



National Renal
Advisory Board

New Zealand
Dialysis and Transplantation Audit
2012 and 2013

A summary report of activity for
New Zealand nephrology services

Dr Suetonia Palmer

On behalf of the
National Renal Advisory Board

NRAB Standard and Audits Subcommittee

**A national quality assurance
framework to improve the
delivery of dialysis and
transplantation services to
New Zealand**



Statement of Intent

The Standards and Audit report of activity within New Zealand dialysis and transplantation clinical services is produced by the National Renal Advisory Board to provide feedback to stakeholders about healthcare performance in the management of end-stage kidney disease in New Zealand. The report provides information about current practices and compares these with previous years and currently accepted standards of care for key performance indicators. The evidence in this report represents a statement of practice patterns in New Zealand for 2012 and 2013 for consideration by the practitioner community and governance organisations.

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This standards and audit report is also available online at:

<http://www.health.govt.nz/about-ministry/leadership-ministry/clinical-groups/national-renal-advisory-board>



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Summary

- Approximately, 128 per million New Zealanders start treatment for end-stage kidney disease each year, and this rate appears to be rising.
- There is marked disparity in the incidence of end-stage kidney disease based on ethnicity. Māori and Pacific New Zealanders are 3-5 times more likely to experience end-stage kidney disease.
- Few New Zealanders start treatment for end-stage kidney disease with a kidney transplant. There is marked disparity in access to transplantation based on ethnicity.
- Approximately 4 patients with end-stage kidney disease receive a transplant for every 100 patients treated with dialysis each year.
- Most New Zealanders with end-stage kidney disease start treatment with facility haemodialysis (64.2%).
- About half of all dialysis patients in New Zealand are treated with a home-based therapy (peritoneal dialysis or haemodialysis). Of all patients treated with dialysis, about 20% are treated with home haemodialysis.
- Most patients treated with haemodialysis receive >4.5 hours of dialysis per treatment and at least 3 treatments per week
- The proportion of patients starting dialysis with permanent vascular access (38.2%) remains well below the New Zealand standards of 80%.
- Rates of continuous peritoneal dialysis are decreasing and rates of automated peritoneal dialysis are increasing.
- Peritoneal dialysis peritonitis occurs every 27 months on average.
- About 14.8% of patients with end-stage kidney disease commencing renal replacement therapy do not see a nephrologist within 3 months of starting treatment.
- There is marked variation in practice patterns in treatment of end-stage kidney disease among New Zealand District Health Boards.



1 Introduction

The National Renal Advisory Board presents the 9th annual Standards and Audit Report for the New Zealand dialysis and transplantation services which covers the calendar years of 2012 and 2013. The data are largely derived from the annual data return of the Australia and New Zealand Dialysis and Transplant Registry (ANZDATA) and population data from the 2013 New Zealand Census from Statistics New Zealand. Data are also provided by the New Zealand Peritoneal Dialysis registry (NZPDR).

Data for the Waitemata District Health Board are now largely complete (with the exception of 2009 data) following the move of all dialysis and transplant patients from the Auckland District Health Board service. The Starship Children's 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 central District Health Boards which provide dialysis and transplantation services for New Zealand. The District Health Board populations served by the 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 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](#).



2 Data collection

The 2012/2013 Report includes data from the 2012 and 2013 ANZDATA Registry for the calendar years ending 31 December 2012 (for the 2012 Report) and 31 December 2013 (for the 2013 Report). The timing of data collection and reporting from ANZDATA means that the New Zealand Standards and Audit Report cannot be finalised and distributed until the data analysis by ANZDATA is completed. This has led to substantial delay in the delivery of the 2012 report. Therefore the data analysis and reporting for New Zealand in years 2012 and 2013 have been combined into a single report.

The audit data are shown in table and graphic formats in the following pages. There may be minor changes in the data from previous years' reports which result from corrections and updates to the ANZDATA database and minor changes resulting from updating of the NZ population from the 2013 census. The raw data have not been routinely presented but are available to all Heads of Renal Departments on request.

The National Renal Advisory Board welcome feedback on this report. Comments can be sent to Dr Murray Leikis, Chair of the National Renal Advisory Board (murray.leikis@ccdhb.org.nz).



3 Patients starting renal replacement therapy (dialysis or receiving a kidney transplant)

- In 2012, 517 people (including 9 children) started renal replacement therapy in New Zealand.
- In 2013, 546 people (including 5 children) started renal replacement therapy in New Zealand.
- The incidence rate for renal replacement therapy was 120 per million population (pmp) in 2012 ([Table 1](#)) and 128 per million population (pmp) in 2013 ([Table 2](#)). Overall the incidence rate had fallen to a nadir in 2011 (to 109 pmp) and has started to increase again (by 10.1% from 2011 to 2012 and by 6.6% from 2012 to 2013) ([Figure 1](#)).
- The incidence of renal replacement therapy continues to vary substantially across New Zealand. In 2012, the highest incidence was in Counties Manukau (228 pmp) and the lowest was in Canterbury (65 pmp). In 2013, the highest incidence was seen in Counties Manukau (247 pmp) and the lowest was in Southern (44 pmp).
- These differences in the population rates of starting renal replacement therapy are likely to be driven in part by the age and ethnicity distribution of the corresponding District Health Board populations. The ethnicity and age of the populations served by the contributing DHBs are described in the Appendix on page [38](#).



Table 1 Renal service demographics in 2012

District Health Board	Pop*	Incidence ESKD treatment		Dialysis prevalence		Transplant prevalence		Total prevalence of ESKD treatment		Ratio dialysis: transplant**
		Number	Rate (PMP)	Number	Rate (PMP)	Number	Rate (PMP)	Number	Rate (PMP)	
Northland	151,692	33	218	153	1008	69	455	222	1,463	2.2
Waitemata	525,555	35	67	235	447	140	266	375	714	1.7
Auckland	436,341	51	117	327	749	194	445	521	1153	1.7
Counties Manukau	469,293	107	228	541	1153	138	294	679	1447	3.9
Waikato	707,145	92	130	458	648	167	236	625	884	2.7
Hawkes Bay	151,692	17	112	88	580	78	514	166	1094	1.1
Mid-Central	222,684	35	157	135	606	63	283	198	889	2.1
Taranaki	109,752	13	118	54	492	34	310	88	802	1.6
Capital Coast	600,189	66	110	248	413	249	415	497	828	1.0
Canterbury	569,952	37	65	119	209	253	444	372	653	0.5
Southern	297,423	22	74	100	336	101	340	201	676	1.0
Overall	4,241,724	508	120	2458	580	1486	350	3944	930	1.6

*The source population is derived from the New Zealand Census

** 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 during the 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. 31/12/2012).

PMP – Per million 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)



Table 2 Renal service demographics in 2013

District Health Board	Pop*	Incidence ESKD treatment		Dialysis prevalence		Transplant prevalence		Total prevalence of ESKD treatment		Ratio dialysis: transplant**
		Number	Rate (PMP)	Number	Rate (PMP)	Number	Rate (PMP)	Number	Rate (PMP)	
Northland	151,692	24	158	164	1081	72	475	236	1556	2.3
Waitemata	525,555	74	141	288	548	147	280	435	828	2.0
Auckland	436,341	63	144	309	708	194	445	503	1153	1.6
Counties Manukau	469,293	116	247	576	1227	139	296	715	1524	4.1
Waikato	707,145	84	119	472	667	181	256	653	923	2.6
Hawkes Bay	151,692	25	165	97	639	78	514	175	1154	1.2
Mid-Central	222,684	20	90	138	620	65	292	203	912	2.1
Taranaki	109,752	8	73	52	474	38	346	90	820	1.4
Capital Coast	600,189	72	120	250	417	263	438	513	855	0.9
Canterbury	569,952	42	74	135	237	254	446	389	683	0.5
Southern	297,423	13	44	95	319	105	353	200	672	0.9
District Health Board	4,241,724	541	128	2576	607	1536	362	4112	970	1.7

*The source population is derived from the New Zealand Census

** 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 during the 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. 31/12/2013).

PMP – Per million 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)



Age

- There are marked and largely expected differences in the rates of starting renal replacement at different ages ([Figure 1](#)).
- In general, young people aged between 0 and 25 years experienced an incidence rate of 10 to 20 pmp between 2009 and 2013.
- The incidence of renal replacement therapy is highest in the 45 to 64 year age group with a relatively static rate of 240 to 249 pmp between 2009 and 2013.
- The rate of treatment appears to be decreasing among adults aged over 65 years

Renal replacement therapy incidence, New Zealand 2009 to 2013

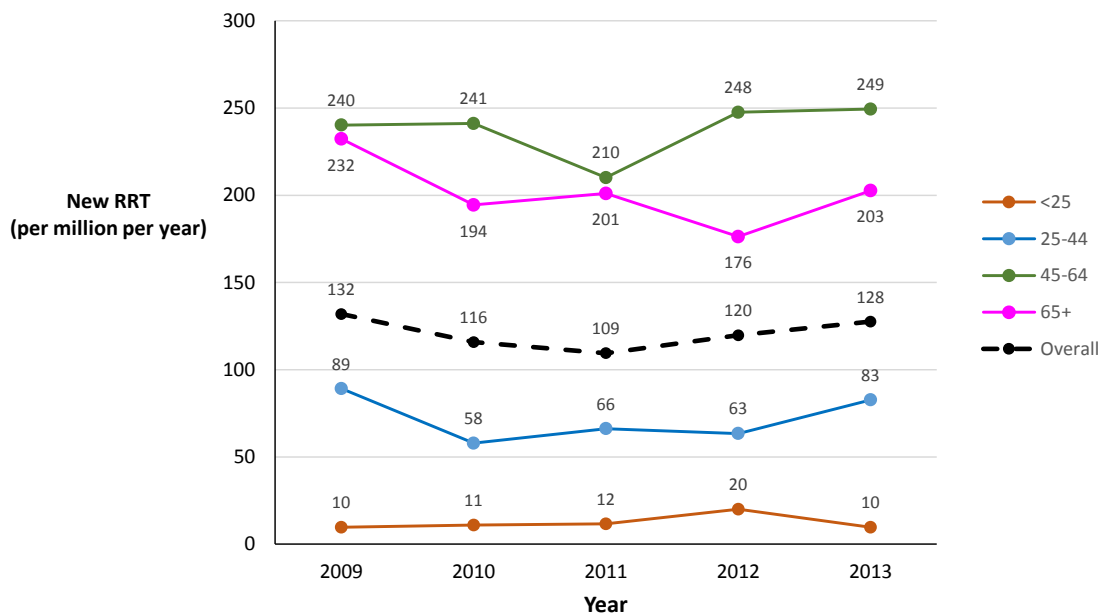


Figure 1 Commencement of renal replacement therapy according to age



Ethnicity

- The incidence rates of renal replacement therapy among Māori and Pacific New Zealanders are considerably higher than for non-Māori, non-Pacific New Zealanders ([Figure 2](#)), and this difference remains persistent or increasing.
- This difference in incidence is likely confounded but incompletely explained by the different age distributions and transplantation rates in the respective populations.
- For non-Māori, non-Pacific New Zealanders, the overall incidence of RRT is falling (from 85 pmp in 2009 to 69 pmp in 2013) as seen in other global regions.
- The incidence rate is more variable for Māori and Pacific, but has remained extremely high for both groups (281 pmp for Māori and 338 for Pacific people in 2012 and 312 pmp for Māori and 382 pmp for Pacific people in 2013).
- In 2013, compared to non-Maori, non-Pacific people, Māori were on average 4.5 times more likely to start RRT and Pacific New Zealanders were 5.5 times more likely to start renal replacement therapy.

