



Australia &  
New Zealand Dialysis  
& Transplant Registry

# Chapter 12

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

ANZDATA gratefully acknowledges the  
contributions of the Indigenous  
Working Group convened by  
Jaquelyne Hughes and  
Suetonia Palmer

### Contents:

<b>End Stage Kidney Disease Among Indigenous Peoples of Australia and New Zealand</b>	<b>12-1</b>
Introduction	12-2
New Patients	12-2
Incidence Rates	12-4
Treatment of Prevalent Patients	12-8
New Transplants	12-9
Transplant Outcomes	12-11
Dialysis Modality	12-12
Timing of Renal Replacement Therapy Initiation	12-13
Dialysis by Resident State	12-14
Transplant by Referring State	12-15
Deaths by Resident State	12-15
Late Referral	12-18
Vascular Access	12-19
Patient Flow	12-21
Cause of Death	12-23

### Suggested Citation:

ANZDATA Registry. 37th Report, Chapter 12: Indigenous People and End Stage Kidney Disease. Australia and New Zealand Dialysis and Transplant Registry, Adelaide, Australia. 2015. Available at: <http://www.anzdata.org.au>

## 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.

## New Patients

### Australia

A total of 264 Aboriginal and Torres Strait Islander patients commenced dialysis in Australia during 2013 (table 12.1). The majority (84%) were treated with haemodialysis as their initial RRT modality (figure 12.1.1). No pre-emptive transplants were performed among Aboriginal Australians in 2013.

### New Zealand

The numbers of Māori and Pacific People starting dialysis both increased in 2013 (187 and 111 patients respectively). Haemodialysis was the most common modality (figure 12.1.2). 59 (32% of total) Māori patients commenced on PD in 2013 while the proportion of Pacific Peoples starting with PD was 20%.

**Table 12.1**

**Number of People who commenced Renal Replacement Therapy in Australia and New Zealand**

Year	Modality	Australia			New Zealand			
		Non-indigenous	Aboriginal/TSI	Total	Non-indigenous	Maori	Pacific People	Total
2009	HD	1567	158	1725	158	121	81	360
	PD	554	35	589	123	55	22	200
	Graft	115	2	117	22	2	0	24
2010	HD	1563	171	1734	149	106	81	336
	PD	464	36	500	88	47	28	163
	Graft	101	0	101	14	2	0	16
2011	HD	1633	226	1859	156	89	73	318
	PD	523	30	553	91	41	22	154
	Graft	99	0	99	15	0	0	15
2012	HD	1608	208	1816	138	119	75	332
	PD	629	42	671	101	48	18	167
	Graft	86	0	86	16	1	1	18
2013	HD	1537	223	1760	140	126	88	354
	PD	657	41	698	92	59	22	173
	Graft	86	0	86	16	2	1	19

Figure 12.1.1

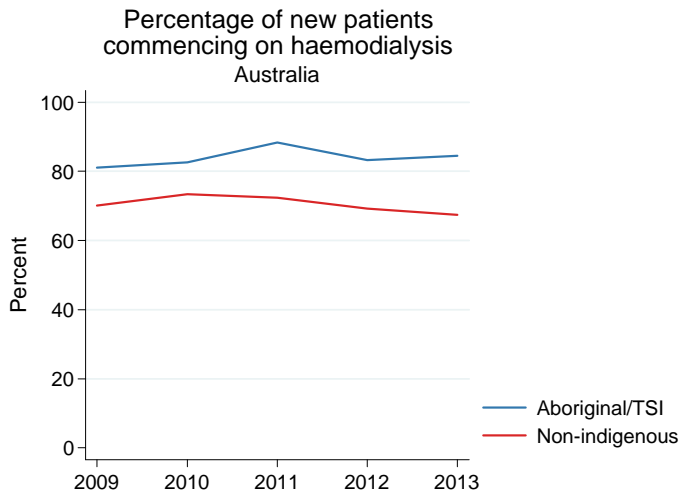
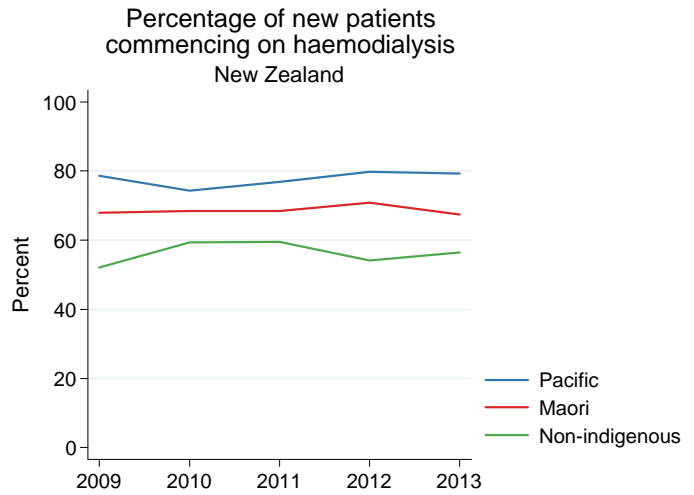


