



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 the time of 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.

There are marked inequities in the incidence and prevalence of kidney failure and treatment practices in kidney replacement therapy for Māori compared to non-Maori and non-Pasifika populations in Aotearoa New Zealand.

In 2021, 182 Maori patients commenced kidney replacement therapy with a threefold higher rate of haemodialysis initiation than non-Maori and non-Pasifika populations. 60% of Maori patients are on facility-based haemodialysis compared to 27% of non-Maori non-Pacific patients. There is also a decrease in home-based dialysis therapy (home haemodialysis and peritoneal dialysis) over the last 5 years amongst the Maori population, 33% in 2021 vs 43% in 2017.

In the last 5 years, only 16 Māori patients have received a pre-emptive kidney transplant compared with 151 non-Māori, non-Pasifika patients, although there has been a slight rise in pre-emptive kidney transplants since 2019 (Figure 11.16). Overall, there is a lower rate of kidney transplantation amongst the Maori population (Figure 11.13). After transplantation, there is also a lower 5-year graft survival (73% vs 87%) and patient survival (86% vs 92%) compared to non-Maori non-Pacific patients. Notably, mortality for Māori kidney patients is 3 to 4-fold higher per million of the population compared with the non-Māori, non-Pasifika population.

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

ANZDATA Registry. 45th Report, Chapter 11: Kidney Failure in Māori patients in Aotearoa New Zealand. Australia and New Zealand Dialysis and Transplant Registry, Adelaide, Australia. 2022. Available at: <http://www.anzdata.org.au>

New Patients

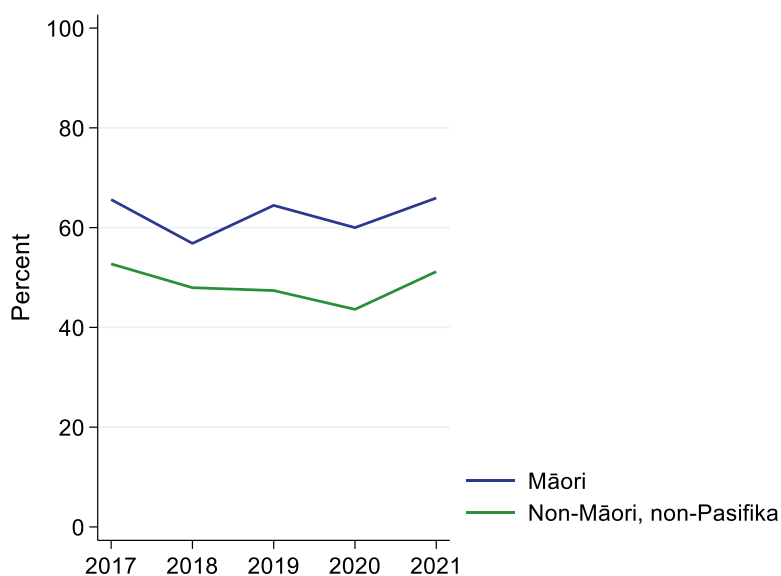
A total of 182 patients identifying as Māori commenced treatment for kidney failure in 2021, representing 26% of all patients starting kidney replacement therapy. The rate of haemodialysis commencement in non-Māori, non-Pasifika patients was 3-fold lower than for Māori. Māori were more likely to commence dialysis with haemodialysis than peritoneal dialysis compared with non-Māori, non-Pasifika patients (figure 11.1). 6 Māori patients received a pre-emptive kidney transplant in 2021. In the last 5 years, 16 Māori patients have received a pre-emptive kidney transplant compared with 151 non-Māori, non-Pasifika patients.

Table 11.1 New Patients (per million population) Aotearoa New Zealand 2017-2021

Year	Modality	Māori	Non-Māori, non-Pasifika
2017	HD	126 (157)	155 (43)
	PD	64 (80)	118 (33)
	Pre-emptive Transplant	2 (2)	21 (6)
2018	HD	108 (132)	129 (35)
	PD	80 (98)	110 (30)
	Pre-emptive Transplant	2 (2)	30 (8)
2019	HD	136 (163)	136 (36)
	PD	74 (89)	121 (32)
	Pre-emptive Transplant	1 (1)	30 (8)
2020	HD	129 (151)	140 (37)
	PD	81 (95)	144 (38)
	Pre-emptive Transplant	5 (6)	37 (10)
2021	HD	120 (138)	173 (45)
	PD	56 (64)	132 (34)
	Pre-emptive Transplant	6 (7)	33 (9)

HD: Haemodialysis, PD: Peritoneal Dialysis

Figure 11.1 - Percentage of New Patients Commencing on Haemodialysis - Aotearoa New Zealand 2017-2021



Primary Kidney Disease

The primary kidney diseases of incident Aotearoa New Zealand patients over 2017-2021 are in table 11.2. Māori patients experience diabetic kidney disease at a substantially higher rate than non-Māori, non-Pasifika patients.

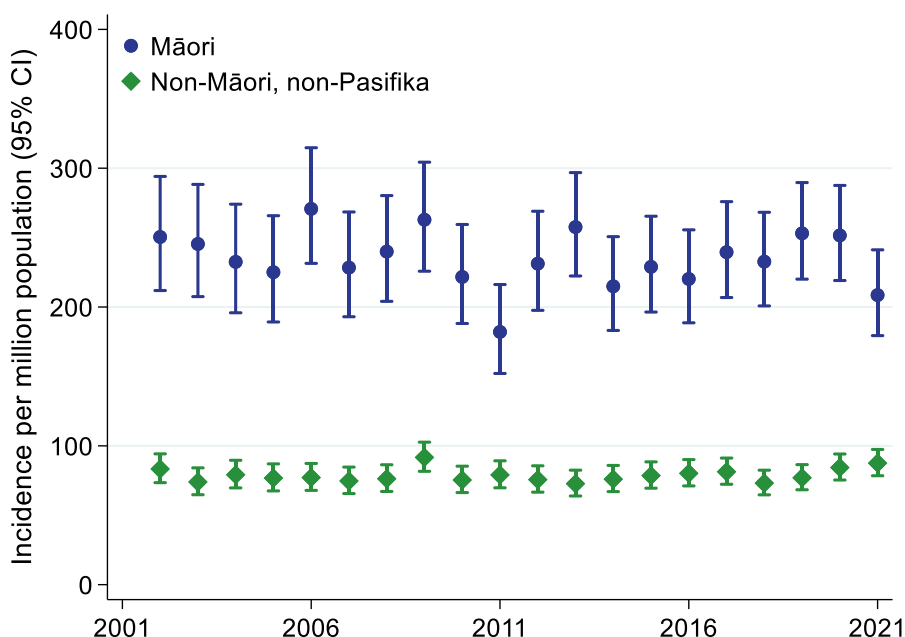
Table 11.2 Primary Kidney Disease of New Patients Aotearoa New Zealand 2017-2021

