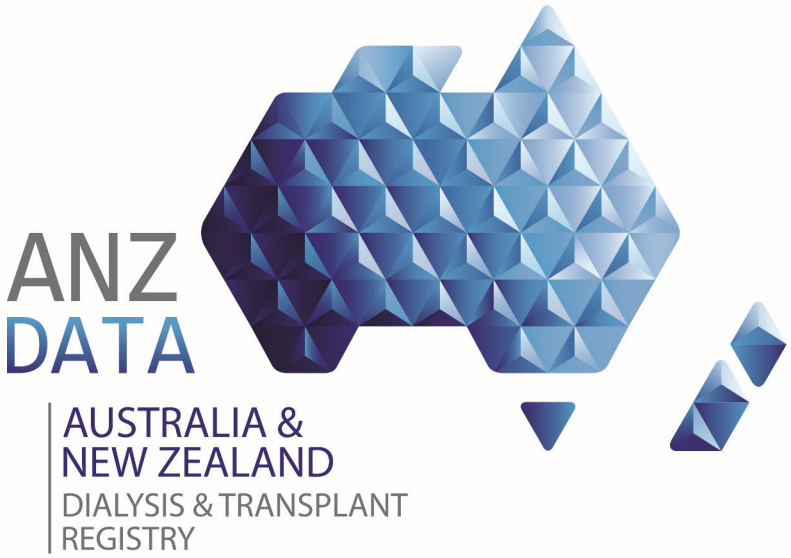
Chapter 13

End Stage Kidney Disease in Aotearoa/New Zealand

ANZDATA gratefully acknowledges the patients and their families and the clinicians who provided the data, and the contributions of the Aotearoa/New Zealand Working Group and the New Zealand National Renal Transplant Service.

Whakapūpūtia mai o manuka, kia kore ai e whati.

Cluster the branches of the manuka, so they will not break.



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ANZDATA Registry

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Preliminary Release

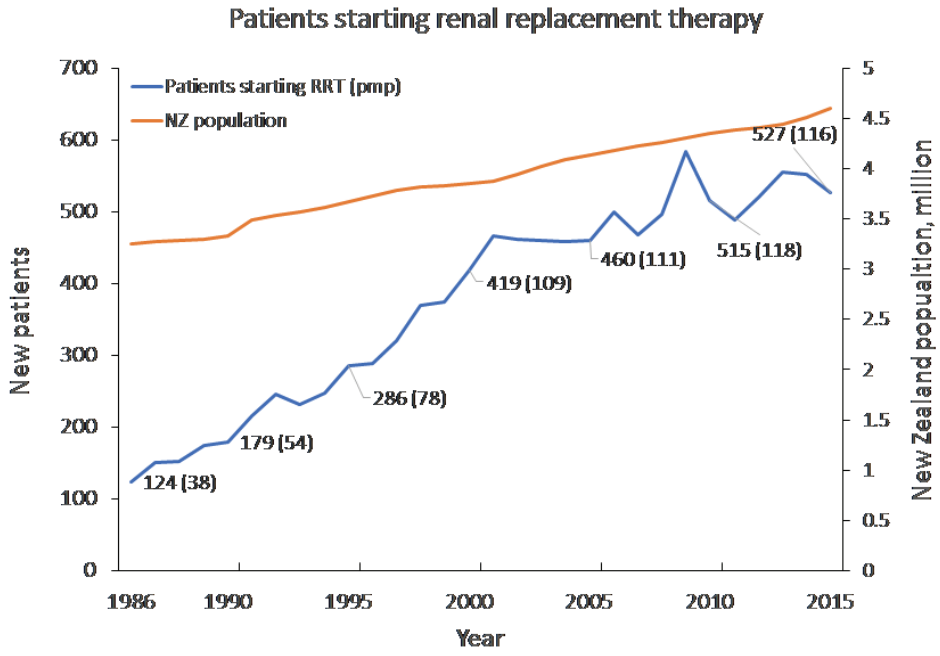
Introduction

This chapter presents information about the rates of end-stage kidney disease in Aotearoa/New Zealand, including information stratified by age, gender, and ethnicities. Clinical care patterns for treatment of end-stage kidney disease including dialysis and transplantation are described. Population statistics are drawn from estimates from Statistics New Zealand to calculate disease and treatment rates.

