

CHAPTER 9

Kidney Failure in Aotearoa New Zealand

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

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SUMMARY AND HIGHLIGHTS

This chapter presents information about the rates of people receiving kidney replacement therapy (KRT) for kidney failure in the form of dialysis or transplantation in Aotearoa New Zealand. Population statistics from estimates provided by Statistics New Zealand are used to calculate disease and treatment rates¹. Ethnicity population data are projections produced by Statistics New Zealand according to assumptions agreed to by the New Zealand Ministry of Health; these include data from the 2018 census and incorporate additional information gained from the post-enumeration survey.

The escalating burden of people undergoing kidney replacement therapy, both dialysis and transplantation, exhibits a growth trajectory surpassing that of the general population growth in Aotearoa New Zealand. There is an annual growth rate of 16 people requiring kidney replacement therapy per million population (pmp) from 990 to 1069 pmp over the last 5 years. An increasing proportion of kidney replacement therapy is being delivered as facility-based dialysis (64%), as opposed to home-based therapy (figure 9.11) or transplantation.

Furthermore, there is a discernible decline in number of new kidney transplants, despite growth of kidney failure in Aotearoa New Zealand, lowest over the last 5 years in 2022 with 174 new transplants (34 pmp).

Diabetic kidney disease continues to be the number one aetiology of kidney failure in Aotearoa New Zealand, contributing to half of those started on kidney replacement therapy in 2022, 10% higher than Australia (40%). This highlights the renal burden of diabetic complications. When comparing transplantation and dialysis populations, there is a higher proportion of diabetic patients found within the dialysis group and this remains consistent across all ethnicities. Notably, Māori and Pasifika are at a significantly heightened risk of succumbing to the impacts of diabetic kidney disease reaching kidney failure (Māori 67%, Pasifika 67%), a two-fold greater likelihood than non-Māori non-Pasifika (31%) (table 9.4).

Evident disparities and inequities are observed in the health outcomes of the Māori and Pasifika population facing kidney failure in Aotearoa New Zealand. There is higher rate of Māori and Pasifika reaching kidney failure in nearly all age groups, impacting those as young as 15-24 years old. Māori and Pasifika are also less likely to commence their kidney replacement therapy with a pre-emptive kidney transplant (figure 9.15). In addition, the disparities extend to their continued reliance on dialysis, as the form of treatment (table 9.5) showing the percentage of individuals on dialysis from Māori (76%) and Pasifika (80%) exceeding that of non-Māori non-Pasifika (42%) individuals by a factor of two. These inequities emphasise the pressing need for targeted interventions and comprehensive healthcare strategies aimed at ameliorating the disproportionate burden in Aotearoa New Zealand.

SUGGESTED CITATION

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KIDNEY REPLACEMENT THERAPY IN AOTEAROA NEW ZEALAND

INCIDENCE OF KIDNEY REPLACEMENT THERAPY (KRT)

In 2022, 682 adults and children started kidney replacement therapy (KRT) in Aotearoa New Zealand, equivalent to 133 per million of population (pmp) (figure 9.1 and table 9.1). The proportion of the Aotearoa New Zealand population commencing KRT is similar to that of Australia (133 versus 131 pmp in 2022).

Figure 9.1
Incidence of Kidney Replacement Therapy - Aotearoa New Zealand 1993-2022

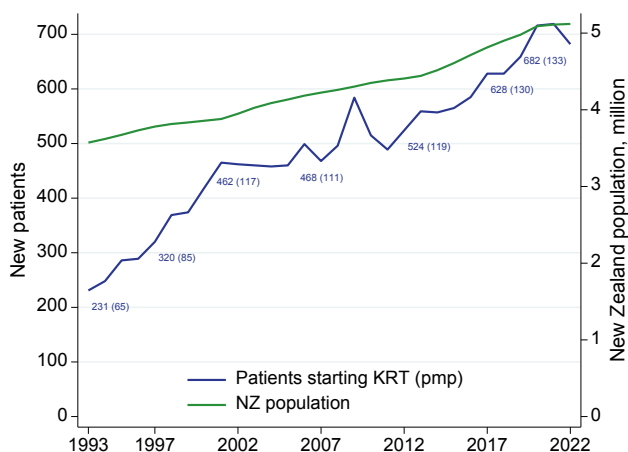
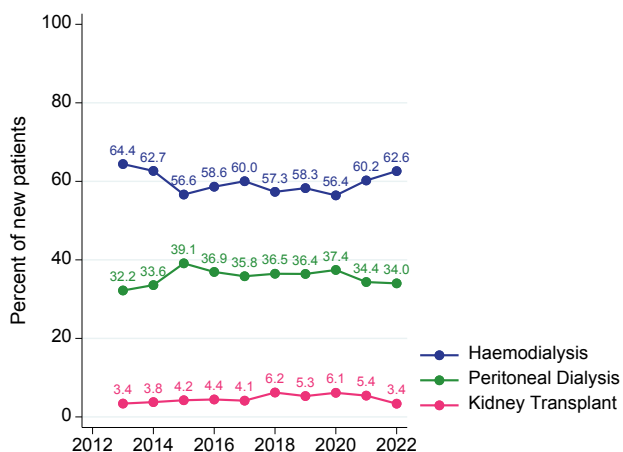


Table 9.1
Number (pmp) who Commenced Kidney Replacement Therapy in Aotearoa New Zealand, 2018-2022

	2018	2019	2020	2021	2022
Total	628 (128)	659 (132)	716 (141)	719 (141)	682 (133)
Pre-Emptive Transplant	39 (8)	35 (7)	44 (9)	39 (8)	23 (4)
Haemodialysis	360 (73)	384 (77)	404 (79)	433 (85)	427 (83)
Peritoneal Dialysis	229 (47)	240 (48)	268 (53)	247 (48)	232 (45)

Trends in the proportion of patients starting KRT by treatment modality are in figure 9.2.

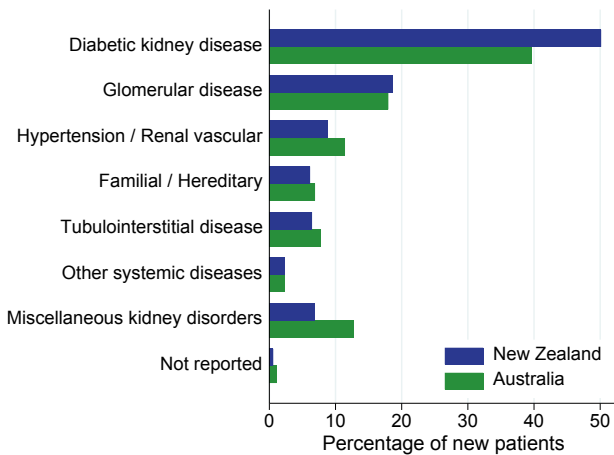
Figure 9.2
Trends in Modality at Start of Kidney Replacement Therapy - Aotearoa New Zealand 2013-2022



PRIMARY CAUSE OF KIDNEY DISEASE

Figure 9.3 shows the primary cause of kidney failure for all patients commencing KRT in 2022.

Figure 9.3
Primary Cause of Kidney Disease of New Patients Commencing Kidney Replacement Therapy, 2022

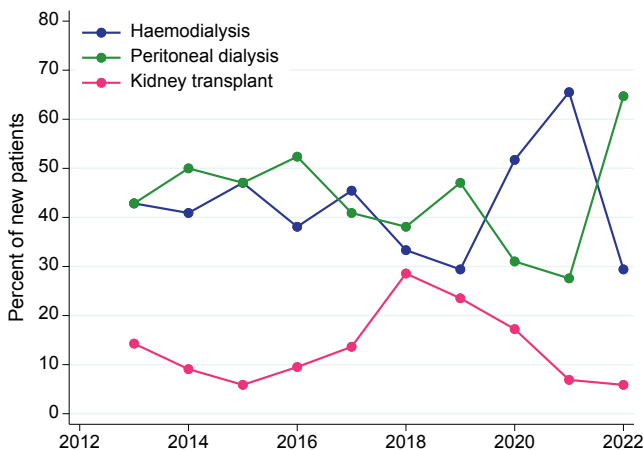


CHILDREN AND YOUNG ADULTS

In 2022, 17 patients in the 0-24 age group commenced kidney replacement therapy (11 pmp) in Aotearoa New Zealand. The incidence rate of KRT among young patients has ranged between 11 and 18 pmp from 2018-2022. The incidence rate of KRT is variable due to the low numbers of patients commencing KRT in this age group.

Of the 17 younger patients commencing KRT in Aotearoa New Zealand in 2022, one (6%) patient received a pre-emptive transplant, 11 (65%) patients commenced with peritoneal dialysis, and five (29%) patients commenced with haemodialysis (figure 9.4).

Figure 9.4
Children and Young Adults (0-24 years) Commencing KRT - Aotearoa New Zealand 2013-2022



AGE

Kidney replacement therapy incidence rates vary widely by age group and modality (figures 9.5 and 9.6).

In 2022, the highest incidence of kidney replacement therapy in Aotearoa New Zealand was among people in the 65-74 age group (373 pmp). Children, young adults, and adults 85 years and older had the lowest rates of kidney replacement therapy.

