

CHAPTER 11

Kidney Failure among Māori in Aotearoa New Zealand

Reporting the incidence, prevalence and survival in
Māori patients of Aotearoa New Zealand receiving kidney
replacement therapy

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SUMMARY AND HIGHLIGHTS

This chapter describes the rates, clinical care patterns and outcomes of treatment for kidney failure for people identifying as Māori living in Aotearoa New Zealand.

The denominator population statistics are stratified by ethnicity, and drawn from estimates provided by Statistics New Zealand 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.

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 reporting of ethnicity data 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.

The data presented highlights a concerning trend regarding the impact of inequity in kidney treatment between individuals from the Māori and non-Māori population. There are several key findings in this context:

Higher Incidence of Kidney Failure: Māori experiences a significant disparity in kidney health compared to non-Māori. There is a two-fold increase in the incidence of kidney failure among Māori individuals. This suggests that Māori community face a greater risk of developing kidney-related health issues, especially from diabetic kidney disease contributing to 67% of kidney failure.

Low Pre-emptive Kidney Transplantation Rates and Higher Reliance on Facility-based Haemodialysis: A significant portion of Māori does not receive pre-emptive kidney transplants (table 11.1). In addition, the data in figure 11.20 indicates that Māori individuals are more likely to remain on facility-based haemodialysis during their kidney failure treatment journey than non-Māori.

Disparities in Kidney Transplantation Access and Post-Transplant Outcomes: The disparity in kidney transplantation access extends to the type of kidney donors. Māori individuals are more likely to receive kidneys from deceased donors (figure 11.14), which may indicate limited living donor options within this group. Within the Māori transplant recipients, there is a persistent gap in terms of both 5 years graft survival, Māori 76% vs. non-Māori 88%, and overall survival (figures 11.17 and 11.18). This suggests that Māori individuals who do receive kidney transplants face poorer outcomes compared to their non-Māori counterparts.

This report again highlighted the consistent equity gap amongst our Maori patients with kidney failure over the last 5 years. The renal services of Aotearoa New Zealand acknowledge Te Tiriti ō Waitangi / The Treaty of Waitangi principles. This report includes monitoring the current health provision to whānau Māori to monitor equity. These data intend to inform quality improvement within health systems and by health providers.

SUGGESTED CITATION

T Sun, C Davies, E Au, S Bateman, J Chen, K Hurst, G Irish, D Lee, H McCarthy, S McDonald, W Mulley, M Roberts, P Clayton. 46th Report, Chapter 11: Kidney Failure among Māori in Aotearoa New Zealand. Australia and New Zealand Dialysis and Transplant Registry, Adelaide, Australia. 2023. Available at: <http://www.anzdata.org.au>

NEW PATIENTS

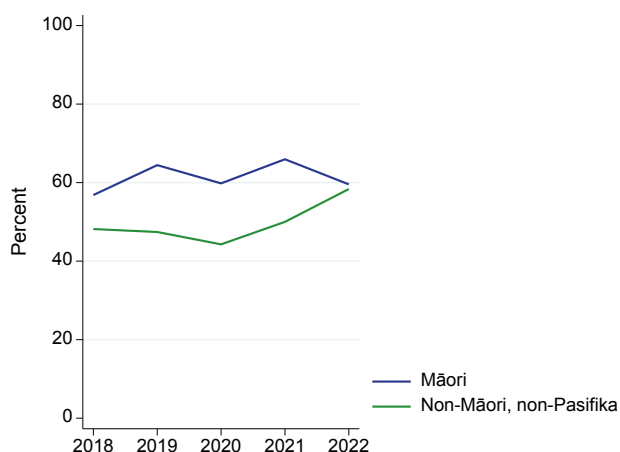
A total of 183 patients identifying as Māori commenced treatment for kidney failure in 2022, representing 27% of all patients starting kidney replacement therapy. The rate of haemodialysis commencement in non-Māori and non-Pasifika patients was 2-fold lower than for Māori. Māori were more likely to commence haemodialysis than peritoneal dialysis compared with non-Māori and non-Pasifika patients (figure 11.1). One Māori patient received a pre-emptive kidney transplant in 2022. In the last 5 years, 15 Māori patients have received a pre-emptive kidney transplant compared with 153 non-Māori and non-Pasifika patients.

Table 11.1
New Patients (per million population) Aotearoa New Zealand 2018-2022

Year	Modality	Māori	Non-Māori, non-Pasifika
2018	Haemodialysis	108 (132)	132 (36)
	Peritoneal Dialysis	80 (98)	109 (30)
	Pre-emptive Transplant	2 (2)	33 (9)
2019	Haemodialysis	136 (163)	138 (37)
	Peritoneal Dialysis	74 (89)	123 (33)
	Pre-emptive Transplant	1 (1)	30 (8)
2020	Haemodialysis	128 (150)	147 (39)
	Peritoneal Dialysis	81 (95)	148 (39)
	Pre-emptive Transplant	5 (6)	37 (10)
2021	Haemodialysis	122 (139)	177 (47)
	Peritoneal Dialysis	57 (65)	144 (38)
	Pre-emptive Transplant	6 (7)	33 (9)
2022	Haemodialysis	109 (122)	206 (55)
	Peritoneal Dialysis	73 (82)	127 (34)
	Pre-emptive Transplant	1 (1)	20 (5)

28 excluded due to unreported ethnicity.