Figure 12.1.2



### Primary Renal Disease

The primary renal diseases of new patients over 2009-2013 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

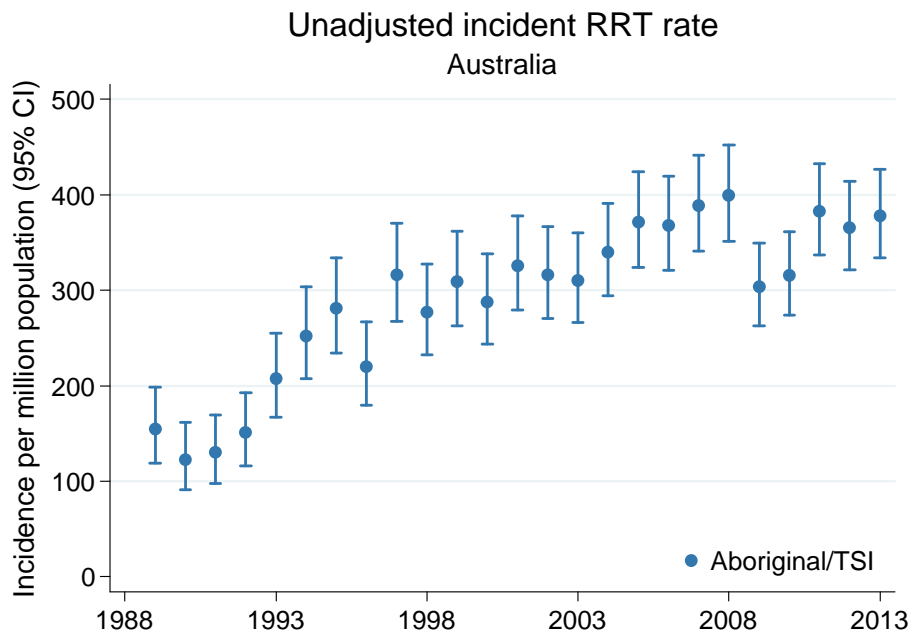
Primary Renal Disease of New Patients 2009 - 2013

Primary Renal Disease	Australia		New Zealand		
	Non-indigenous	Aboriginal/TSI	Non-indigenous	Māori	Pacific Peoples
Glomerulonephritis	2564 (23%)	115 (10%)	354 (27%)	124 (15%)	97 (19%)
Analgesic	175 (2%)	3 (<1%)	12 (1%)	2 (<1%)	1 (<1%)
Polycystic	780 (7%)	5 (<1%)	124 (9%)	10 (1%)	5 (1%)
Reflux	285 (3%)	24 (2%)	33 (3%)	8 (1%)	6 (1%)
Hypertension	1620 (14%)	90 (8%)	198 (15%)	43 (5%)	29 (6%)
Diabetic Nephropathy	3531 (31%)	816 (70%)	344 (26%)	572 (70%)	347 (68%)
Other	1569 (14%)	40 (3%)	191 (14%)	39 (5%)	18 (4%)
Uncertain	620 (6%)	50 (4%)	57 (4%)	18 (2%)	9 (2%)
Not reported	78 (1%)	29 (2%)	6 (<1%)	2 (<1%)	0 (0%)
<b>Total</b>	<b>11222</b>	<b>1172</b>	<b>1319</b>	<b>818</b>	<b>512</b>