Figure 9.5
Incidence of Kidney Replacement Therapy by Age Group - Aotearoa New Zealand, 2013-2022

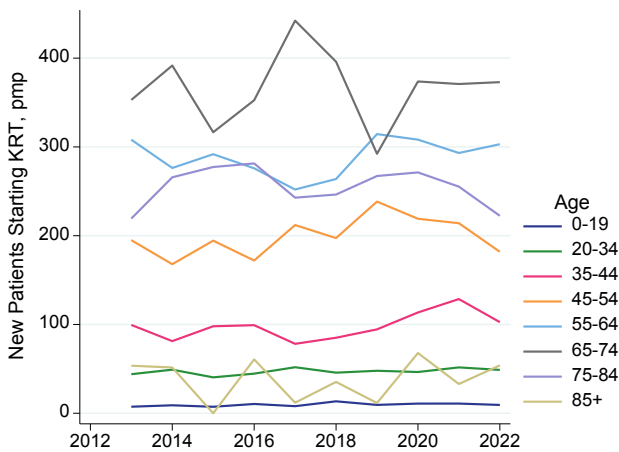


Figure 9.6
Incidence of KRT by Age Group and Modality - Per Million Population, Aotearoa New Zealand 2022

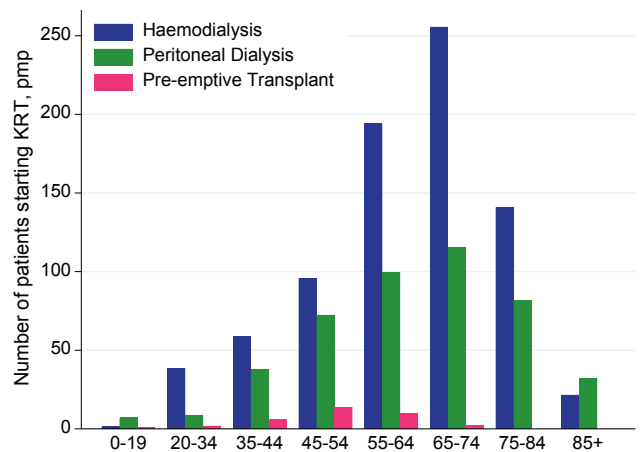
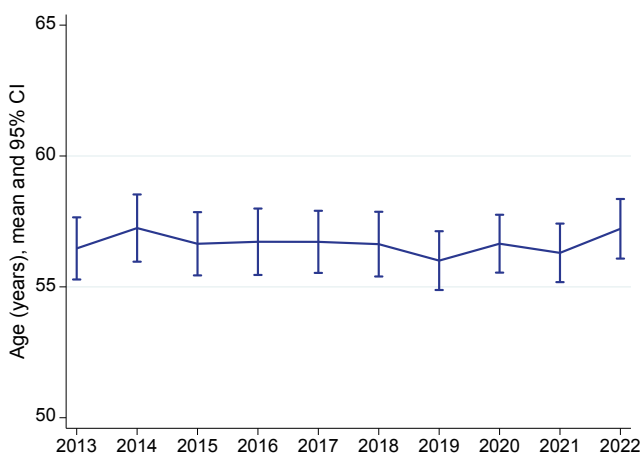


Figure 9.7 shows the mean age of incident kidney replacement therapy patients in Aotearoa New Zealand over the last 10 years.

Figure 9.7
Age of Incident Kidney Replacement Therapy Patients - Aotearoa New Zealand, 2013-2022



PREVALENCE OF KIDNEY REPLACEMENT THERAPY

There were 5474 people (1069 pmp) receiving KRT in Aotearoa New Zealand at the end of 2022 (figures 9.8-9.9 and table 9.2). Overall Aotearoa New Zealand has a higher prevalence (617 pmp) of patients on dialysis than patients with a kidney transplant (453 pmp).

Figure 9.8
Prevalence of Dialysis and Transplantation - Aotearoa New Zealand 1993-2022

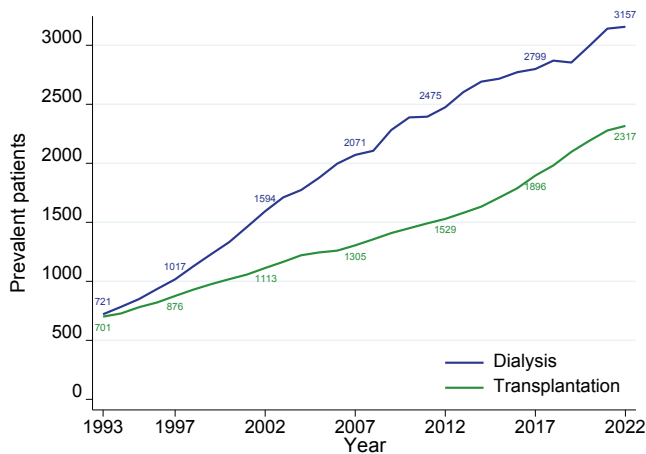
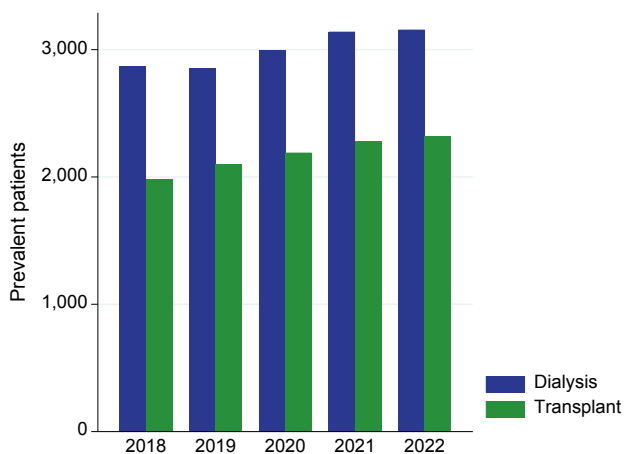


Table 9.2
Prevalence of Kidney Replacement Therapy (pmp) in Aotearoa New Zealand 2018-2022

	2018	2019	2020	2021	2022
Total	4852 (990)	4951 (994)	5186 (1019)	5419 (1060)	5474 (1069)
Transplant	1982 (404)	2097 (421)	2191 (430)	2278 (446)	2317 (453)
Dialysis	2870 (586)	2854 (573)	2995 (588)	3141 (615)	3157 (617)
% Dialysis	59%	58%	58%	58%	58%

Figure 9.9
Prevalence of Kidney Replacement Therapy - Aotearoa New Zealand 2018-2022



DIALYSIS

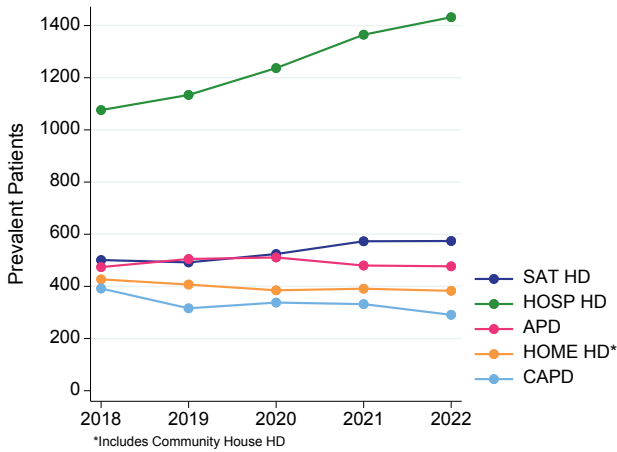
In 2022, 36% of the 3157 Aotearoa New Zealand dialysis patients had home-based dialysis (peritoneal dialysis, community house haemodialysis or home haemodialysis).

The Registry recognised that previous definitions for dialysis location did not accurately reflect the care delivery for all patients in Aotearoa New Zealand and in 2020 introduced new data definitions to capture patients receiving community-based therapy. Due to the small number of Community House Dialysis patients reported to the Registry in 2022 (28 patients across Aotearoa New Zealand) these data have been combined with Home Haemodialysis numbers for reporting purposes in this report.

15% of the dialysis population were treated with automated peritoneal dialysis, 9% with continuous ambulatory peritoneal dialysis, and 12% with home haemodialysis.

Figure 9.10 shows trends in the method and location of dialysis in Aotearoa New Zealand over 2018-2022.

Figure 9.10
Method and Location of Dialysis - Aotearoa New Zealand, 2018-2022

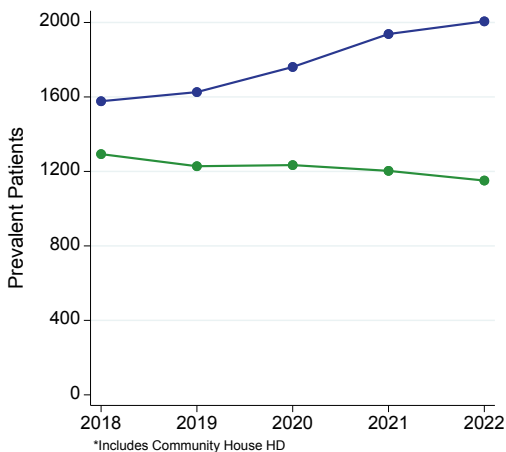


HD: Haemodialysis, SAT: Satellite, HOSP: Hospital, APD: Automated Peritoneal Dialysis, CAPD: Continuous Ambulatory Peritoneal Dialysis

64% of dialysis patients had haemodialysis in a satellite unit (18%) or a hospital unit (45%).

Figure 9.11 shows the home (including community house) and facility-based dialysis trends in Aotearoa New Zealand over 2018-2022.

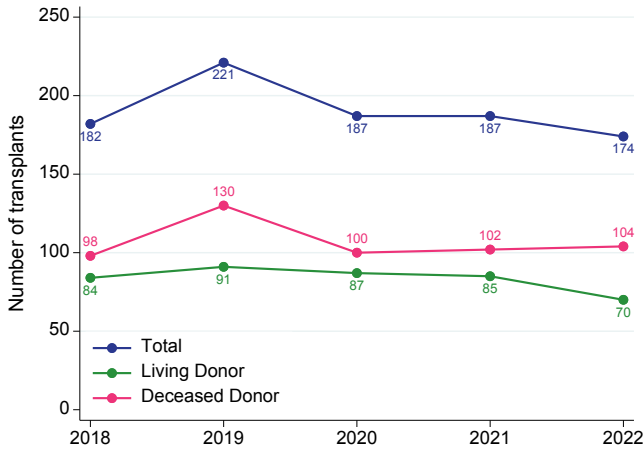
Figure 9.11
Home and Facility Based Dialysis - Aotearoa New Zealand, 2018-2022



TRANSPLANTATION

In 2022, 174 patients (34 pmp) received a kidney transplant (figure 9.12).