Figure 11.1
Percentage of New Patients Commencing on Haemodialysis - Aotearoa New Zealand 2018-2022



PRIMARY KIDNEY DISEASE

The primary kidney diseases of incident Aotearoa New Zealand patients over 2018-2022 are in table 11.2. Māori patients experience diabetic kidney disease at a substantially higher rate than non-Māori, non-Pasifika patients.

Table 11.2
Primary Kidney Disease of New Patients Aotearoa New Zealand 2018-2022

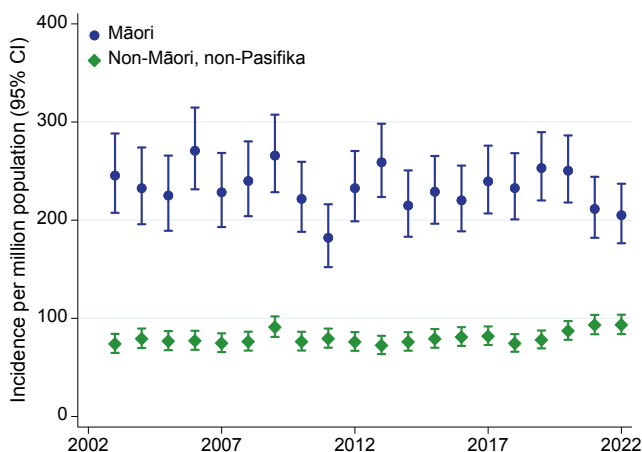
Primary Kidney Disease	Māori	Non-Māori, non-Pasifika
Diabetic kidney disease	660 (67%)	491 (31%)
Glomerular disease	127 (13%)	404 (25%)
Hypertension / Renal vascular disease	54 (5%)	216 (13%)
Familial / hereditary kidney diseases	22 (2%)	157 (10%)
Tubulointerstitial disease	55 (6%)	162 (10%)
Other systemic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

28 excluded due to unreported ethnicity.

INCIDENCE RATES

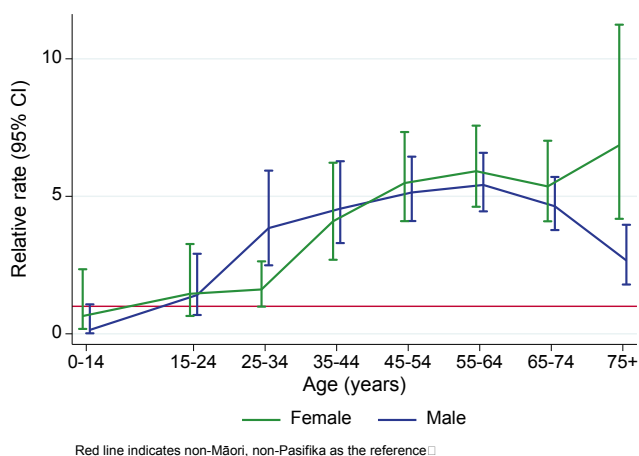
Overall, the incidence rates of kidney failure for Māori patients are markedly and persistently higher than those for non-Māori and non-Pasifika patients (figure 11.2). The inequity is confounded and underestimated by the age distributions of each population with Māori populations being considerably younger.

Figure 11.2
Unadjusted Incident KRT Rate - Aotearoa New Zealand



The disparities in the incidence of kidney failure in Māori persons, compared to non-Māori, non-Pasifika persons, occur as early as ages 15 to 24 years and are evident across all age groups above this (figure 11.3).

Figure 11.3
Relative Incidence Rate of Treated Kidney Failure for Māori Patients compared with non-Māori, non-Pasifika Patients by Gender - Aotearoa New Zealand 2018-2022



Age specific trends in kidney replacement therapy practices for Māori are shown in figure 11.4; note that the Y axis scales vary.

Figure 11.4.1
Age-specific Incidence Rates of Treated Kidney Failure - Māori, Aotearoa New Zealand 2003-2022