Primary Kidney Disease	Māori	Non-Māori, non-Pasifika
Diabetic Kidney Disease	653 (66%)	423 (28%)
Glomerular Disease	132 (13%)	377 (25%)
Hypertension	49 (5%)	199 (13%)
Polycystic Disease	13 (1%)	124 (8%)
Reflux Nephropathy	14 (1%)	41 (3%)
Other	96 (10%)	276 (18%)
Uncertain	29 (3%)	61 (4%)
Not reported	4 (<1%)	8 (1%)
Total	990	1509

Incidence Rates

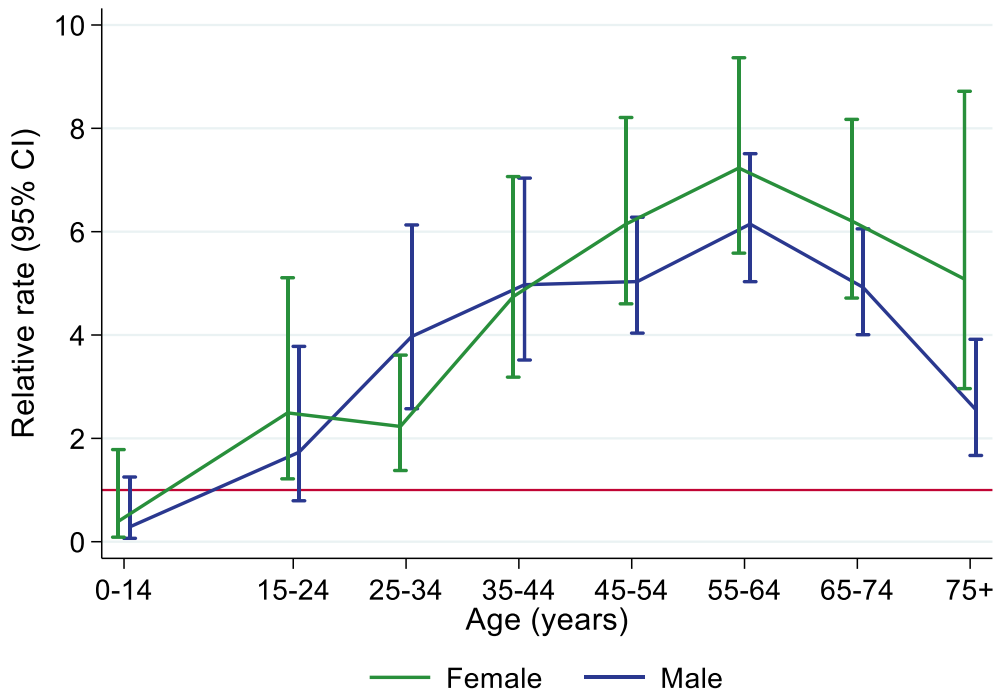
Overall, the incidence rates of kidney failure for Māori patients are markedly and persistently higher than those for non-Māori, non-Pasifika patients (figure 11.2). The disparity is confounded and underestimated by the age distributions of each population with Māori populations being considerably younger.

Figure 11.2 - Unadjusted Incident KRT Rate - Aotearoa New Zealand



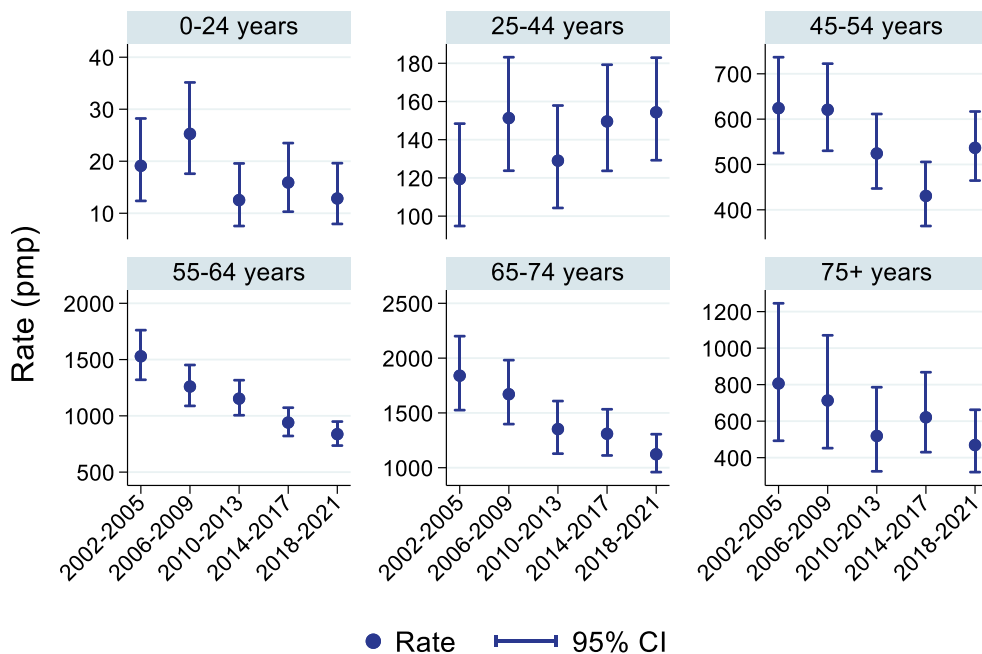
The disparities in the incidence of kidney failure in Māori persons, compared to non-Māori, non-Pasifika persons, occur as early as ages 15 to 24 years and are evident across all age groups above this (figure 11.3).