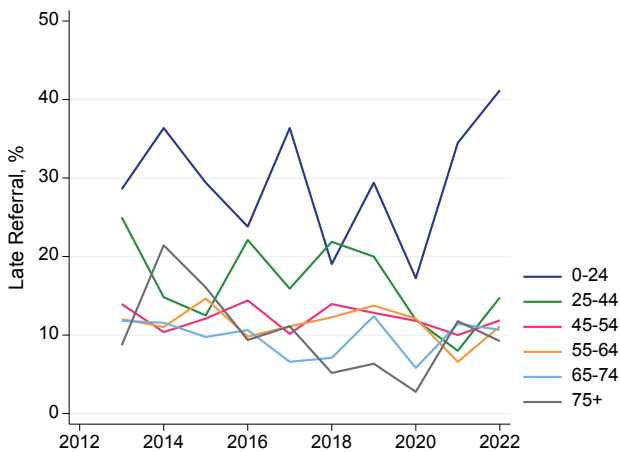
Figure 9.12
New Kidney Transplants in Aotearoa New Zealand 2018-2022



LATE REFERRAL TO NEPHROLOGY SERVICES

Figure 9.13 shows the rate of late referrals (defined as the first assessment by a specialist nephrologist within 3 months of commencing dialysis) in Aotearoa New Zealand over time by age group. Late referrals represented 12% of all patients who commenced kidney replacement therapy in 2022.

Figure 9.13
Late Referral Rates by Age Group - Aotearoa New Zealand 2013 - 2022



ETHNICITY AND KIDNEY REPLACEMENT THERAPY IN AOTEAROA NEW ZEALAND

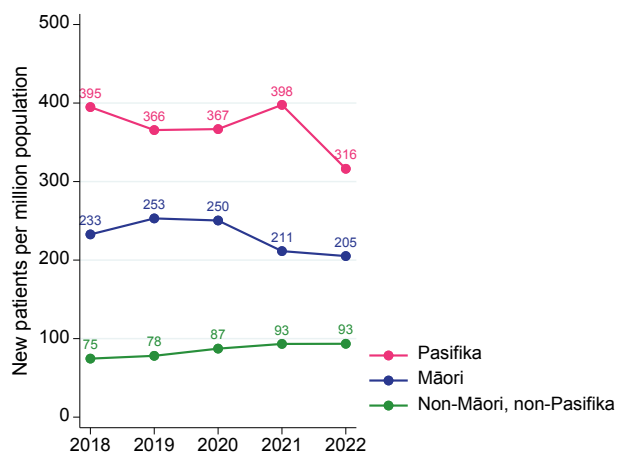
NEW PATIENTS

There are marked and persistent inequities in the incidence and prevalence of kidney failure and the kidney replacement therapies provided based on ethnicity in Aotearoa New Zealand.

The incidence of kidney replacement therapy is markedly higher among Pasifika (316 pmp) and Māori (205 pmp) patients, compared with Non-Māori, non-Pasifika patients (93 pmp) (figure 9.14).

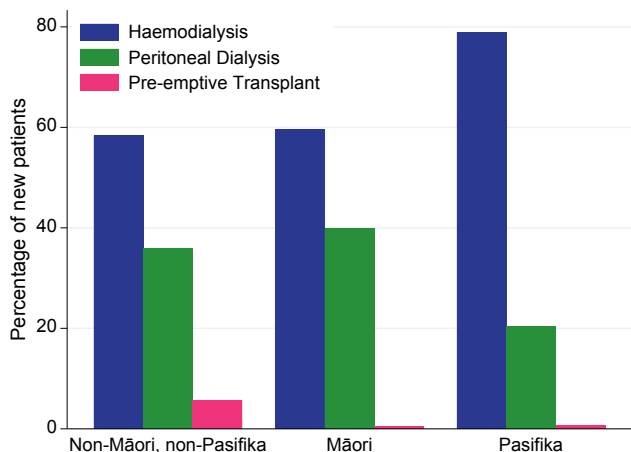
Please note that collection of ethnicity data in ANZDATA has evolved to align with the Australian Bureau of Statistics Australian Standard Classification of Cultural and Ethnic Groups² and data collection now allows a patient to nominate more than one ethnicity group. However, consultation regarding ethnicity data reporting is ongoing, and reporting guidelines are not finalised at publication. As a result, ethnicity data throughout this report includes only the first nominated ethnicity category entered for each patient. Future reporting will aim to report more accurately on patients with more than one ethnicity.

Figure 9.14
Incidence of KRT by Ethnicity - Aotearoa New Zealand 2018-2022



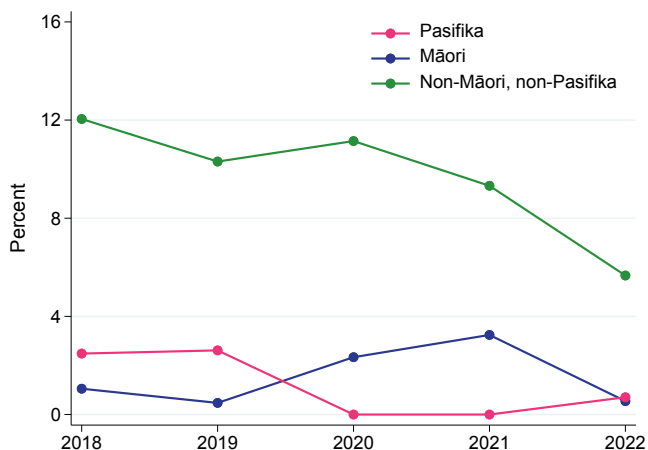
The initial therapy for patients starting KRT by ethnicity is in figure 9.15. Overall, 6% of non-Māori and non-Pasifika patients had a pre-emptive kidney transplant, while 1% of incident Māori patients received pre-emptive kidney transplants and 1% of Pasifika patients.

Figure 9.15
Incidence of KRT by Ethnicity and Modality - Aotearoa New Zealand 2022



The percentage of pre-emptive kidney transplants has continued to be markedly lower among Māori and Pasifika patients compared to non-Māori and non-Pasifika patients (figure 9.16).

Figure 9.16
Percentage of Patients Starting KRT with Pre-emptive Kidney Transplant - Aotearoa New Zealand



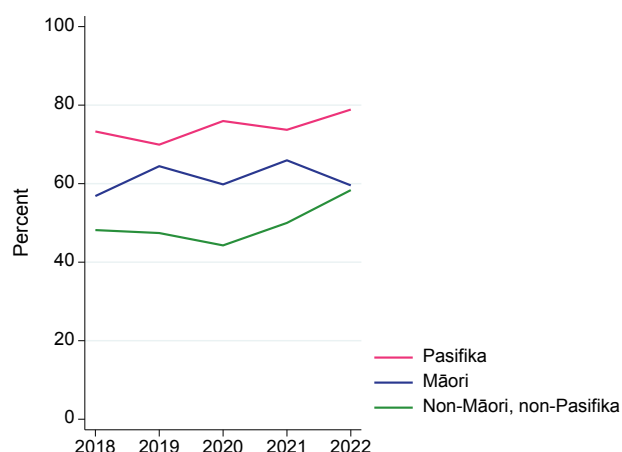
A total of 183 patients identifying as Māori, and 142 patients identifying as Pasifika, commenced treatment for kidney failure in 2022, representing 27% and 21%, respectively, of all patients starting kidney replacement therapy. This inequity in the incidence of kidney failure treated with kidney replacement therapy in Māori and Pasifika is persistent. The rate of haemodialysis commencement for non-Māori and non-Pasifika patients was 2-fold lower than for Māori and 5-fold lower than for Pasifika. Māori and Pasifika were more likely to commence haemodialysis (HD) than peritoneal dialysis (PD) compared with non-Māori and non-Pasifika patients (figure 9.17). Only one Māori patient and one Pasifika patient had a pre-emptive kidney transplant in 2022. In the last 5 years, 15 Māori and 9 Pasifika patients have received a pre-emptive kidney transplant compared with 153 non-Māori and non-Pasifika patients (a 10-fold difference for Māori and 17-fold difference for Pasifika).

Table 9.3
New Patients (pmp) Aotearoa New Zealand 2018-2022

Year	Modality	Non-Māori, non-Pasifika	Māori	Pasifika	Total
2018	Haemodialysis	132 (36)	108 (132)	118 (289)	358 (73)
	Peritoneal Dialysis	109 (30)	80 (98)	39 (96)	228 (47)
	Pre-emptive Transplant	33 (9)	2 (2)	4 (10)	39 (8)
2019	Haemodialysis	138 (37)	136 (163)	107 (256)	381 (77)
	Peritoneal Dialysis	123 (33)	74 (89)	42 (100)	239 (48)
	Pre-emptive Transplant	30 (8)	1 (1)	4 (10)	35 (7)
2020	Haemodialysis	147 (39)	128 (150)	120 (279)	395 (78)
	Peritoneal Dialysis	148 (39)	81 (95)	38 (88)	267 (52)
	Pre-emptive Transplant	37 (10)	5 (6)	0 (0)	42 (8)
2021	Haemodialysis	177 (47)	122 (139)	129 (293)	428 (84)
	Peritoneal Dialysis	144 (38)	57 (65)	46 (105)	247 (48)
	Pre-emptive Transplant	33 (9)	6 (7)	0 (0)	39 (8)
2022	Haemodialysis	206 (55)	109 (122)	112 (249)	427 (83)
	Peritoneal Dialysis	127 (34)	73 (82)	29 (65)	229 (45)
	Pre-emptive Transplant	20 (5)	1 (1)	1 (2)	22 (4)

28 excluded due to unreported ethnicity.