Incidence of renal replacement therapy (RRT)

In 2015, 527 adults and children started renal replacement therapy (RRT) in New Zealand, equivalent to 116 per million of population (pmp) (table 13.1 and figure 13.1). The proportion of the New Zealand population commencing RRT is similar to that of Australia (116 *versus* 112 pmp in 2015).

Figure 13.1 **Incidence of renal replacement therapy, New Zealand 1986-2015**



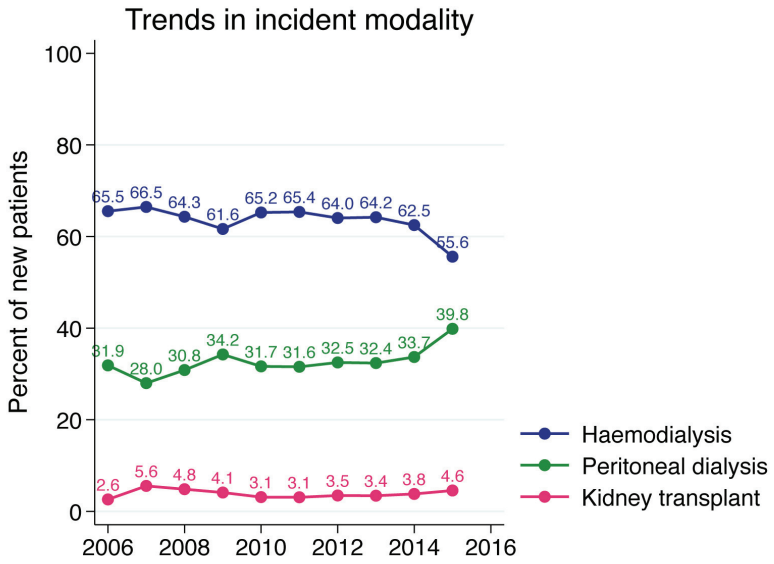
[1] *Population estimates from Statistics New Zealand have been used to calculate rates. The average population for each year at 30 June is the denominator, stratified by age or ethnicity estimates. The estimated population of Aotearoa New Zealand was 4,554,700 at June 30, 2015, including 712,200 identifying as Māori (15.6%). with Māori making up 15% of the population, 7% Pacific Islanders, x% Asian and the remainder New Zealand European.*

The proportion of patients who start RRT with a pre-emptive kidney transplant in New Zealand is increasing and now represents 5% of all incident patients (Table 13.1). Similarly, the proportion of patients who start RRT with peritoneal dialysis has increased from 31.6% of all patients in 2011 to 39.8% of all patients starting RRT in 2015. The proportion commencing RRT with haemodialysis has decreased from 65.4% to 55.6% between 2011 and 2015.

Table 13.1 Number (pmp) who commenced renal replacement therapy in New Zealand, 2011-2015

	2011	2012	2013	2014	2015
Total	488 (111)	520 (118)	556 (125)	552 (122)	527 (115)
Transplant	15 (3)	18 (4)	19 (4)	21 (3)	24 (5)
Haemodialysis	319 (73)	333 (76)	357 (80)	345 (77)	293 (64)
Peritoneal Dialysis	154 (35)	169 (38)	180 (41)	186 (41)	210 (46)

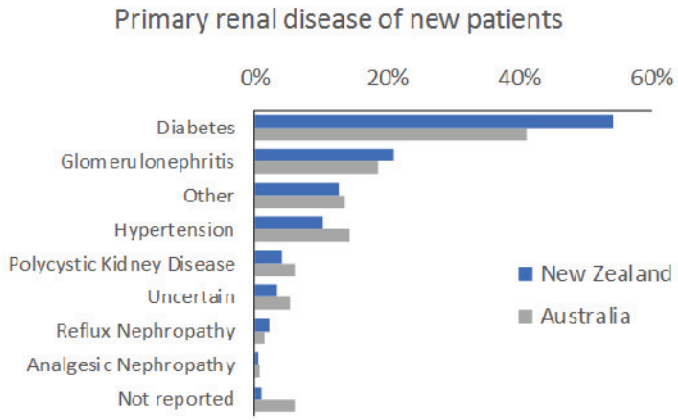
Figure 13.2 Trends in modality at start of renal replacement therapy, New Zealand 2006-2015