Figure 11.3 - Relative Incidence Rate of Treated Kidney Failure for Māori Patients compared with non-Māori, non-Pasifika Patients (indicated by red line) by Gender - Aotearoa New Zealand 2017-2021



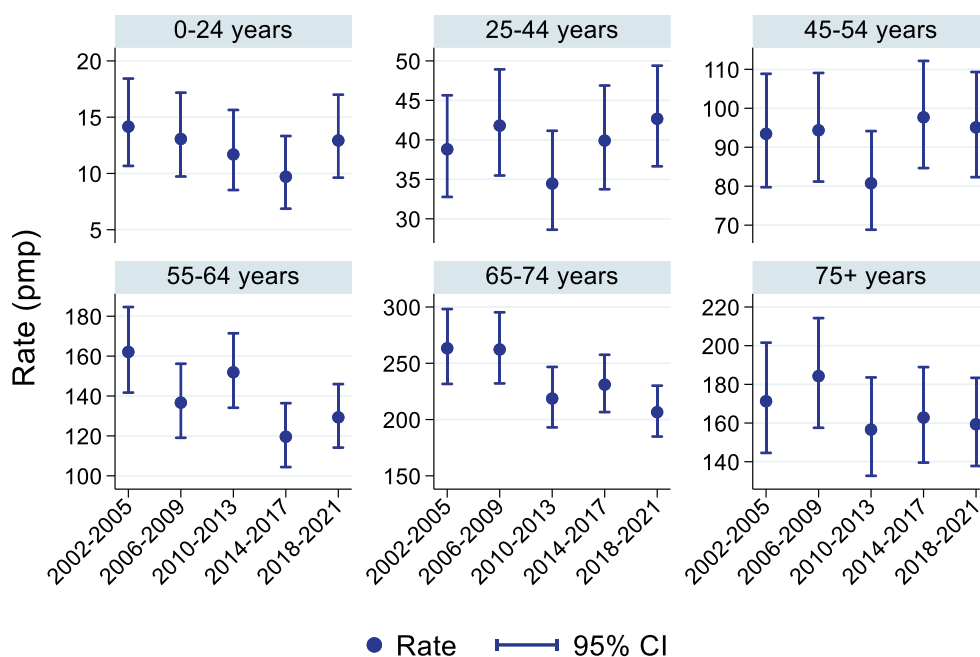
Age-specific trends in kidney replacement therapy practices for Māori shown in figure 11.4; note that the Y-axis scales vary.

Figure 11.4.1 - Age-specific Incidence Rates of Treated Kidney Failure - Māori, Aotearoa New Zealand 2002-2021



Note the Y axis scales vary between panels

Figure 11.4.2 - Age-specific Incidence Rates of Treated Kidney Failure - Non-Māori, non-Pasifika, Aotearoa New Zealand 2002-2021



Note the Y axis scales vary between panels

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 New Zealand 2017-2021

Year	Modality	Māori	Non-Māori, non-Pasifika
2017	HD	668 (59%)	679 (26%)
	% HD at home*	21%	28%
	PD	254 (22%)	441 (17%)
	Transplant	213 (19%)	1508 (57%)
2018	HD	660 (57%)	695 (26%)
	% HD at home*	20%	27%
	PD	266 (23%)	424 (16%)
	Transplant	231 (20%)	1550 (58%)
2019	HD	677 (58%)	688 (25%)
	% HD at home*	20%	26%
	PD	246 (21%)	399 (15%)
	Transplant	251 (21%)	1629 (60%)
2020	HD	716 (58%)	696 (25%)
	% HD at home*	17%	24%
	PD	254 (21%)	426 (15%)
	Transplant	267 (22%)	1700 (60%)
2021	HD	760 (60%)	790 (27%)
	% HD at home*	15%	21%
	PD	225 (18%)	414 (14%)
	Transplant	283 (22%)	1759 (59%)

*Includes Community House HD

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

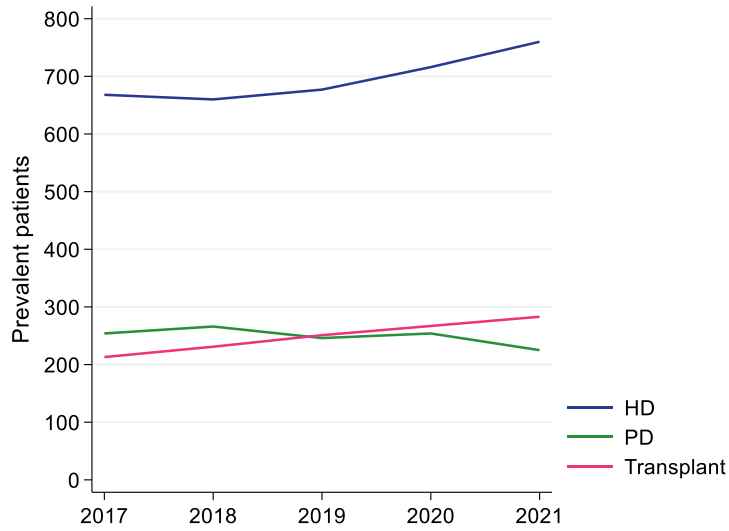


Figure 11.5.2 - Prevalent Patients by Modality - Aotearoa New Zealand - Non-Māori, non-Pasifika