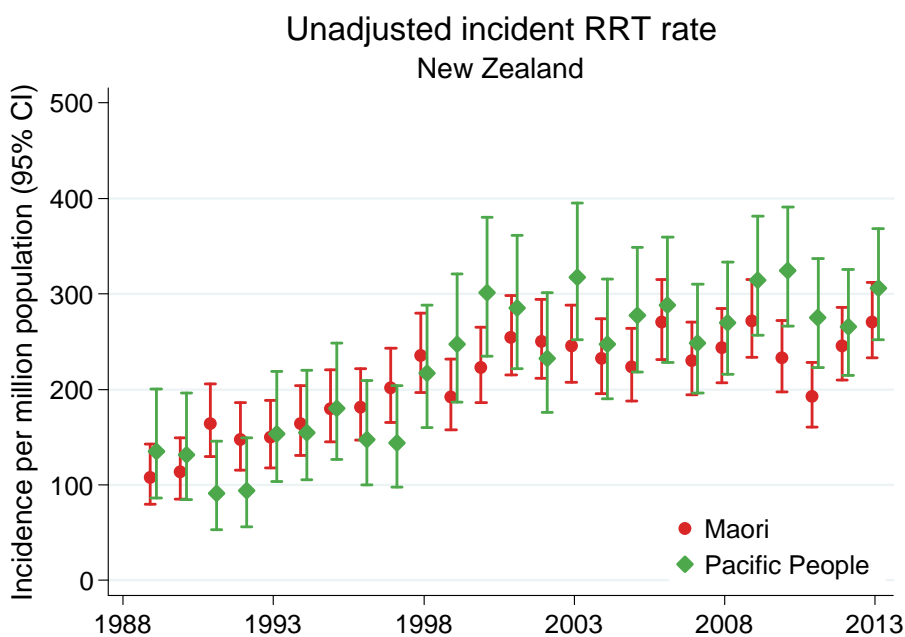
## Incidence Rates

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**



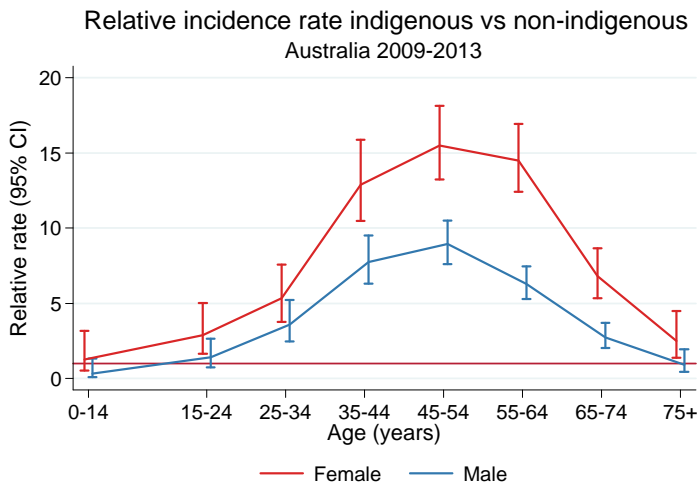
**Figure 12.2.2**



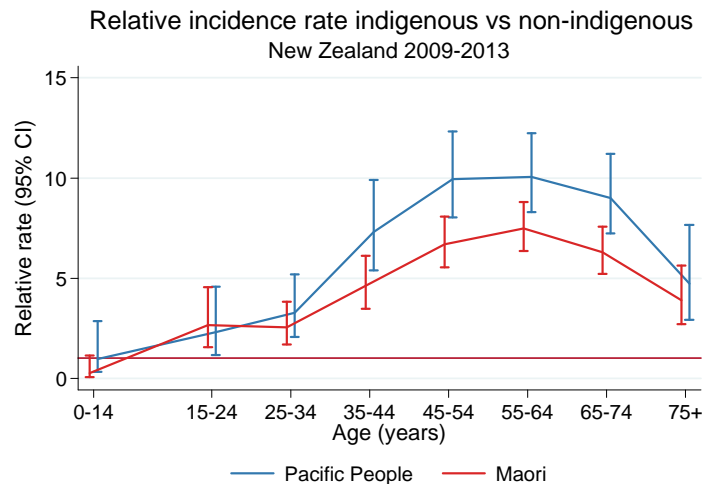
Among Aboriginal Australians, there is a marked excess relative rate among those aged 35-64 years. The relative rate is higher among females than males (figure 12.3).