Primary Renal Disease

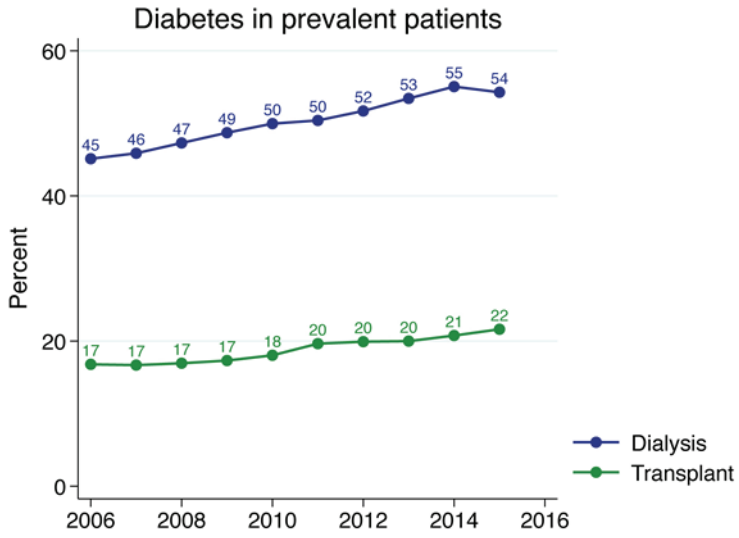
The leading cause of end stage kidney disease in New Zealand is diabetes (54.2%), followed by glomerulonephritis (21.1%) (figure 13.2).

Figure 13.3 Primary renal disease in new patients commencing renal replacement therapy, 2015



The proportion of people (pmp) requiring renal replacement therapy due to type 2 diabetes in New Zealand (49.2%) is markedly higher than in Australia (36.4%) and has increased by 10% in the previous decade (figure 13.4)

Figure 13.4 Proportion of patients with Diabetes as primary renal disease in New Zealand, 2006-2015



Prevalence of renal replacement therapy

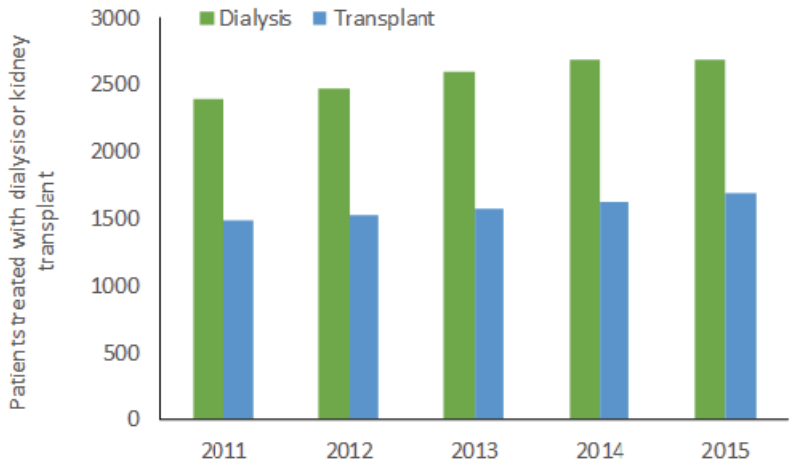
There were 4368 people (951 pmp) receiving renal replacement therapy in the form of dialysis or a kidney transplant in New Zealand at the end of 2015 (table 13.2). At the end of 2015, 2674 New Zealand patients were treated with dialysis (582 pmp). The overall prevalence of dialysis has increased 12% in the previous 5 years (figure 13.5) compared with a population increase of 4.8%.

At December 31, 2015, 1694 people had a functioning kidney transplant (369 pmp). The overall prevalence of kidney transplantation has increased 14% over 5 years. Overall New Zealand continues to have a higher prevalence (582 pmp) of dialysis patients as compared to Australia (524 pmp), and a lower prevalence of people treated with a kidney transplant (369 pmp versus 444 pmp).

