Despite patients having greater medical comorbidity over time, there has been a 21% reduction in mortality for patients on facility haemodialysis, 27% reduction for peritoneal dialysis patients and 49% reduction for patients on home haemodialysis. Outcomes for dialysis are improving and are most evident for home dialysis therapies.

4. Grace BS, Kara T, Kennedy SE, McDonald SP. Racial disparities in pediatric kidney transplantation in New Zealand. *Pediatr Transplant* 2014 Nov;18(7):689-97. [Link](#)

Summary: This study looked at whether there were racial disparities in access to kidney transplantation for patients younger than 18 years old. Between 1990 and 2012, European and Asian patients were most likely to receive a kidney transplant within five years (92% and 91%) whereas Māori and Pacific patients were less likely to receive a kidney transplant (46% and 51% transplanted within 5 years). The difference was considered to reflect less opportunity for living kidney donation for younger Māori and Pacific patients.

5. Marshall MR, Walker RC, Polkinghorne KR, Lynn KL. Survival on home dialysis in New Zealand. PLoS One. 2014 May 7; 9(5): e96847. [Link](#)

Summary: New Zealand has a much higher use of home dialysis therapies than other countries. The investigators asked whether home dialysis (either haemodialysis or peritoneal dialysis) was linked to better survival than facility haemodialysis. Patients who do home haemodialysis were found to be younger and healthier. Home haemodialysis was associated with a 52% reduction in mortality risk whereas peritoneal dialysis was linked to a lower risk of death (20% lower) in the first 3 years but a higher risk of death (33%) once the patients had been on peritoneal dialysis for longer than 3 years on average. There was less benefit seen for peritoneal dialysis among patients with diabetes, those with other medical conditions and for Māori and Pacific patients.

6. Marshall MR, van der Schrieck N, Lilley D, Supershad SK, Ng A, Walker RC, et al. Independent community house hemodialysis as a novel dialysis setting: an observational cohort study. Am J Kidney Dis. 2013 Apr;61(4):598-607. [Link](#)

Summary: This study examined mortality among patients treated with haemodialysis at a community house in New Zealand. Among nearly 5000 patients (113 treated at a community house), there was no evidence that the community setting for haemodialysis led to different risks of mortality for patients treated between 2000 and 2010.

7. McDonald SP. End-stage kidney disease among indigenous peoples of Australia and New Zealand. Kidney Int Suppl (2011). 2013 May;3(2):170-173. [Link](#)

Summary: This study reports on the markedly increased rate of end-stage kidney disease among Aboriginal and Torres Strait Islanders in Australia and Māori and Pacific patients in New Zealand. Notably, Māori and Pacific patients were much less likely to be treated with home dialysis or receive a kidney transplant. Outcomes for indigenous patients were much poorer for dialysis and transplantation even after accounting for other medical conditions.

8. Tang W, McDonald SP, Hawley CM, Badve SV, Boudville NC, Brown FG, Clayton PA, Campbell SB, de Zoysa JR, Johnson DW. Anti-glomerular basement membrane antibody disease is an uncommon cause of end-stage renal disease. Kidney Int 2013 Mar;83(3):503-510. [Link](#)

Summary: This study reported the outcomes of patients who have anti-glomerular basement membrane disease as a cause for end-stage kidney disease. The study looked at information in ANZDATA between 1963 and 2010 among 450 patients. Patients who had GBM disease experienced similar survival on dialysis or with a kidney transplant as those with other causes of kidney disease.

9. McDonald SP, Marshall MR, Johnson DW, Polkinghorne KR. Relationship between dialysis modality and mortality. J Am Soc Nephrol. 2009 Jan; 20(1):155-63. [Link](#)

Summary: Whether survival for patients is different on haemodialysis compared with peritoneal dialysis has been widely debated but is difficult to study in research because patients who are treated with each type of dialysis differ in important ways that may impact on their survival for reasons other than dialysis choice. In this study,

younger patients who were otherwise well had better survival with peritoneal dialysis but other patients did not. The survival on peritoneal dialysis was better in the early stages but was worse as time went on. This suggests survival on peritoneal dialysis is heavily influenced by patient age, other medical factors and the amount of time treated with peritoneal dialysis.

information of kidney transplantation activity by renal transplant centre and district health boards in 2014. [Link](#)

10. McDonald SP, Collins JF, Rumpsfeld M, Johnson DW. Obesity is a risk factor for peritonitis in the Australian and New Zealand peritoneal dialysis populations. *Perit Dial Int.* 2004 Jul-Aug;24(4):340-6. [Link](#)

Summary: This study looked at whether there was a link between body size and rates of peritoneal-dialysis related peritonitis. Using information from the ANZDATA registry involving 10,000 patients in Australia and New Zealand between 1991 and 2003, the researchers found that patients with a higher body mass index had higher rates of peritonitis. Peritonitis was also more common when patients had other medical conditions and among patients who had been treated with peritoneal dialysis for longer.