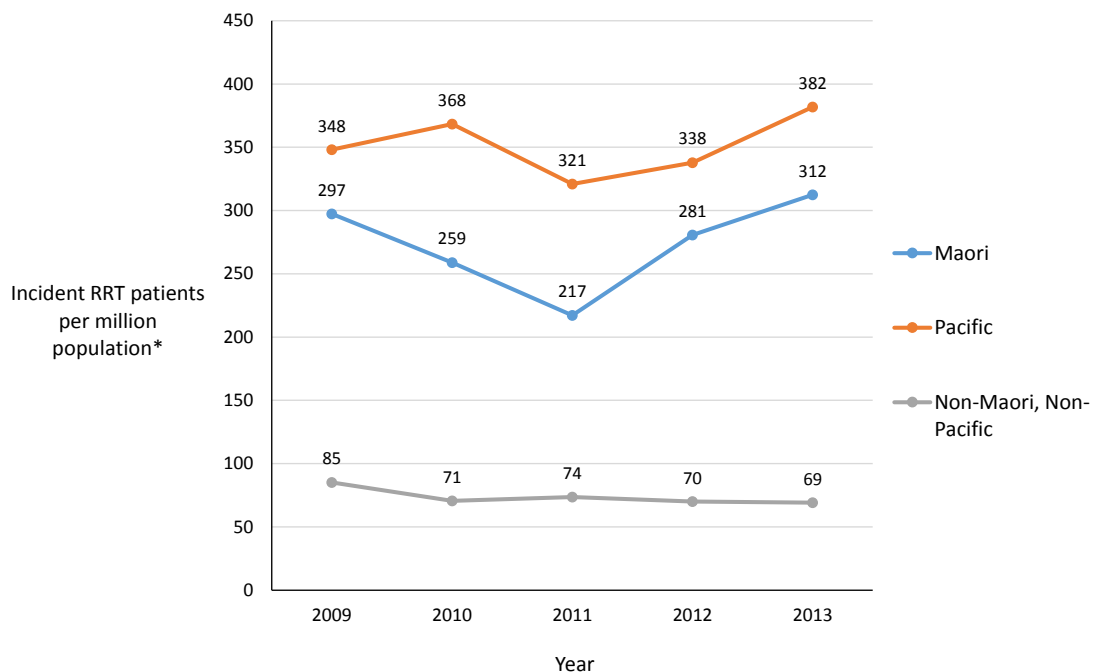


Figure 2 Incidence of starting renal replacement therapy according to ethnicity



4 Prevalence trends in renal replacement therapy

- The overall prevalence of people treated with renal replacement therapy continues to increase in New Zealand ([Figure 3](#)).
- Overall, the prevalence has increased from 877 pmp in 2009 to 991 pmp in 2013 (a 13.0% increase over 5 years).
- The total number of dialysis patients has increased by 13.6% between 2009 and 2013 (from 2291 to 2604 patients overall).
- The number of people living with a kidney transplant has increased by 11.7% over 5 years between 2009 and 2013 (from 1407 to 1572 patients)

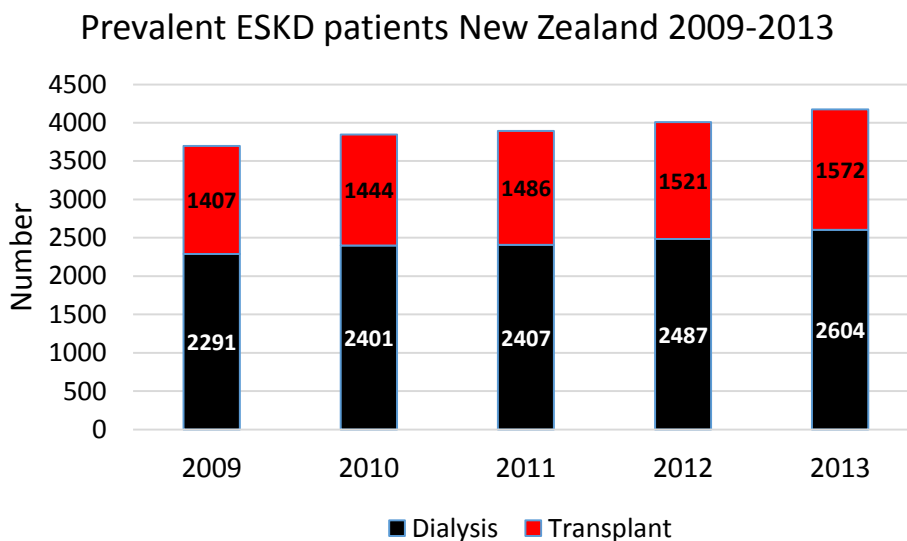


Figure 3 Dialysis and transplant prevalence in New Zealand 2009-2013



Prevalent ESKD patients
2009-2013

- Dialysis and transplantation rates vary considerably by geography (Figure 4). The population prevalence of dialysis prevalence is highest in large centres serving populations with high proportions of Māori and Pacific people (Northland, Auckland, Hawkes Bay, and Waikato).
- Transplantation prevalence rates similarly tend to be lower these centres (Hawkes Bay, Northland) as well as smaller centres (Taranaki, Mid Central, and Southern).
- Prevalence rates of dialysis treatment continue to grow most rapidly in Counties Manukau and Capital Coast.