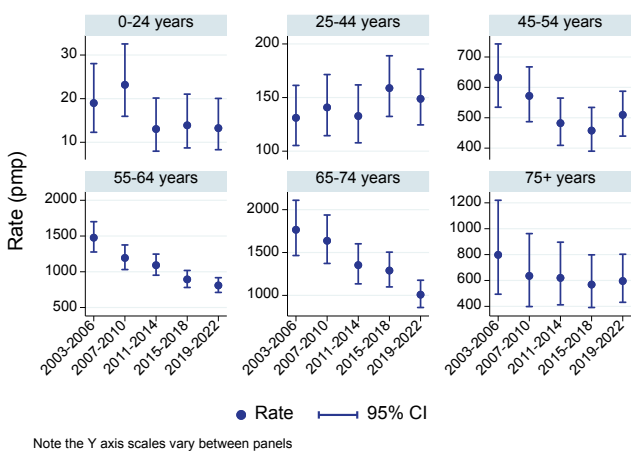
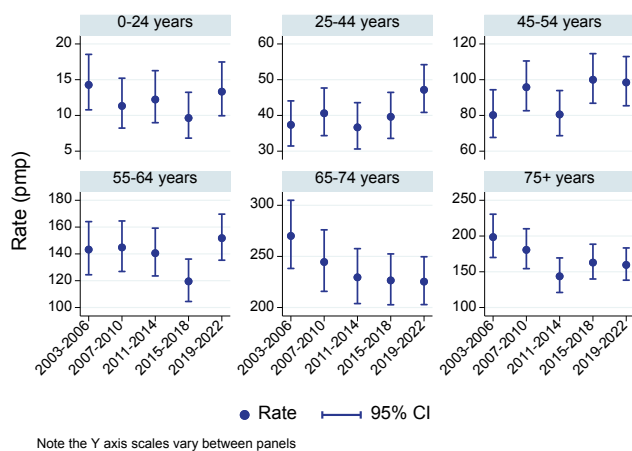


Figure 11.4.2
Age-specific Incidence Rates of Treated Kidney Failure - Non-Māori, non-Pasifika, Aotearoa New Zealand 2003-2022



PREVALENT PATIENTS

The number of prevalent patients with treated kidney failure by treatment modality for Māori and non-Māori, non-Pasifika persons is shown in table 11.3 and figures 11.5 and 11.6.

Table 11.3
Prevalent Patients by Ethnicity and Treatment Modality Aotearoa New Zealand 2018-2022

Year	Modality	Māori	Non-Māori, non-Pasifika
2018	HD	663 (57%)	703 (26%)
	HD at home* (% of HD)	138 (21%)	187 (27%)
	PD	267 (23%)	425 (16%)
	Transplant	234 (20%)	1560 (58%)
2019	HD	680 (58%)	698 (26%)
	HD at home* (% of HD)	136 (20%)	174 (25%)
	PD	247 (21%)	401 (15%)
	Transplant	251 (21%)	1636 (60%)
2020	HD	718 (58%)	707 (25%)
	HD at home* (% of HD)	127 (18%)	163 (23%)
	PD	255 (21%)	429 (15%)
	Transplant	267 (22%)	1706 (60%)
2021	HD	761 (60%)	799 (27%)
	HD at home* (% of HD)	122 (16%)	167 (21%)
	PD	226 (18%)	427 (14%)
	Transplant	284 (22%)	1754 (59%)
2022	HD	741 (59%)	858 (28%)
	HD at home* (% of HD)	116 (16%)	164 (19%)
	PD	214 (17%)	413 (14%)
	Transplant	300 (24%)	1778 (58%)

*Includes Community House HD

117 excluded due to unreported ethnicity.

Figure 11.5.1
Prevalent Patients by Modality -
Aotearoa New Zealand - Māori

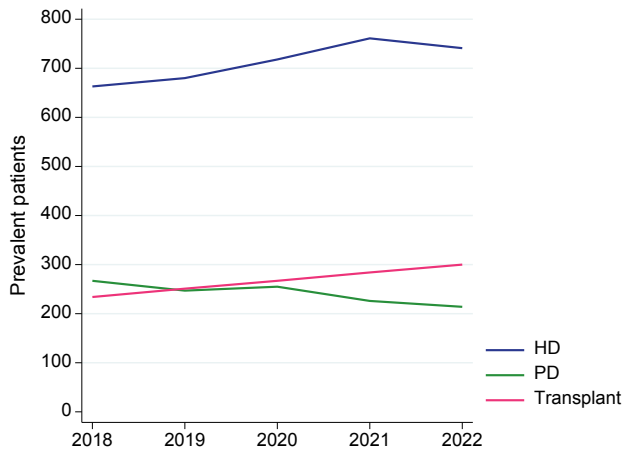


Figure 11.5.2
Prevalent Patients by Modality -
Aotearoa New Zealand - Non-Māori, non-Pasifika