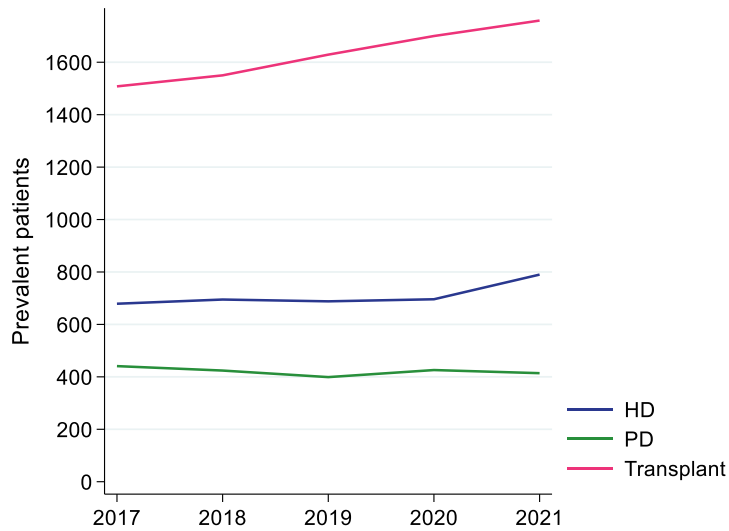
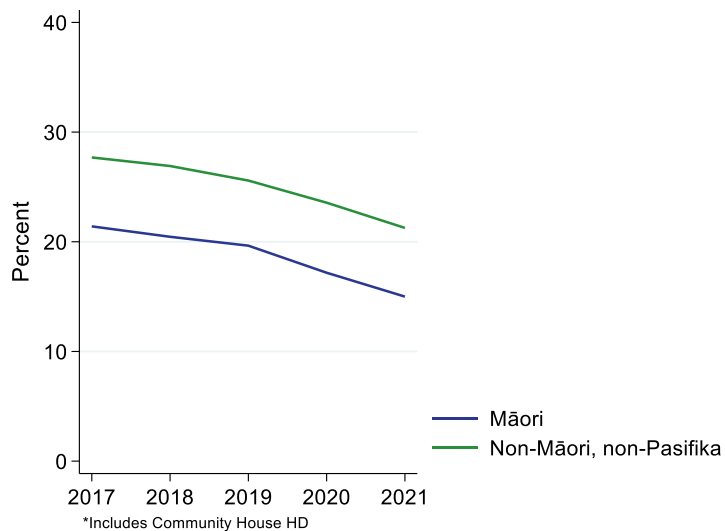


Figure 11.6 - Prevalent Haemodialysis at Home* (% of all HD) by Ethnicity - Aotearoa New Zealand



