



Australia &
New Zealand Dialysis
& Transplant Registry

Chapter 12

End Stage Kidney Disease among Indigenous Peoples of Australia and New Zealand

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Introduction

In this chapter, rates of end-stage kidney disease among Indigenous Peoples of Australia and New Zealand are presented. For Australia, these are Aboriginal and Torres Strait Islanders (TSI); for New Zealand, analyses include Māori and Pacific Peoples. ANZDATA acknowledges that Pacific Peoples are not “indigenous” to New Zealand, but have included them here as a major cultural and ethnic group in New Zealand with substantial disadvantages. In all cases, indigenous origin is reported by the renal unit on the basis of self-description.

Where population statistics are used to calculate rates, they are stratified by ethnicity. For example, the incidence of RRT in Australian indigenous patients uses the indigenous population of Australia as the denominator.

New Patients

Australia

A total of 251 Aboriginal and Torres Strait Islander patients commenced dialysis in Australia during 2014 (table 12.1). The majority (90%) were treated with haemodialysis as their initial RRT modality (figure 12.1.1). Four pre-emptive transplants were performed among Aboriginal Australians in 2014.

New Zealand

The numbers of Māori patients starting dialysis fell in 2014, whereas the number of Pacific Patients starting dialysis rose. Haemodialysis was the most common modality (figure 12.1.2). 51 (32% of total) Māori patients commenced on PD in 2014 while the proportion of Pacific Peoples starting with PD was 22%.

Table 12.1

Number (pmp) of People who commenced Renal Replacement Therapy in Australia and New Zealand

Year	Modality	Australia			New Zealand			
		Non-indigenous	Aboriginal/TSI	Total	Non-indigenous	Māori	Pacific People	Total
2010	HD	1569 (73)	172 (262)	1741 (79)	149 (45)	106 (159)	81 (241)	336 (78)
	PD	464 (22)	36 (55)	500 (23)	88 (26)	47 (71)	28 (83)	163 (38)
	Graft	101 (5)	0 (0)	101 (5)	14 (4)	2 (3)	0 (0)	16 (4)
2011	HD	1636 (75)	227 (339)	1863 (83)	156 (47)	89 (132)	73 (212)	318 (73)
	PD	523 (24)	31 (46)	554 (25)	91 (27)	41 (61)	22 (64)	154 (35)
	Graft	99 (5)	0 (0)	99 (4)	15 (4)	0 (0)	0 (0)	15 (3)
2012	HD	1618 (73)	209 (306)	1827 (80)	137 (41)	119 (174)	78 (221)	334 (76)
	PD	633 (29)	42 (61)	675 (30)	101 (30)	48 (70)	18 (51)	167 (38)
	Graft	86 (4)	0 (0)	86 (4)	16 (5)	1 (1)	1 (3)	18 (4)
2013	HD	1550 (69)	229 (328)	1779 (77)	140 (41)	127 (183)	89 (284)	356 (80)
	PD	666 (30)	42 (60)	708 (31)	96 (28)	60 (87)	23 (73)	179 (40)
	Graft	86 (4)	0 (0)	86 (4)	16 (5)	2 (3)	1 (3)	19 (4)
2014	HD	1530 (67)	227 (318)	1757 (75)	132 (39)	108 (154)	100 (269)	340 (76)
	PD	728 (32)	24 (34)	752 (32)	104 (30)	51 (73)	28 (75)	183 (41)
	Graft	97 (4)	4 (6)	101 (4)	23 (7)	0 (0)	1 (3)	24 (5)

Figure 12.1.1

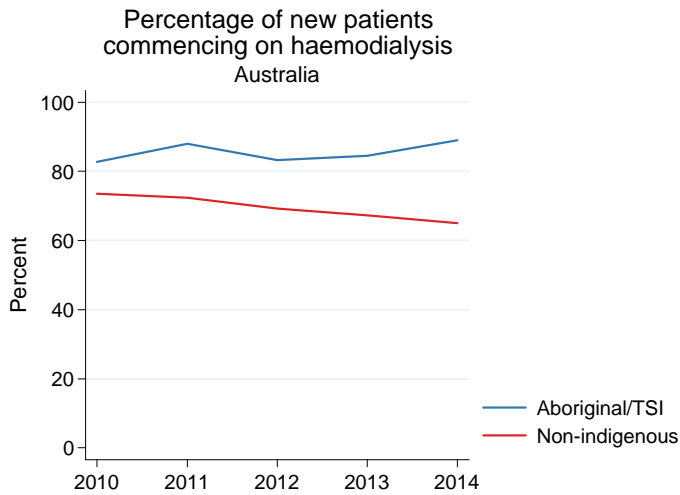
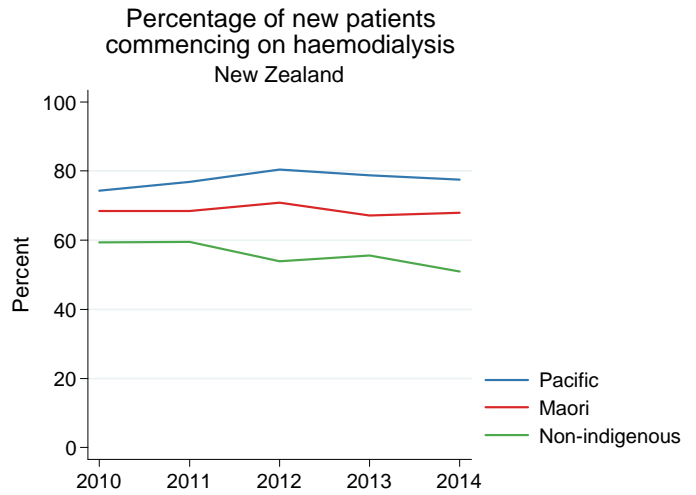


Figure 12.1.2



Primary Renal Disease

The primary renal diseases of new patients over 2010-2014 are shown in table 12.2. Diabetes is by far the most common cause of ESKD in Aboriginal and Torres Strait Islanders, Māori and Pacific Peoples, followed by glomerulonephritis.

Table 12.2

Primary Renal Disease of New Patients 2010 - 2014

Primary Renal Disease	Australia		New Zealand		
	Non-indigenous	Aboriginal/TSI	Non-indigenous	Māori	Pacific Peoples
Glomerulonephritis	2504 (22%)	117 (9%)	325 (25%)	112 (14%)	99 (18%)
Analgesic	148 (1%)	3 (<1%)	12 (1%)	1 (<1%)	1 (<1%)
Polycystic	772 (7%)	9 (1%)	108 (8%)	12 (1%)	5 (1%)
Reflux	267 (2%)	23 (2%)	40 (3%)	11 (1%)	5 (1%)
Hypertension	1630 (14%)	104 (8%)	196 (15%)	40 (5%)	25 (5%)
Diabetic Nephropathy	3692 (32%)	876 (70%)	337 (26%)	556 (69%)	357 (66%)
Other	1632 (14%)	44 (4%)	188 (15%)	35 (4%)	23 (4%)
Uncertain	591 (5%)	40 (3%)	53 (4%)	20 (2%)	7 (1%)
Not reported	150 (1%)	27 (2%)	19 (1%)	14 (2%)	21 (4%)
Total	11386	1243	1278	801	543

Incidence Rates

Overall, the incidence rates (per million population) of indigenous peoples in Australia and NZ are considerably higher than those for non-indigenous people. Direct comparisons are confounded by the different age distributions - the indigenous population for both countries is considerably younger than the non-indigenous population. Although rates fluctuate from year to year, in both countries the indigenous incidence rates have stabilised in recent years (figure 12.2). The relative rate differs with age and also (for Aboriginal Australians) with gender - this is illustrated in figures 12.3 and 12.4.

Figure 12.2.1

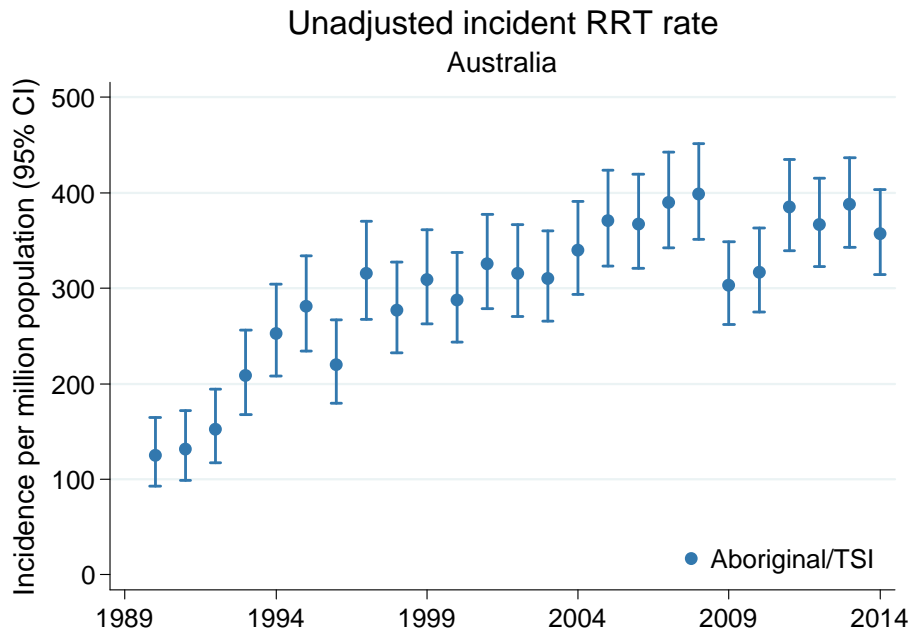
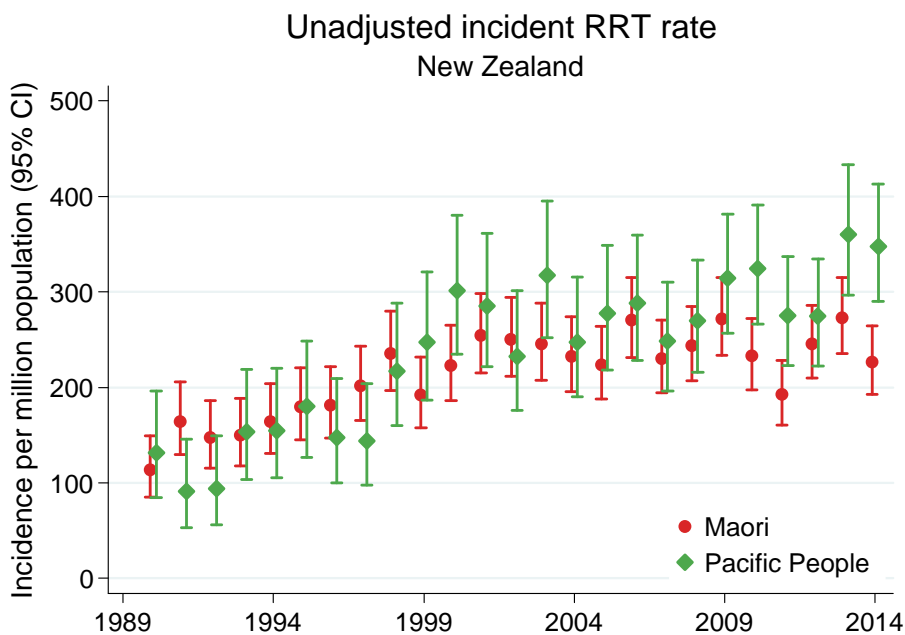


Figure 12.2.2



Among Aboriginal Australians, there is a marked excess relative rate among those aged 35-64 years. The relative rate is higher among females than males (figure 12.3).