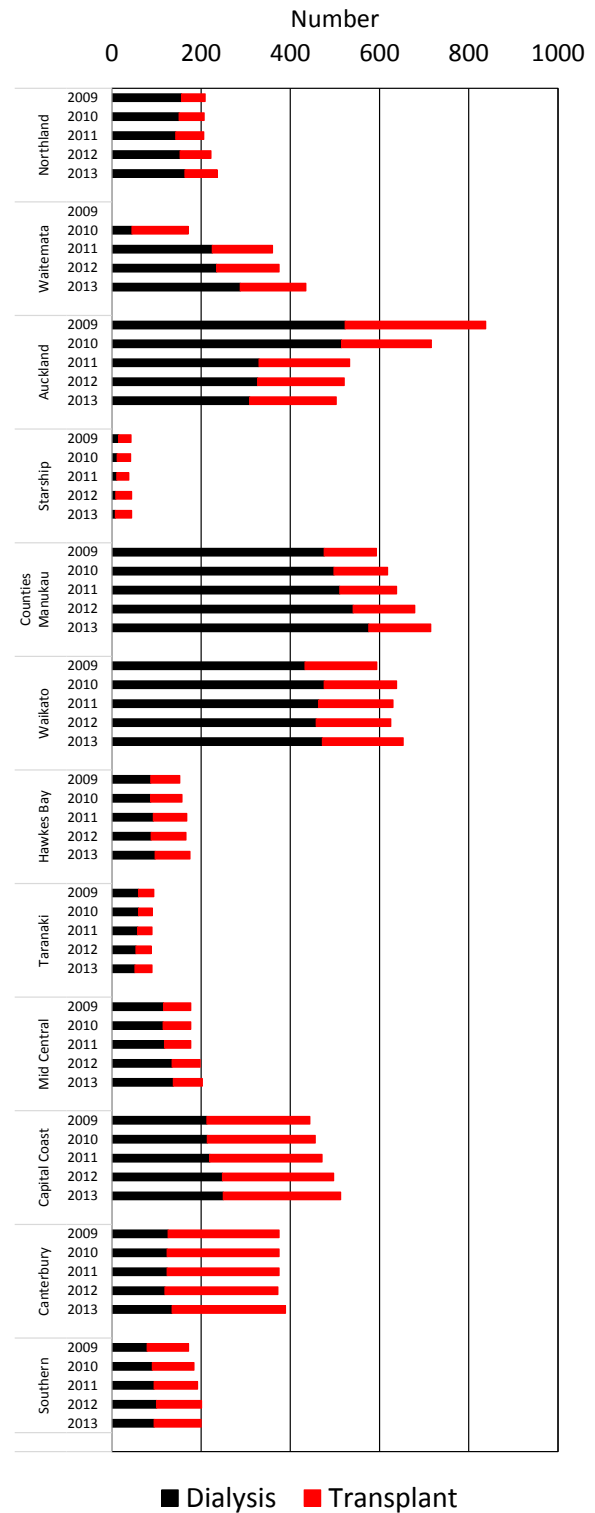


Figure 4 Dialysis and transplant prevalence 2009-2013 by providing DHB

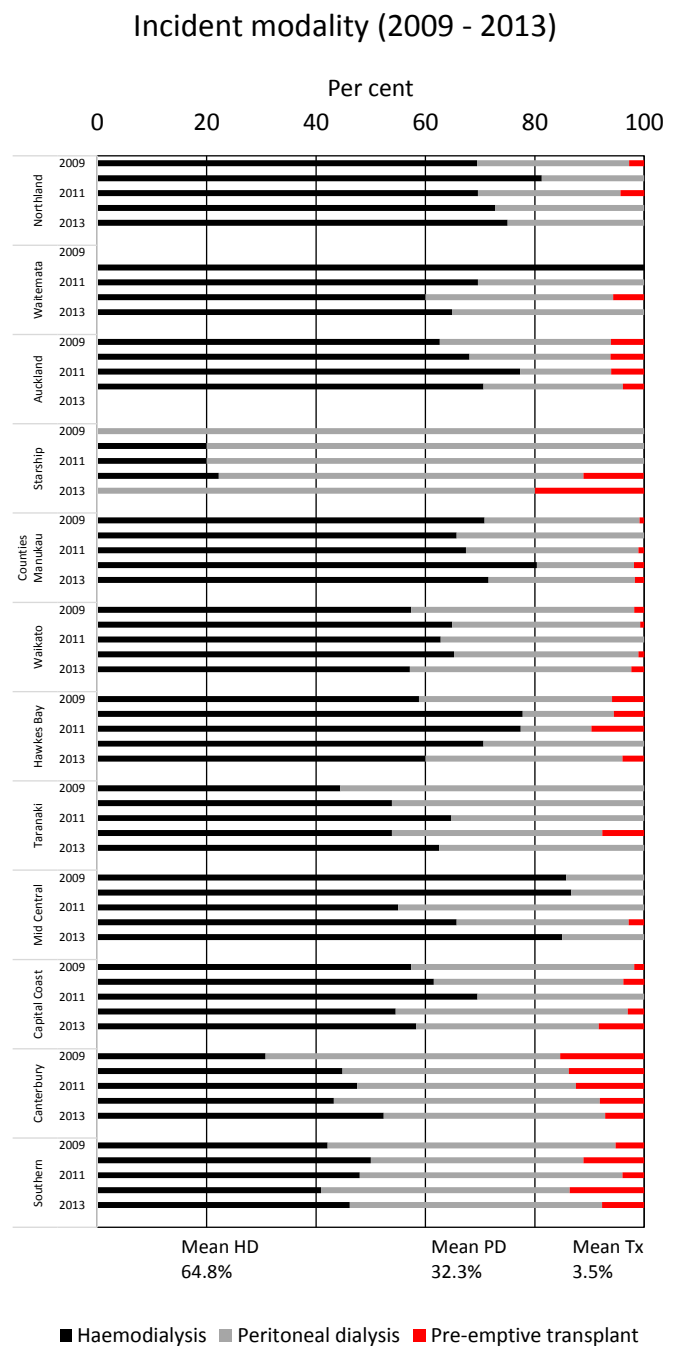


5 Renal replacement modality

Incident modality

- Most people starting treatment for end-stage kidney disease commence with haemodialysis. ([Figure 5](#))
- Of people commencing treatment in 2012, 64.2% started treated with haemodialysis, 32.3% started treatment with peritoneal dialysis and 3.5% with a pre-emptive kidney transplant.
- Of people commencing treatment in 2013, 64.8% started treated with haemodialysis, 31.7% started treatment with peritoneal dialysis and 3.5% with a pre-emptive kidney transplant.
- The proportion starting treatment with haemodialysis in 2012 varied two-fold between 40.9% in Southern and 80.4% in Counties Manukau
- The proportion starting treatment with haemodialysis in 2013 varied between 46.2% in Southern and 85.0% in Mid Central

Figure 5 Incident treatment modality 2009-2013 by providing DHB





- Nationally, in 2013, 64.8% of patients started treated with haemodialysis, 31.7% with peritoneal dialysis and 3.5% with a pre-emptive kidney transplant ([Figure 6](#))
- During the past 5 years, 64.2% started treatment for end-stage kidney disease with haemodialysis, 32.2% with peritoneal dialysis and 3.5% with a kidney transplant

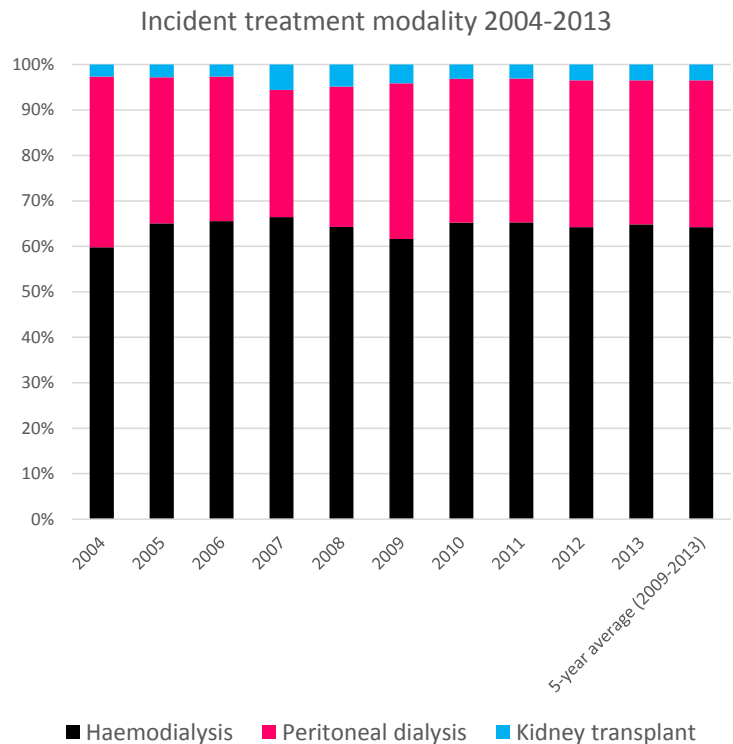
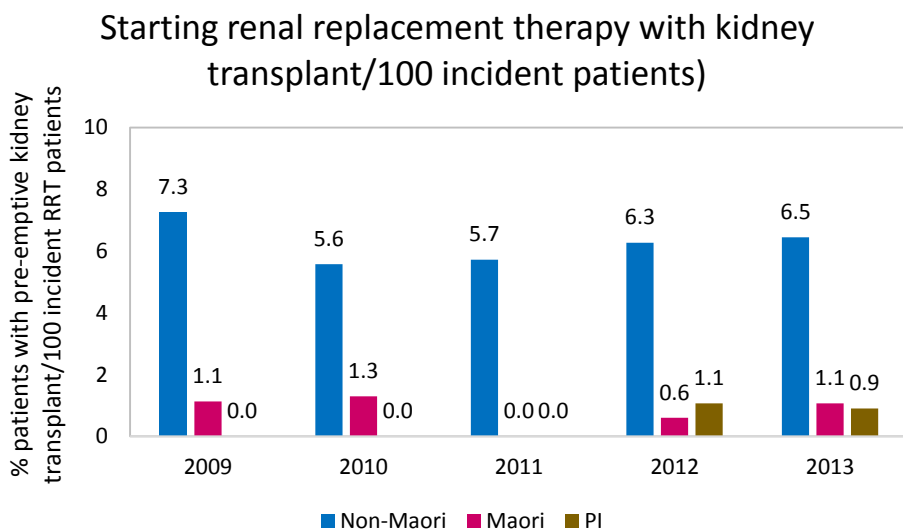


Figure 6 Incident modality of treatment for end-stage kidney disease in New Zealand including 5-year average (2009-2013)



Pre-emptive kidney transplantation

- In 2012, only 18 people received a pre-emptive kidney transplant as first treatment for end-stage kidney disease (3.5% of all incident patients starting RRT) and in 2013, 19 people received a pre-emptive kidney transplant (3.5%).
- This compares with 24 (4.1%), 16 (3.1%), and 15 (3.1%) in years 2009, 2010, and 2011, respectively.
- The number of people who received a kidney transplant as their first treatment for end-stage kidney disease has remained largely static (2009-2013), ranging from 2.6% in 2004, peaking at 5.6% in 2007, and currently 3.5% in 2013 ([Figure 6](#))
- Despite much higher rates of needing treatment for end-stage kidney disease, the proportion of Maori and Pacific patients receiving a pre-emptive kidney transplant as their first renal replacement therapy remains very low and widely disparate compared to non-Māori, non-Pacific patients (



-
- **Figure 7)**

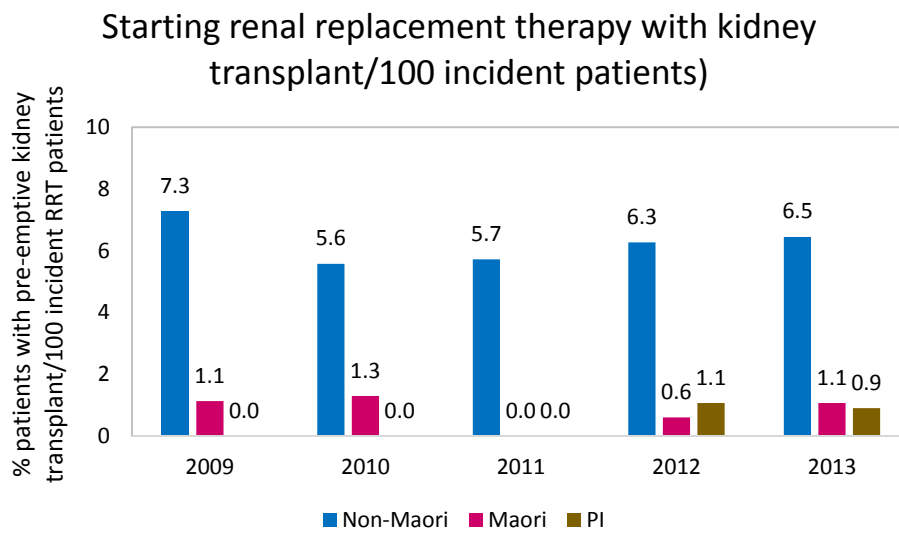


Figure 7 Proportion of patients starting renal replacement therapy with kidney transplant, according to ethnicity, per 100 incident patients



Prevalent modality

- Most patients treated with dialysis in New Zealand receive facility-based haemodialysis within a hospital centre or satellite unit (Figure 8). The proportion receiving treatment in a facility has increased over 10 years from 25.6% to 30.6% overall. This is due to increased hospital-based haemodialysis treatment (rising from 16.1% in 2004 to 21.8% in 2013).
- Approximately half of patients treated with dialysis are treated with a home-based therapy (peritoneal dialysis or haemodialysis). In 2013, 18.2% of all dialysis patients were treated with home haemodialysis.
- Satellite-based dialysis increased from 9.5% in 2004 to 11.2% in 2009 and has decreased subsequently year-on-year to 8.7% in 2013.
- The proportion of people treated with peritoneal dialysis (continuous ambulatory or automated) has fallen from 24.8% to 19.9% over the last decade
- The overall proportion of people treated with a kidney transplant has fallen from 40.7% in 2004 to 37.6% in 2013 although the annual decline has been smaller across years 2009 and 2013.