Figure 9.17
Percentage of New Patients Commencing on Haemodialysis - Aotearoa New Zealand



PRIMARY KIDNEY DISEASE

The primary kidney diseases of incident patients in Aotearoa New Zealand during 2018-2022 are in table 9.4. Māori and Pasifika peoples have a substantially higher rate of diabetic kidney disease than non-Māori, non-Pasifika patients.

Table 9.4
Primary Kidney Disease of New Patients in Aotearoa New Zealand 2018-2022

Primary Kidney Disease	Non-Māori, non-Pasifika	Māori	Pasifika
Diabetic kidney disease	491 (31%)	660 (67%)	527 (67%)
Glomerular disease	404 (25%)	127 (13%)	126 (16%)
Hypertension / Renal vascular disease	216 (13%)	54 (5%)	42 (5%)
Familial / hereditary kidney diseases	157 (10%)	22 (2%)	11 (1%)
Tubulointerstitial disease	162 (10%)	55 (6%)	32 (4%)
Other systemic diseases affecting the kidney	39 (2%)	10 (1%)	6 (1%)
Miscellaneous kidney disorders	134 (8%)	52 (5%)	43 (5%)
Not reported	1 (<1%)	3 (<1%)	2 (<1%)
Total	1604	983	789

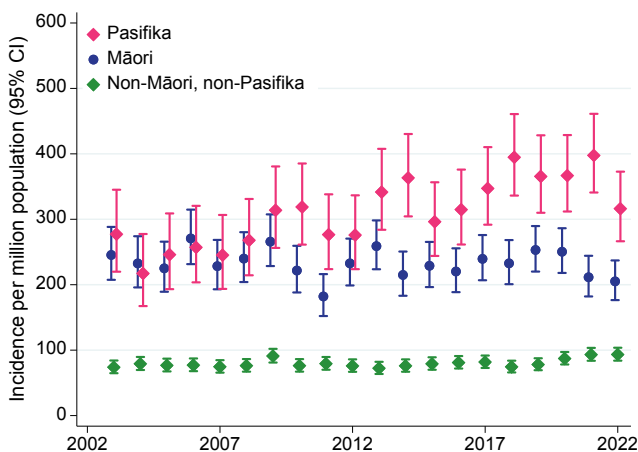
28 excluded due to unreported ethnicity.

INCIDENCE RATES

Overall, the incidence rates of kidney failure for Māori and Pasifika patients are markedly and persistently higher than those for non-Māori and non-Pasifika patients. This inequity is likely confounded and underestimated by the age distributions of each population with Māori and Pasifika populations being considerably younger. Over the last ten years the incidence rates for Pasifika and Māori patients have diverged due to an increase in the incidence in Pasifika patients, but not in Māori patients.

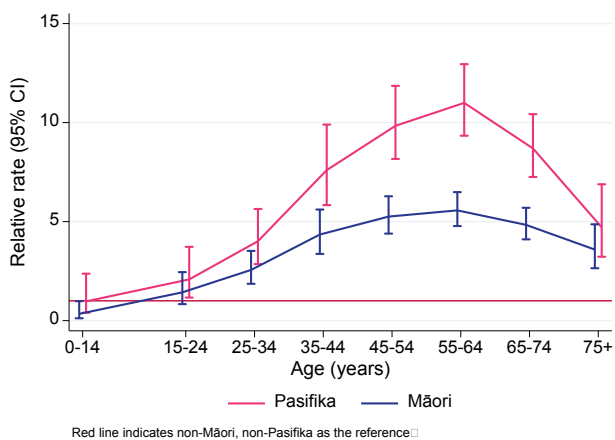
The incidence rates for KRT by ethnicity are in figure 9.18. The relative rate differs with age, see figure 9.19.

Figure 9.18
Unadjusted Incident KRT Rate - Aotearoa New Zealand



Among Māori and Pasifika peoples, inequities in the incidence of kidney failure occur as early as ages 15 to 24 years and are evident across all age groups (figure 9.19).

Figure 9.19
Relative Incidence Rate of Treated Kidney Failure for Māori and Pasifika Patients, compared with non-Māori, non-Pasifika patients - Aotearoa New Zealand 2018-2022



Age specific trends in kidney replacement therapy are shown in figures 9.20.1-9.20.3, by patient ethnicity; note that the Y axis scales vary.

Figure 9.20.1
Age-specific Incidence Rates of Treated Kidney Failure - Non-Māori, non-Pasifika, Aotearoa New Zealand

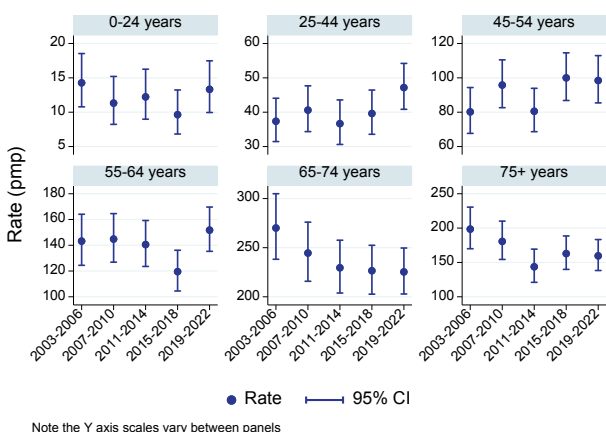


Figure 9.20.2
Age-specific Incidence Rates of Treated Kidney Failure - Māori, Aotearoa New Zealand

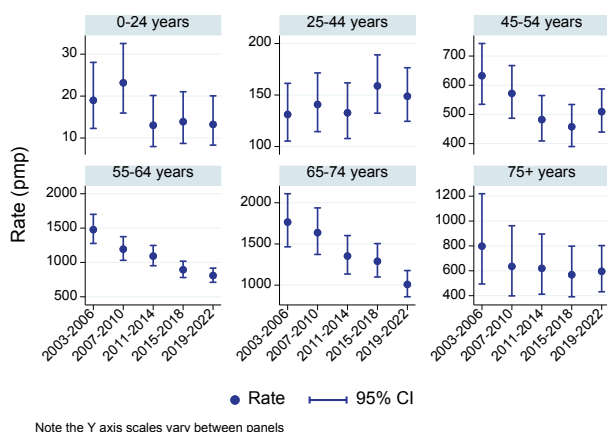
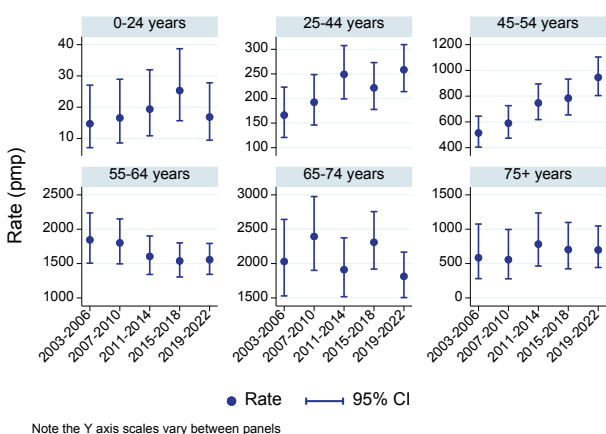


Figure 9.20.3
Age-specific Incidence Rates of Treated Kidney Failure - Pasifika, Aotearoa New Zealand



PREVALENT PATIENTS

The number of prevalent patients with treated kidney failure by treatment modality and ethnicity is shown in table 9.5 and figure 9.21. The proportion of patients undergoing haemodialysis at home in each ethnic group is in figure 9.22.

Table 9.5
Prevalent Patients by Ethnicity and Treatment Modality Aotearoa New Zealand 2018-2022

Year	Modality	Non-Māori, non-Pasifika	Māori	Pasifika
2018	HD	703 (26%)	663 (57%)	628 (64%)
	% HD at home*	27%	21%	16%
	PD	425 (16%)	267 (23%)	170 (17%)
	Transplant	1560 (58%)	234 (20%)	185 (19%)
2019	HD	698 (26%)	680 (58%)	648 (63%)
	% HD at home*	25%	20%	15%
	PD	401 (15%)	247 (21%)	169 (16%)
	Transplant	1636 (60%)	251 (21%)	208 (20%)
2020	HD	707 (25%)	718 (58%)	707 (66%)
	% HD at home*	23%	18%	13%
	PD	429 (15%)	255 (21%)	156 (14%)
	Transplant	1706 (60%)	267 (22%)	214 (20%)
2021	HD	799 (27%)	761 (60%)	753 (66%)
	% HD at home*	21%	16%	13%
	PD	427 (14%)	226 (18%)	152 (13%)
	Transplant	1754 (59%)	284 (22%)	234 (21%)
2022	HD	858 (28%)	741 (59%)	773 (68%)
	% HD at home*	19%	16%	13%
	PD	413 (14%)	214 (17%)	133 (12%)
	Transplant	1778 (58%)	300 (24%)	233 (20%)

*Includes Community House HD
117 excluded due to unreported ethnicity.