Among Māori and Pacific People the excess rate is concentrated among older groups, and there is no gender difference (figure 12.4).

Figure 12.3

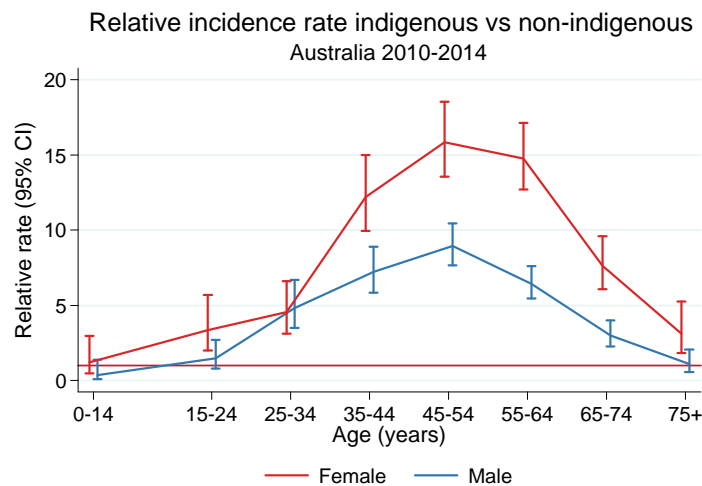
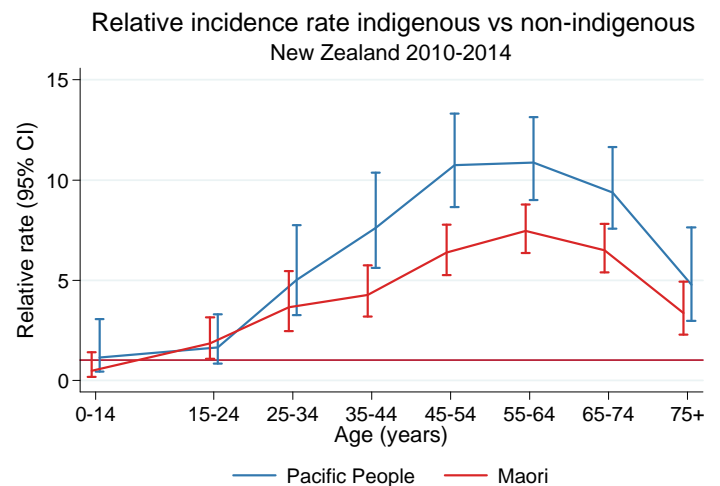


Figure 12.4



There is also considerable variation between Australian jurisdictions in the Aboriginal/TSI RRT incident rates. The incidence rates for each State/Territory can be seen in figure 12.5.

While rates for the very young (<15 years) and older (>65 years) groups are similar in each State/Territory, the rates for people 25-65 years of age show a clear trend of progressively higher rates from NSW/Victoria to Queensland then South Australia, Western Australia and the Northern Territory. Data are shown for a five year period given the small numbers in some locations.

The overall stabilisation of rates among Aboriginal Australians is seen consistently across each age group (figure 12.6). In some age groups (such as 25-44 & 65-74 years) there is a suggestion of a downwards trend. There are a number of factors which contribute to incident numbers of RRT (among both indigenous and non-indigenous people). It is not clear whether this stabilisation reflects the underlying rates of diabetes, rates of disease progression, referral patterns or other diseases.

Age specific trends for Māori and Pacific Peoples are shown in figures 12.7 and 12.8 respectively. Note that the Y axis scales vary.

Figure 12.5

Age-specific incidence rates of treated RRT among Aboriginal and TSI people, by state and age at RRT start 2010-2014