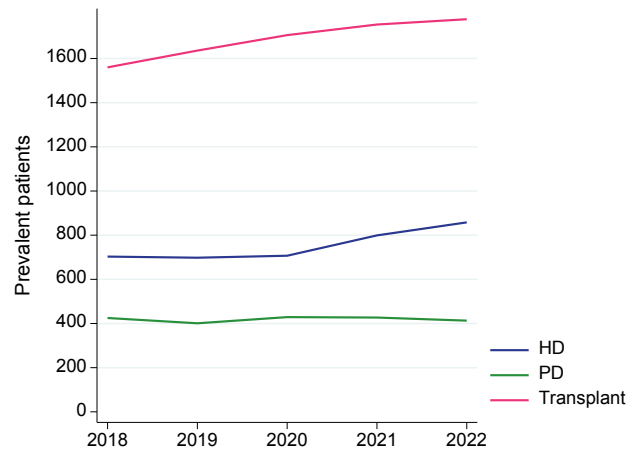
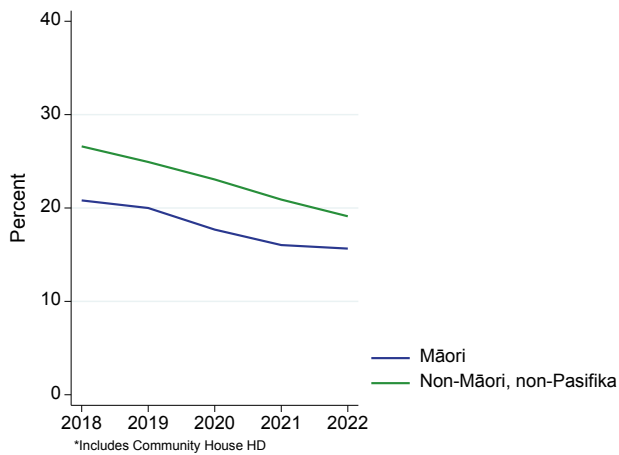


Figure 11.6
Prevalent Haemodialysis at Home* (% of all HD)
by Ethnicity - Aotearoa New Zealand



INCIDENCE AND PREVALENCE PER POPULATION

Figure 11.7
Incidence of Kidney Replacement Therapy Patients - Aotearoa New Zealand