Table 13.2 Prevalence of renal replacement therapy in New Zealand, 2011-2015

	2011	2012	2013	2014	2015
Total	**3877 (884)**	**3993 (906)**	**4166 (938)**	**4299 (953)**	**4368 (950)**
Transplant	1483 (338)	1522 (345)	1571 (354)	1619 (359)	1694 (369)
Dialysis	2394 (546)	2471 (561)	2595 (584)	2680 (594)	2674 (582)

Figure 13.5 Prevalence of renal replacement therapy in New Zealand, 2011-2016

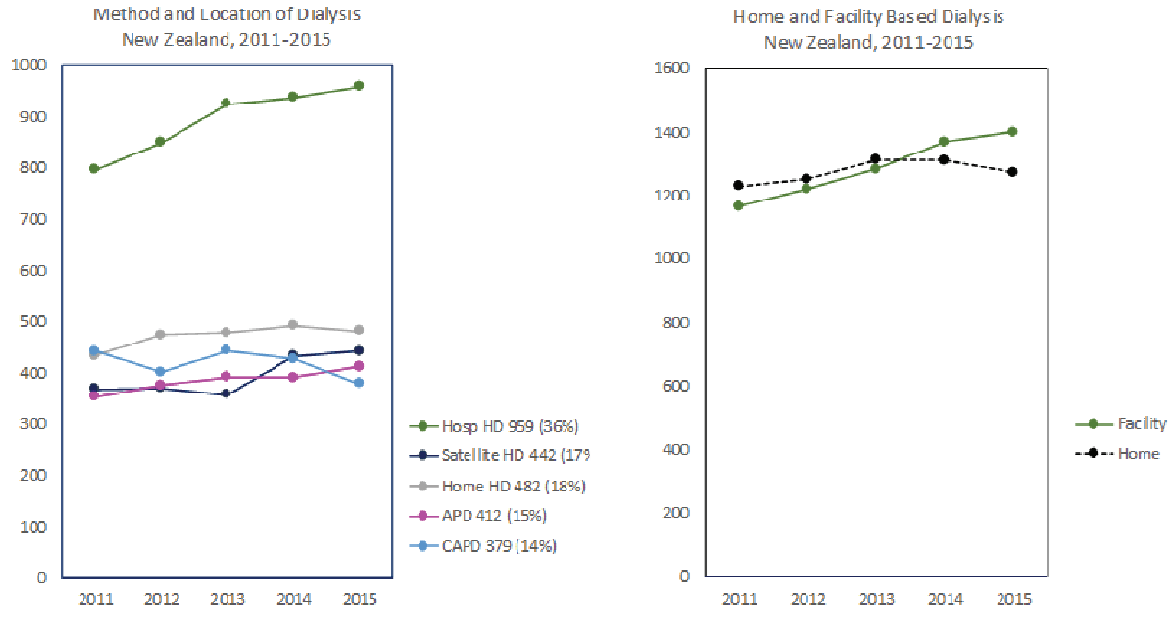


Dialysis

In 2015, 47% of the 2674 New Zealand dialysis patients were treated with home-based dialysis (peritoneal dialysis or home haemodialysis), as compared to 30% in Australia.

Home-based dialysis therapies consisted of 15% of patients treated with automated peritoneal dialysis, 14% treated with continuous ambulatory peritoneal dialysis, and 18% treated with home haemodialysis (figure 13.6, left panel). Overall, 53% of patients on dialysis were treated with haemodialysis in a satellite unit (17%) or in a hospital unit (36%). There continues to be an increasing trend toward facility-based dialysis in New Zealand (figure 13.6, right panel).

Figure 13.6 Methods and location of dialysis in New Zealand, 2011-2015

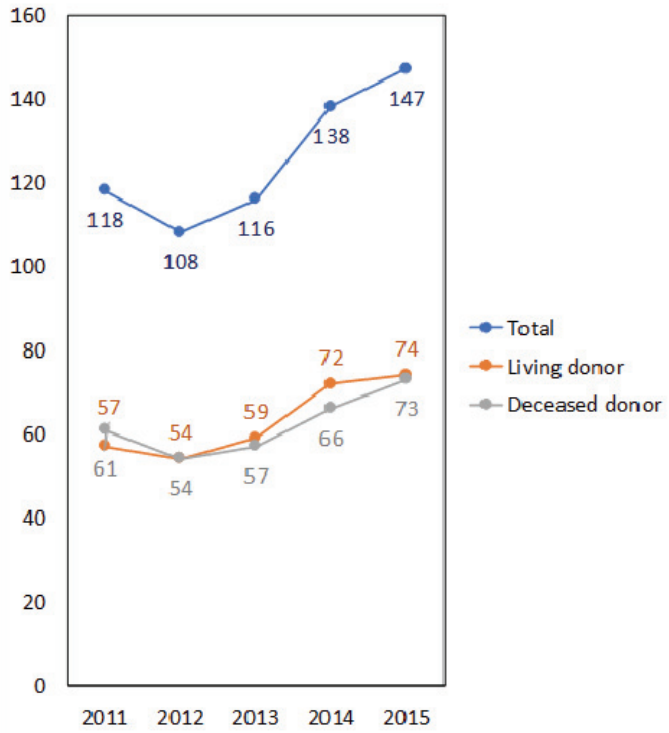


Transplantation

The National Renal Transplant Service (NRTS) was established in New Zealand in early 2014 with funding from the New Zealand Government. The purpose of the NRTS is to increase kidney transplantation rates in New Zealand with an initial focus on living donor kidney transplantation.