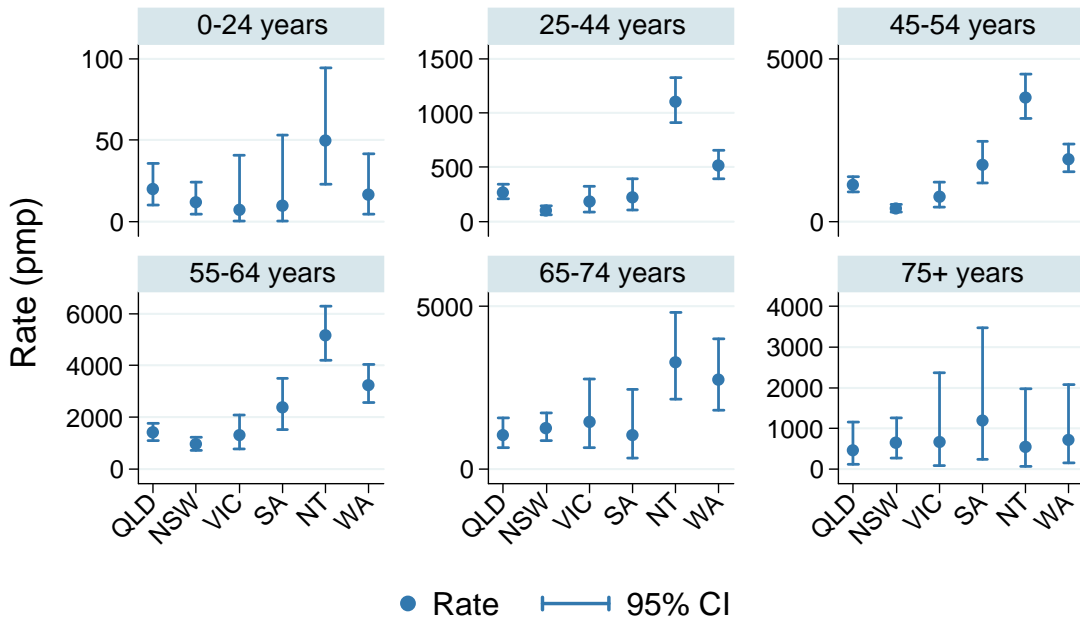


Figure 12.6

Age-specific incidence rates of treated RRT Aboriginal and TSI, Australia

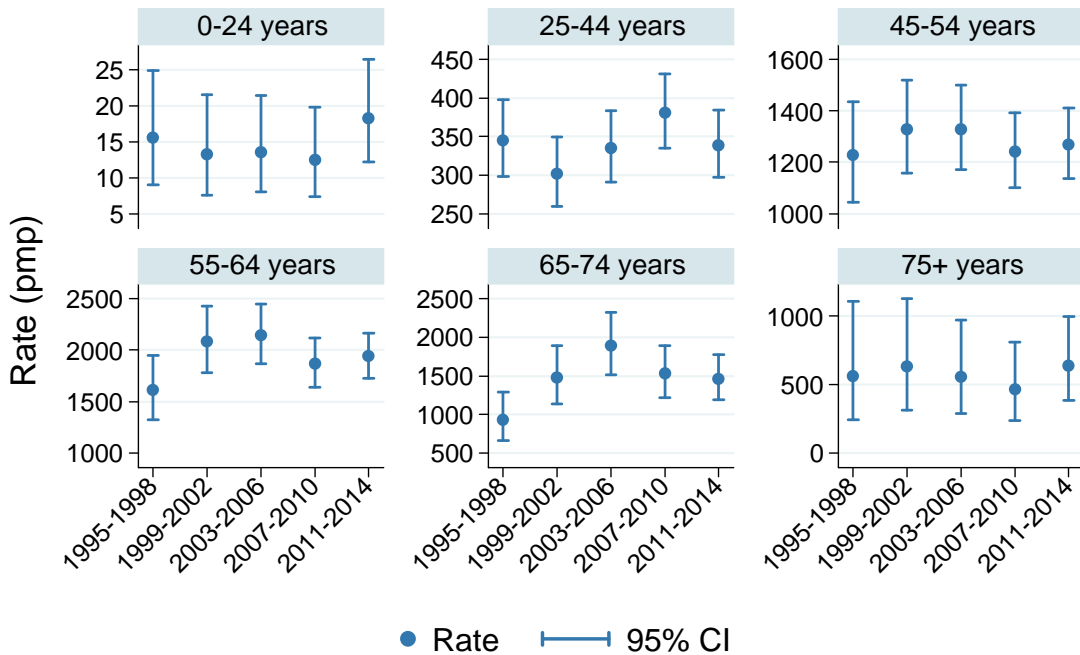


Figure 12.7

Age-specific incidence rates of treated RRT Maori, New Zealand

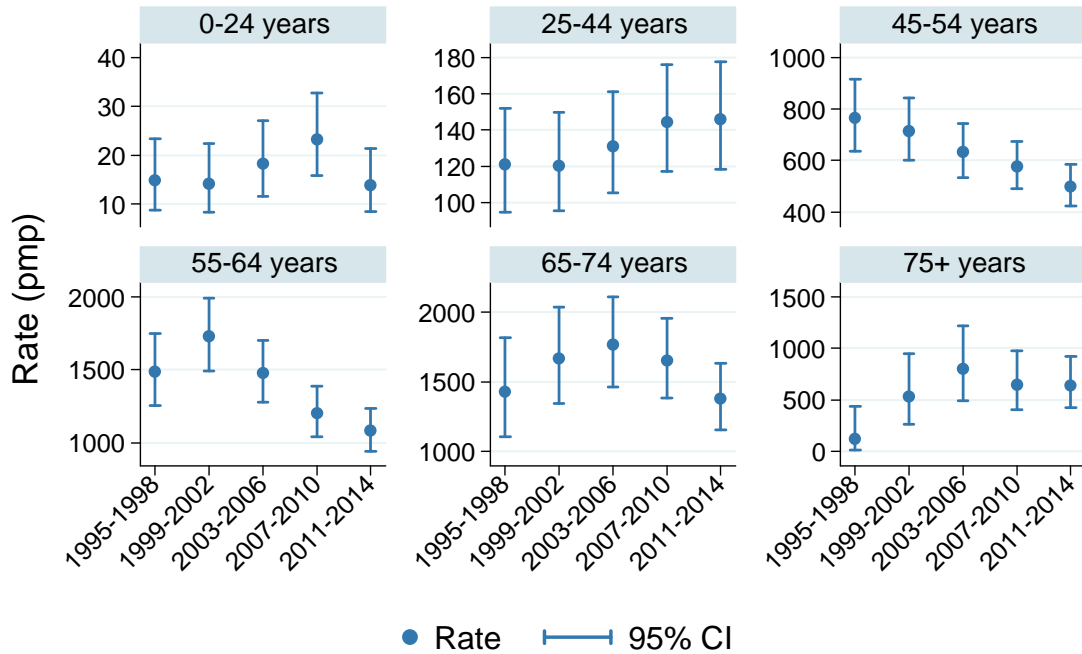
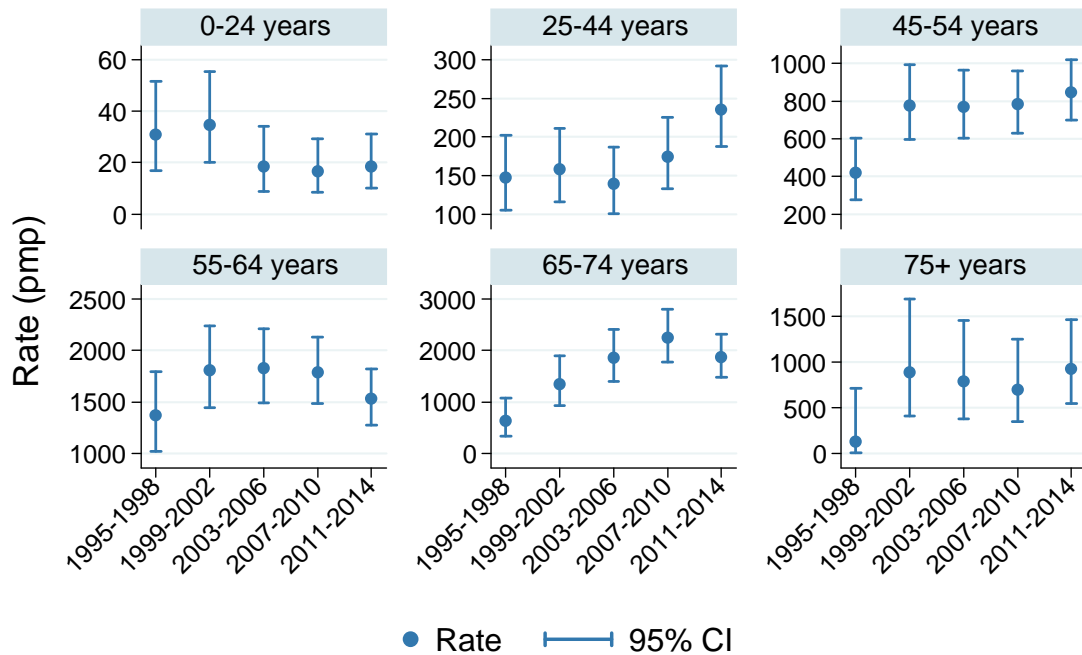


Figure 12.8

Age-specific incidence rates of treated RRT Pacific People, New Zealand



Treatment of Prevalent Patients

Australia

The number of prevalent Aboriginal and Torres Strait Islander People with treated end-stage kidney disease increased to 1772, continuing a gradual increase (table 12.3). The percentage of Aboriginal/TSI on home haemodialysis was 7% in 2014 (this includes patients who perform independent self-care dialysis in community settings).

The percentage of Aboriginal/TSI patients treated with peritoneal dialysis was steady in 2014 at 9%.

New Zealand

The number of prevalent Māori and Pacific People with treated end-stage kidney disease continues to rise (table 12.3). The percentage of Māori treated with home haemodialysis (24% of HD) remains similar to past years, whilst in Pacific People this percentage (21%) has increased since 2010.

Table 12.3

Number of People with End Stage Kidney Disease by Treatment Modality 2010 - 2014

Year	Modality	Australia		New Zealand		
		Non-indigenous	Aboriginal/TSI	Non-indigenous	Māori	Pacific People
2010	HD	7564 (42%)	1074 (77%)	628 (27%)	508 (57%)	420 (67%)
	% HD at home	12%	7%	36%	26%	17%
	PD	1947 (11%)	142 (10%)	456 (20%)	254 (29%)	122 (19%)
	Tx	8327 (47%)	178 (13%)	1228 (53%)	129 (14%)	86 (14%)
2011	HD	7816 (42%)	1175 (78%)	646 (28%)	502 (56%)	449 (68%)
	% HD at home	12%	6%	36%	25%	16%
	PD	1945 (11%)	135 (9%)	429 (18%)	247 (28%)	119 (18%)
	Tx	8672 (47%)	191 (13%)	1256 (54%)	140 (16%)	88 (13%)
2012	HD	7983 (42%)	1274 (79%)	664 (28%)	534 (58%)	492 (71%)
	% HD at home	12%	7%	38%	24%	18%
	PD	2100 (11%)	147 (9%)	426 (18%)	240 (26%)	111 (16%)
	Tx	9073 (47%)	192 (12%)	1288 (54%)	148 (16%)	89 (13%)
2013	HD	8153 (41%)	1317 (79%)	660 (27%)	564 (57%)	531 (72%)
	% HD at home	13%	7%	34%	25%	21%
	PD	2152 (11%)	155 (9%)	439 (18%)	286 (29%)	109 (15%)
	Tx	9463 (48%)	205 (12%)	1333 (55%)	147 (15%)	94 (13%)
2014	HD	8209 (40%)	1410 (80%)	685 (28%)	610 (59%)	564 (72%)
	% HD at home	13%	7%	33%	24%	21%
	PD	2331 (11%)	141 (8%)	434 (17%)	270 (26%)	115 (15%)
	Tx	9922 (48%)	221 (12%)	1366 (55%)	158 (15%)	104 (13%)

New Transplants

In both Australia and New Zealand numbers of transplants to indigenous recipients were low (table 12.4). Information on donor source is shown in figures 12.9 and 12.10 (showing trends). There are substantially lower rates of living donation among indigenous groups in Australia, with a lesser difference in New Zealand.

Table 12.4 Number of Transplant Recipients by Indigenous Status 2005 - 2014

Year	Donor type	Australia		New Zealand		
		Non-indigenous	Aboriginal/TSI	Non-indigenous	Māori	Pacific People
2005	DD	358	19	42	3	2
	LD	243	3	44	0	2
	Total	601	22	86	3	4
2006	DD	344	24	31	6	4
	LD	270	3	42	4	3
	Total	614	27	73	10	7
2007	DD	330	14	55	8	2
	LD	267	4	45	9	4
	Total	597	18	100	17	6
2008	DD	435	24	42	5	6
	LD	347	7	58	7	4
	Total	782	31	100	12	10
2009	DD	426	20	38	11	5
	LD	323	4	58	8	1
	Total	749	24	96	19	6
2010	DD	522	28	32	13	5
	LD	296	0	49	7	4
	Total	818	28	81	20	9
2011	DD	544	26	40	14	7
	LD	253	2	49	6	2
	Total	797	28	89	20	9
2012	DD	587	20	37	11	6
	LD	238	0	49	4	1
	Total	825	20	86	15	7
2013	DD	600	30	46	5	6
	LD	252	1	53	4	2
	Total	852	31	99	9	8
2014	DD	610	37	44	13	9
	LD	263	4	57	9	6
	Total	873	41	101	22	15