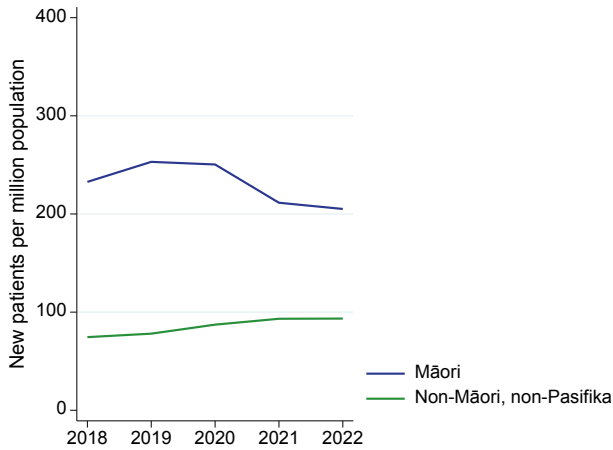


Figure 11.8
Incidence of Kidney Transplants - Aotearoa New Zealand

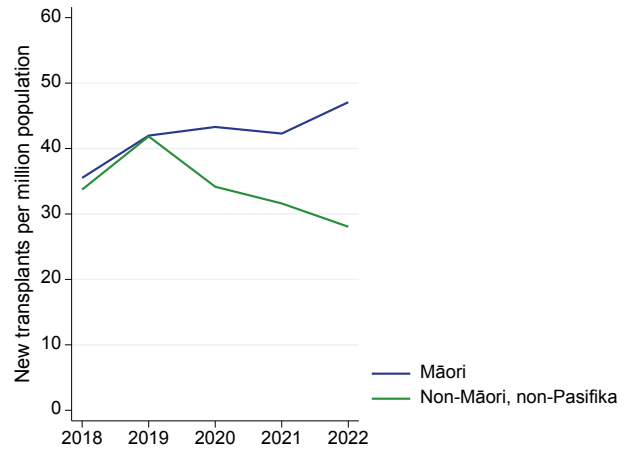


Figure 11.9
Prevalent Haemodialysis Patients - Aotearoa New Zealand

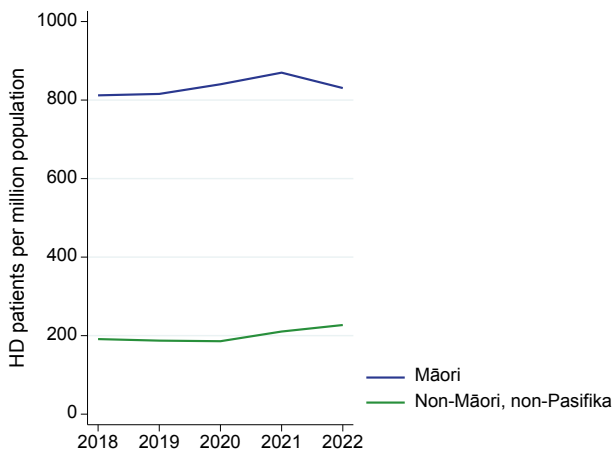


Figure 11.10
Prevalent Peritoneal Dialysis Patients - Aotearoa New Zealand

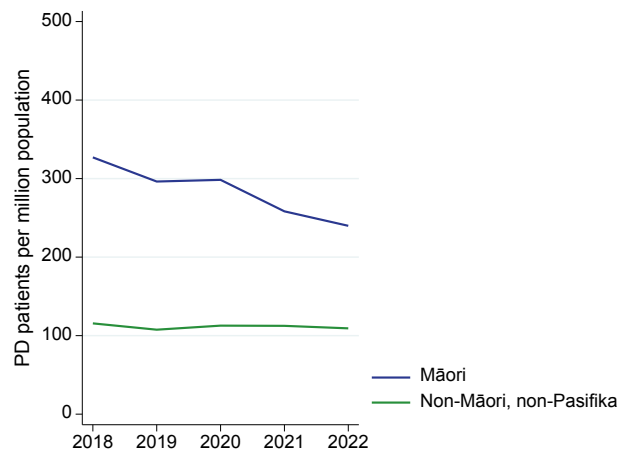


Figure 11.11
Prevalent Transplant Patients - Aotearoa New Zealand

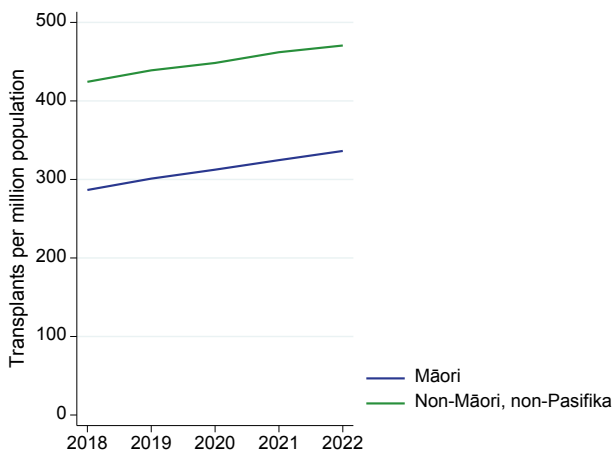
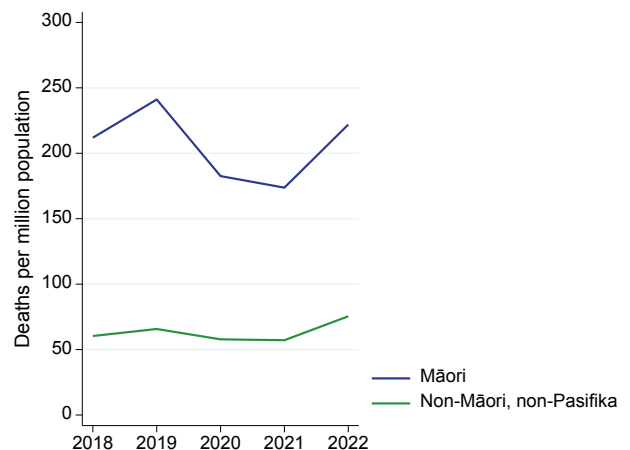


Figure 11.12
Deaths of KRT Patients - Aotearoa New Zealand



TRANSPLANTATION

The numbers of kidney transplant recipients over the last 10 years are shown in table 11.4 by ethnicity and donor type. Figure 11.13 shows the transplant rate of dialysed patients aged 15-64 years, using dialysis time as the denominator. This illustrates that Māori patients receive a kidney transplant at a much lower rate than Non-Māori, non-Pasifika patients. Information on donor sources is in figure 11.14, and trends are in figure 11.15.

Table 11.4
Number of Transplant Recipients (pmp) by Donor Type and Ethnicity Aotearoa New Zealand 2013-2022

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

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

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Figure 11.13
Transplant Rate of Dialysed Patients by Ethnicity 2013-2022 - Aotearoa New Zealand, Patients Aged 15-64