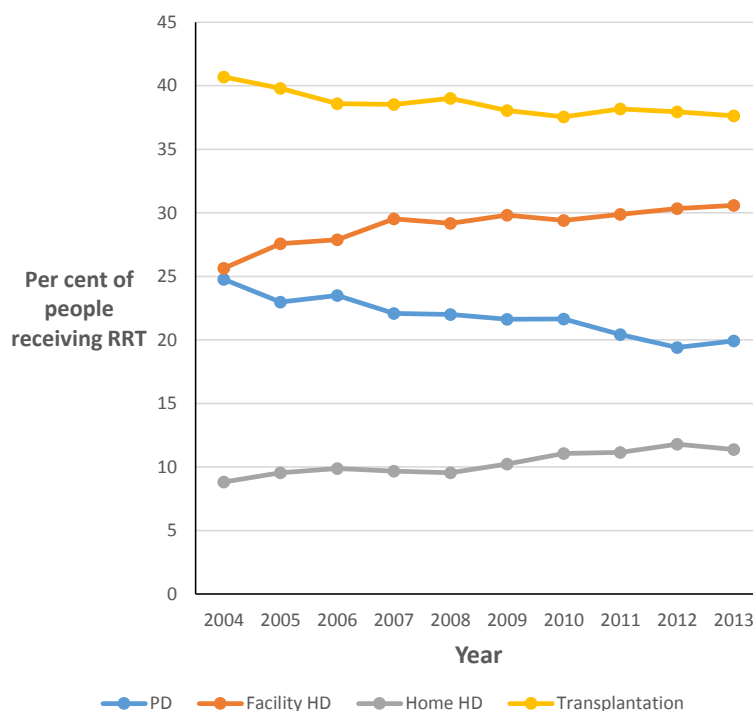


Figure 8 Prevalent modality of treatment for end-stage kidney disease



- Treatment modality remains highly variable across New Zealand centres ([Figure 9](#)).
- The prevalence of peritoneal dialysis ranges from 35.2% at Waikato to 7.4% at Auckland.
- The proportion of patients who perform home haemodialysis is highest at Southern (26.5% of all patients with end-stage kidney disease) and lowest in the Hawkes Bay (5.7% and Capital Coast (6.6%)
- Satellite dialysis provides treatment for a substantial proportion of patients in Northland, Waitemata, and Auckland DHBs. The proportion treated with satellite dialysis has fallen markedly at Counties Manukau and remains small and relatively static at Capital Coast. Many centres report no satellite facilities including all small regional centres.
- Northland, Waikato, Hawkes Bay and Taranaki show the largest proportions of patients treated with APD.
- The proportion of children treated with APD at Starship has fallen sharply as the transplant prevalence has increased

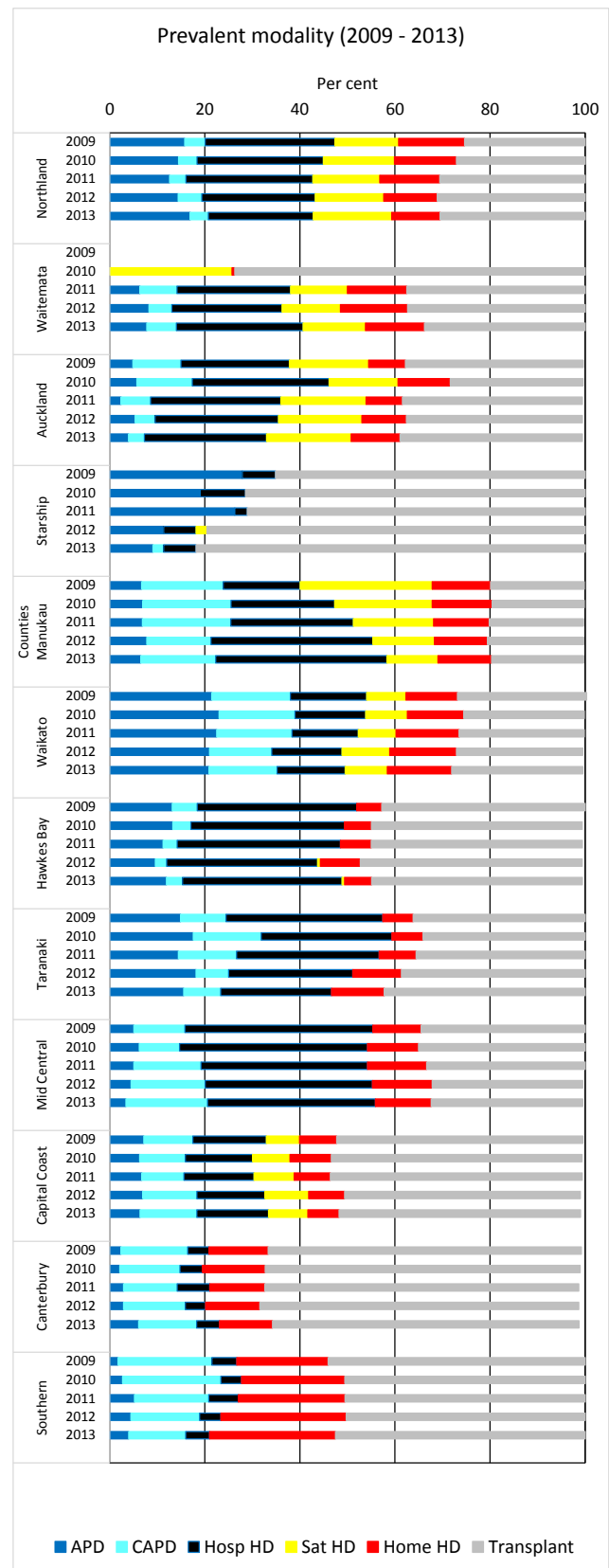


Figure 9 Prevalent treatment of end-stage kidney disease 2009-2013 by providing DHB

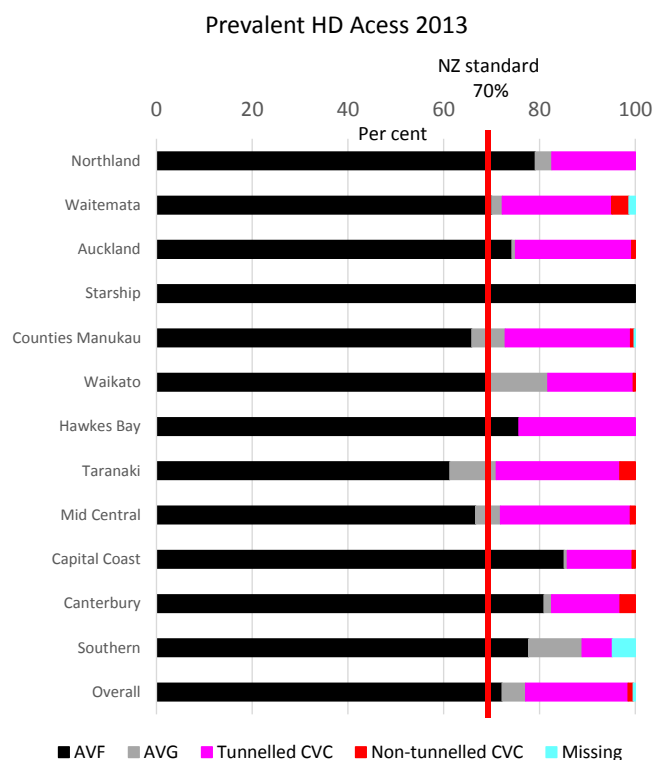


6 Vascular Access for Haemodialysis

Prevalent vascular access for haemodialysis 2009-2013

- Overall, in 2013 77.1% of prevalent patients treated with haemodialysis were dialysing with permanent vascular access (either arteriovenous fistula or graft). This is above the proposed national standard of 70%. All providing DHBs achieved a permanent vascular access rate above the 70% national standard.
- Providing DHBs with the highest proportion of permanent access were Northland (82.6%), Waikato (81.7%), Capital Coast (85.8%), Canterbury (82.6%) and Southern (89.9%) ([Figure 10](#))
- The marked variation in use of AV grafts for permanent dialysis vascular access seen in previous reports persists. Waitemata, Auckland, Hawkes Bay, and Capital Coast report a small proportion of AV grafts. As in previous years, only Waikato (12.0%), Taranaki (9.7%), and Southern (11.0%) employ AV grafts to any great extent
- Central venous catheter use remains high with a national average of 22.5%. This ranges from 6.3% in Southern (the DHB with the lowest prevalence of catheter use) to Taranaki (29%). Only Southern achieved the standard of less than 10% catheter use in prevalent patients, although data were missing for 4.8% of patients

Figure 10 Prevalent dialysis vascular access by providing DHB





Incident vascular access for haemodialysis (all patients) 2009-2013

- The national incidence of permanent vascular access remains highly variable ([Figure 11](#))
- The proportion of all patients starting haemodialysis with permanent vascular access (either fistula or graft) was 34.6% in 2012 and 31.4% in 2013.
- As in previous years, no DHB achieved the national standard of 50% of all patients starting haemodialysis with permanent vascular access.
- Assessed as a 5-year average across 2009 to 2013, the highest permanent vascular access incidence was at Waitemata and the lowest was at Taranaki ([Figure 12](#))

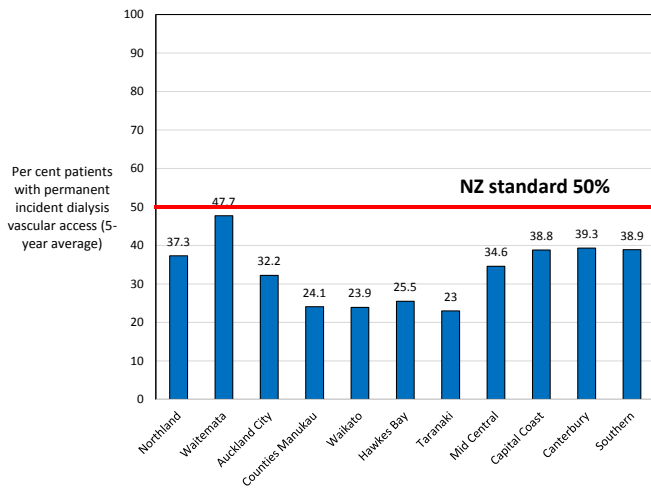


Figure 12 Incident haemodialysis vascular access in all patients averaged across 2009 to 2013