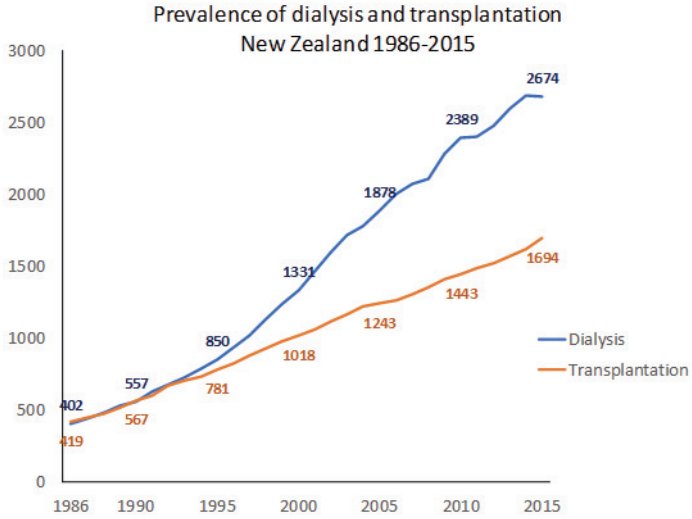
In 2015, 147 patients (32 pmp) were treated with a kidney transplant – the highest number in any calendar year in New Zealand (figure 13.7). There were increases in rates of living and deceased kidney donation. The new transplant rate (32 pmp) remains lower than for Australia (40 pmp).

Figure 13.7 New Kidney transplants in New Zealand, 2011-2015



There were 9 ABO incompatible kidney transplants in New Zealand in 2015 (8 in Auckland and 1 in Canterbury). There were two kidney exchange chains completed, providing four kidney transplants. The proportion of patients treated with a kidney transplant is increasing at a slower rate than patients treated with dialysis (figure 13.8).

Figure 13.8 Overall number of patients treated with renal replacement therapy in New Zealand

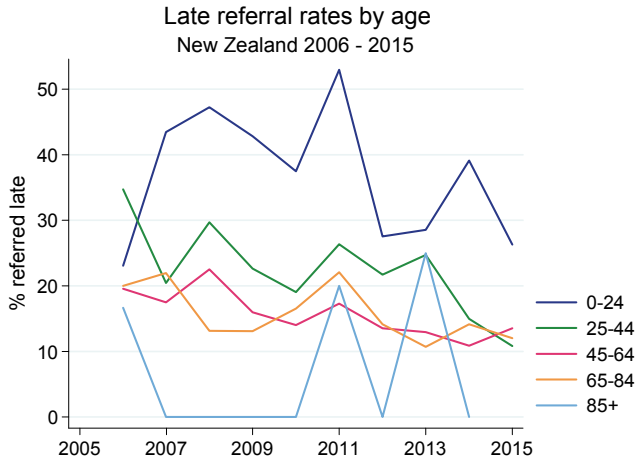


Late referral to nephrology services

The rate of late referrals (defined as the first assessment by a specialist nephrologist within 3 months of commencing dialysis) has decreased in New Zealand over time. Late referrals represented 16% of all patients who commenced renal replacement therapy in 2015. Late referrals reduce opportunities for patients to prepare for their preferred modality of dialysis or to have pre-emptive transplantation.