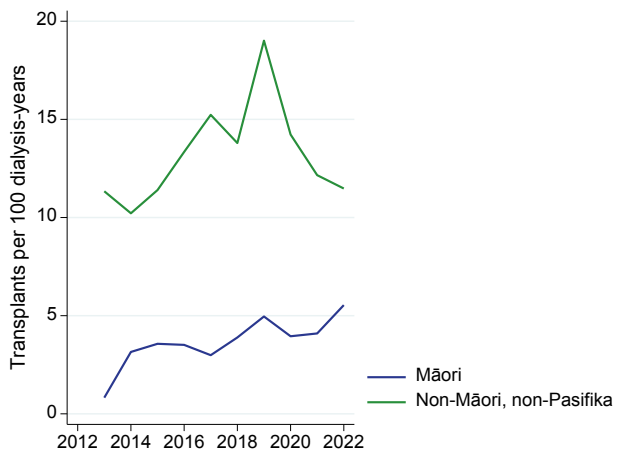


Figure 11.14
Donor Type by Ethnicity - Aotearoa New Zealand 2013-2022

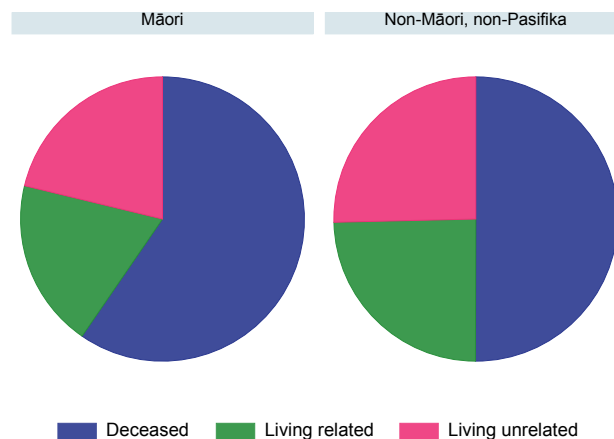


Figure 11.15
Donor Type by Ethnicity and Year - Aotearoa New Zealand

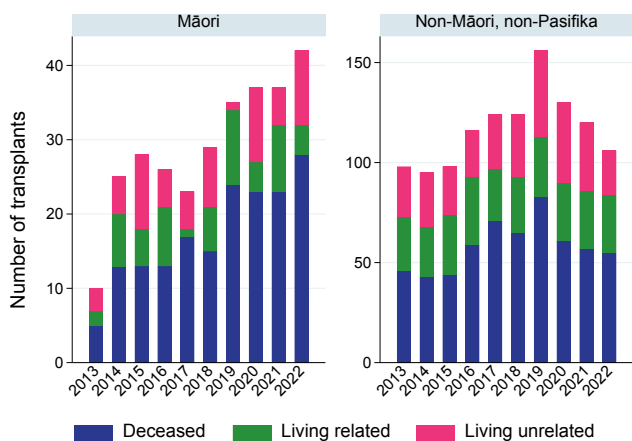
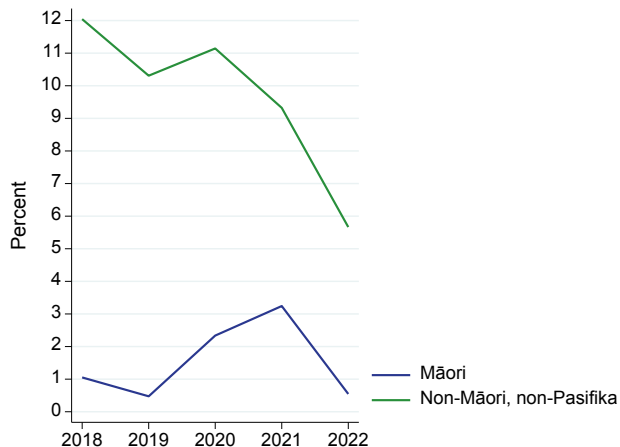


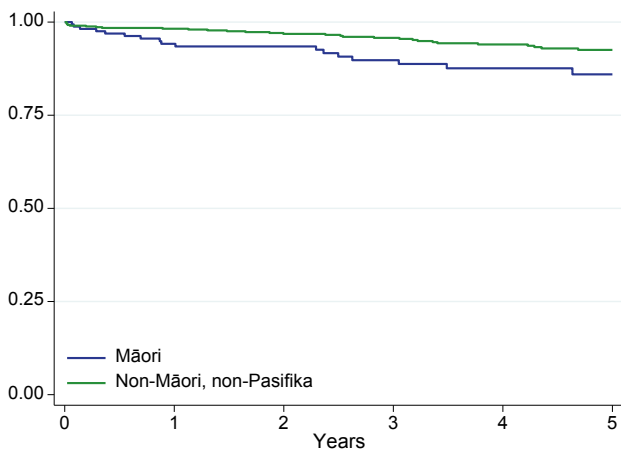
Figure 11.16
Percentage of Patients Starting Kidney Replacement Therapy with Pre-emptive Kidney Transplant - Aotearoa New Zealand



PATIENT AND TRANSPLANT SURVIVAL

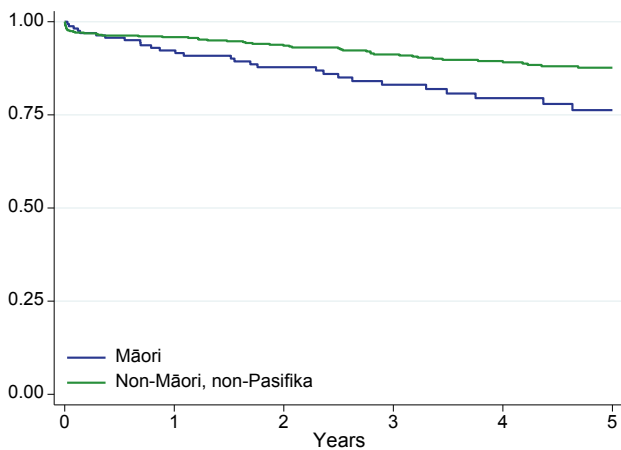
Patient survival after kidney transplantation from a deceased donor for Māori and non-Māori, non-Pasifika recipients is shown in figure 11.17. At 5 years after kidney transplantation from a deceased donor, 86% of Māori recipients and 93% of non-Māori, non-Pasifika recipients were alive.