Figure 12.9

Donor source by indigenous status
2005-2014

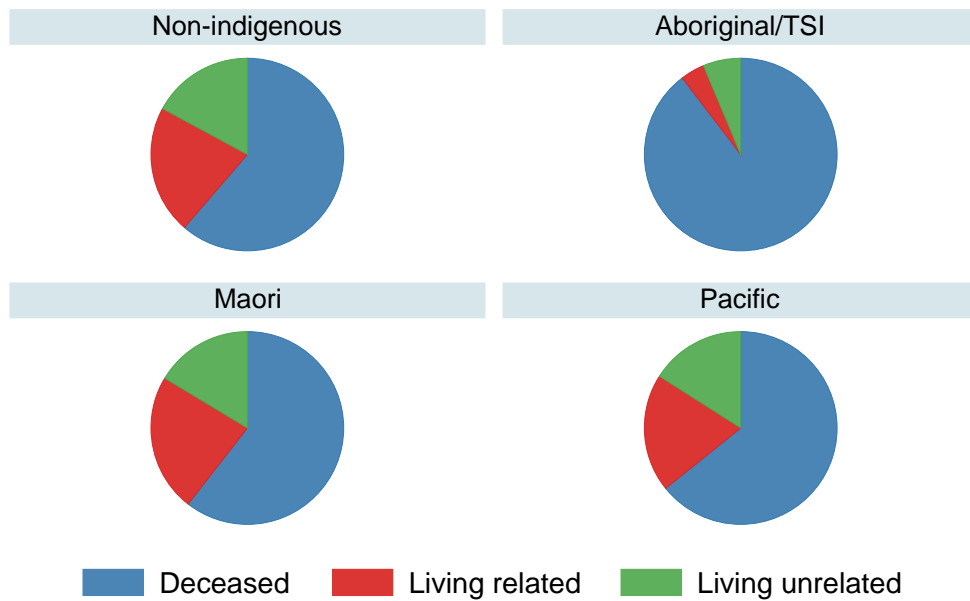
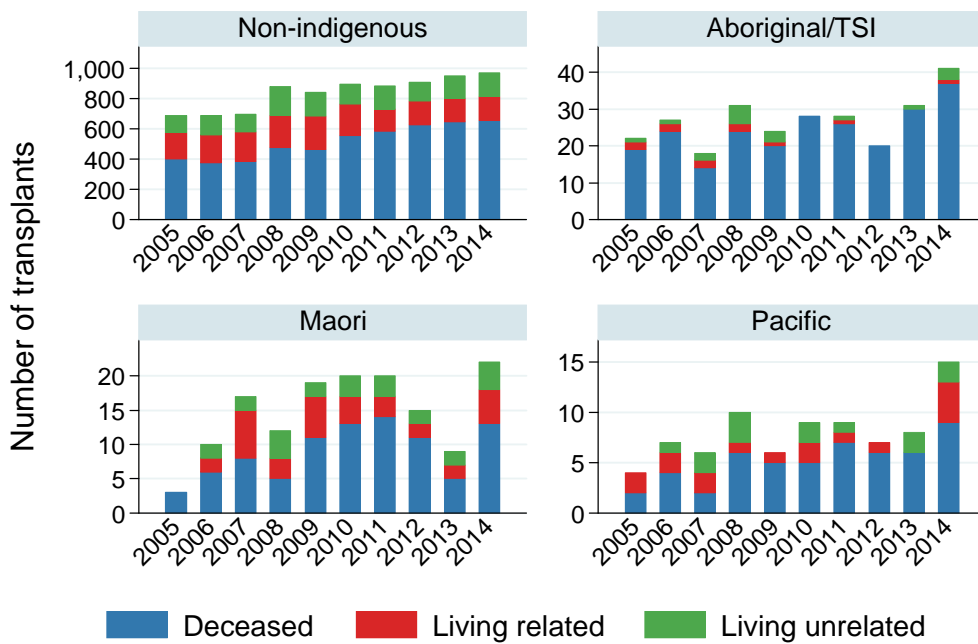


Figure 12.10

Donor source



Australia

Over the period 2005-2014 there has been a gradual, but small, increase in the number of deceased donor transplants. Numbers from living donors remain extremely low.

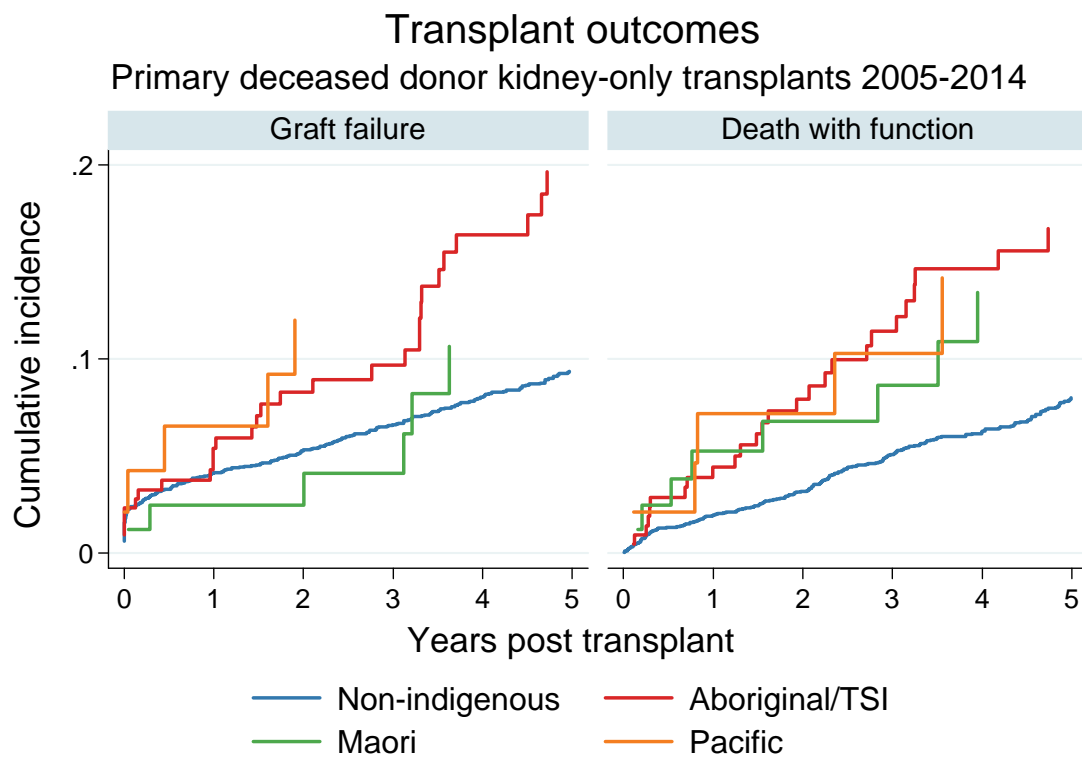
New Zealand

The number of transplants to Māori and Pacific Peoples recipients remains stable. In contrast to the situation in Australia, there is a higher proportion of transplants from living donors.

Transplant Outcomes

Cumulative incidence curves (utilising competing risk techniques to account for the effects of both components of graft failure) are shown for indigenous transplant outcomes in figure 12.11. It can be seen that for Aboriginal and TSI, there are higher rates of loss of graft function, and substantially higher rates of death with graft function compared with non-indigenous patients. Both of these differences are progressive over time. For Māori patients, the excess rate of death with function is less pronounced. Pacific People have a higher rate of graft failure; there are insufficient data to examine death with function.

Figure 12.11



Dialysis Modality

The distribution of dialysis modality is shown graphically in figure 12.12. Among indigenous Australians (figure 12.12.1), the principal differences are a substantially lower proportion of home HD and APD. Similar data are shown for New Zealand in figure 12.12.2. Again, rates of home treatments (home HD in particular) are lower among the indigenous groups.

Figure 12.12.1

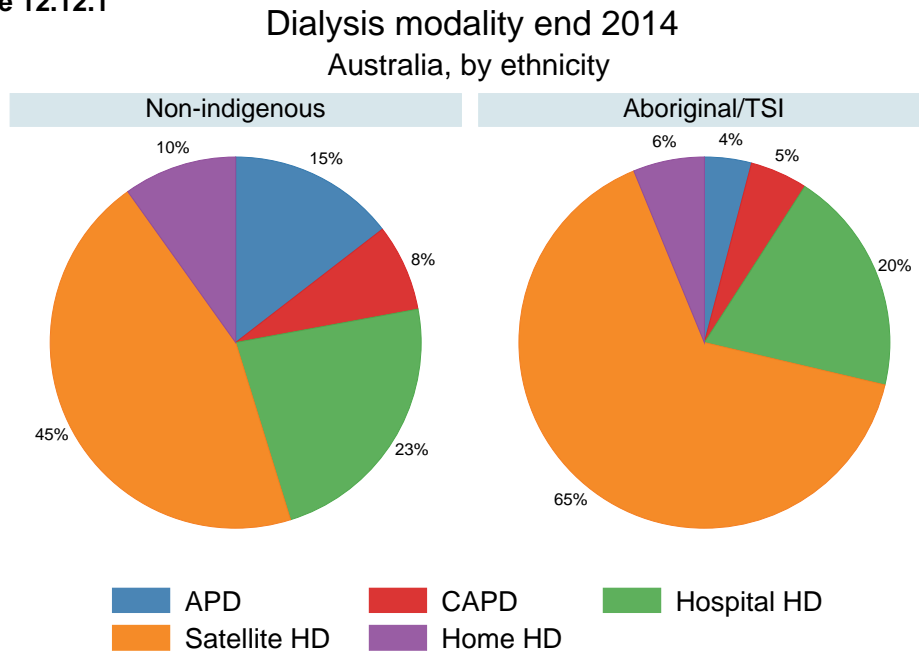
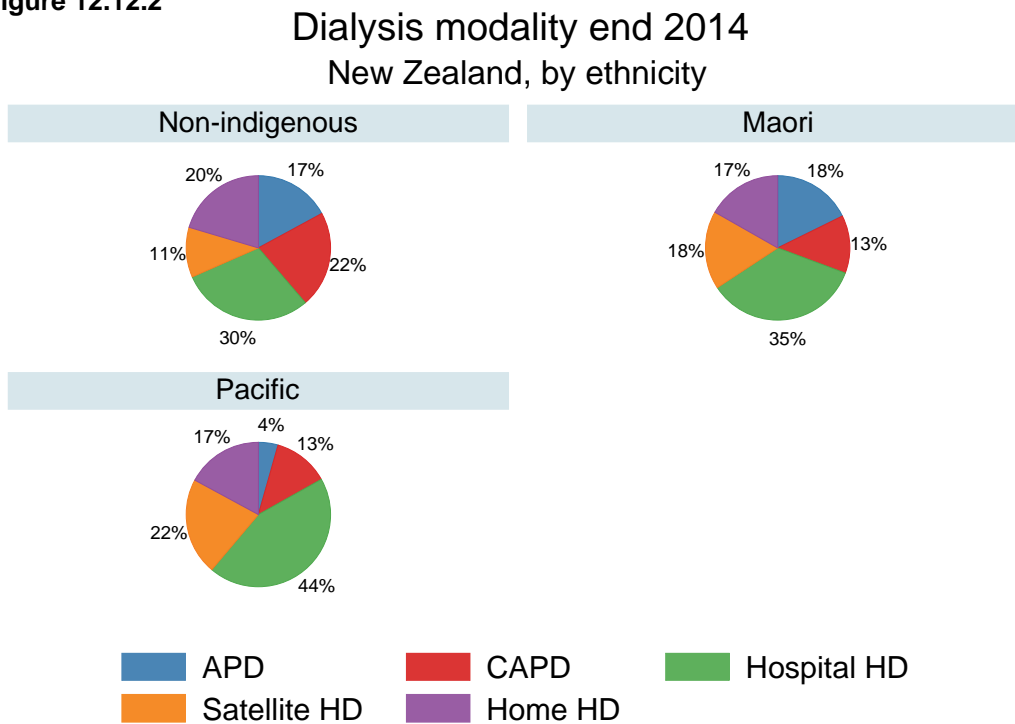


Figure 12.12.2



Timing of Renal Replacement Therapy Initiation

In Australia there has been a gradual trend towards lower eGFR at the time of renal replacement therapy start in Aboriginal/TSI patients since 2010 (figure 12.13). In New Zealand eGFR at RRT start is steady among all groups.