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 2009-2013

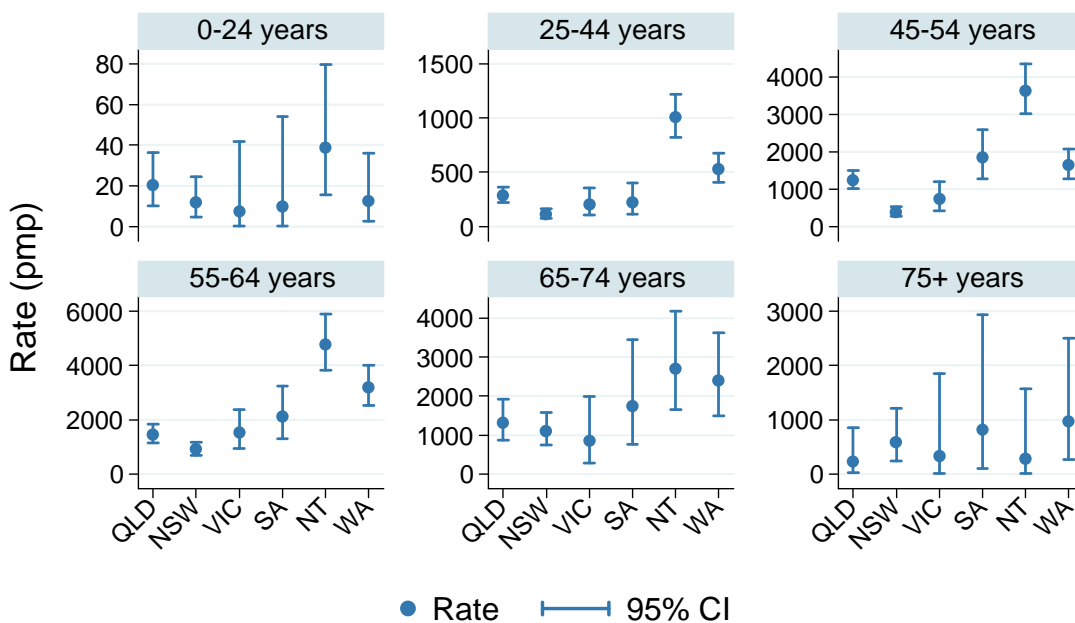


Figure 12.6

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

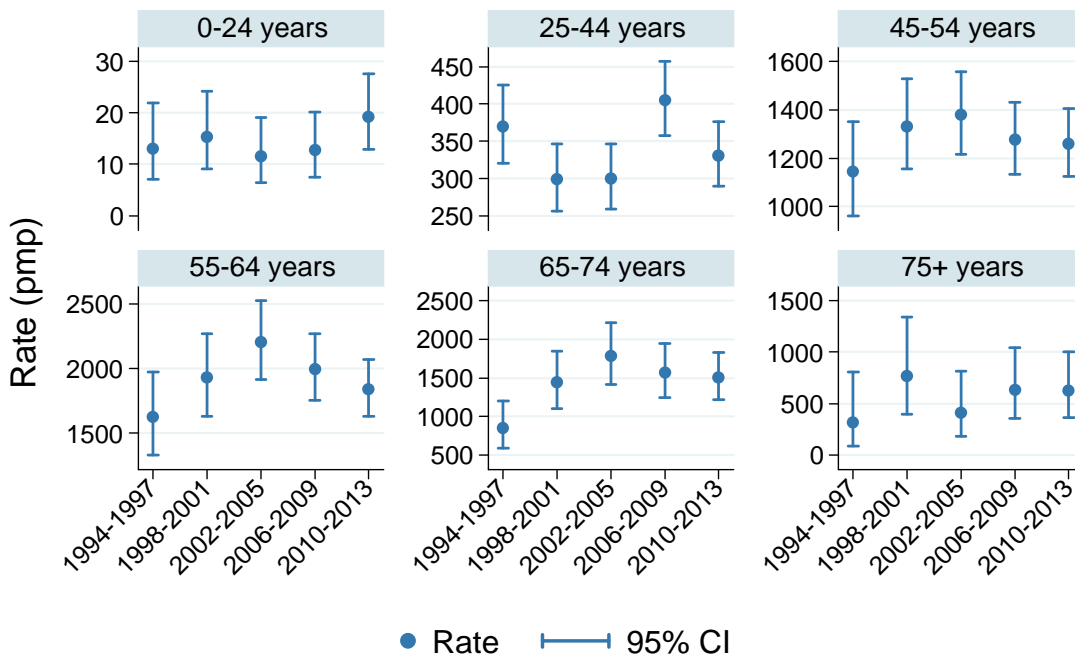


Figure 12.7

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

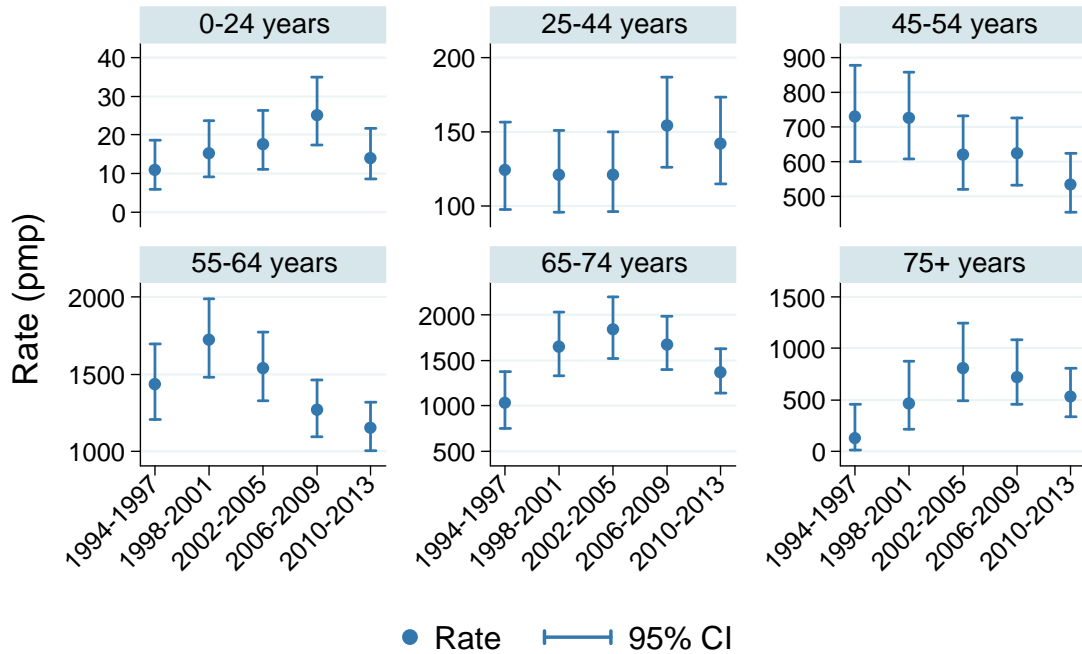
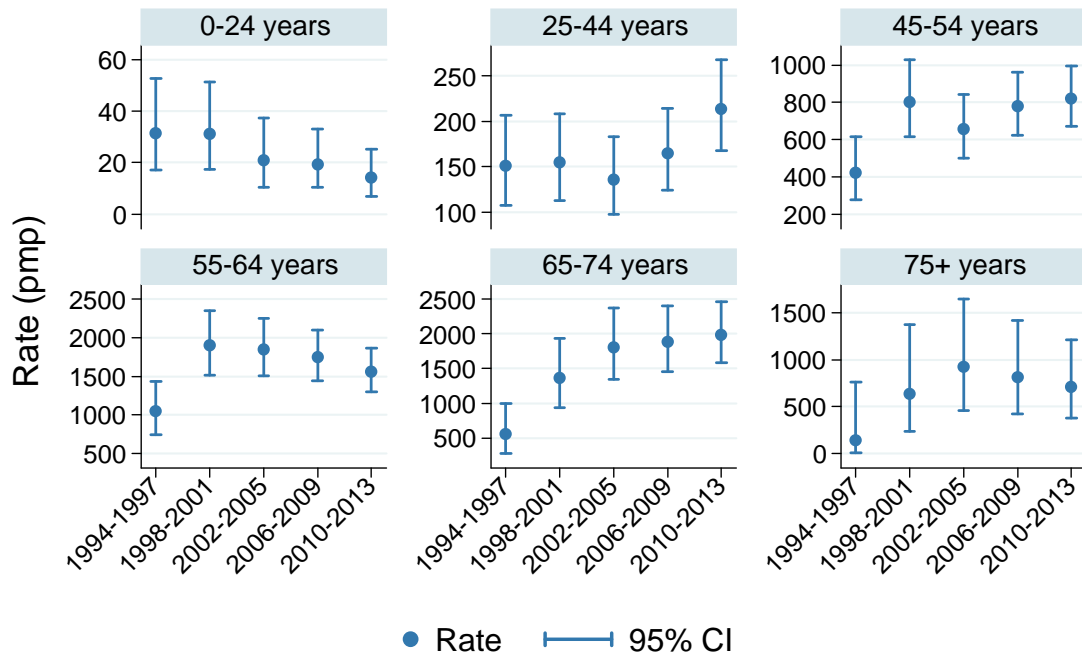