Incidence and Prevalence per Population

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

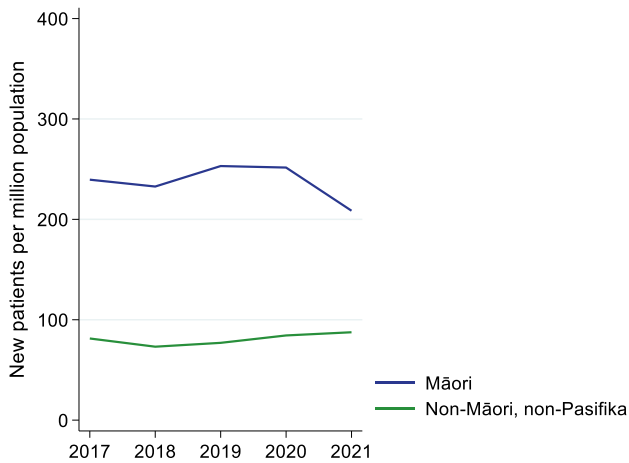


Figure 11.8 - Incidence of New Transplants - Aotearoa New Zealand

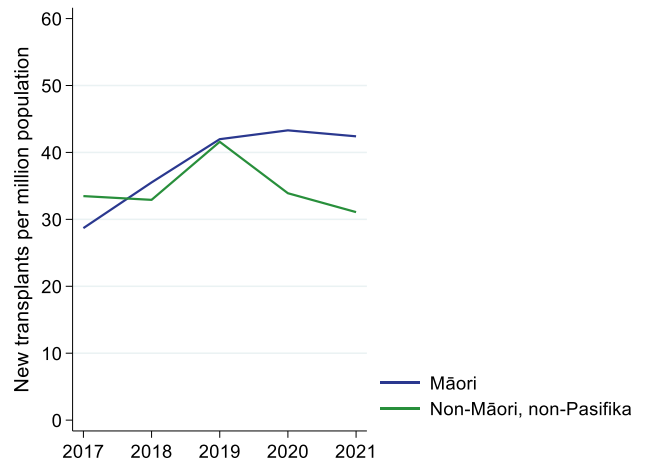


Figure 11.9 - Prevalent Haemodialysis Patients - Aotearoa New Zealand

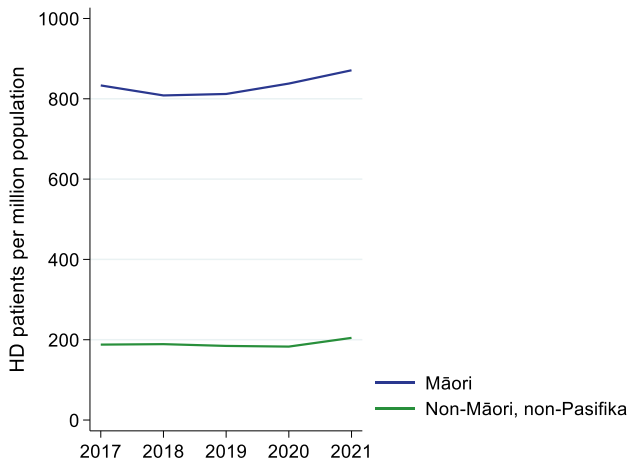


Figure 11.10 - Prevalent Peritoneal Dialysis Patients - Aotearoa New Zealand

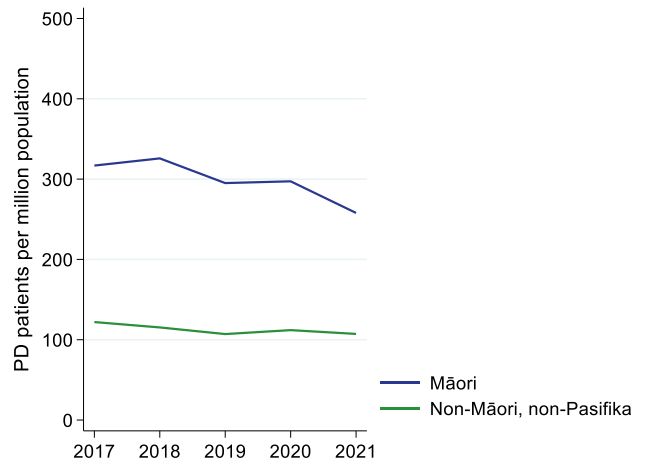


Figure 11.11 - Prevalent Transplant Patients - Aotearoa New Zealand

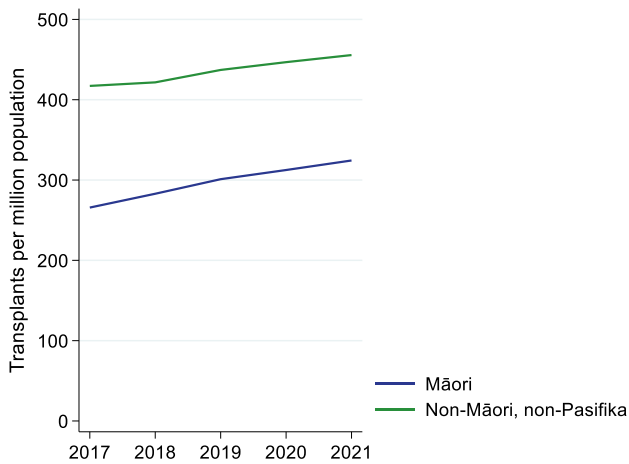
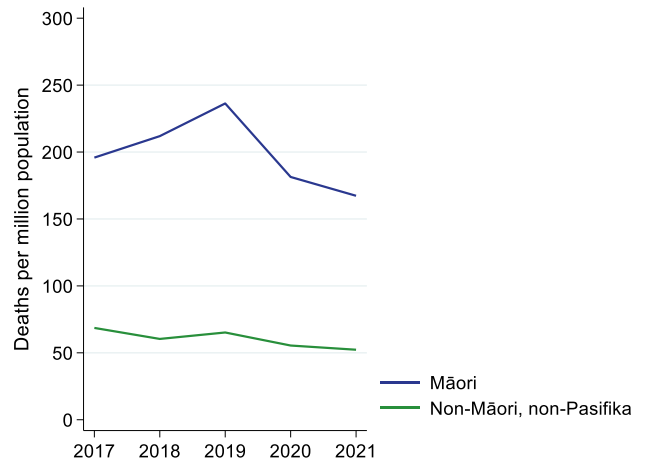


Figure 11.12 - Deaths of KRT Patients - Aotearoa New Zealand



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, 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 New Zealand 2012-2021

Year	Donor Type	Māori	Non-Māori, non-Pasifika
2012	DD	11 (15)	37 (11)
	LD	4 (6)	48 (14)
	Total	15 (21)	85 (26)
2013	DD	5 (7)	46 (14)
	LD	5 (7)	52 (16)
	Total	10 (13)	98 (29)
2014	DD	13 (17)	43 (13)
	LD	10 (13)	54 (16)
	Total	23 (31)	97 (29)
2015	DD	13 (17)	44 (13)
	LD	15 (20)	54 (16)
	Total	28 (36)	98 (28)
2016	DD	13 (17)	58 (16)
	LD	13 (17)	56 (16)
	Total	26 (33)	114 (32)
2017	DD	17 (21)	70 (19)
	LD	6 (7)	51 (14)
	Total	23 (29)	121 (33)
2018	DD	15 (18)	65 (18)
	LD	14 (17)	56 (15)
	Total	29 (36)	121 (33)
2019	DD	24 (29)	82 (22)
	LD	11 (13)	73 (20)
	Total	35 (42)	155 (42)
2020	DD	23 (27)	60 (16)
	LD	14 (16)	69 (18)
	Total	37 (43)	129 (34)
2021	DD	23 (26)	57 (15)
	LD	14 (16)	63 (16)
	Total	37 (42)	120 (31)

DD: Deceased Donor, LD: Living Donor

Figure 11.13 - Transplant Rate of Dialysed Patients by Ethnicity 2012-2021 - Aotearoa New Zealand, Patients Aged 15-64