Figure 11.17
Patient Survival, Recipients of Primary Deceased Donor Kidney Transplants - Aotearoa New Zealand 2013-2022



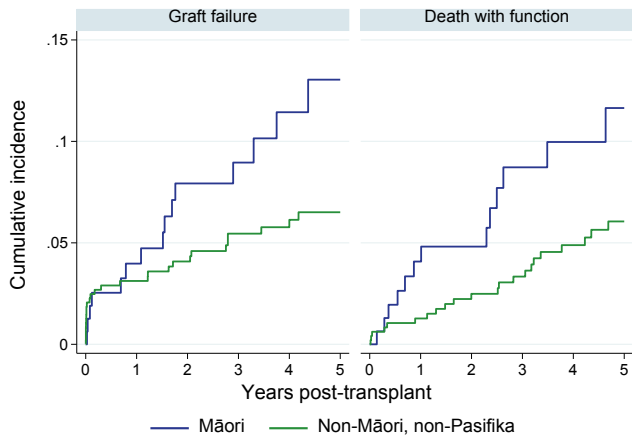
Over the first 5 years after a kidney transplant from a deceased donor, some kidney transplants are lost either through the transplant failing or the patient dying with a functioning kidney. The transplanted kidney is functioning at 5 years post-transplant in 76% of Māori recipients compared with 88% of non-Māori, non-Pasifika persons (figure 11.18).

Figure 11.18
Graft Survival, Recipients of Primary Deceased Donor Kidney Transplants - Aotearoa New Zealand 2013-2022



Cumulative incidence curves (utilising competing risk techniques to account for the effects of both components of graft loss, i.e. graft failure and death with a functioning graft) for Māori transplant outcomes are in figure 11.19.

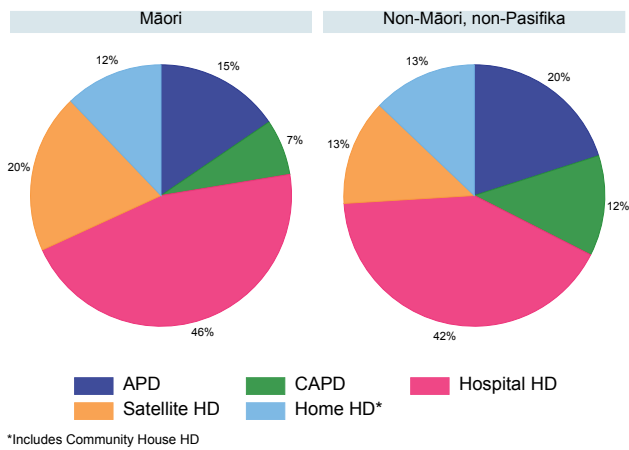
Figure 11.19
Transplant Outcomes, Aotearoa New Zealand - Primary Deceased Donor Kidney-only Transplants 2013-2022



DIALYSIS

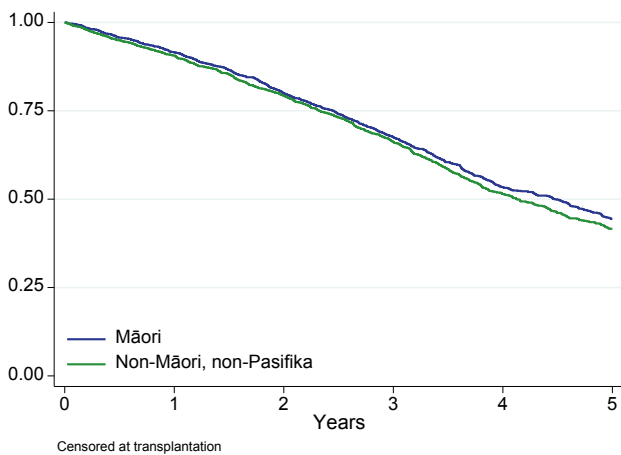
The distribution of dialysis modality is shown graphically in figure 11.20. Māori patients had higher use of facility dialysis as the principal care modality, and lower use of the home-based modalities.

Figure 11.20
Dialysis Modality End 2022 - Aotearoa New Zealand, by Ethnicity



Patient survival after incident dialysis for Māori and Non-Māori, non-Pasifika patients are in figure 11.21. Non-Māori, non-Pasifika and Māori cohorts experienced similar survival over 5 years after starting dialysis. However, the differences between populations including age distribution and access to competing treatments (transplantation), may impact mortality estimates.

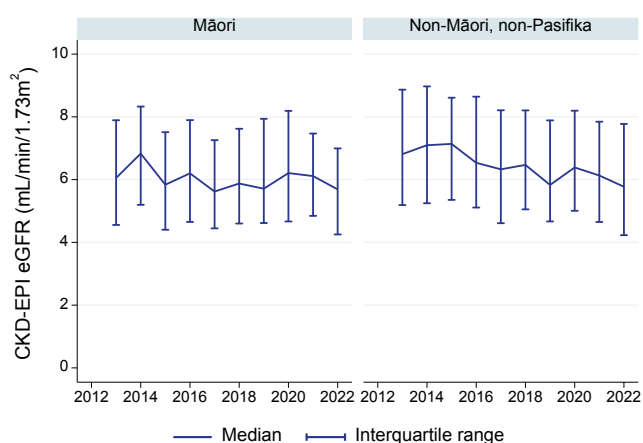
Figure 11.21
Patient Survival, Incident Dialysis Patients - Aotearoa New Zealand 2013-2022



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 11.22 by patient ethnicity.