Figure 12.13.1

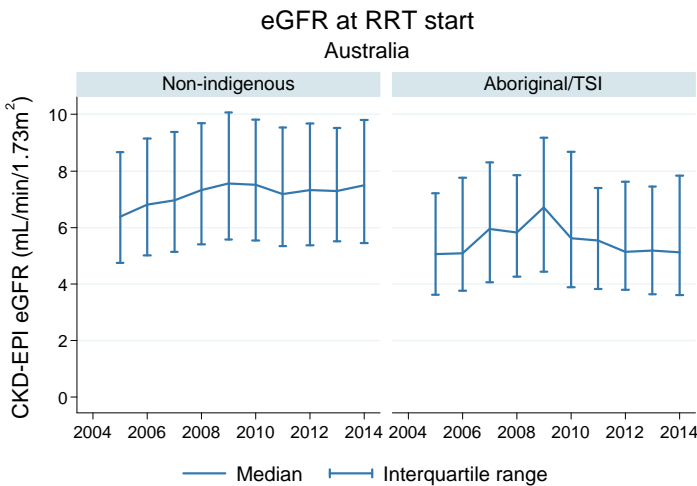
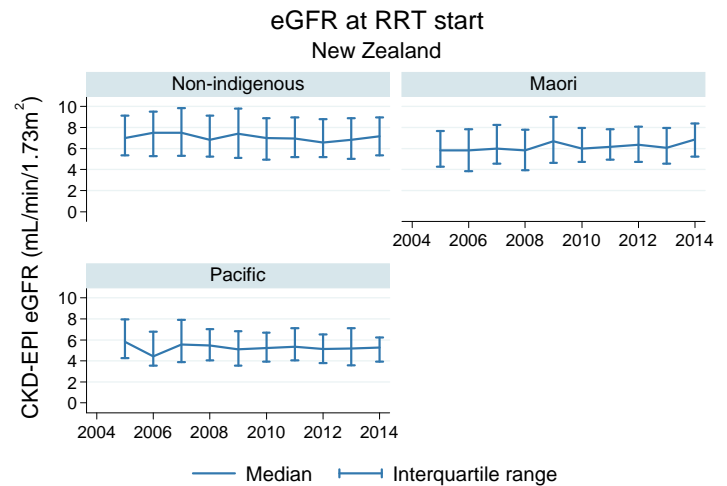


Figure 12.13.2



Incidence and Prevalence by State/Territory/Country

The next two pages show a variety of figures that summarise various key rates (incidence, prevalence, transplant rates) among indigenous people in Australia and New Zealand. In large part they show information from previous pages, in a series of differing formats.

State Incidence

The Northern Territory had the highest national incidence among indigenous people of treated end-stage kidney disease in Australia at 1397 pmp in 2014; the next highest was in Western Australia (693 pmp) (figure 12.14).

Figure 12.14

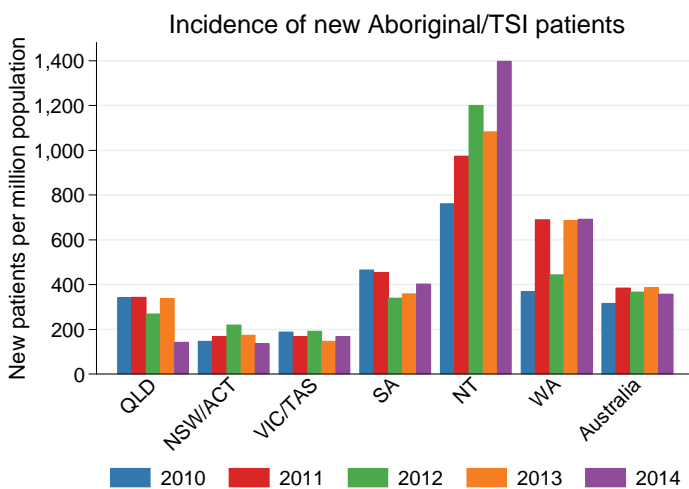
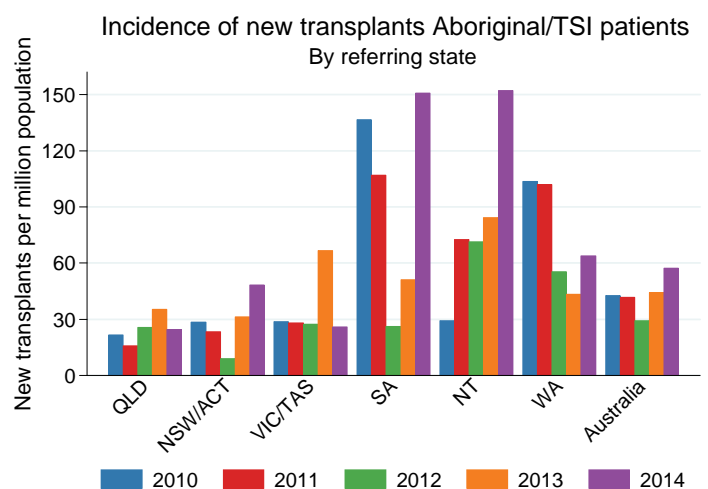


Figure 12.15



Dialysis by Resident State

Treatment patterns for Aboriginal and Torres Strait Islander People vary by State. The highest rates are in the Northern Territory, Western Australia and South Australia.

Figure 12.16

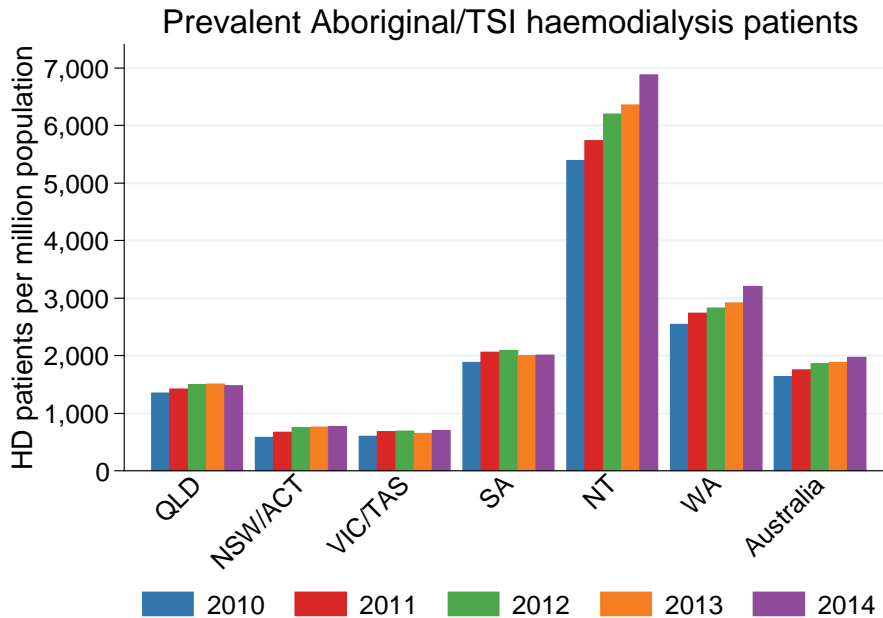
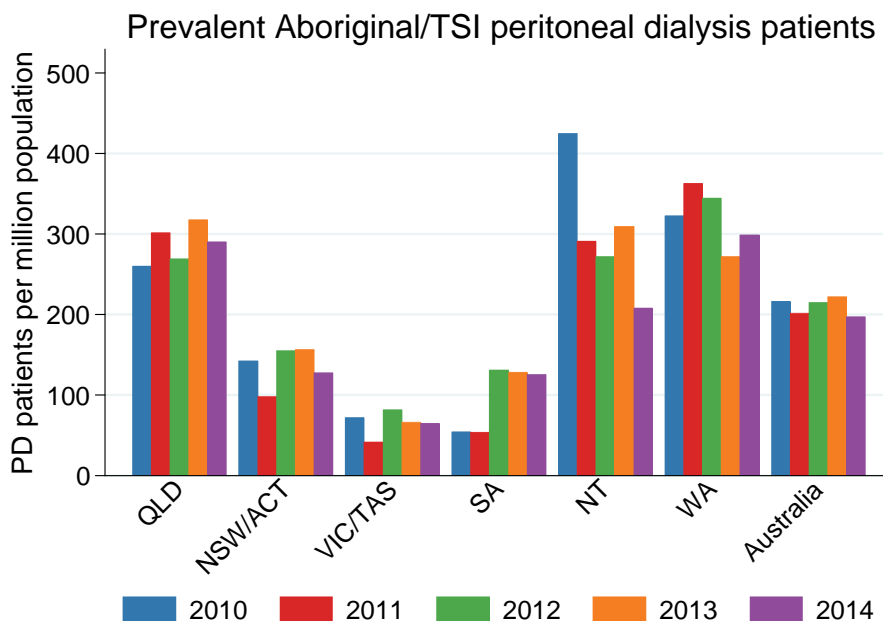


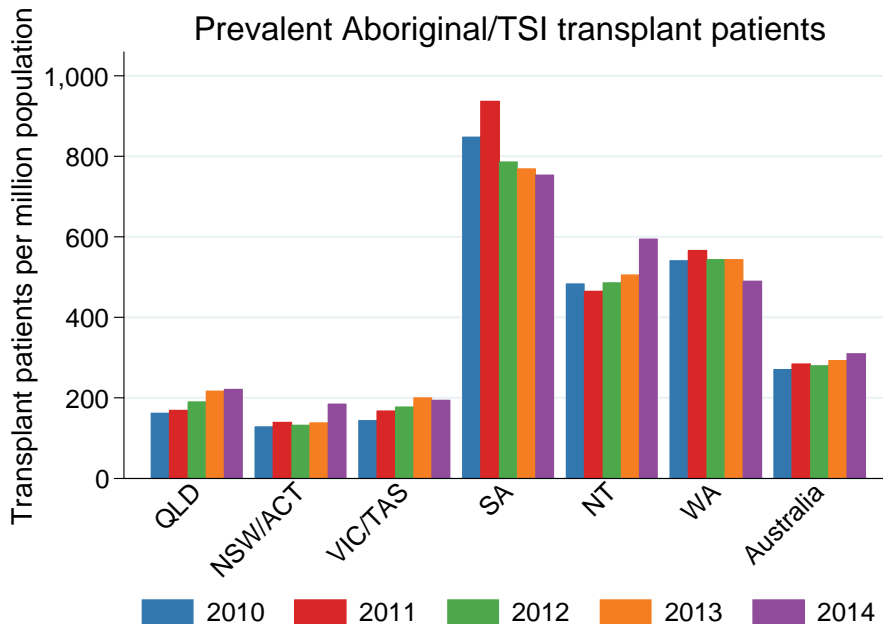
Figure 12.17



Transplant by Referring State

Rates of prevalent transplants vary substantially between States with highest rates in South and Western Australia. These rates are per population, not per dialysis patient, and they reflect both background rates of kidney disease and transplant rates.