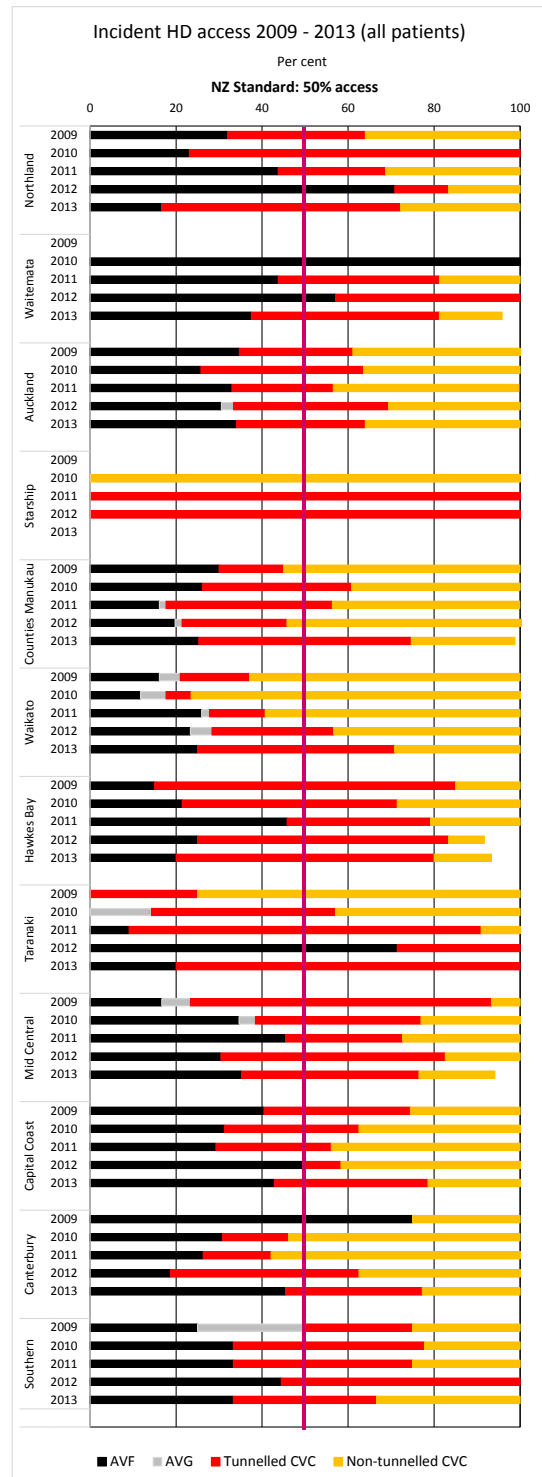


Figure 11 Incident haemodialysis vascular access by providing DHB



Incident vascular access for haemodialysis (late referrals excluded) 2009-2013

- The national practice patterns for vascular access excluding patients who are late referrals to nephrology services (referred within 3 months of starting kidney replacement therapy) remains highly variable across providing DHBs ([Figure 14](#))
- 43.4% of patients started haemodialysis in 2012 with permanent haemodialysis vascular access (excluding late-start patients)
- 38.3% of patients starting haemodialysis in 2013 started with permanent dialysis vascular access
- The proportion of New Zealand patients starting dialysis with permanent vascular access remains well below the NZ standard of 80% and has remained largely static across the previous decade of practice across all DHBs ([Figure 13](#)).

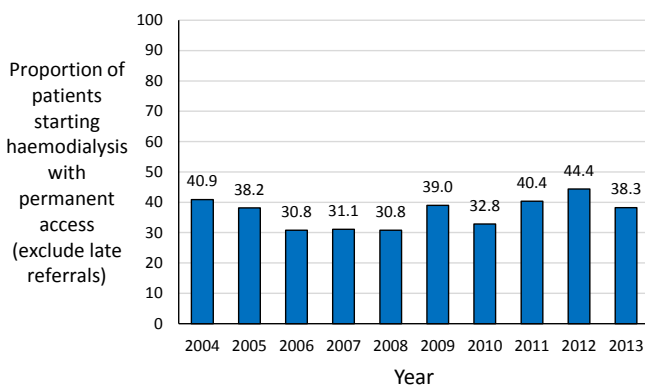


Figure 13 Temporal trend of incident haemodialysis vascular access 2004-2013

Incident HD access 2009 - 2013 (late referrals excluded)
Per cent

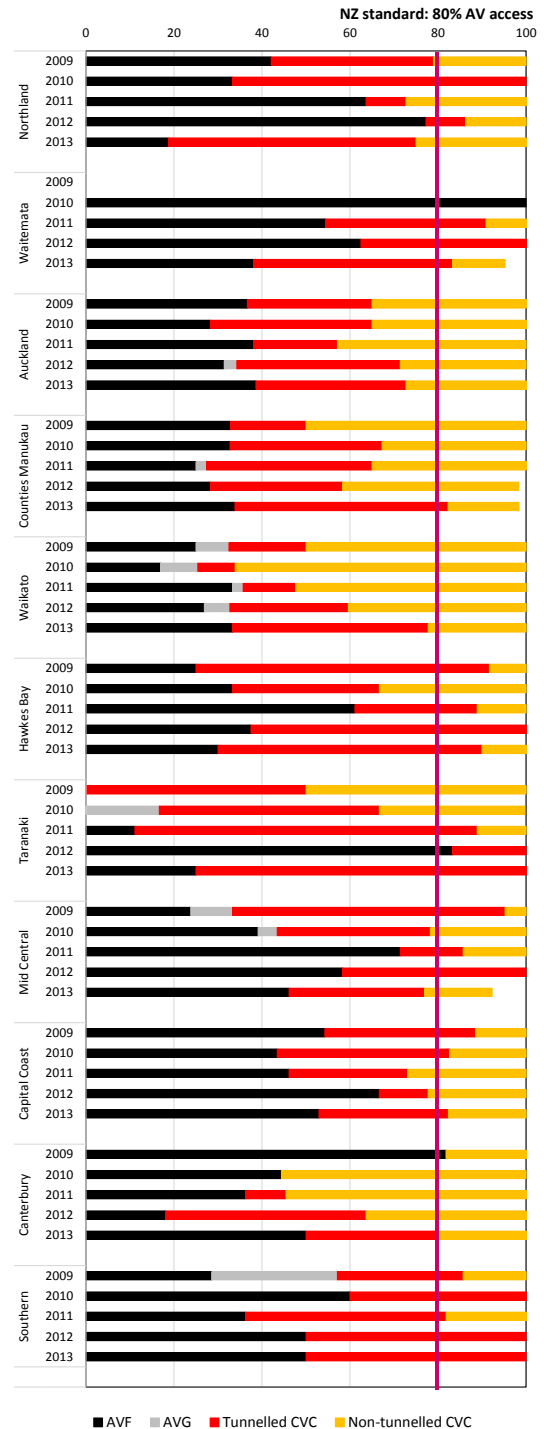


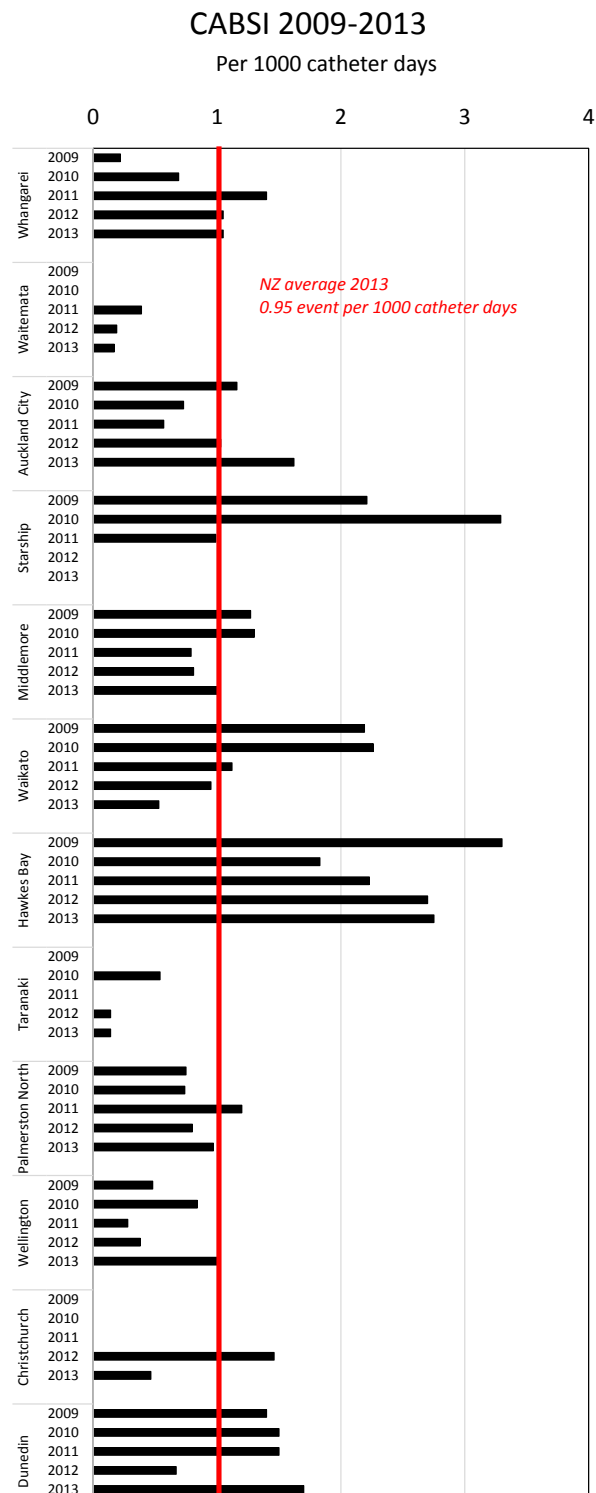
Figure 14 Incident haemodialysis vascular access by providing DHB (late referrals excluded)



Catheter-Associated Bacterial Infections 2009-2013

- [Figure 15](#) shows the rate of central venous catheter-associated blood stream infections (CABSI) expressed per 1000 days of catheter use per annum between 2009 and 2013.
- The rates of CABSI are highly variable from year to year and between centres, making interpretation of trends difficult.
- The average CABSI rate across New Zealand was 0.84 per 1000 catheter days in 2012 and 0.95 per 1000 catheter days in 2013.
- All centres observed a CABSI rate lower than the national standard of 4 per 1000 catheter days in 2012 and 2013. The national standard should be reconsidered.
- All units provided CABSI data for 2012 and 2013

Figure 15 Dialysis-vascular catheter associated bacterial infections (per 1000 days of catheter use) according to providing DHB.