11. Stewart JH, McCredie MR, McDonald SP. The incidence of treated end-stage renal disease in New Zealand Maori and Pacific Island people and in Indigenous Australians. *Nephrol Dial Transplant.* 2004 Mar,19(3):678-85. [Link](#)

Summary: This was one of the first studies to report that the rates of end-stage kidney disease were between 2 and 10 times higher for Māori and Pacific patients than other New Zealanders during the years of 1992 to 2001.

Reports

National Renal Transplant Service
Transplant Activity Report providing

14 New Zealand activities

We have included here a short summary of nephrology activities of interest reported by centres for the 2014 calendar year.

Northland

Dr Adam Mullan joined us initially as a 1-year locum for Dr Kaye Logan allowing her to undertake a year of general medicine. He has now joined us more permanently as of 1st May 2016. Dr Craig Weise joined our team as our Clinical Psychologist, and went on to attract a 1-year intern in Clinical Psychology from Massey University in 2015. Ashleigh Share joined our dietetic team in 2014. Jenny Heatley and Te Atawhai Beirne joined our Peritoneal Dialysis team in 2014. Laurie Francis joined our CKD/pre-dialysis team in 2014.

Auckland

Transplant numbers have increased considerably thanks to a combination of factors including the Ministry of Health initiatives. A new clinic to assess Auckland DHB kidney transplant recipients and donors has been established. A team of senior staff continue to work on plans to build a satellite haemodialysis centre and also replace the current in-centre haemodialysis unit on the Grafton site. The Auckland DHB has re-organised the management structure at a unit level and so Suzanne Joynt has commenced as Nurse Unit Manager.

Starship

2013-2014: The newly refurbished medical specialty wards re-opened at Starship, including a haemodialysis area. We introduced adapted peritoneal dialysis for many children. The paediatric nephrology service continues to develop clinical guidelines for various clinical

disease states which are accessible on the Starship Clinical Guidelines website. The national renal special interest group was established via the Paediatric Society.

In the 2014-15 period, we did our second ABOi incompatible transplant, and at one stage had the lowest number of children ever on dialysis, thanks to the increasing transplant numbers. We also held a national study day as part of the Paediatric Society activity which was well attended by Paediatric staff from the round the country. However, a number of staff departures occurred. Firstly, a part time clinical nurse specialty position was left vacant mid-2015 and this has not been filled since. Secondly, Dr Maria Stacks' resignation in August 2015 after 4 years in the department has placed significant amount of pressure on the incumbent staff to provide a 24-hour national service as recruitment to replace Dr Stack has been protracted and difficult. Difficulties in attracting trainees into paediatric nephrology continues with currently only one trainee finishing her advanced training in late 2017.

Counties Manukau

A Health Research Council project grant has funded a New Zealand wide study of Sodium Lowering in Dialysate (SOLID) Study, commencing in 2012 (ANZCTR:12611000975998). Funding for an extension study Mac-SOLID was also awarded and continues alongside the SOLID protocol (ACTRN12614000070639). Study closed 2016. Thanks to a generous grant from the Auckland Medical Research Foundation "A randomised control trial of the effect of niacinamide on Fibroblast Growth factor 23 (FGF23) levels in Chronic Kidney Disease" was ongoing during 2014/15. (ACTRN:12613001229763). The study closed 2016. CMH received a Ministry of Health grant after an RFP process to fund *Live Kidney Donation Aotearoa*. A three-year program of evidence-based interventions aimed at increasing live kidney donation in the Counties Manukau population. <http://kidneydonor.org.nz/>. In 2015, Counties Manukau converted to a default model of acute Peritoneal Dialysis for urgent start dialysis whenever possible, with the aim of improving

patient experience, reducing complications and encouraging independent dialysis.