Figure 9.21.1
Prevalent Patients by Modality - Aotearoa
New Zealand - Māori

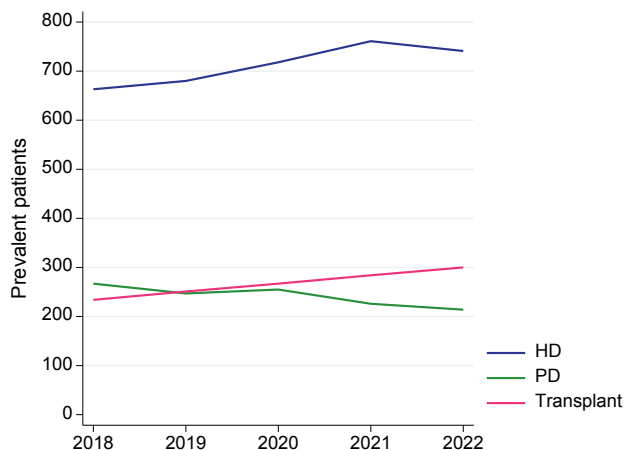


Figure 9.21.2
Prevalent Patients by Modality - Aotearoa
New Zealand - Pasifika

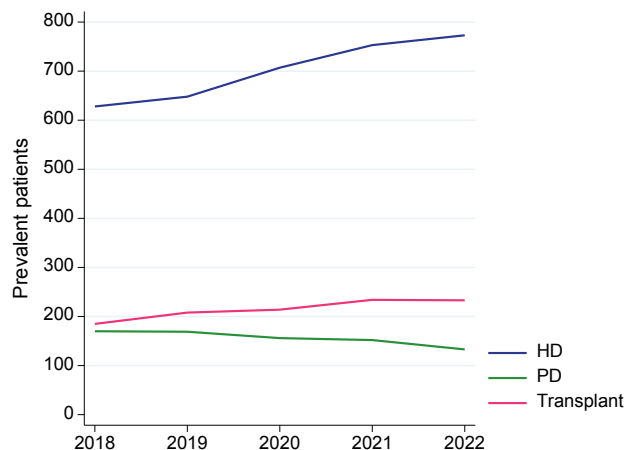


Figure 9.21.3
Prevalent Patients by Modality - Aotearoa
New Zealand - Non-Māori, non-Pasifika

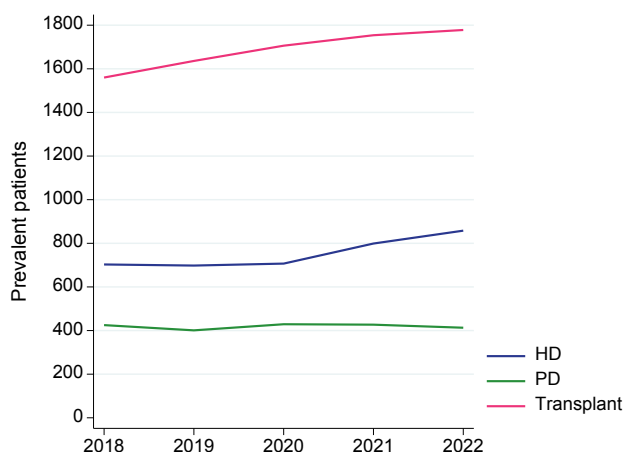
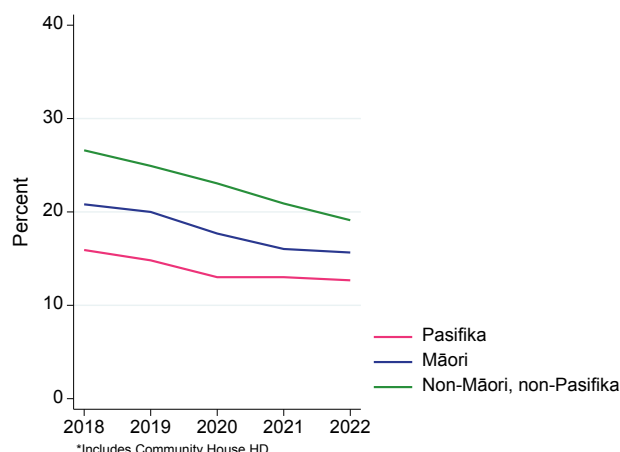


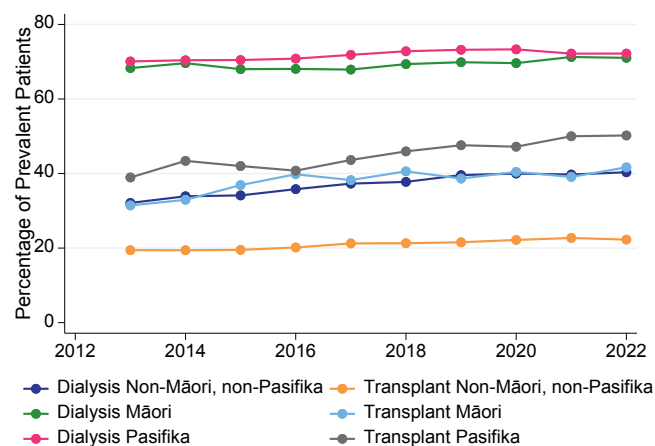
Figure 9.22
Prevalent Haemodialysis at Home* (% of all HD)
by Ethnicity - Aotearoa New Zealand



DIABETES

The percentage of prevalent KRT patients with diabetes as a comorbidity is shown in figure 9.23 by ethnicity and treatment modality.

Figure 9.23
Diabetes as a Comorbidity in Prevalent Patients -
Aotearoa New Zealand, 2013-2022



INCIDENCE AND PREVALENCE PER POPULATION

Figures 9.24 to 9.29 show trends in the incidence and prevalence of kidney failure treatment overall and by modality. Of note is the increasing prevalence of transplantation amongst Māori and Pasifika patients (figure 9.28). Figure 9.29 shows mortality by ethnicity.