7 Peritoneal dialysis

- The proportion of prevalent patients treated for end-stage kidney disease with PD (CAPD or APD) has fallen steadily from 24.8% to 19.9% between 2004 and 2013 ([Figure 9](#)).
- The total proportion of prevalent dialysis patients treated with PD (CAPD or APD) has fallen from 41.8% in 2004 to 32.0% in 2013.
- The proportion of all prevalent ESKD patients treated with CAPD has fallen from 18.7% in 2004 to 10.6% in 2013. Conversely, the proportion of ESKD patients using automated peritoneal dialysis (APD) has increased year on year from 6.0% of all prevalent ESKD patients in 2004 to 9.3% in 2013 (ranging between 3.4% in Mid Central to 20.9% in Waikato)
- The percentage of patients who experienced delay to starting PD of ≥ 90 days was 15.6% in 2011, 10.4% in 2012 and 8.2% in 2013 ([Figure 16](#)).

Figure 16 Delay starting peritoneal dialysis in providing DHBs

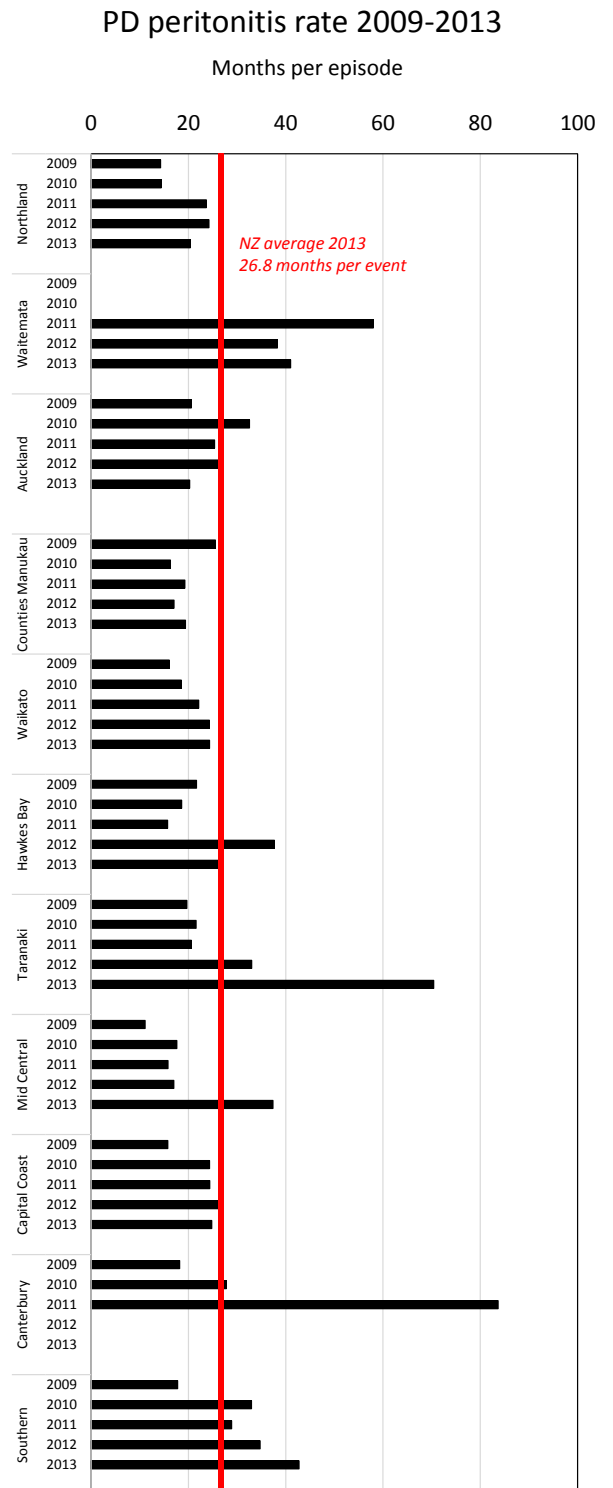




Peritoneal Dialysis Peritonitis Rates

- Peritonitis rates reported to the New Zealand PD Registry (NZPDR) showed an average of 26.8 months per episode across New Zealand in 2013 ([Figure 17](#)).
- All centres achieved the standard of greater than 18 months per PD peritonitis episode in 2013 (data are missing for Canterbury)
- Many centres showed improvement in PD peritonitis rates during the period from 2009 to 2013

Figure 17 Peritoneal dialysis peritonitis rate by providing DHB



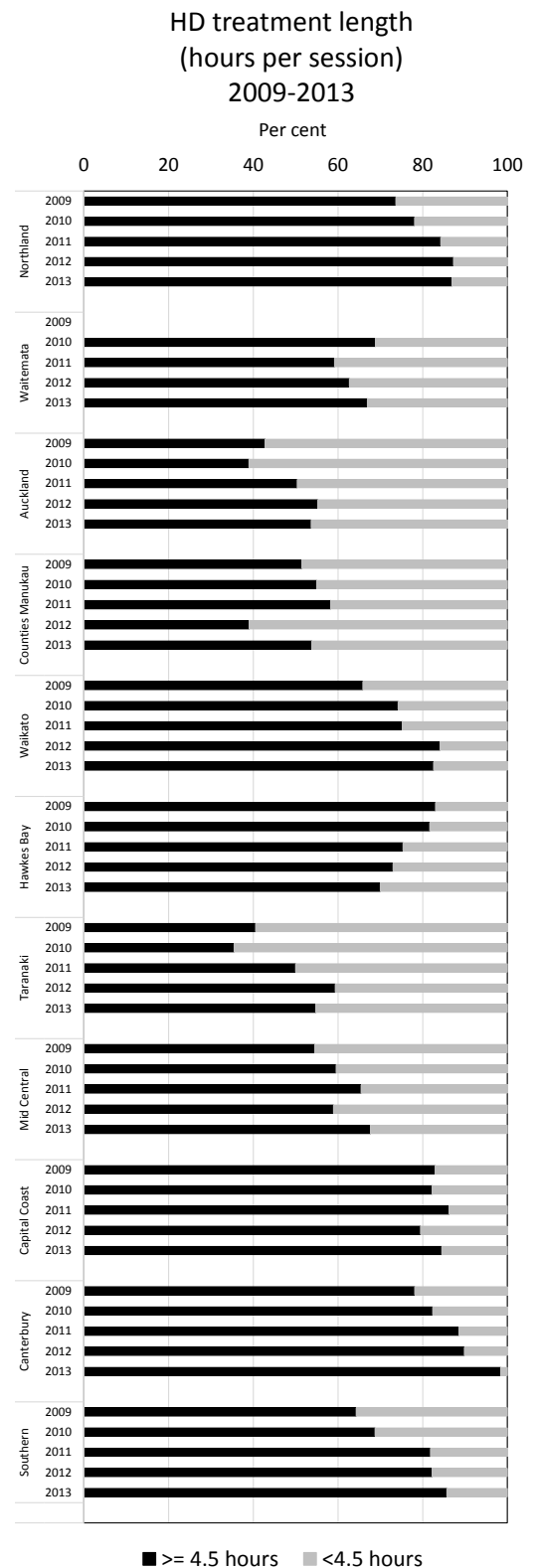


8 Haemodialysis Adequacy, Frequency and Duration of Treatment

Duration of haemodialysis treatment

- The proportion of patients treated with haemodialysis and who were receiving fewer than 4.5 hours dialysis per session has decreased at nearly all providing DHBs over the past 5 years ([Figure 18](#)).
- Currently, the proportion receiving less than 4.5 hours of dialysis at a dialysis treatment ranges from 2% at Canterbury to 46% at Auckland and Counties Manukau. The notable exception in the downward trend in proportion of patients receiving fewer hours of dialysis is the Hawkes Bay which has seen a steady increase in patients receiving <4.5 hours per session (17% in 2009 increasing to 30% in 2013).

Figure 18 Haemodialysis session length according to providing DHBs

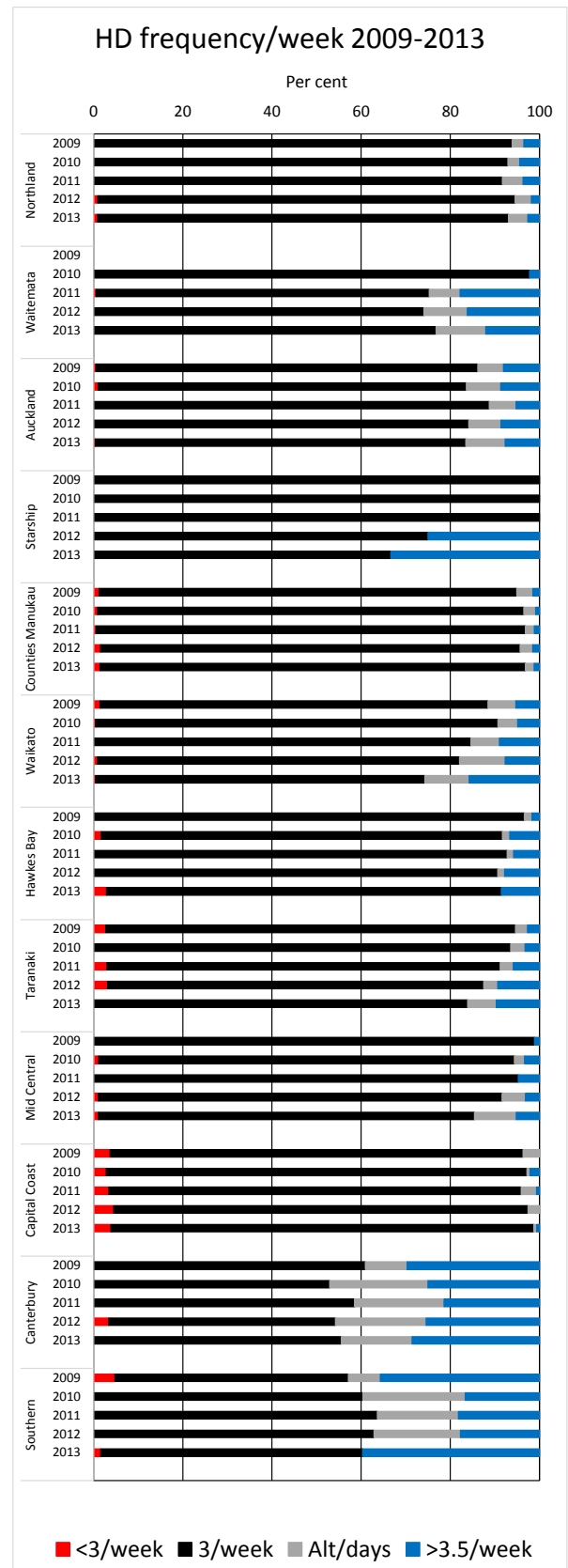




Frequency of haemodialysis treatment

- Patients rarely received haemodialysis fewer than 3 times per week at New Zealand DHBs during 2009 to 2013 ([Figure 19](#)).
- Most New Zealand patients were treated with HD at least 3 times per week.
- The proportion of patients who received more than 3.5 sessions of haemodialysis per week was 13.8% overall in 2013 and has increased since 2009 in some centres (Starship, Waikato, Taranaki, and Hawkes Bay).