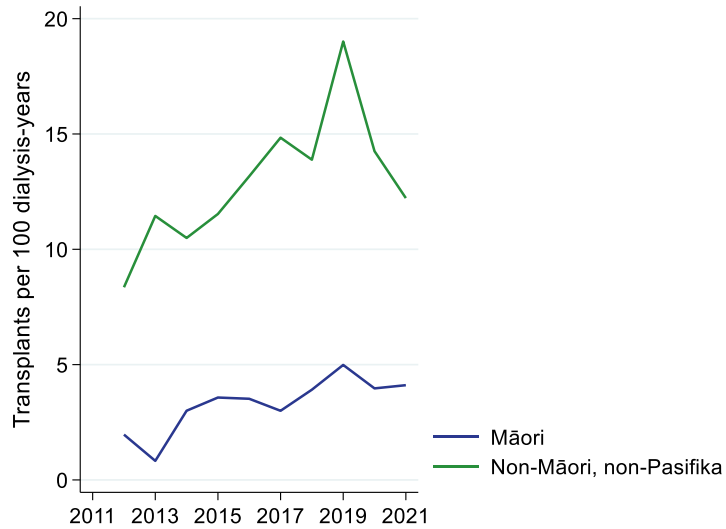


Figure 11.14 - Donor Type by Ethnicity - Aotearoa New Zealand 2012-2021

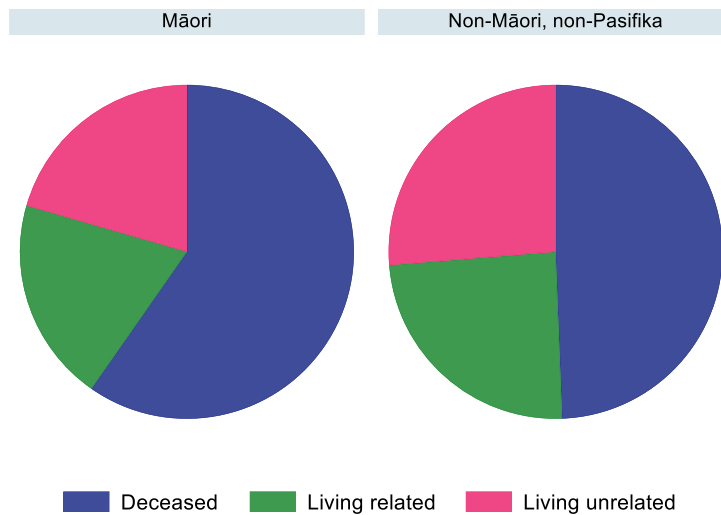


Figure 11.15 - Donor Type by Ethnicity and Year - Aotearoa New Zealand

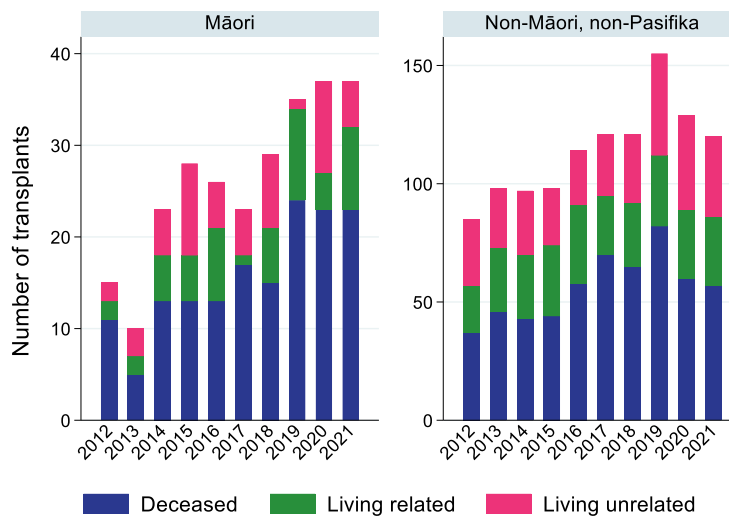
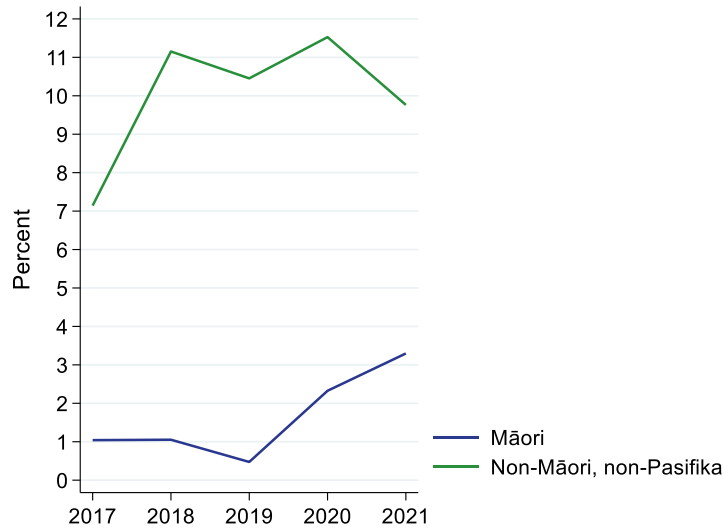


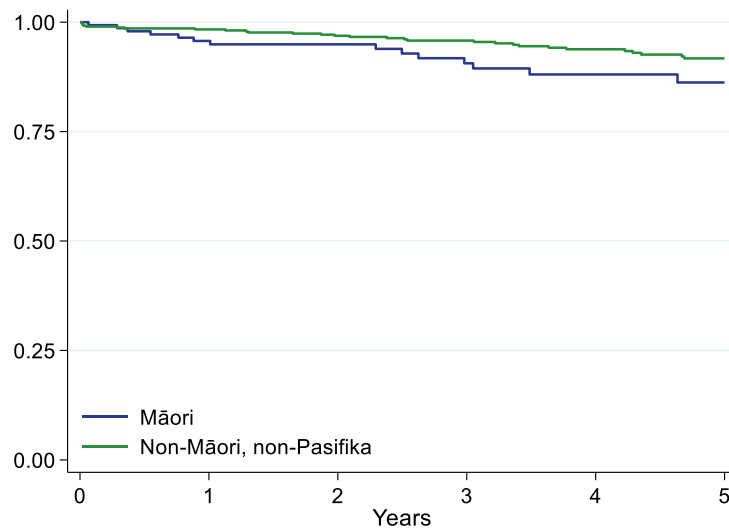
Figure 11.16 - Percentage of Patients Starting Kidney Replacement Therapy with Pre-emptive Kidney Transplant - Aotearoa New Zealand



Patient and Transplant Survival

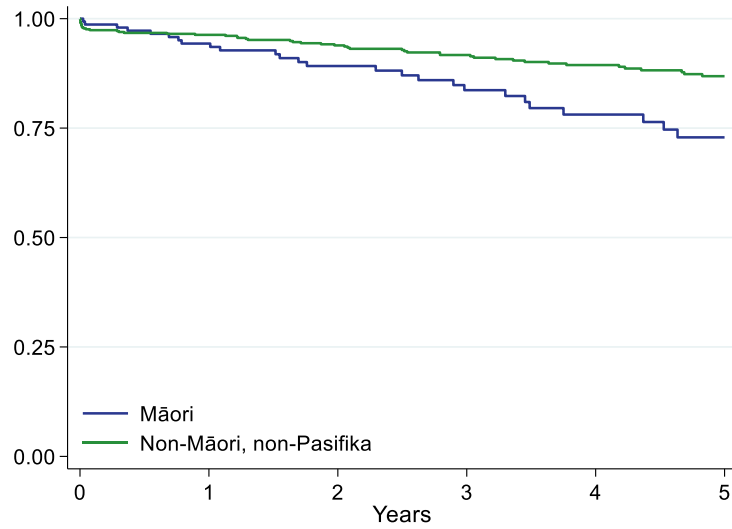
Patient survival after kidney transplantation from a deceased donor for Māori and non-Māori, non-Pasifika recipients is shown in figure 11.17. At 5 years after kidney transplantation from a deceased donor, 86% of Māori recipients and 92% of non-Māori, non-Pasifika recipients were alive.

Figure 11.17 - Patient Survival, Recipients of Primary Deceased Donor Kidney Transplants - Aotearoa New Zealand 2012-2021



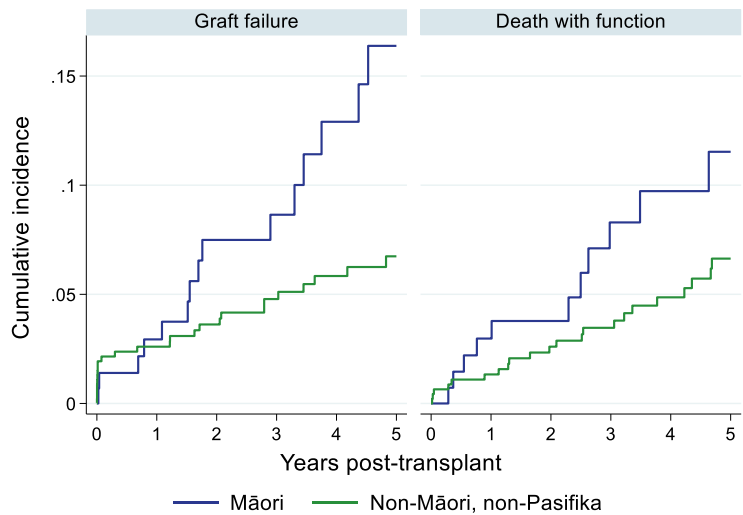
Over the first 5 years after a kidney transplant from a deceased donation, some kidney transplants are lost either through the transplant failing or the patient dying with a functioning kidney. The transplanted kidney is functioning at 5 years post-transplant in 73% of Māori recipients, compared with 87% of non-Māori, non-Pasifika persons (figure 11.18).