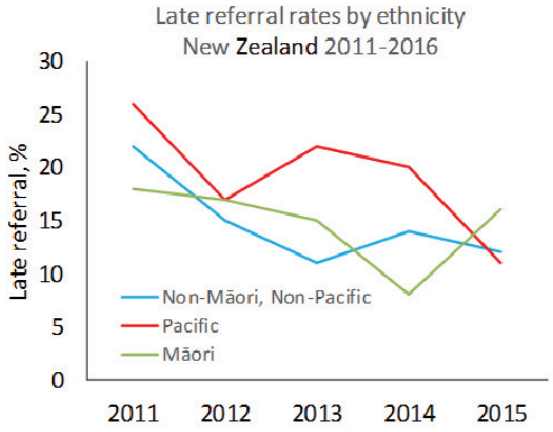
Younger New Zealand patients experience the highest rate of late referral. The highest rate of late referral has occurred among the 0-24-year-old age group in the previous decade (figure 13.9).

Figure 13.9 Late referral rates by age group, New Zealand



There is little evidence of different late referral rates by ethnicity in New Zealand (figure 13.10).

Figure 13.10 Late referral rates by ethnicity, New Zealand

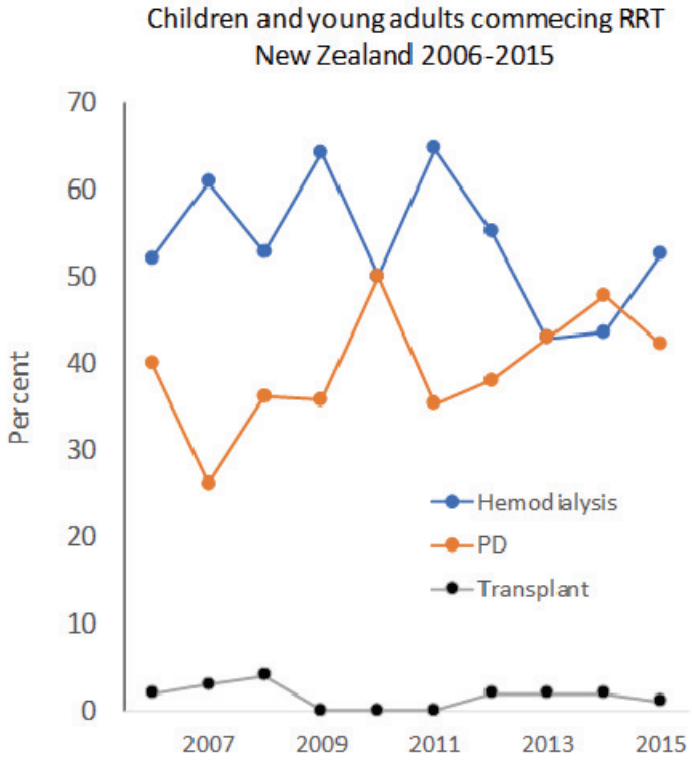


Children and young adults

In 2015, 19 patients in the 0-25-year-old age group commenced renal replacement therapy (13 pmp) in New Zealand. The incidence rate of RRT among young patients has ranged between 10-20 pmp between 2011-2015. The incidence rate of RRT is variable due to the low numbers of patients commencing RRT in this age group.

Of the 19 younger New Zealand patients commencing RRT in 2015, 1 (5%) patient received a pre-emptive transplant, 8 (42%) patients commenced with peritoneal dialysis, and 10 (53%) patients commenced with haemodialysis. The proportion of children and young adults receiving a pre-emptive transplant (8%) at first treatment for renal replacement therapy in New Zealand was in comparison with the 24% of younger patients in Australia treated with a pre-emptive transplant.

Figure 13.11 Children and young adults commencing renal replacement therapy in New Zealand, 2006-2016