Figure 12.8

### 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 1682, continuing a gradual increase (table 12.3). The percentage of Aboriginal/TSI on home haemodialysis was 7% in 2013 (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 2013 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 (25% of HD) remains similar to past years, whilst in Pacific People this percentage (20%) has increased since 2009.

**Table 12.3**

**Number of People with End Stage Kidney Disease by Treatment Modality 2009 - 2013**

Year	Modality	Australia		New Zealand		
		Non-indigenous	Aboriginal/TSI	Non-indigenous	Māori	Pacific People
2009	HD	7224 (42%)	1041 (77%)	605 (27%)	496 (58%)	380 (66%)
	% HD at home	13%	7%	33%	26%	14%
	PD	2061 (12%)	142 (11%)	452 (20%)	238 (28%)	110 (19%)
	Tx	7881 (46%)	161 (12%)	1202 (53%)	120 (14%)	85 (15%)
2010	HD	7550 (42%)	1073 (77%)	628 (27%)	508 (57%)	420 (67%)
	% HD at home	12%	7%	36%	26%	17%
	PD	1948 (11%)	141 (10%)	456 (20%)	254 (28%)	122 (19%)
	Tx	8322 (47%)	178 (13%)	1228 (53%)	130 (15%)	86 (14%)
2011	HD	7802 (42%)	1174 (78%)	646 (28%)	502 (56%)	449 (68%)
	% HD at home	12%	7%	36%	25%	16%
	PD	1945 (11%)	133 (9%)	429 (18%)	247 (28%)	119 (18%)
	Tx	8664 (47%)	191 (13%)	1257 (54%)	141 (16%)	88 (13%)
2012	HD	7966 (42%)	1274 (79%)	668 (28%)	532 (58%)	489 (71%)
	% HD at home	12%	7%	38%	24%	18%
	PD	2094 (11%)	144 (9%)	425 (18%)	242 (26%)	111 (16%)
	Tx	9072 (47%)	192 (12%)	1287 (54%)	147 (16%)	87 (13%)
2013	HD	8142 (41%)	1326 (79%)	662 (27%)	563 (56%)	527 (73%)
	% HD at home	12%	7%	34%	25%	20%
	PD	2154 (11%)	152 (9%)	438 (18%)	287 (29%)	107 (15%)
	Tx	9492 (48%)	204 (12%)	1332 (55%)	148 (15%)	92 (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 Transplants Recipients by Indigenous Status 2004 - 2013