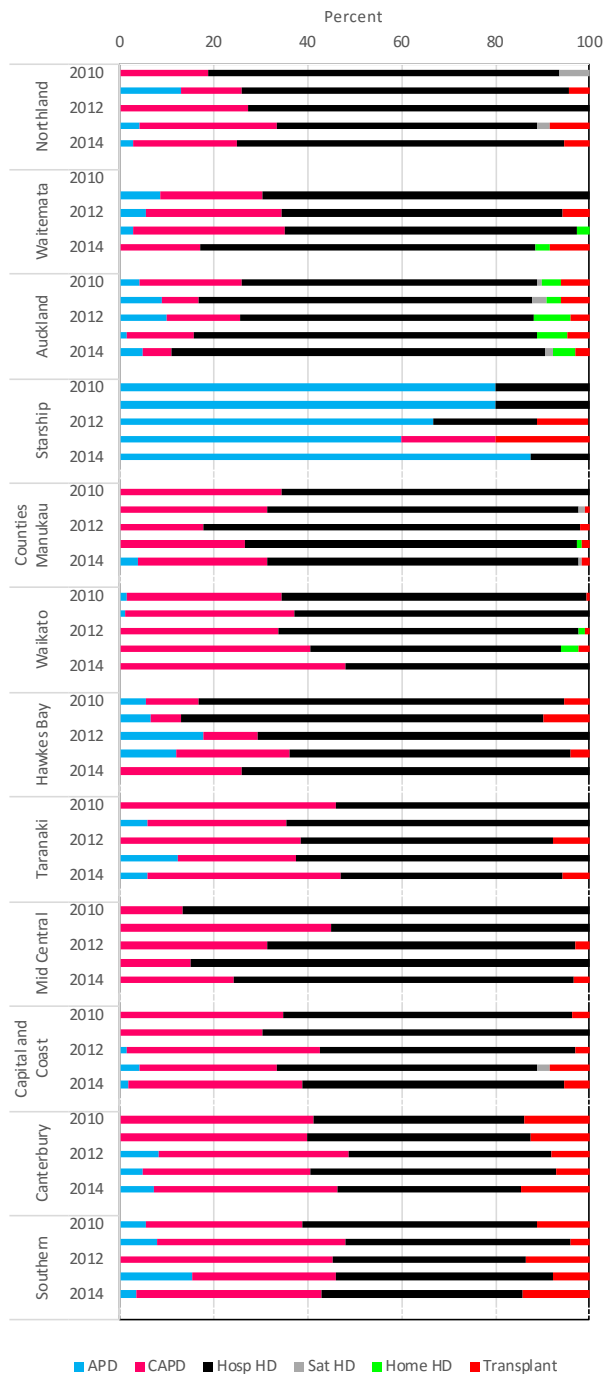
Capital Coast

The renal service underwent an external review looking for opportunities to improve patient care and service delivery. The outcome was very positive indicating that the service was functioning very well although also indicated areas that could be further explored to improve health care delivery. The Kenepuru Dialysis Unit was officially opened by the Minister of Health, Tony Ryall on 20 March 2014. This has capacity for 24 stations, although opened with 16 chairs operational. This saw the closure of the Porirua Community Dialysis Centre. Our NOPIS database was upgraded and migrated to a web based platform to improve stability and functionality. We formally introduced a hepatitis B vaccination programme in the dialysis units. Dr Alastair Macdonald retired after a long association with the Wellington renal service and was replaced by Dr Leila Arnold.

Canterbury

In 2014, the Christchurch team completed the first Canterbury ABO incompatible kidney transplant. The National Renal Transplant Service was established in 2014, with nephrologist Dr Nick Cross appointed as the national head of this team. The community assisted home haemodialysis program with provider Nurse Maude was evaluated, resulting in ongoing support from Planning and Funding to continue. The Christchurch unit hosted the 38th New Zealand Branch of the Renal Society of Australia conference in October 2014 which was very successful and with excellent feedback from attendees. Canterbury and Southern DHBs collaborated to procure peritoneal dialysis supplies, resulting in a joint contract with Baxter. Dr John Irvine (Clinical Director), Kimberley Reimers (Service manager), and Wendy Cuthill (Dialysis Nurse Manager) attended the Health Roundtable meeting on renal failure.

Appendix Figures



Appendix Figure 1 Modality of starting renal replacement therapy, 2010-2014, by treating DHB