Figure 19 Frequency of dialysis treatment at providing DHBs



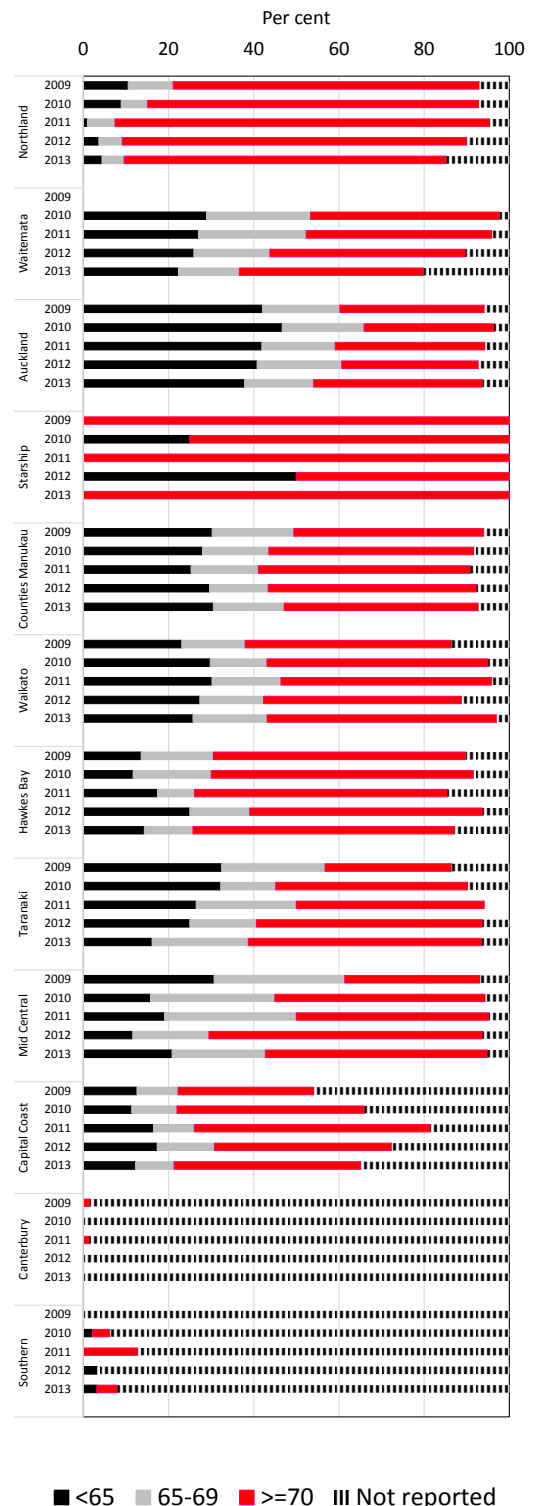


Haemodialysis adequacy (urea reduction ratio)

- Various measures of haemodialysis dose are used by dialysis services. These are commonly the amount of urea removed by dialysis (urea reduction ratio (URR) or Kt/V).
- Many DHBs choose not to measure or report dialysis dose. Missing data represent practice patterns and the difficulty in obtaining results from home-based treatments.
- Excluding missing data, 84.4% of patients received dialysis providing a urea reduction ratio >65 (Figure 20)

Figure 20 Haemodialysis dose measured as urea reduction ratio (URR)

Urea reduction ratio 2009-2013





Anaemia management

- At the end of 2013, 83% of all haemodialysis patients and 75.9% of all peritoneal dialysis patients were receiving erythropoietin therapy (EPO). Among these patients, 70 % had haemoglobin concentrations in the range 100-130 g/L ([Figure 21](#)).

- In 2013, the proportion of patients with a haemoglobin in the range of 100-130 g/l was similar for patients treated with haemodialysis (69.5%) and peritoneal dialysis (69.8%)

- The proportion of patients treated with EPO peaked in 2009 and 2010 and has been falling in subsequent years after data showing evidence of increased harm with EPO treatment targeting higher haemoglobin levels was published internationally

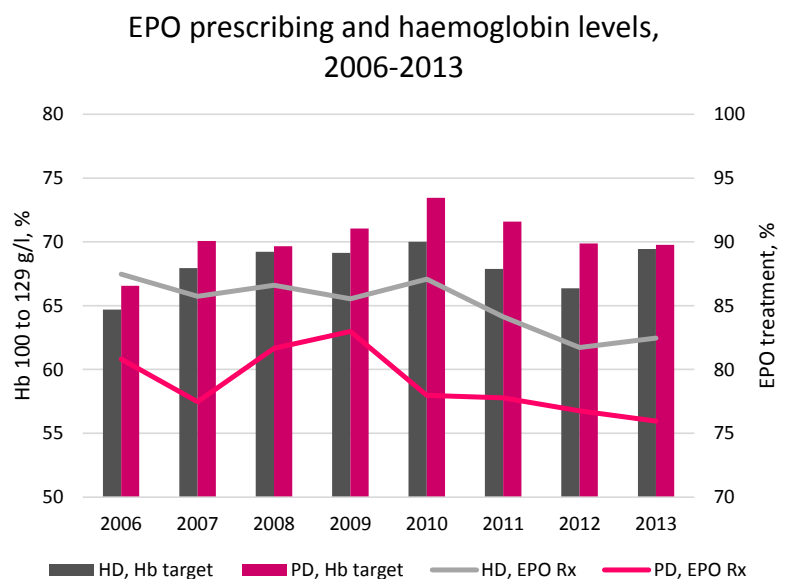
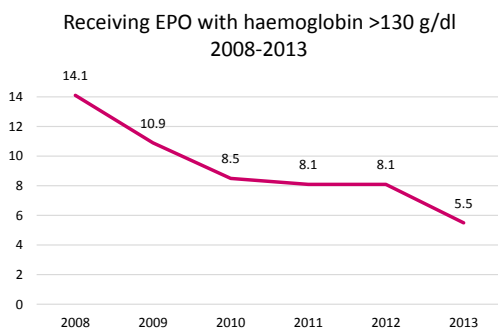


Figure 21 Practice patterns of recombinant erythropoietin prescribing (EPO) and haemoglobin levels from 2006-2013 in New Zealand. Bars show proportion of patients with a haemoglobin level between 100 and 129 g/L and the lines show the proportion of patients receiving EPO treatment.



- Nationally, 41.9% of patients with a haemoglobin concentration >130 g/L continued to be administered EPO, ranging from 69.4% in Counties Manukau to 0% in Taranaki and Canterbury DHBs (Figure 22). The proportion of patients with a haemoglobin >130 g/L still receiving EPO has decreased progressively nationwide from 63.7% in 2009 although remains highly variable across and within many DHBs.
- In 2013, 5.5% of patients receiving EPO had haemoglobin concentrations >130 g/L, which has progressively improved since 2008 when 14.1% of patients receiving EPO had haemoglobin concentrations >130 g/L (Figure 23)



Haemoglobin >130 g/l, 2009-2013



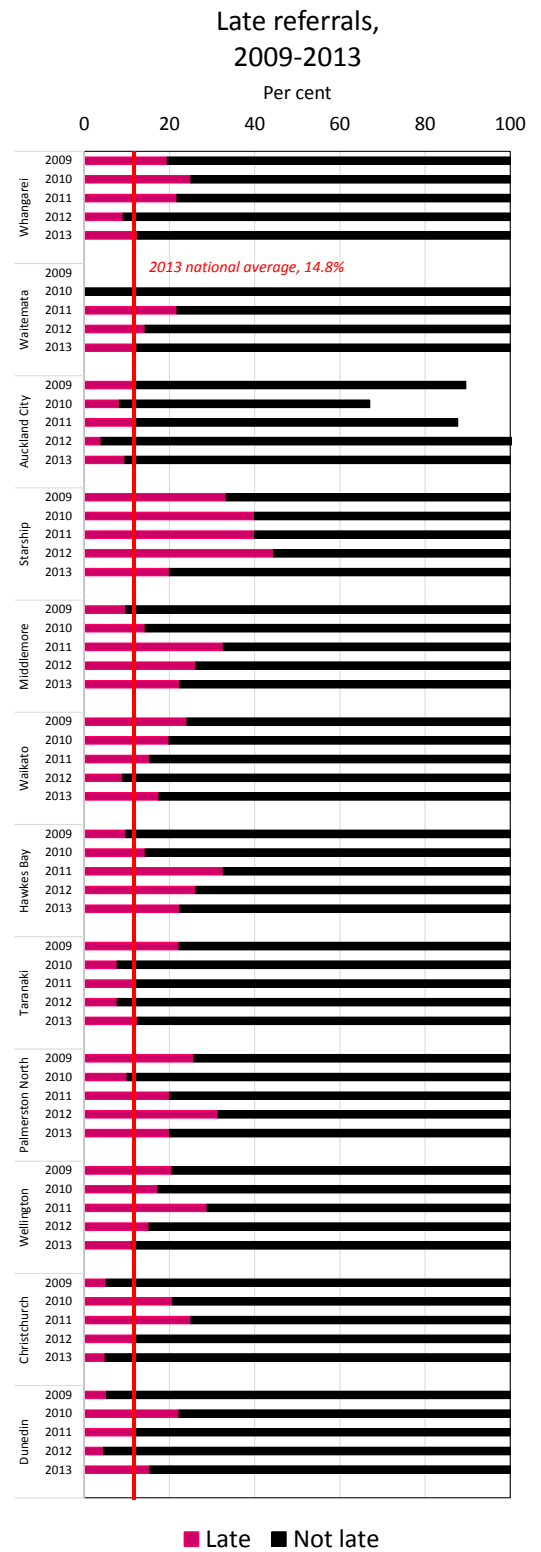
Figure 23 Trend in proportion of patients receiving EPO therapy with an haemoglobin concentration >130 g/L



8 Late Referrals to End-Stage Kidney Disease Care

- In this report, a late referral is identified as commencing renal replacement therapy within 3 months of first assessment by a nephrologist
- Nationwide, 14.8% of patients starting renal replacement therapy in 2013 were late referrals to nephrology services ([Figure 24](#))
- Late referrals ranged from 4.9% of all renal replacement commencements at Canterbury to 22.4% at Counties Manukau and Hawkes Bay
- No trend in late referral patterns was observable across the country

Figure 24 Late referrals (patients with first nephrology referral within 3 months of starting renal replacement therapy)





9 Transplantation

- Transplantation rates are a combination of both living and deceased donor transplants as well as a very small number of multiple organ transplants (organs transplanted with kidneys [heart, liver, or pancreas])
- Overall, transplantation rates have remained essentially unchanged during the last 5 years ([Figure 26](#))
- Transplantation rates continue to vary markedly among units. As transplantation rates in New Zealand are very low, considerable variation is expected. Unit specific rates in 2013 varied from 13.4 pmp at the Southern DHB to 43.3 pmp at Capital Coast ([Figure 25](#)).