Figure 11.22
eGFR at Dialysis Initiation - Aotearoa New Zealand



LATE REFERRAL

The proportion of patients who experienced late referral (defined as the first assessment by a specialist nephrologist within 3 months of commencing dialysis) to specialist nephrology services in Aotearoa New Zealand, over 2018-2022 by ethnicity is in table 11.5.

Table 11.5
Percentage of Late Referral by Ethnicity Aotearoa New Zealand 2018-2022

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

VASCULAR ACCESS

INCIDENT VASCULAR ACCESS

Incident vascular access data are presented in table 11.6, and prevalent data in table 11.7.

Table 11.6
Incident Vascular Access Aotearoa New Zealand 2018-2022

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

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

PREVALENT VASCULAR ACCESS

Table 11.7
Prevalent Vascular Access Aotearoa New Zealand 2018-2022

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

64 excluded due to unreported ethnicity.

PATIENT FLOW

Table 11.8 shows the overall patient flow in Aotearoa New Zealand by ethnicity. Notably, mortality for Māori patients is 3 to 4-fold higher per million of the population compared with non-Māori, non-Pasifika patients.

Table 11.8
Patient Flow (pmp) Aotearoa New Zealand 2018-2022

Year	Event	Māori	Non-Māori, non-Pasifika
2018	New patients	190 (233)	274 (75)
	New transplants	29 (36)	124 (34)
	Pre-emptive transplants	2 (2)	33 (9)
	Prevalent dialysis	930 (1139)	1128 (307)
	Prevalent transplants	234 (287)	1560 (424)
	Total prevalence	1164 (1426)	2688 (731)
	Deaths	170 (208)	217 (59)
2019	New patients	211 (253)	291 (78)
	New transplants	35 (42)	156 (42)
	Pre-emptive transplants	1 (1)	30 (8)
	Prevalent dialysis	927 (1112)	1099 (295)
	Prevalent transplants	251 (301)	1636 (439)
	Total prevalence	1178 (1413)	2735 (734)
	Deaths	197 (236)	240 (64)
2020	New patients	214 (250)	332 (87)
	New transplants	37 (43)	129 (34)
	Pre-emptive transplants	5 (6)	37 (10)
	Prevalent dialysis	973 (1139)	1136 (299)
	Prevalent transplants	267 (312)	1706 (448)
	Total prevalence	1240 (1451)	2842 (747)
	Deaths	156 (183)	216 (57)
2021	New patients	185 (211)	354 (93)
	New transplants	37 (42)	120 (32)
	Pre-emptive transplants	6 (7)	33 (9)
	Prevalent dialysis	987 (1128)	1226 (323)
	Prevalent transplants	284 (325)	1754 (462)
	Total prevalence	1271 (1453)	2980 (785)
	Deaths	150 (171)	212 (56)
2022	New patients	183 (205)	353 (93)
	New transplants	42 (47)	106 (28)
	Pre-emptive transplants	1 (1)	20 (5)
	Prevalent dialysis	955 (1071)	1271 (336)
	Prevalent transplants	300 (336)	1778 (471)
	Total prevalence	1255 (1407)	3049 (807)
	Deaths	198 (222)	281 (74)

Patients with unreported ethnicity are excluded.

CAUSE OF DEATH

The causes of death in 2022 are in figure 11.23 and table 11.9, stratified by ethnicity and modality at the time of death.

Figure 11.23
Cause of Death by Modality and Ethnicity - Deaths Occurring During 2022, Aotearoa New Zealand

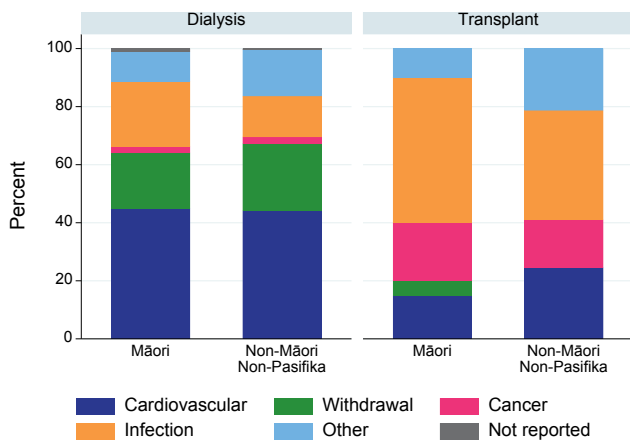


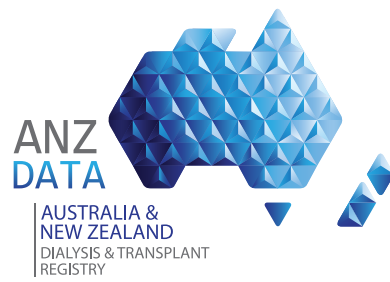
Table 11.9
Cause of Death by Modality and Ethnicity, Aotearoa New Zealand 2022

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

2 excluded due to unreported ethnicity.

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 11

Kidney Failure among Māori
in Aotearoa New Zealand