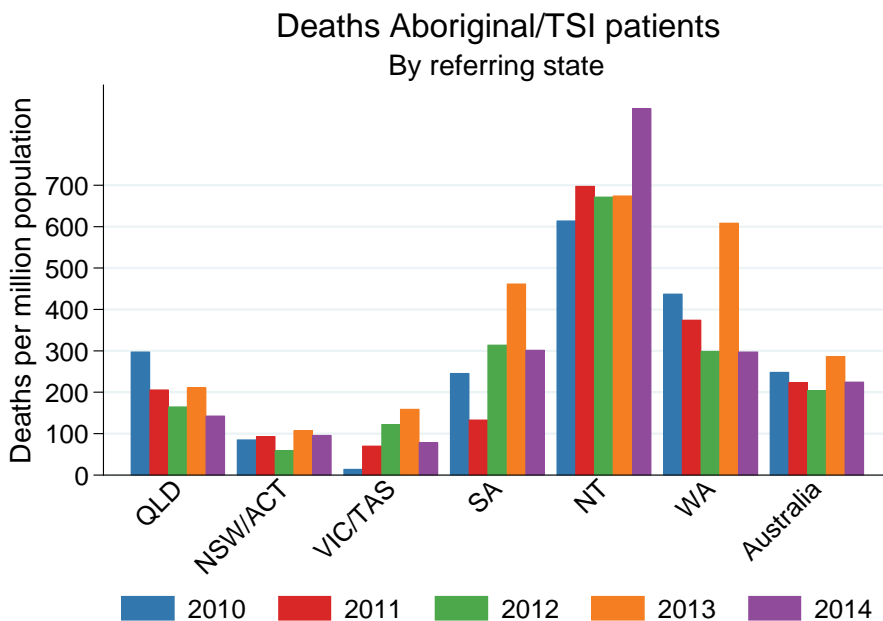
Figure 12.18



Deaths by Resident State

State based mortality rates of Aboriginal and Torres Strait Islander People on renal replacement therapy are shown in Figure 12.19.

Figure 12.19



New Zealand

Figure 12.20

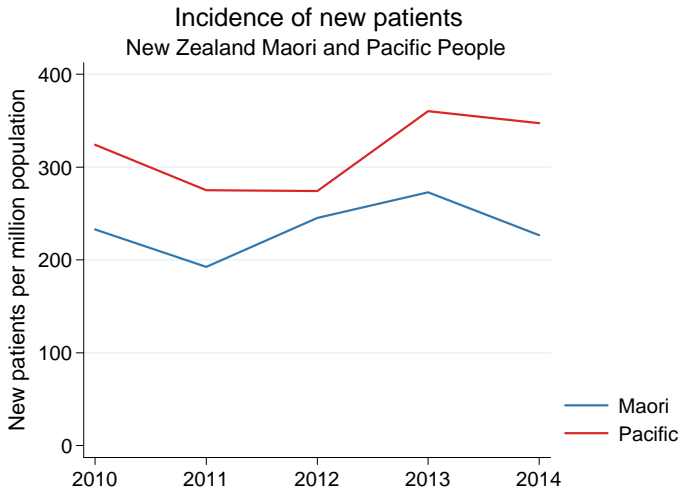


Figure 12.21

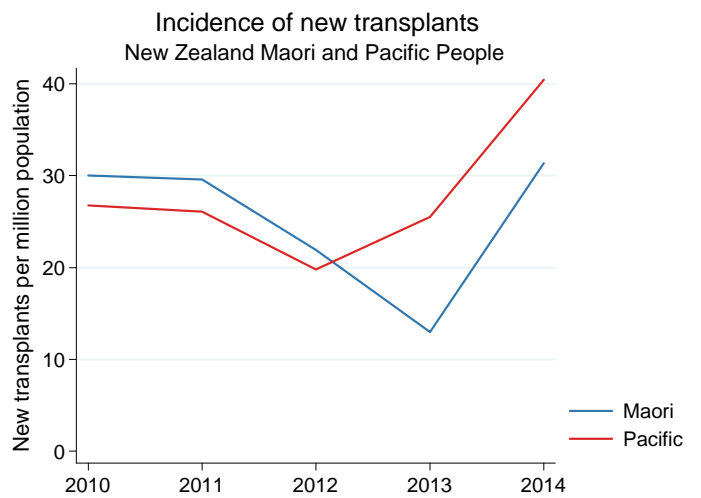


Figure 12.22

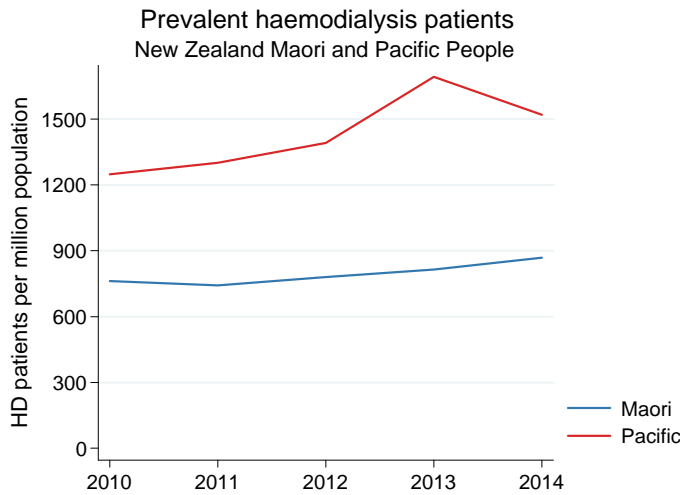


Figure 12.23

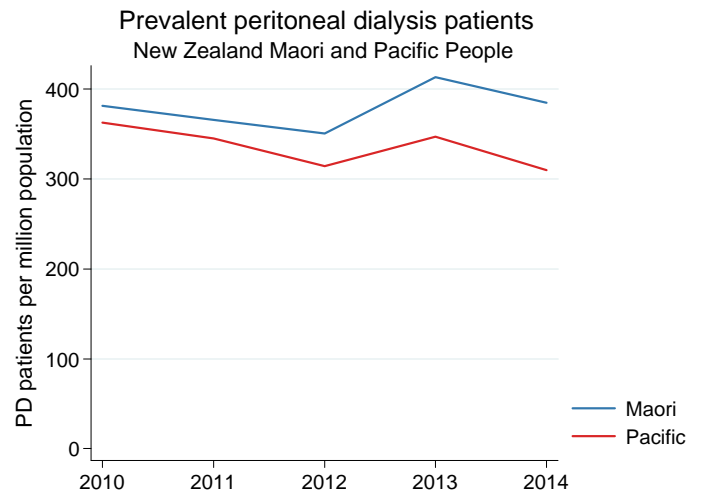


Figure 12.24

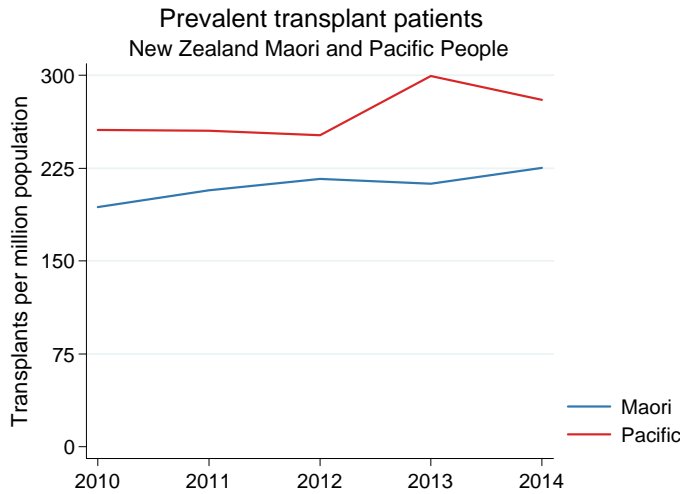
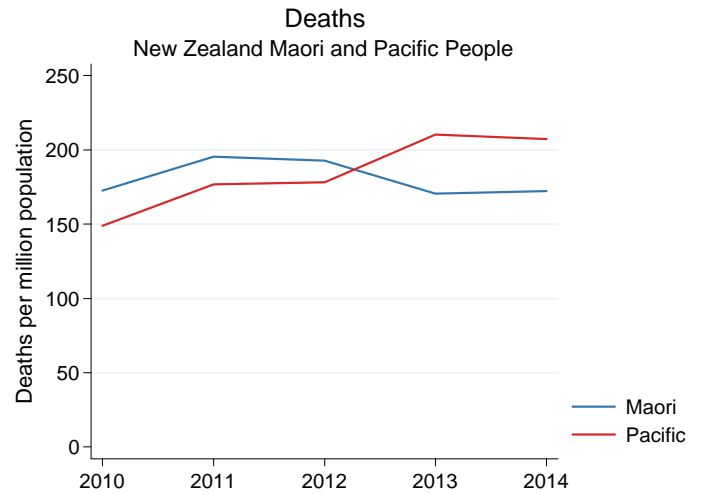


Figure 12.25



Geographical distribution

Figure 12.26 shows the number of incident Aboriginal/TSI patients by postcode. The distribution of prevalent dialysis patients is summarised in figure 12.27 (by state) and 12.28 by statistical subdivision (SSD, obtained by mapping postcodes to SSD). Note that some postcodes were distributed over more than one SSD. Mapping data are courtesy of the Australian Bureau of Statistics.