Figure 9.24
Incidence of New Patients - Aotearoa New Zealand

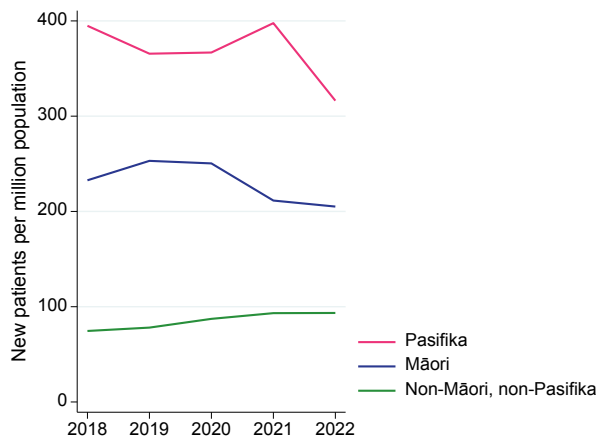


Figure 9.25
Incidence of New Transplants - Aotearoa New Zealand

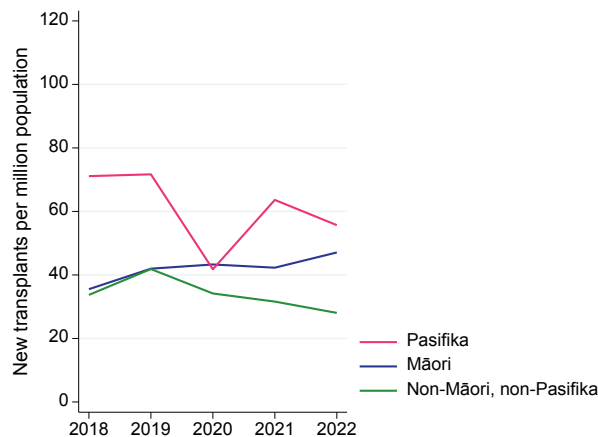


Figure 9.26
Prevalent Haemodialysis Patients - Aotearoa New Zealand

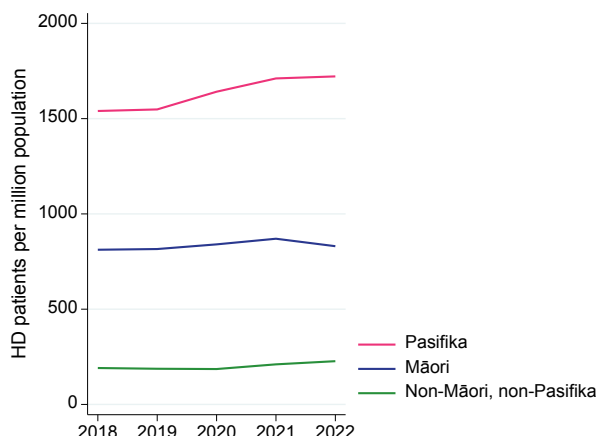


Figure 9.27
Prevalent Peritoneal Dialysis Patients - Aotearoa New Zealand

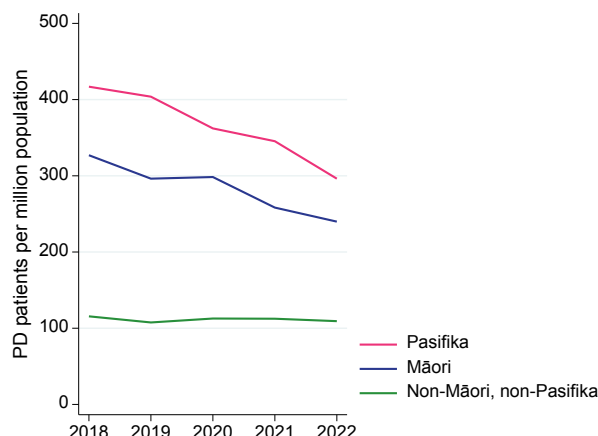


Figure 9.28
Prevalent Transplant Patients - Aotearoa New Zealand

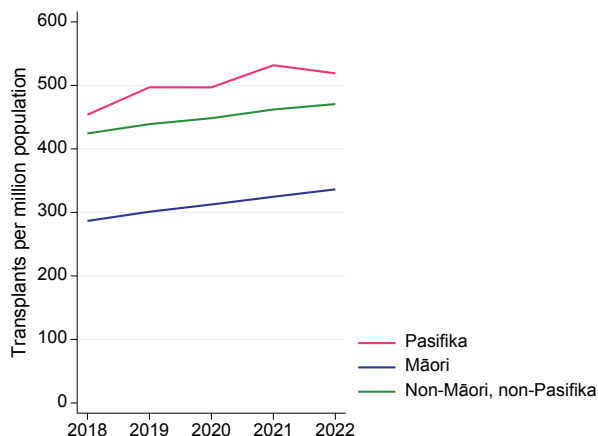
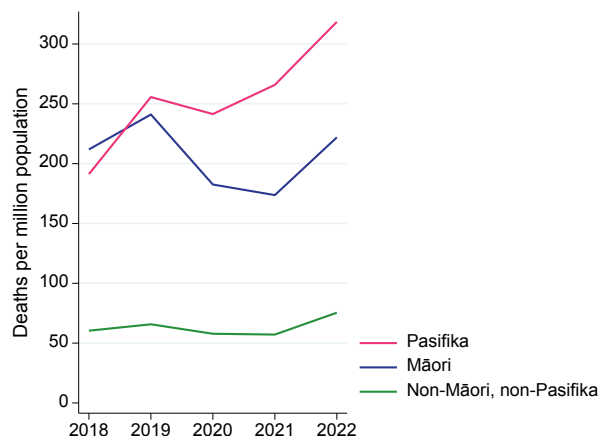


Figure 9.29
Deaths of KRT Patients - Aotearoa New Zealand



TRANSPLANTATION

In Aotearoa New Zealand, the proportion of Māori and Pasifika patients who receive a kidney transplant is very low. However, the transplant rate per million population is high due to the prevalence of kidney failure in these populations (table 9.6). Information on the donor source is in figure 9.30 and trends are in figure 9.31 (note that the Y axis scales vary).

Table 9.6
Number of Transplant Recipients (pmp) by Donor Type and Ethnicity Aotearoa New Zealand 2013-2022

Year	Donor Type	Non-Māori, non-Pasifika	Māori	Pasifika
2013	DD	46 (14)	5 (7)	6 (17)
	LD	52 (16)	5 (7)	2 (6)
	Total	98 (29)	10 (13)	8 (22)
2014	DD	43 (13)	13 (17)	9 (24)
	LD	52 (15)	12 (16)	7 (19)
	Total	95 (28)	25 (33)	16 (43)
2015	DD	44 (13)	13 (17)	16 (42)
	LD	54 (16)	15 (20)	5 (13)
	Total	98 (28)	28 (36)	21 (56)
2016	DD	59 (17)	13 (17)	18 (46)
	LD	57 (16)	13 (17)	12 (31)
	Total	116 (33)	26 (33)	30 (77)
2017	DD	71 (20)	17 (21)	30 (75)
	LD	53 (15)	6 (7)	10 (25)
	Total	124 (34)	23 (29)	40 (101)
2018	DD	65 (18)	15 (18)	18 (44)
	LD	59 (16)	14 (17)	11 (27)
	Total	124 (34)	29 (36)	29 (71)
2019	DD	83 (22)	24 (29)	23 (55)
	LD	73 (20)	11 (13)	7 (17)
	Total	156 (42)	35 (42)	30 (72)
2020	DD	61 (16)	23 (27)	16 (37)
	LD	69 (18)	14 (16)	2 (5)
	Total	130 (34)	37 (43)	18 (42)
2021	DD	57 (15)	23 (26)	21 (48)
	LD	63 (17)	14 (16)	7 (16)
	Total	120 (32)	37 (42)	28 (64)
2022	DD	55 (15)	28 (31)	21 (47)
	LD	51 (13)	14 (16)	4 (9)
	Total	106 (28)	42 (47)	25 (56)

DD: Deceased Donor, LD: Living Donor
7 excluded due to unreported ethnicity.

Figure 9.30
Donor Type by Ethnicity - Aotearoa New Zealand 2013-2022

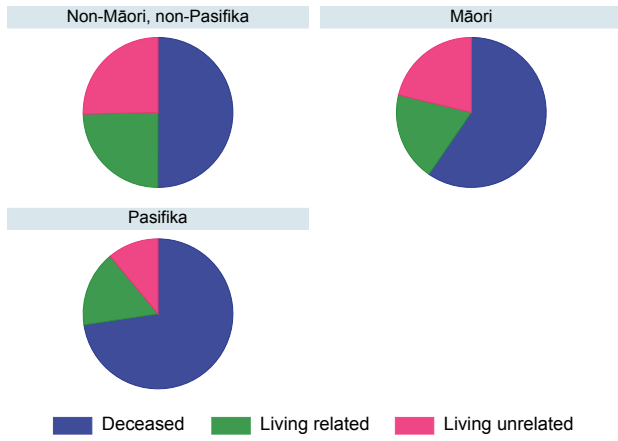
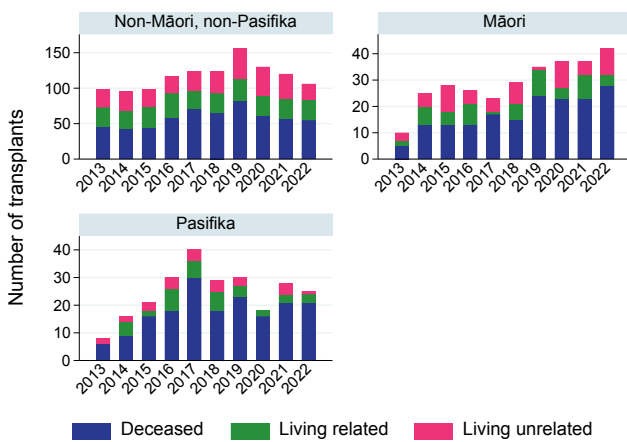


Figure 9.31
Donor Type by Ethnicity and Year - Aotearoa New Zealand

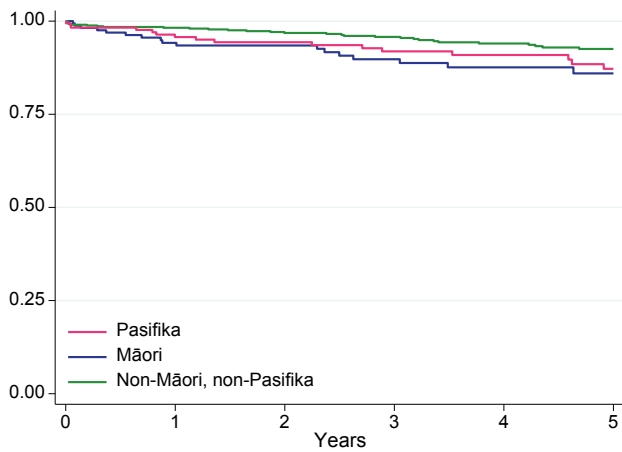


TRANSPLANT SURVIVAL

Graft and patient survival for kidney transplant recipients in Aotearoa New Zealand, calculated by the Kaplan-Meier method, are shown in figures 9.32-9.33.

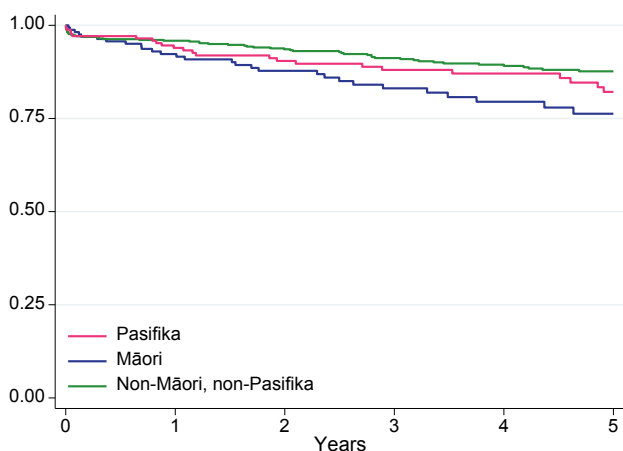
There is a small difference in patient survival after kidney transplantation from a deceased donor between Māori and non-Māori, non-Pasifika recipients, which is apparent from 6 months after transplantation. At 5 years post-transplant, 86% of Māori recipients, 87% of Pasifika recipients, and 93% of non-Māori, non-Pasifika recipients were alive.

Figure 9.32
Patient Survival, Recipients of Primary Deceased Donor Grafts - Aotearoa New Zealand 2013-2022



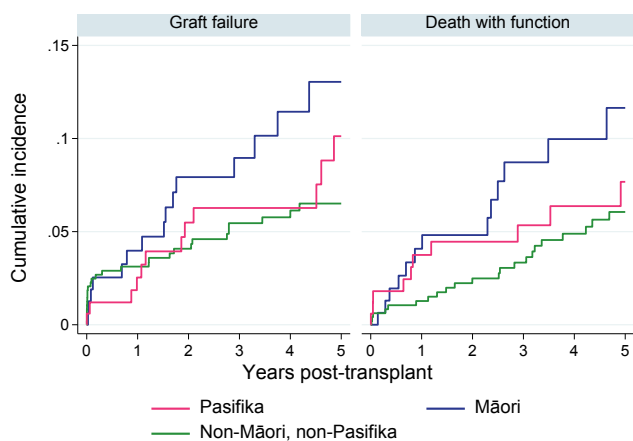
Over the first 5 years after a kidney transplant from a deceased donor, some kidney transplants are lost, either through the transplant failing or the patient dying with a functioning kidney. Over time, there were increasing proportions of Māori and Pasifika recipients who experienced graft loss compared with non-Māori, non-Pasifika persons. The proportion of functioning kidney transplants at 5 years post-transplant was 76% for Māori and 82% for Pasifika recipients, compared with 88% for non-Māori, non-Pasifika persons (figure 9.33).