Figure 11.18 - Graft Survival, Recipients of Primary Deceased Donor Kidney Transplants - Aotearoa New Zealand 2012-2021



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.

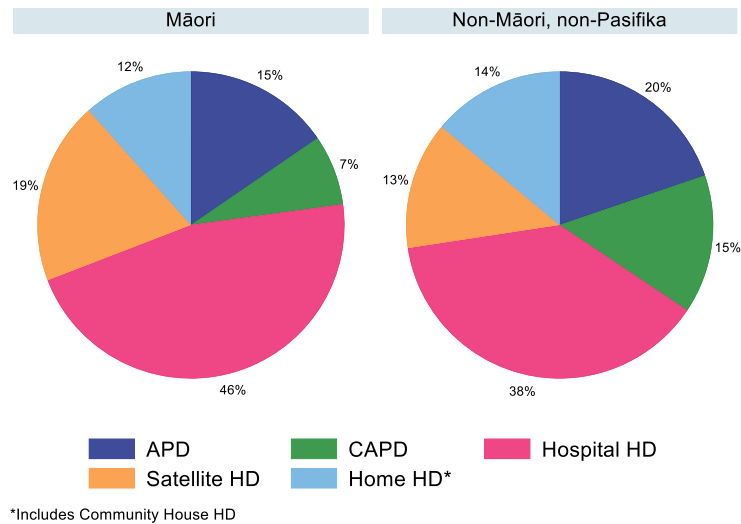
Figure 11.19 - Transplant Outcomes, Aotearoa New Zealand - Primary Deceased Donor Kidney-only Transplants 2012-2021



Dialysis

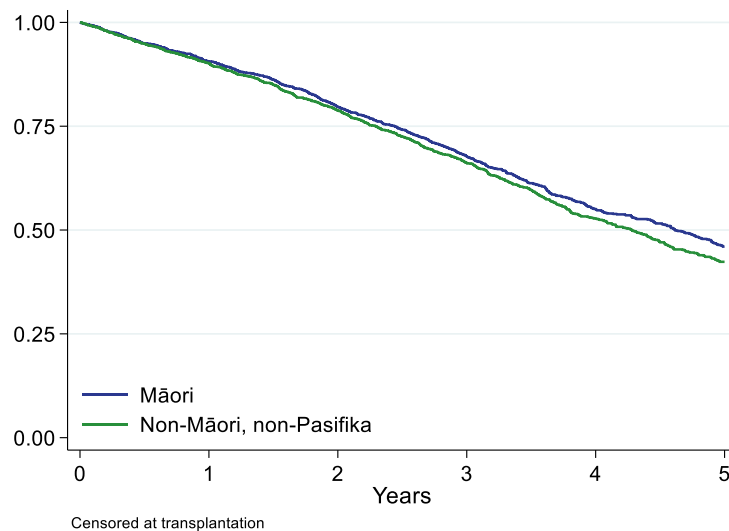
The distribution of dialysis modality is shown graphically in figure 11.20. Māori patients had higher use of facility dialysis as the principal care modality and lower use of home-based modalities.

Figure 11.20 - Dialysis Modality End 2021 - 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.

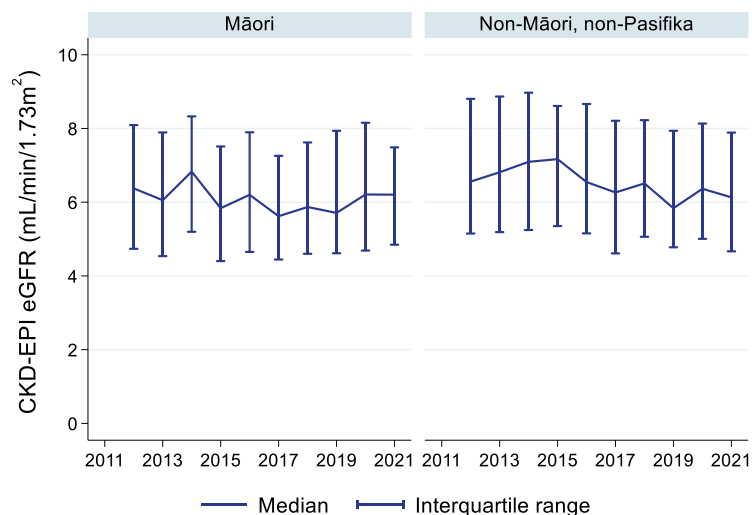
Figure 11.21 - Patient Survival, Incident Dialysis Patients - Aotearoa New Zealand 2012-2021



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 to specialist nephrology services in Aotearoa New Zealand, over 2017-2021 by ethnicity is in table 11.5.

Table 11.5 Percentage of Late Referral by Ethnicity New Zealand 2017-2021

Year	Māori	Non-Māori, non-Pasifika
2017	13%	11%
2018	14%	10%
2019	15%	13%
2020	15%	7%
2021	12%	10%

Vascular Access

Incident Vascular Access

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

Table 11.6 Incident Vascular Access New Zealand 2017-2021

Year	Vascular access	Māori	Non-Māori, non-Pasifika
2017	AVF	33 (26%)	35 (23%)
	AVG	3 (2%)	2 (1%)
	CVC	88 (70%)	116 (75%)
	Not reported	2 (2%)	2 (1%)
2018	AVF	22 (20%)	28 (22%)
	AVG	0 (0%)	2 (2%)
	CVC	86 (80%)	98 (76%)
	Not reported	0 (0%)	1 (1%)
2019	AVF	28 (21%)	33 (24%)
	AVG	0 (0%)	2 (1%)
	CVC	107 (79%)	101 (74%)
	Not reported	1 (1%)	0 (0%)
2020	AVF	22 (17%)	30 (21%)
	AVG	0 (0%)	0 (0%)
	CVC	107 (83%)	109 (78%)
	Not reported	0 (0%)	1 (1%)
2021	AVF	21 (18%)	42 (24%)
	AVG	0 (0%)	1 (1%)
	CVC	99 (83%)	129 (75%)
	Not reported	0 (0%)	1 (1%)