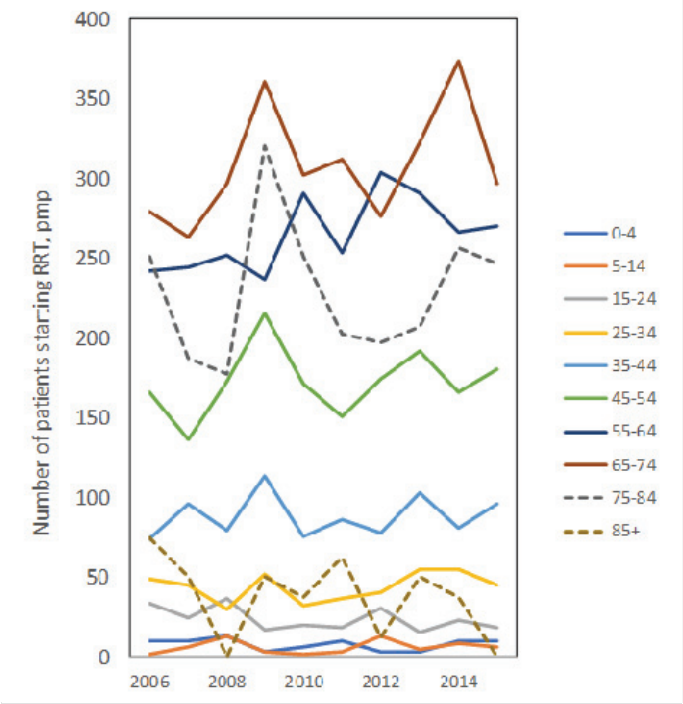


Age

Renal replacement therapy treatment rates and modality vary widely by age group (figure 13.12).

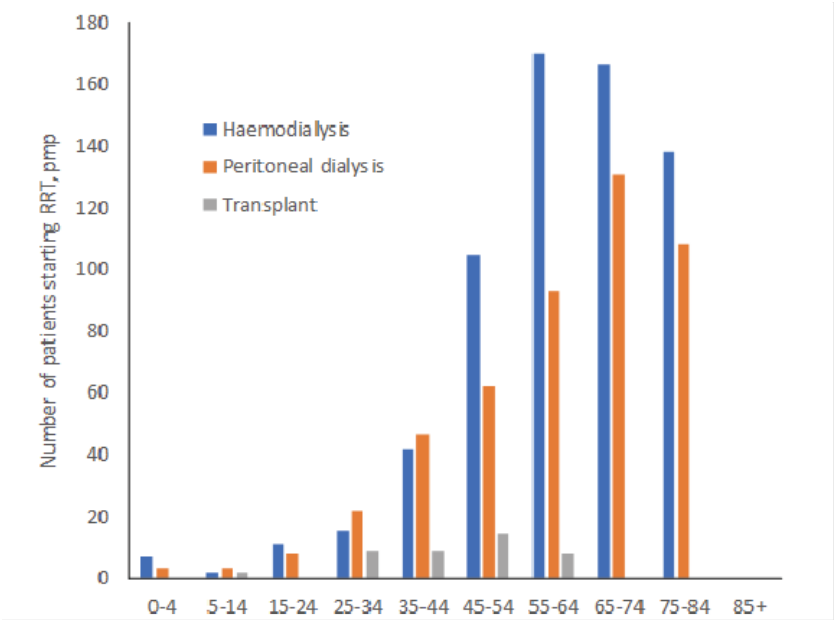
The highest incidence of renal replacement therapy in New Zealand is among patients in the 65-74-year age group (297 pmp). Children, young adults, and adults older than 85 years have the lowest rates of renal replacement therapy.

Figure 13.12 Incidence of renal replacement therapy by age in New Zealand, 2006-2015



In 2015, no person aged 85 years or older commenced renal replacement in New Zealand (figure 13.13). The incidence of haemodialysis was highest in the 55-64-year-old age group while the incidence of peritoneal dialysis was highest in the 65-74-year old age group. Nearly all patients receiving a kidney transplant were aged between 25 and 64 years old.

Figure 13.13 Incidence of renal replacement therapy by age and modality in New Zealand, 2006-2015

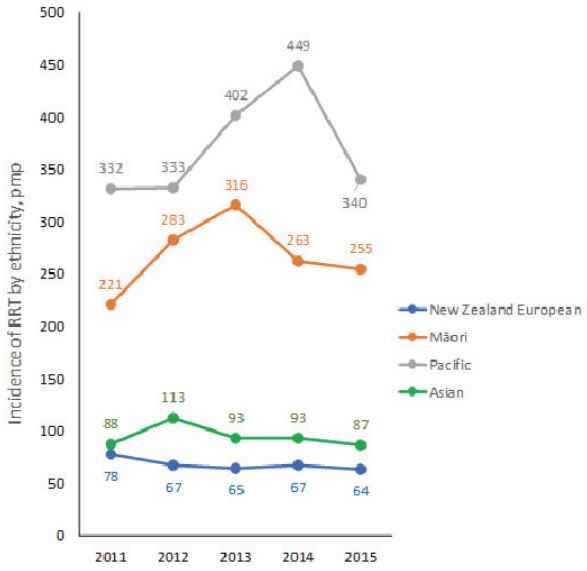


Ethnicity

There are marked and persistent inequities in the incidence and prevalence of end-stage kidney disease and treatment practices in renal replacement therapy based on ethnicity in New Zealand.