Figure 9.33
Graft Survival, Recipients of Primary Deceased Donor Grafts - Aotearoa New Zealand 2013-2022



Cumulative incidence curves (utilising competing risk techniques to account for the effects of both components of graft failure, i.e. graft failure and death with a functioning graft) are shown for transplant outcomes by ethnicity in figure 9.34.

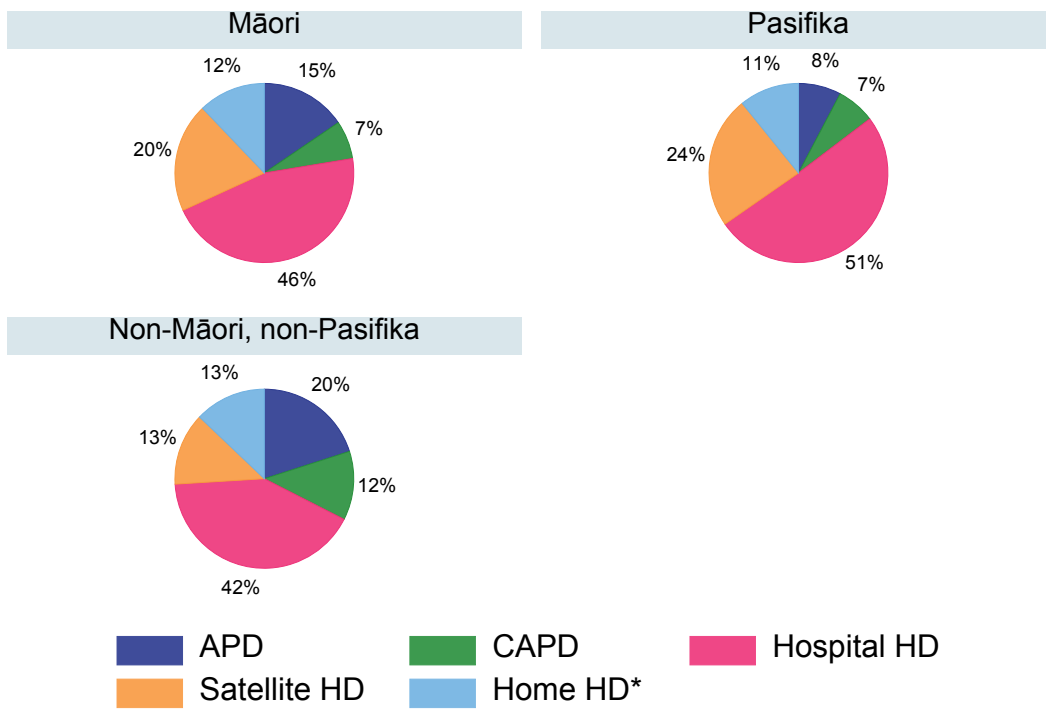
Figure 9.34
Transplant Outcomes, Aotearoa New Zealand - Primary Deceased Donor Kidney-only Transplants 2013-2022



DIALYSIS

The distribution of dialysis modality is shown graphically in figure 9.35. Māori and Pasifika patients have higher use of facility dialysis as the principal modality of care and lower use of the home-based modalities.

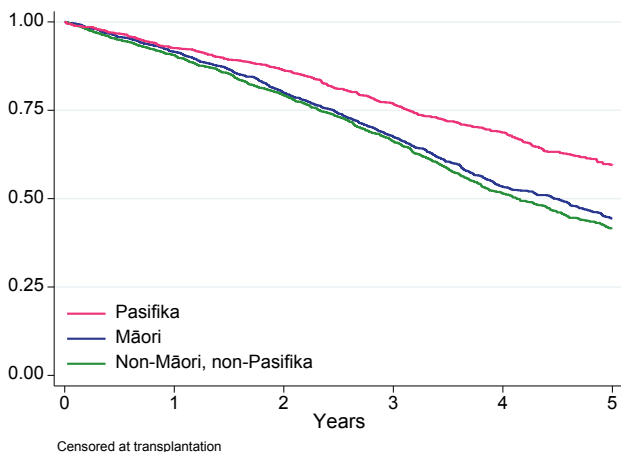
Figure 9.35
Dialysis Modality End 2022 - Aotearoa New Zealand, by Ethnicity



*Includes Community House HD

Half of the people who started dialysis over 2013-2022 were alive 5 years later (figure 9.36). Non-Māori non-Pasifika and Māori patients experienced similar survival over 5 years after starting dialysis, with Pasifika patients having better survival. Observed differences in survival between populations may reflect different age distributions and access to competing treatments (transplantation), which may have impacted mortality estimates.

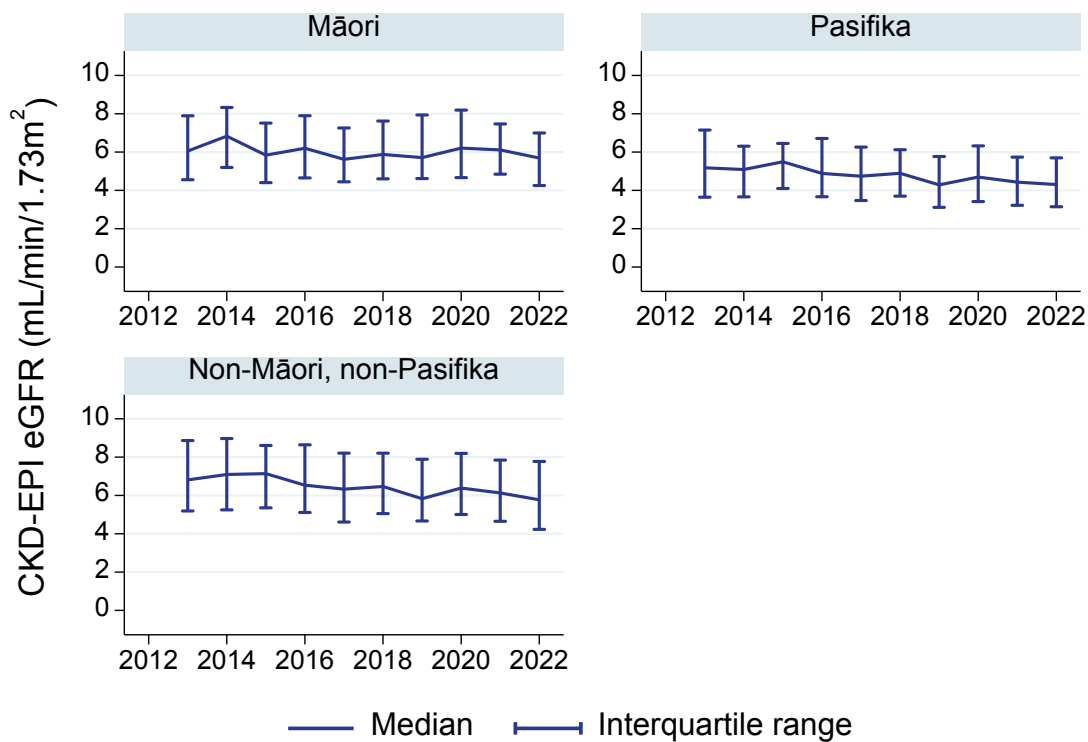
Figure 9.36
Patient Survival, Incident Dialysis Patients - Aotearoa New Zealand 2013-2022



TIMING OF DIALYSIS INITIATION

The level of kidney function at which dialysis is commenced (based on estimated Glomerular Filtration Rate (eGFR)) is shown in figure 9.37 by patient ethnicity.

Figure 9.37
eGFR at Dialysis Initiation - Aotearoa New Zealand



VASCULAR ACCESS

INCIDENT VASCULAR ACCESS

Incident vascular access data by patient ethnicity are documented in table 9.7, and prevalent data in table 9.8.

Table 9.7
Incident Vascular Access Aotearoa New Zealand 2018-2022

Year	Vascular access	Non-Māori, non-Pasifika	Māori	Pasifika
2018	AVF	30 (23%)	22 (20%)	21 (18%)
	AVG	2 (2%)	0 (0%)	1 (1%)
	CVC	99 (75%)	86 (80%)	96 (81%)
	Not reported	1 (1%)	0 (0%)	0 (0%)
2019	AVF	33 (24%)	28 (21%)	20 (19%)
	AVG	2 (1%)	0 (0%)	1 (1%)
	CVC	103 (75%)	107 (79%)	86 (80%)
	Not reported	0 (0%)	1 (1%)	0 (0%)
2020	AVF	32 (22%)	22 (17%)	32 (27%)
	AVG	0 (0%)	0 (0%)	0 (0%)
	CVC	113 (77%)	106 (83%)	88 (73%)
	Not reported	2 (1%)	0 (0%)	0 (0%)
2021	AVF	42 (24%)	21 (17%)	30 (23%)
	AVG	1 (<1%)	0 (0%)	0 (0%)
	CVC	133 (75%)	100 (82%)	95 (74%)
	Not reported	1 (<1%)	1 (1%)	4 (3%)
2022	AVF	45 (22%)	17 (16%)	22 (20%)
	AVG	1 (<1%)	0 (0%)	0 (0%)
	CVC	160 (78%)	91 (83%)	90 (80%)
	Not reported	0 (0%)	1 (1%)	0 (0%)

AVF: Arteriovenous Fistula, AVG: Arteriovenous Graft, CVC: Central Venous Catheter
19 excluded due to unreported ethnicity.