AVF: Arteriovenous Fistula, AVF: Arteriovenous Graft, CVC: Central Venous Catheter

Prevalent Vascular Access

Table 11.7 Prevalent Vascular Access New Zealand 2017-2021

Year	Vascular access	Māori	Non-Māori, non-Pasifika
2017	AVF	453 (68%)	416 (61%)
	AVG	26 (4%)	19 (3%)
	CVC	177 (26%)	222 (33%)
	Not reported	12 (2%)	22 (3%)
2018	AVF	444 (67%)	412 (59%)
	AVG	21 (3%)	17 (2%)
	CVC	180 (27%)	245 (35%)
	Not reported	15 (2%)	21 (3%)
2019	AVF	422 (62%)	394 (57%)
	AVG	18 (3%)	15 (2%)
	CVC	212 (31%)	250 (36%)
	Not reported	25 (4%)	29 (4%)
2020	AVF	411 (57%)	381 (55%)
	AVG	17 (2%)	11 (2%)
	CVC	251 (35%)	270 (39%)
	Not reported	37 (5%)	34 (5%)
2021	AVF	448 (59%)	397 (50%)
	AVG	11 (1%)	11 (1%)
	CVC	265 (35%)	327 (41%)
	Not reported	36 (5%)	55 (7%)

Patient Flow

Table 11.8 shows the overall patient flow in 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) New Zealand 2017-2021

Year	Event	Māori	Non-Māori, non-Pasifika
2017	New patients	192 (240)	294 (81)
	New transplants	23 (29)	121 (33)
	Pre-emptive transplants	2 (2)	21 (6)
	Prevalent dialysis	922 (1150)	1120 (310)
	Prevalent transplants	213 (266)	1508 (417)
	Total prevalence	1135 (1416)	2628 (727)
	Deaths	156 (195)	244 (68)
2018	New patients	190 (233)	269 (73)
	New transplants	29 (36)	121 (33)
	Pre-emptive transplants	2 (2)	30 (8)
	Prevalent dialysis	926 (1134)	1119 (304)
	Prevalent transplants	231 (283)	1550 (422)
	Total prevalence	1157 (1417)	2669 (726)
	Deaths	170 (208)	217 (59)
2019	New patients	211 (253)	287 (77)
	New transplants	35 (42)	155 (42)
	Pre-emptive transplants	1 (1)	30 (8)
	Prevalent dialysis	923 (1107)	1087 (292)
	Prevalent transplants	251 (301)	1629 (437)
	Total prevalence	1174 (1408)	2716 (729)
	Deaths	194 (233)	239 (64)
2020	New patients	215 (252)	321 (84)
	New transplants	37 (43)	128 (34)
	Pre-emptive transplants	5 (6)	37 (10)
	Prevalent dialysis	970 (1135)	1122 (295)
	Prevalent transplants	267 (312)	1700 (447)
	Total prevalence	1237 (1448)	2822 (742)
	Deaths	155 (181)	209 (55)
2021	New patients	182 (209)	338 (88)
	New transplants	37 (42)	120 (31)
	Pre-emptive transplants	6 (7)	33 (9)
	Prevalent dialysis	985 (1129)	1204 (312)
	Prevalent transplants	283 (324)	1759 (456)
	Total prevalence	1268 (1453)	2963 (767)
	Deaths	146 (167)	201 (52)

Cause of Death

The causes of death in 2021 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 2021, Aotearoa New Zealand

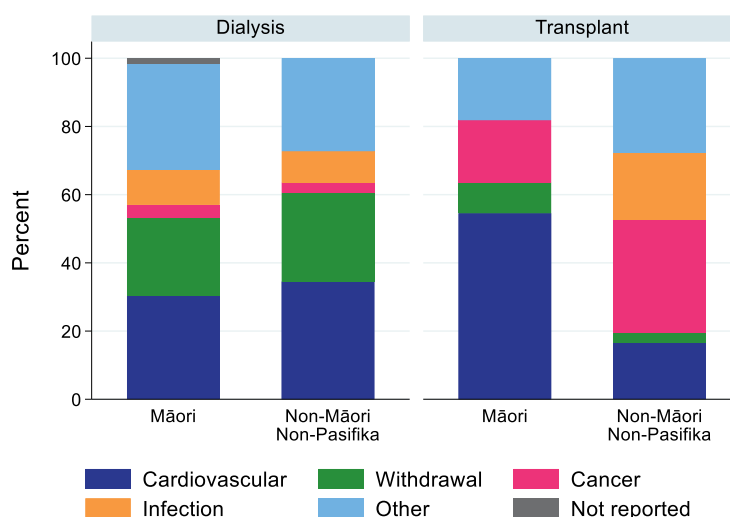


Table 11.9 Cause of Death by Modality and Ethnicity, Aotearoa New Zealand 2021

Modality	Cause of death	Māori	Non-Māori, non-Pasifika
Dialysis	Cardiovascular	41 (30%)	57 (35%)
	Withdrawal	31 (23%)	43 (26%)
	Cancer	5 (4%)	5 (3%)
	Infection	14 (10%)	15 (9%)
	Other	42 (31%)	45 (27%)
	Not reported	2 (1%)	0 (0%)
	Total		135
Transplant	Cardiovascular	6 (55%)	6 (17%)
	Withdrawal	1 (9%)	1 (3%)
	Cancer	2 (18%)	12 (33%)
	Infection	0 (0%)	7 (19%)
	Other	2 (18%)	10 (28%)
	Not reported	0 (0%)	0 (0%)
	Total		11

References

¹ This work is based on/includes Stats NZ's data licensed by Stats NZ for re-use under the Creative Commons Attribution 4.0 International licence. Stats NZ, 2021, Estimated Resident Population by Age and Sex (1991+) (Annual-Jun), NZ Infoshare, viewed 5 Jan 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>