Year	Donor type	Australia		New Zealand		
		Non-indigenous	Aboriginal/TSI	Non-indigenous	Māori	Pacific People
2004	DD	384	22	42	7	8
	LD	240	4	39	5	4
	<b>Total</b>	<b>624</b>	<b>26</b>	<b>81</b>	<b>12</b>	<b>12</b>
2005	DD	358	19	42	3	2
	LD	243	3	44	0	2
	<b>Total</b>	<b>601</b>	<b>22</b>	<b>86</b>	<b>3</b>	<b>4</b>
2006	DD	344	24	31	6	4
	LD	270	3	42	4	3
	<b>Total</b>	<b>614</b>	<b>27</b>	<b>73</b>	<b>10</b>	<b>7</b>
2007	DD	330	14	55	8	2
	LD	267	4	45	9	4
	<b>Total</b>	<b>597</b>	<b>18</b>	<b>100</b>	<b>17</b>	<b>6</b>
2008	DD	435	24	42	5	6
	LD	347	7	58	7	4
	<b>Total</b>	<b>782</b>	<b>31</b>	<b>100</b>	<b>12</b>	<b>10</b>
2009	DD	426	20	38	11	5
	LD	323	4	58	8	1
	<b>Total</b>	<b>749</b>	<b>24</b>	<b>96</b>	<b>19</b>	<b>6</b>
2010	DD	522	28	32	13	5
	LD	296	0	49	7	4
	<b>Total</b>	<b>818</b>	<b>28</b>	<b>81</b>	<b>20</b>	<b>9</b>
2011	DD	544	26	40	14	7
	LD	253	2	49	6	2
	<b>Total</b>	<b>797</b>	<b>28</b>	<b>89</b>	<b>20</b>	<b>9</b>
2012	DD	587	20	37	11	6
	LD	238	0	49	4	1
	<b>Total</b>	<b>825</b>	<b>20</b>	<b>86</b>	<b>15</b>	<b>7</b>
2013	DD	600	30	46	5	6
	LD	251	1	52	4	2
	<b>Total</b>	<b>851</b>	<b>31</b>	<b>98</b>	<b>9</b>	<b>8</b>

Figure 12.9

Donor source by indigenous status  
2004-2013

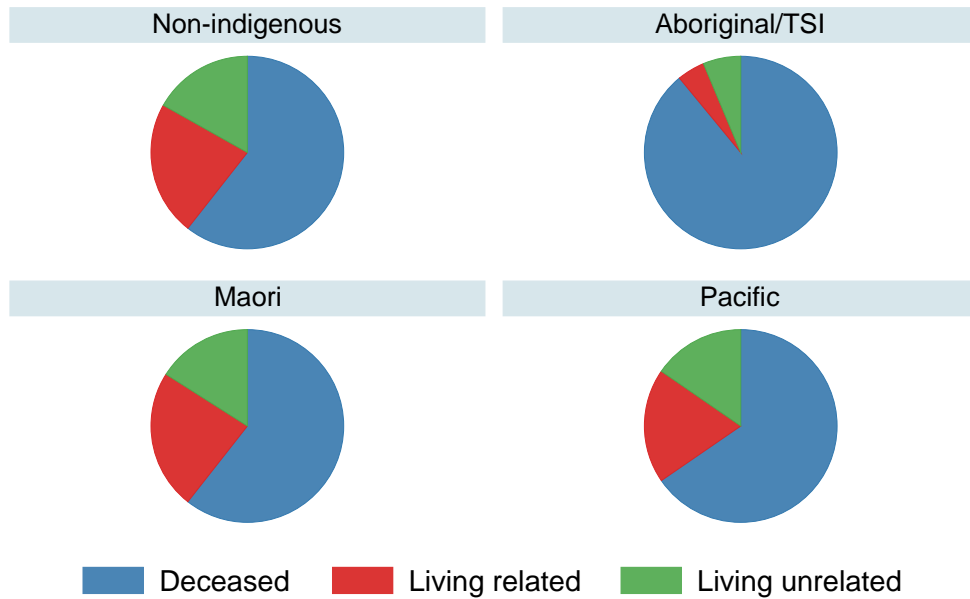
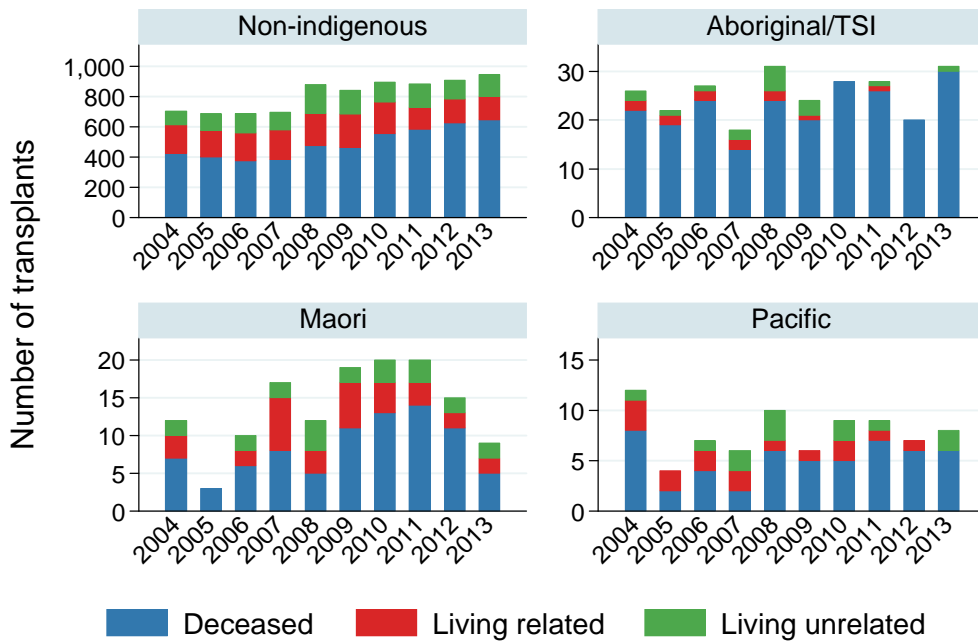


Figure 12.10

Donor source



**Australia**

Over the period 2004-2013 there has been a gradual, but small, increase in the number of deceased donor transplants. Numbers from living donors remain extremely low.