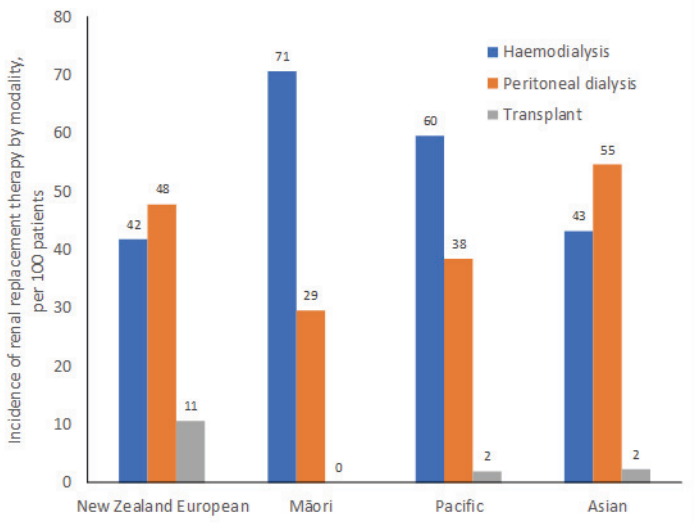
The incidence of commencing renal replacement therapy is lowest among the New Zealand European population (64 pmp) and appears to be decreasing over time (figure 13.14). The incidence of renal replacement therapy is higher among Asian peoples (87 pmp) and markedly higher among Pacific peoples (340 pmp) and Māori (255 pmp).

Figure 13.14 Incidence of RRT by ethnicity in New Zealand, 2011-2015



Māori and Pacific patients had the highest proportion of patients starting dialysis with haemodialysis (71 and 60 per 100 incident RRT patients), while among New Zealand European and Asian patients, the highest proportion of patients started RRT on peritoneal dialysis (48 and 55 per 100 incident RRT patients) (figure 13.15). Overall, 11 New Zealand European patients had a pre-emptive kidney transplant per 100 incident patients, while there were zero pre-emptive kidney transplants per 100 incident patients among Māori patients, 2 among Pacific patients, and 2 among Asian patients.

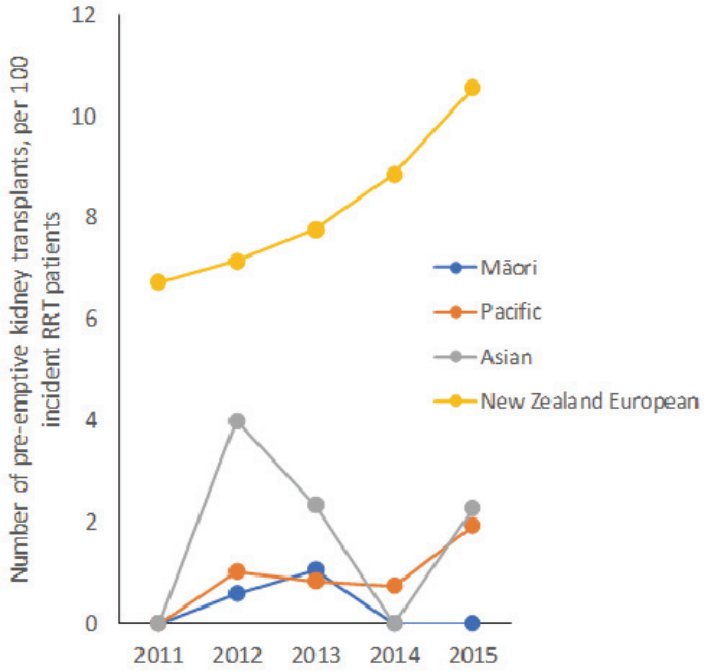
Figure 13.15 Incidence of RRT by ethnicity and modality in New Zealand, 2006-2015



[2] Currently, only a single ethnicity can be selected in ANZDATA. Ethnicity identification based on the New Zealand census question for ANZDATA patients who are resident in New Zealand is in development.

The rate of pre-emptive kidney transplants appears to be increasing among New Zealand European patients, and was variable or unchanged among Māori, Pacific, and Asian patients (Figure 13.16).

Figure 13.16 Pre-emptive kidney transplantation by ethnicity per 100 RRT patients in New Zealand, 2011-2015



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