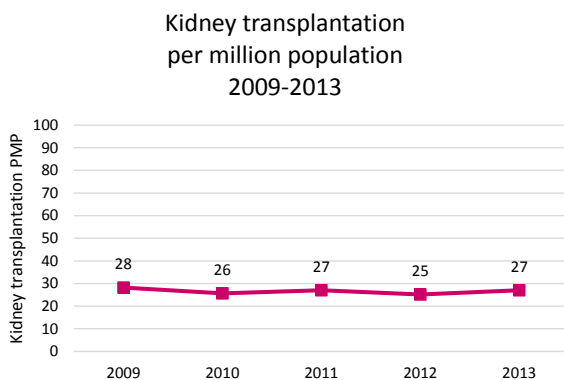


Figure 26 Kidney transplantation rates per million of general population

Transplantation Activity 2009-2013

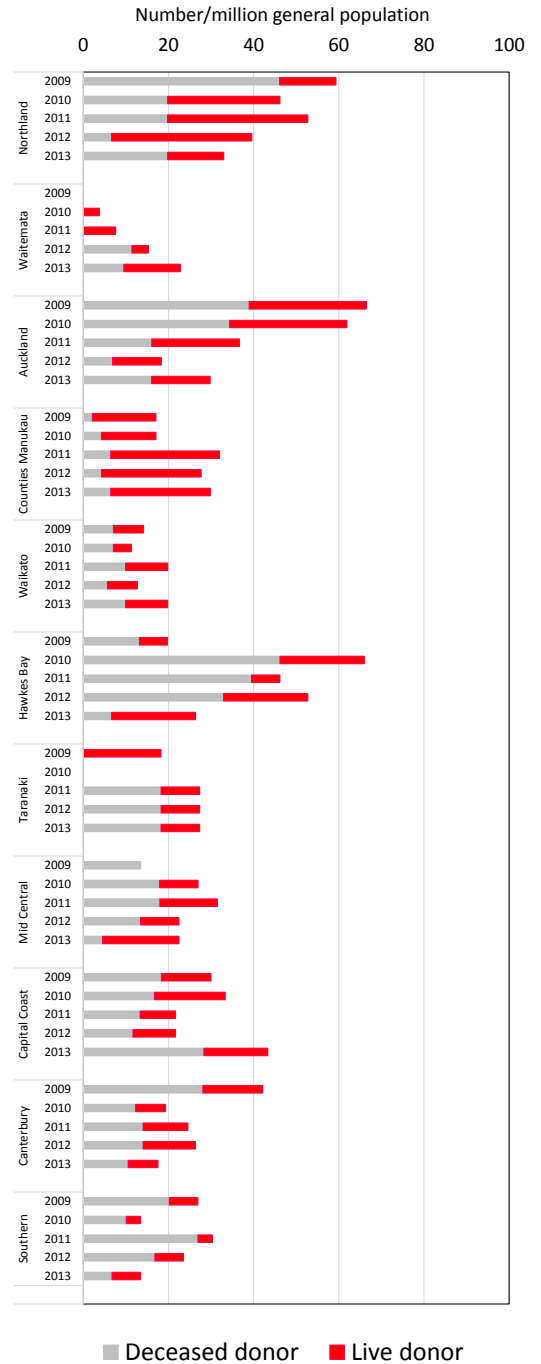
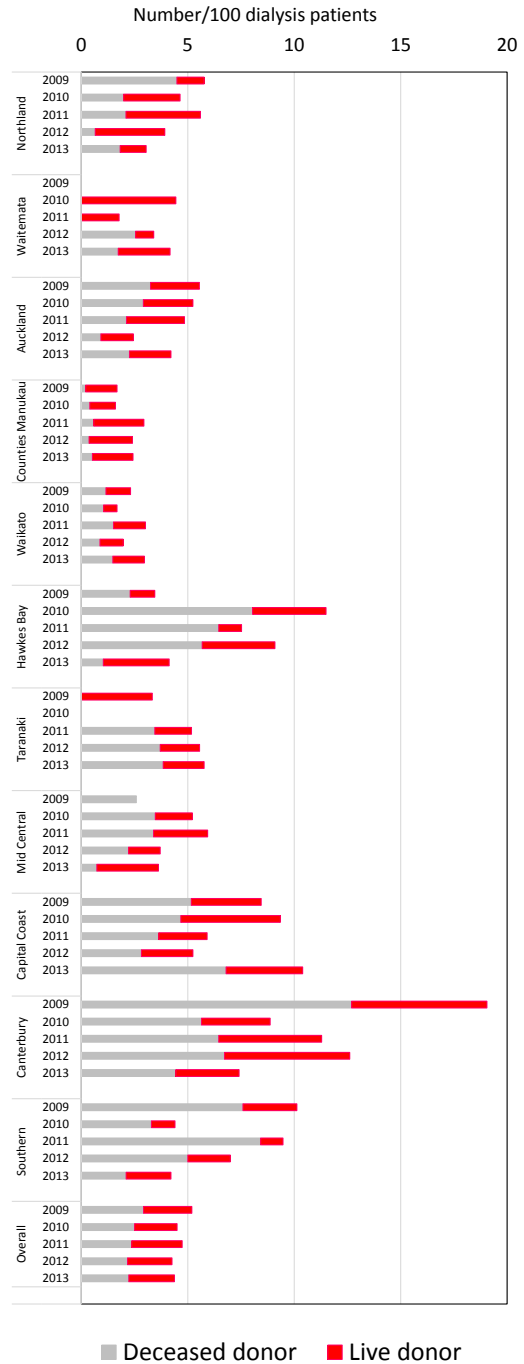


Figure 25 Kidney transplantation per million people in the general population



Transplantation Activity 2009-2013



- When transplantation rates are calculated per dialysis patient, transplantation rates remain highly variable ([Figure 27](#)).
- In 2013, the transplantation rate per 100 dialysis patients ranged from 2.4 in Middlemore to 10.4 in Wellington.
- This over 4-fold variation in transplantation rates remains similar to previous years.

Figure 27 Kidney transplantation per 100 dialysis patients at providing DHBs



10 Appendices

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Circulation list

- The National Renal Advisory Board
- Standards and Audit Subcommittee
- Heads of New Zealand Renal Units
- Chief Executive Officers of New Zealand DHBs
- New Zealand Peritoneal Dialysis Registry
- Australia and New Zealand Dialysis Registry
- New Zealand Ministry of Health
- Australia and New Zealand Society of Nephrology
- Renal Society of Australasia New Zealand Branch
- Kidney Health New Zealand
- Board of Nephrology Practice New Zealand
- Patient Support Groups and Societies



Estimated District Health Board Population Demographics 2012/2013

	Population*	Ethnicity (% of incident population)			Age (% of incident population)			
		Māori	Pacific	Non- Māori/Non Pacific	0—25	25-44	45-64	65+
Northland	151,692	30%	3%	67%	25%	20%	36%	18%
Waitemata	525,555	9%	8%	84%	27%	27%	32%	13%
Auckland	436,341	7%	12%	81%	28%	32%	29%	11%
Counties Manukau	469,293	14%	22%	63%	31%	26%	32%	11%
Waikato	707,145	24%	3%	72%	27%	24%	33%	16%
Hawkes Bay	151,692	23%	4%	73%	26%	22%	34%	17%
Mid Central	222,684	19%	3%	78%	28%	23%	33%	17%
Taranaki	109,752	17%	2%	82%	26%	24%	34%	16%
Capital Coast	600,189	11%	6%	82%	27%	26%	33%	14%
Canterbury	569,952	8%	2%	90%	26%	25%	33%	16%
Southern	297,423	9%	2%	89%	27%	24%	33%	16%
Overall	4,241,724	14%	7%	79%	27%	26%	33%	14%



Total by Age Group

GROUP	DHB	0-24	25-44	45-64	65+	Grand Total
Northland	Northland	38,415	30,981	54,528	27,762	151,686
Waitemata	Waitemata	144,285	142,533	170,247	68,484	525,549
Auckland	Auckland	123,351	138,117	128,589	46,290	436,347
Counties Manukau	Counties Manukau	146,523	123,342	149,187	50,247	469,299
Waikato	Waikato	102,318	87,672	116,301	53,022	359,313
	Bay of Plenty	52,350	46,008	69,489	38,151	205,998
	Lakes	26,967	23,526	33,147	14,556	98,196
	Tairāwhiti	12,606	9,987	14,931	6,126	43,650
Hawke's Bay	Hawke's Bay	40,182	33,912	52,071	25,530	151,695
Mid Central	Midcentral	45,678	37,530	52,473	26,880	162,561
	Whanganui	15,672	12,888	20,628	10,932	60,120
Taranaki	Taranaki	28,485	26,622	36,822	17,823	109,752
Capital and Coast	Capital and Coast	80,430	82,461	86,754	34,059	283,704
	Hutt	37,620	36,690	45,639	18,426	138,375
	Nelson					
	Marlborough	31,185	30,912	49,425	25,473	136,995
Canterbury	Wairarapa	9,897	8,640	14,715	7,860	41,112
	Canterbury	126,984	124,416	158,583	72,195	482,178
	South Canterbury	12,903	11,880	19,497	11,340	55,620
	West Coast	7,680	7,443	11,844	5,184	32,151
Southern	Southern	81,747	72,369	96,687	46,617	297,420
Grand Total		1,165,278	1,087,929	1,381,557	606,957	4,241,721