Figure 12.26 Incident indigenous patients 2010-2014
By postcode

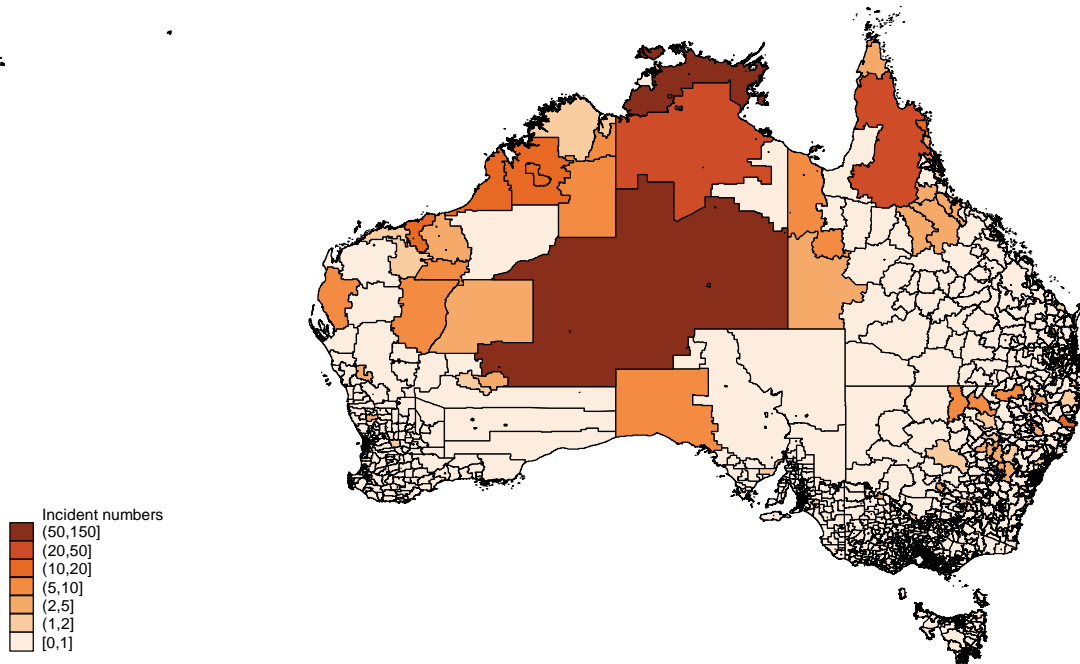


Figure 12.27 Prevalent indigenous patients 2014
By state

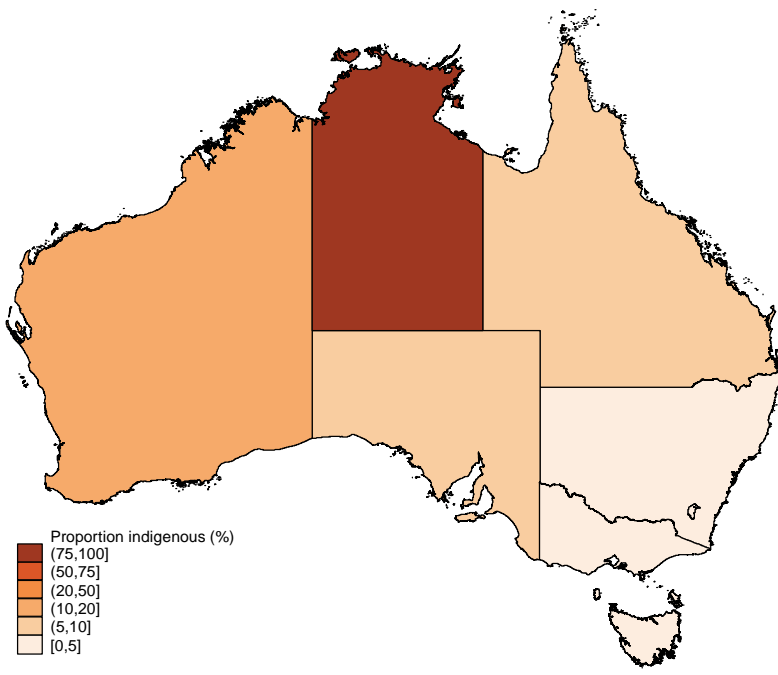
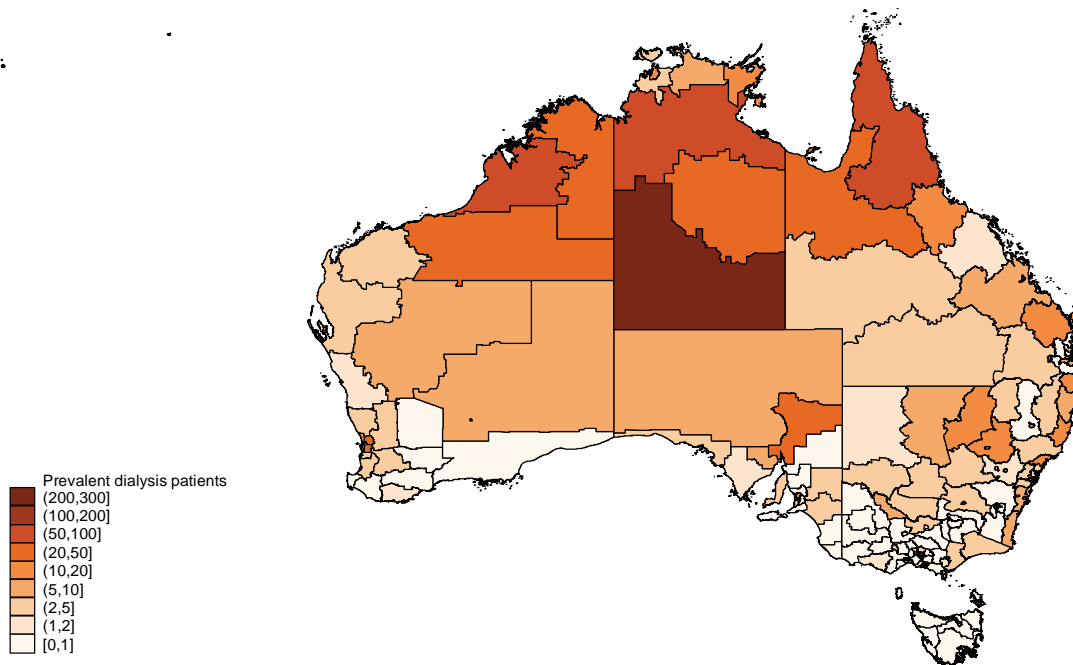


Figure 12.28

Prevalent indigenous dialysis patients 2014 By statistical subdivision



Late Referral

The percentage of Aboriginal and Torres Strait Islander People referred late for treatment has been falling for the last 3 years, and is very similar to the non-indigenous rate (table 12.5). The proportion of Māori people referred late in 2014 decreased to 8% from 15% in 2013. For Pacific People, the proportion referred late was stable at 21%.

Table 12.5

Percentage of Late Referral by Indigenous Status 2010 - 2014

Year	Australia		New Zealand		
	Non-indigenous	Aboriginal/TSI	Non-indigenous	Māori	Pacific People
2010	22%	25%	15%	19%	16%
2011	22%	30%	22%	18%	26%
2012	22%	26%	15%	17%	17%
2013	19%	17%	11%	15%	22%
2014	18%	15%	14%	8%	21%

Vascular Access

Incident vascular access data are presented in table 12.6, and prevalent data in table 12.7. In Australia the proportion of indigenous patients commencing dialysis with a catheter rather than permanent access was higher than in non-indigenous patients in 2014 (table 12.6). In New Zealand rates of catheter use are similar between non-indigenous, Māori and Pacific People.

Table 12.6

Incident Vascular Access 2010-2014

Year	Vascular access	Australia		New Zealand		
		Non-indigenous	Aboriginal/TSI	Non-indigenous	Māori	Pacific People
2010	AVF	595 (38%)	64 (37%)	39 (26%)	19 (18%)	19 (23%)
	AVG	38 (2%)	1 (1%)	1 (1%)	5 (5%)	1 (1%)
	CVC	931 (59%)	105 (61%)	109 (73%)	82 (77%)	61 (75%)
	Not reported	5 (<1%)	2 (1%)	0 (0%)	0 (0%)	0 (0%)
2011	AVF	705 (43%)	96 (42%)	47 (30%)	30 (34%)	16 (22%)
	AVG	29 (2%)	2 (1%)	1 (1%)	0 (0%)	1 (1%)
	CVC	893 (55%)	127 (56%)	108 (69%)	59 (66%)	56 (77%)
	Not reported	9 (1%)	2 (1%)	0 (0%)	0 (0%)	0 (0%)
2012	AVF	667 (41%)	84 (40%)	47 (34%)	40 (34%)	25 (32%)
	AVG	24 (1%)	3 (1%)	3 (2%)	1 (1%)	0 (0%)
	CVC	898 (56%)	120 (57%)	86 (63%)	78 (66%)	52 (67%)
	Not reported	29 (2%)	2 (1%)	1 (1%)	0 (0%)	1 (1%)
2013	AVF	619 (40%)	63 (28%)	47 (34%)	38 (30%)	26 (29%)
	AVG	28 (2%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	CVC	885 (57%)	163 (71%)	90 (64%)	87 (69%)	62 (70%)
	Not reported	18 (1%)	3 (1%)	3 (2%)	2 (2%)	1 (1%)
2014	AVF	643 (42%)	73 (32%)	36 (27%)	42 (39%)	24 (24%)
	AVG	23 (2%)	4 (2%)	2 (2%)	2 (2%)	2 (2%)
	CVC	828 (54%)	144 (63%)	92 (70%)	63 (58%)	74 (74%)
	Not reported	36 (2%)	6 (3%)	2 (2%)	1 (1%)	0 (0%)

In contrast to incident vascular access, the rates of catheter use in prevalent dialysis patients in Australia are similar between non-indigenous and indigenous patients (table 12.7). Rates in New Zealand are also similar.