PREVALENT VASCULAR ACCESS

Vascular access for prevalent dialysis patients is shown in table 9.8 by patient ethnicity.

Table 9.8
Prevalent Vascular Access Aotearoa New Zealand 2018-2022

Year	Vascular access	Non-Māori, non-Pasifika	Māori	Pasifika
2018	AVF	417 (59%)	446 (67%)	414 (66%)
	AVG	18 (3%)	21 (3%)	11 (2%)
	CVC	246 (35%)	181 (27%)	190 (30%)
	Not reported	22 (3%)	15 (2%)	13 (2%)
2019	AVF	400 (57%)	424 (62%)	424 (65%)
	AVG	16 (2%)	18 (3%)	5 (1%)
	CVC	251 (36%)	213 (31%)	189 (29%)
	Not reported	31 (4%)	25 (4%)	30 (5%)
2020	AVF	386 (55%)	412 (57%)	428 (61%)
	AVG	11 (2%)	17 (2%)	13 (2%)
	CVC	273 (39%)	252 (35%)	251 (36%)
	Not reported	37 (5%)	37 (5%)	15 (2%)
2021	AVF	404 (51%)	450 (59%)	424 (56%)
	AVG	11 (1%)	11 (1%)	10 (1%)
	CVC	334 (42%)	266 (35%)	294 (39%)
	Not reported	50 (6%)	34 (4%)	25 (3%)
2022	AVF	398 (46%)	393 (53%)	412 (53%)
	AVG	16 (2%)	7 (1%)	9 (1%)
	CVC	382 (45%)	287 (39%)	325 (42%)
	Not reported	62 (7%)	54 (7%)	27 (3%)

64 excluded due to unreported ethnicity.

PATIENT FLOW

Table 9.9 shows the overall patient flow in Aotearoa New Zealand by ethnicity. Notably, mortality for Māori and Pasifika patients is 3 to 5-fold higher per million population than that of non-Māori, non-Pasifika patients.

Table 9.9
Patient Flow (pmp) Aotearoa New Zealand 2018-2022

Year	Event	Non-Māori, non-Pasifika	Māori	Pasifika
2018	New patients	274 (75)	190 (233)	161 (395)
	New transplants	124 (34)	29 (36)	29 (71)
	Pre-emptive transplants	33 (9)	2 (2)	4 (10)
	Prevalent dialysis	1128 (307)	930 (1139)	798 (1957)
	Prevalent transplants	1560 (424)	234 (287)	185 (454)
	Total prevalence	2688 (731)	1164 (1426)	983 (2411)
	Deaths	217 (59)	170 (208)	78 (191)
2019	New patients	291 (78)	211 (253)	153 (366)
	New transplants	156 (42)	35 (42)	30 (72)
	Pre-emptive transplants	30 (8)	1 (1)	4 (10)
	Prevalent dialysis	1099 (295)	927 (1112)	817 (1952)
	Prevalent transplants	1636 (439)	251 (301)	208 (497)
	Total prevalence	2735 (734)	1178 (1413)	1025 (2449)
	Deaths	240 (64)	197 (236)	107 (256)
2020	New patients	332 (87)	214 (250)	158 (367)
	New transplants	129 (34)	37 (43)	18 (42)
	Pre-emptive transplants	37 (10)	5 (6)	0 (0)
	Prevalent dialysis	1136 (299)	973 (1139)	863 (2004)
	Prevalent transplants	1706 (448)	267 (312)	214 (497)
	Total prevalence	2842 (747)	1240 (1451)	1077 (2501)
	Deaths	216 (57)	156 (183)	104 (241)
2021	New patients	354 (93)	185 (211)	175 (398)
	New transplants	120 (32)	37 (42)	28 (64)
	Pre-emptive transplants	33 (9)	6 (7)	0 (0)
	Prevalent dialysis	1226 (323)	987 (1128)	905 (2056)
	Prevalent transplants	1754 (462)	284 (325)	234 (532)
	Total prevalence	2980 (785)	1271 (1453)	1139 (2588)
	Deaths	212 (56)	150 (171)	117 (266)
2022	New patients	353 (93)	183 (205)	142 (316)
	New transplants	106 (28)	42 (47)	25 (56)
	Pre-emptive transplants	20 (5)	1 (1)	1 (2)
	Prevalent dialysis	1271 (336)	955 (1071)	906 (2018)
	Prevalent transplants	1778 (471)	300 (336)	233 (519)
	Total prevalence	3049 (807)	1255 (1407)	1139 (2537)
	Deaths	281 (74)	198 (222)	143 (319)

Patients with unreported ethnicity are excluded.

CAUSE OF DEATH

The causes of death in 2022 are shown in figure 9.38 and table 9.10, categorised by ethnicity and modality at the time of death.

Differences between ethnicities are likely to reflect, at least in part, the different age distributions of these populations.

Figure 9.38
Cause of Death by Modality and Ethnicity - Deaths Occurring During 2022, Aotearoa New Zealand

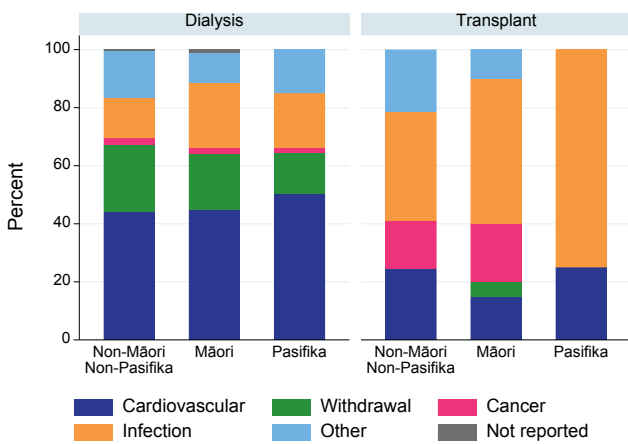


Table 9.10
Cause of Death by Modality and Ethnicity, Aotearoa New Zealand 2022

Modality	Cause of death	Non-Māori, non-Pasifika	Māori	Pasifika
Dialysis	Cardiovascular	97 (44%)	80 (45%)	64 (50%)
	Withdrawal	51 (23%)	34 (19%)	18 (14%)
	Cancer	5 (2%)	4 (2%)	2 (2%)
	Infection	31 (14%)	40 (22%)	24 (19%)
	Other	35 (16%)	18 (10%)	19 (15%)
	Not reported	1 (0%)	2 (1%)	0 (0%)
	Total		220	178
Transplant	Cardiovascular	15 (25%)	3 (15%)	4 (25%)
	Withdrawal	0 (0%)	1 (5%)	0 (0%)
	Cancer	10 (16%)	4 (20%)	0 (0%)
	Infection	23 (38%)	10 (50%)	12 (75%)
	Other	13 (21%)	2 (10%)	0 (0%)
	Not reported	0 (0%)	0 (0%)	0 (0%)
	Total		61	20

2 excluded due to unreported ethnicity.

LATE REFERRAL TO NEPHROLOGY SERVICES

Late referral rates (defined as the first assessment by a specialist nephrologist within 3 months of commencing dialysis) by ethnicity in Aotearoa New Zealand are shown in figure 9.39 and table 9.11.

Figure 9.39
Late Referral Rates by Ethnicity - Aotearoa New Zealand 2018 - 2022

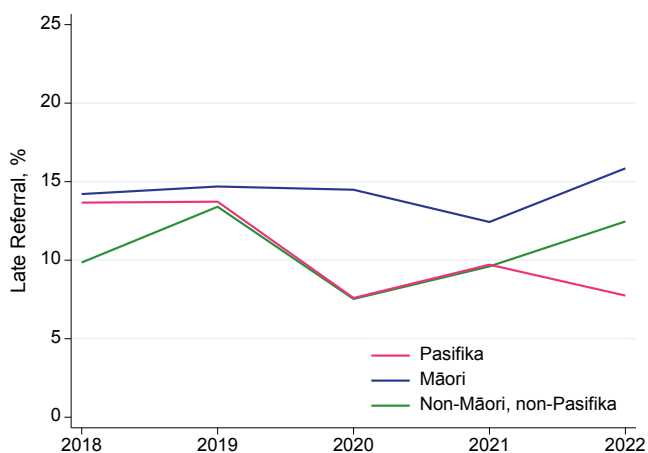
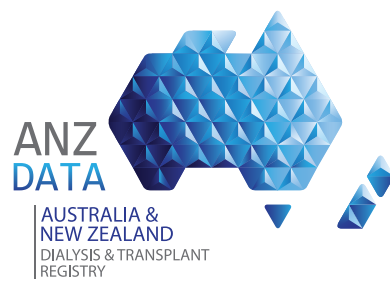


Table 9.11
Percentage of Late Referral by Ethnicity Aotearoa New Zealand 2018-2022

Year	Non-Māori, non-Pasifika	Māori	Pasifika
2018	10%	14%	14%
2019	13%	15%	14%
2020	8%	14%	8%
2021	10%	12%	10%
2022	12%	16%	8%

REFERENCES

1. This work is based on/includes Stats NZ's data which are licensed by Stats NZ for re-use under the Creative Commons Attribution 4.0 International licence. Stats NZ, 2022, Estimated Resident Population by Age and Sex (1991+) (Annual-Jun), NZ Infoshare, viewed 20 Dec 2022, <http://infoshare.stats.govt.nz/>
2. Australian Bureau of Statistics, 2019, Australian Standard Classification of Cultural and Ethnic Groups (ASCCEG), December 2019, viewed 23 Oct 2020, <https://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/1249.0Main+Features12019?OpenDocument>



CHAPTER 9

Kidney Failure in Aotearoa New Zealand