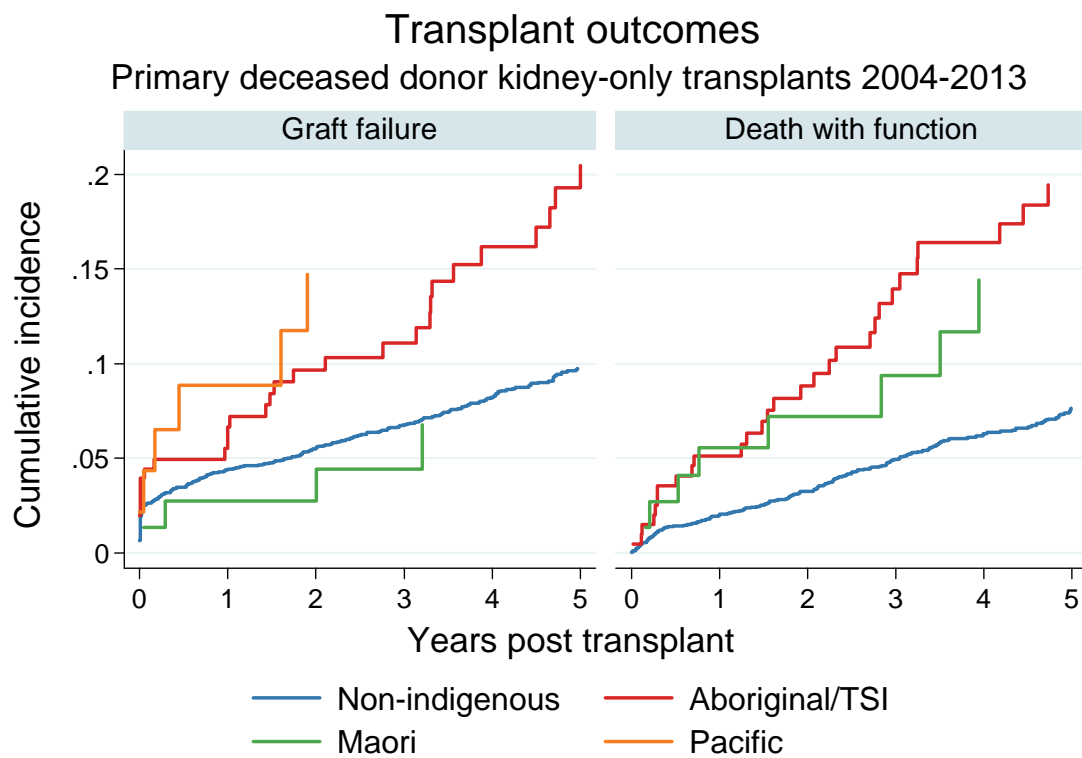
**New Zealand**

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

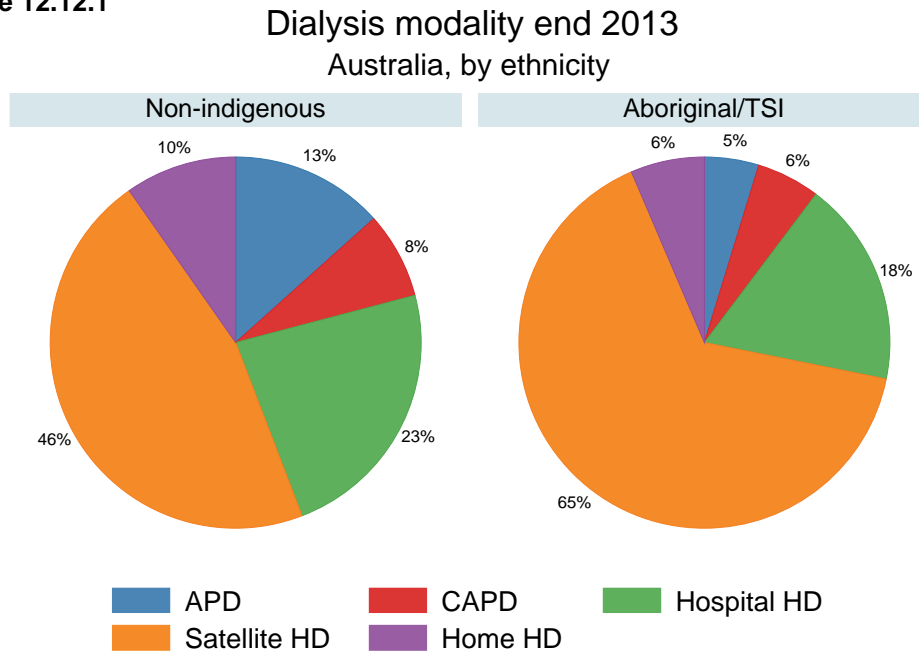
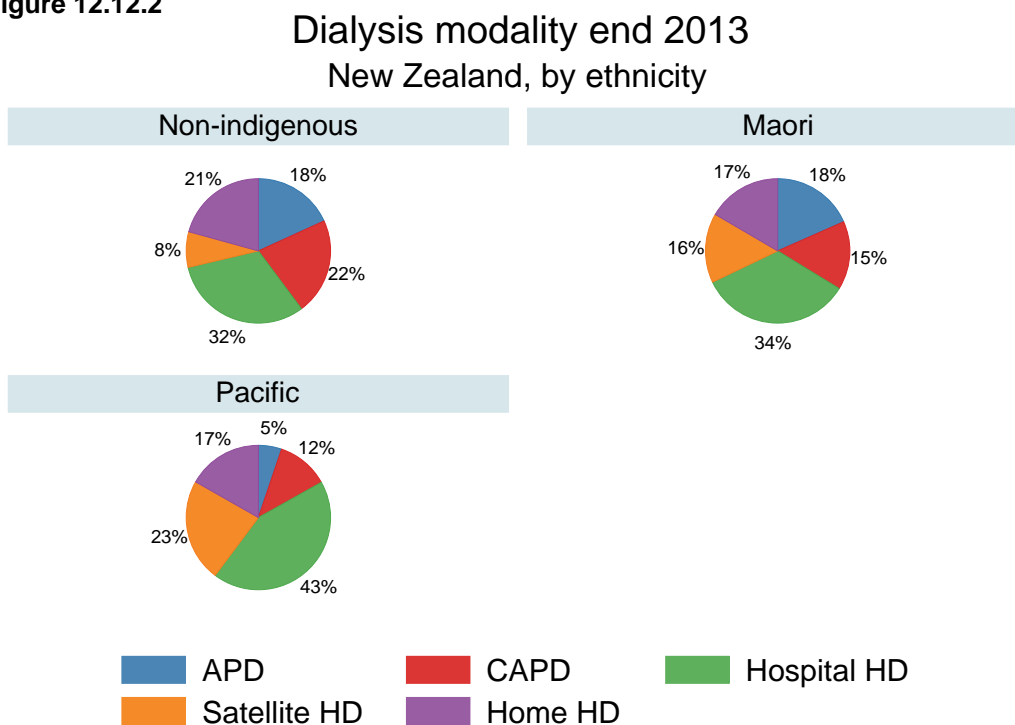


Figure 12.12.2



## 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