Table 12.7

Prevalent Vascular Access 2010-2014

Year	Vascular access	Australia		New Zealand		
		Non-indigenous	Aboriginal/TSI	Non-indigenous	Māori	Pacific People
2010	AVF	5780 (76%)	897 (84%)	439 (70%)	371 (73%)	319 (76%)
	AVG	713 (9%)	39 (4%)	36 (6%)	31 (6%)	12 (3%)
	CVC	1049 (14%)	135 (13%)	151 (24%)	106 (21%)	89 (21%)
	Not reported	22 (<1%)	3 (<1%)	2 (<1%)	0 (0%)	0 (0%)
2011	AVF	6078 (78%)	980 (83%)	455 (70%)	371 (74%)	342 (76%)
	AVG	659 (8%)	37 (3%)	38 (6%)	34 (7%)	8 (2%)
	CVC	1036 (13%)	152 (13%)	153 (24%)	95 (19%)	99 (22%)
	Not reported	43 (1%)	6 (1%)	0 (0%)	2 (<1%)	0 (0%)
2012	AVF	6094 (76%)	1035 (81%)	467 (70%)	390 (73%)	374 (76%)
	AVG	620 (8%)	40 (3%)	33 (5%)	26 (5%)	9 (2%)
	CVC	1104 (14%)	166 (13%)	159 (24%)	113 (21%)	103 (21%)
	Not reported	165 (2%)	33 (3%)	5 (1%)	5 (1%)	6 (1%)
2013	AVF	6305 (77%)	1064 (81%)	458 (69%)	402 (71%)	404 (76%)
	AVG	581 (7%)	41 (3%)	39 (6%)	30 (5%)	18 (3%)
	CVC	1166 (14%)	199 (15%)	161 (24%)	129 (23%)	108 (20%)
	Not reported	101 (1%)	13 (1%)	2 (<1%)	3 (1%)	1 (<1%)
2014	AVF	6125 (75%)	1102 (78%)	462 (67%)	448 (73%)	424 (75%)
	AVG	625 (8%)	45 (3%)	35 (5%)	29 (5%)	14 (2%)
	CVC	1083 (13%)	176 (12%)	168 (25%)	117 (19%)	119 (21%)
	Not reported	376 (5%)	87 (6%)	20 (3%)	16 (3%)	7 (1%)

Patient Flow

Table 12.8.1 shows the overall flow of Aboriginal and Torres Strait Islander patients in Australia, by state.

Table 12.8.1

Patient Flow (pmp) Australia 2010-2014

Year	Event	QLD	NSW/ACT	VIC/TAS	SA	NT	WA	Australia
2010	New patients	63 (341)	31 (147)	13 (187)	17 (465)	52 (761)	32 (369)	208 (317)
	New Tx	4 (22)	6 (28)	2 (29)	7 (191)	0 (0)	9 (104)	28 (43)
	Preemptive Tx	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	Prevalent dialysis	298 (1615)	154 (731)	47 (678)	71 (1942)	397 (5811)	249 (2868)	1216 (1852)
	Prevalent Tx	30 (163)	27 (128)	10 (144)	31 (848)	33 (483)	47 (541)	178 (271)
	Total prevalence	328 (1777)	181 (860)	57 (822)	102 (2789)	430 (6294)	296 (3410)	1394 (2123)
	Deaths	55 (298)	18 (85)	1 (14)	9 (246)	42 (615)	38 (438)	163 (248)
2011	New patients	65 (344)	36 (168)	12 (169)	17 (454)	67 (973)	61 (691)	258 (385)
	New Tx	4 (21)	4 (19)	2 (28)	9 (241)	0 (0)	9 (102)	28 (42)
	Preemptive Tx	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	Prevalent dialysis	325 (1720)	165 (769)	52 (731)	79 (2112)	415 (6028)	274 (3104)	1310 (1956)
	Prevalent Tx	32 (169)	30 (140)	12 (169)	35 (936)	32 (465)	50 (566)	191 (285)
	Total prevalence	357 (1889)	195 (909)	64 (899)	114 (3047)	447 (6492)	324 (3671)	1501 (2241)
	Deaths	39 (206)	20 (93)	5 (70)	5 (134)	48 (697)	33 (374)	150 (224)
2012	New patients	52 (269)	48 (219)	14 (191)	13 (340)	84 (1200)	40 (444)	251 (367)
	New Tx	5 (26)	2 (9)	2 (27)	6 (157)	0 (0)	5 (56)	20 (29)
	Preemptive Tx	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	Prevalent dialysis	342 (1767)	198 (905)	57 (779)	85 (2226)	453 (6473)	286 (3175)	1421 (2077)
	Prevalent Tx	37 (191)	29 (133)	13 (178)	30 (786)	34 (486)	49 (544)	192 (281)
	Total prevalence	379 (1958)	227 (1037)	70 (956)	115 (3011)	487 (6959)	335 (3719)	1613 (2358)
	Deaths	32 (165)	13 (59)	9 (123)	12 (314)	47 (672)	27 (300)	140 (205)
2013	New patients	67 (338)	39 (175)	11 (147)	14 (359)	77 (1083)	63 (685)	271 (388)
	New Tx	7 (35)	7 (31)	5 (67)	8 (205)	0 (0)	4 (44)	31 (44)
	Preemptive Tx	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	Prevalent dialysis	362 (1826)	206 (923)	54 (720)	83 (2128)	474 (6664)	293 (3187)	1472 (2106)
	Prevalent Tx	43 (217)	31 (139)	15 (200)	30 (769)	36 (506)	50 (544)	205 (293)
	Total prevalence	405 (2043)	237 (1062)	69 (920)	113 (2898)	510 (7170)	343 (3731)	1677 (2400)
	Deaths	42 (212)	24 (108)	12 (160)	18 (462)	48 (675)	56 (609)	200 (286)
2014	New patients	29 (143)	31 (136)	13 (169)	16 (402)	101 (1397)	65 (693)	255 (357)
	New Tx	7 (34)	9 (40)	3 (39)	16 (402)	0 (0)	6 (64)	41 (57)
	Preemptive Tx	1 (5)	3 (13)	0 (0)	0 (0)	0 (0)	0 (0)	4 (6)
	Prevalent dialysis	360 (1771)	206 (904)	59 (767)	85 (2134)	512 (7082)	329 (3505)	1551 (2172)
	Prevalent Tx	45 (221)	42 (184)	15 (195)	30 (753)	43 (595)	46 (490)	221 (309)
	Total prevalence	405 (1993)	248 (1089)	74 (962)	115 (2887)	555 (7677)	375 (3995)	1772 (2481)
	Deaths	29 (143)	22 (97)	6 (78)	12 (301)	64 (885)	28 (298)	161 (225)

Table 12.8.2 shows the overall patient flow in New Zealand by ethnicity.

Table 12.8.2

Patient Flow (pmp) New Zealand 2010-2014

Year	Event	Non-indigenous	Māori	Pacific
2010	New patients	251 (75)	155 (233)	109 (324)
	New Tx	81 (24)	20 (30)	9 (27)
	Preemptive Tx	14 (4)	2 (3)	0 (0)
	Prevalent dialysis	1084 (325)	762 (1144)	542 (1612)
	Prevalent Tx	1228 (368)	129 (194)	86 (256)
	Total prevalence	2312 (694)	891 (1338)	628 (1868)
	Deaths	190 (57)	115 (173)	50 (149)
2011	New patients	262 (78)	130 (192)	95 (275)
	New Tx	89 (27)	20 (30)	9 (26)
	Preemptive Tx	15 (4)	0 (0)	0 (0)
	Prevalent dialysis	1075 (321)	749 (1109)	568 (1646)
	Prevalent Tx	1256 (375)	140 (207)	88 (255)
	Total prevalence	2331 (696)	889 (1316)	656 (1901)
	Deaths	223 (67)	132 (195)	61 (177)
2012	New patients	254 (76)	168 (246)	97 (274)
	New Tx	86 (26)	15 (22)	7 (20)
	Preemptive Tx	16 (5)	1 (1)	1 (3)
	Prevalent dialysis	1090 (325)	774 (1131)	603 (1706)
	Prevalent Tx	1288 (384)	148 (216)	89 (252)
	Total prevalence	2378 (709)	922 (1348)	692 (1958)
	Deaths	202 (60)	132 (193)	63 (178)
2013	New patients	252 (74)	189 (273)	113 (360)
	New Tx	99 (29)	9 (13)	8 (25)
	Preemptive Tx	16 (5)	2 (3)	1 (3)
	Prevalent dialysis	1099 (321)	850 (1228)	640 (2039)
	Prevalent Tx	1333 (390)	147 (212)	94 (300)
	Total prevalence	2432 (711)	997 (1440)	734 (2339)
	Deaths	203 (59)	118 (170)	66 (210)
2014	New patients	259 (76)	159 (227)	129 (348)
	New Tx	101 (30)	22 (31)	15 (40)
	Preemptive Tx	23 (7)	0 (0)	1 (3)
	Prevalent dialysis	1119 (327)	880 (1254)	679 (1830)
	Prevalent Tx	1366 (400)	158 (225)	104 (280)
	Total prevalence	2485 (727)	1038 (1479)	783 (2110)
	Deaths	217 (63)	121 (172)	77 (207)

Cause of Death

The causes of death in 2014 are shown in table 12.9, categorised by country, ethnicity and modality at time of death. Cardiovascular disease was the leading cause of death amongst all ethnic groups and in both dialysis and transplant patients, apart from non-indigenous dialysis patients in whom withdrawal was the most common cause of death.

Table 12.9

Cause of Death 2014

Modality	Cause of death	Australia		New Zealand		
		Non-indigenous	Aboriginal/TSI	Non-indigenous	Māori	Pacific People
Dialysis	Cardiovascular	407 (29%)	54 (36%)	44 (25%)	57 (50%)	31 (42%)
	Withdrawal	498 (36%)	32 (21%)	53 (30%)	19 (17%)	8 (11%)
	Cancer	50 (4%)	4 (3%)	12 (7%)	6 (5%)	2 (3%)
	Infection	114 (8%)	15 (10%)	32 (18%)	14 (12%)	7 (10%)
	Other	331 (24%)	44 (30%)	36 (20%)	19 (17%)	25 (34%)
	Total		1400	149	177	115
Transplant	Cardiovascular	50 (27%)	4 (36%)	14 (41%)	1 (17%)	3 (75%)
	Withdrawal	19 (10%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	Cancer	48 (26%)	0 (0%)	11 (32%)	1 (17%)	0 (0%)
	Infection	23 (12%)	3 (27%)	4 (12%)	1 (17%)	1 (25%)
	Other	45 (24%)	4 (36%)	5 (15%)	3 (50%)	0 (0%)
	Total		185	11	34	6

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