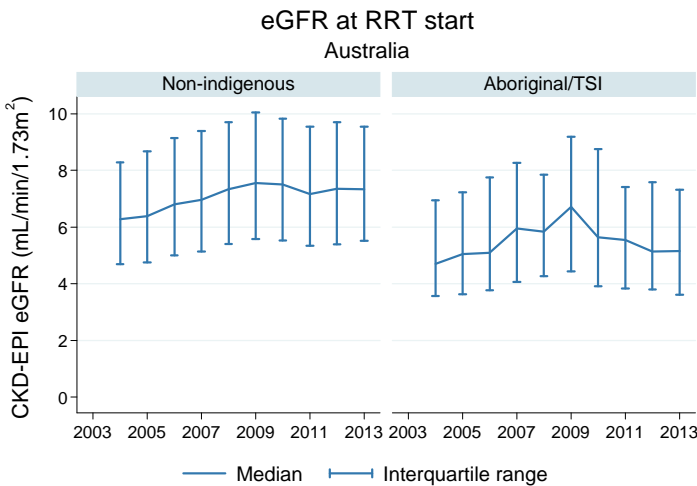
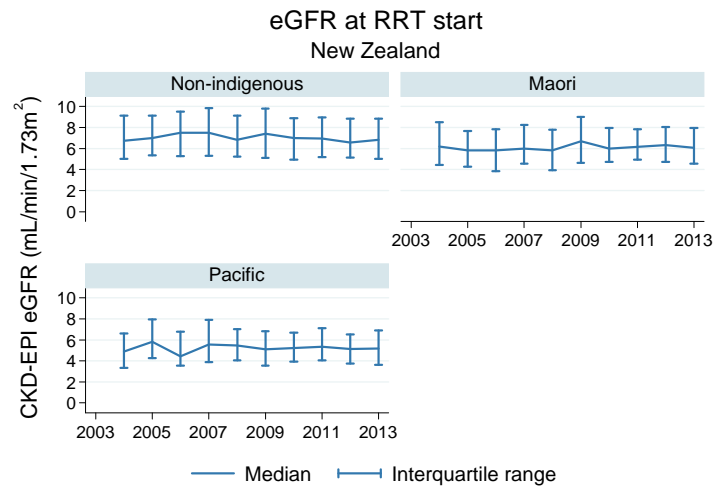


Figure 12.13.2



## 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 1068 pmp in 2013; the next highest was in Western Australia (674 pmp) (figure 12.14).

Figure 12.14

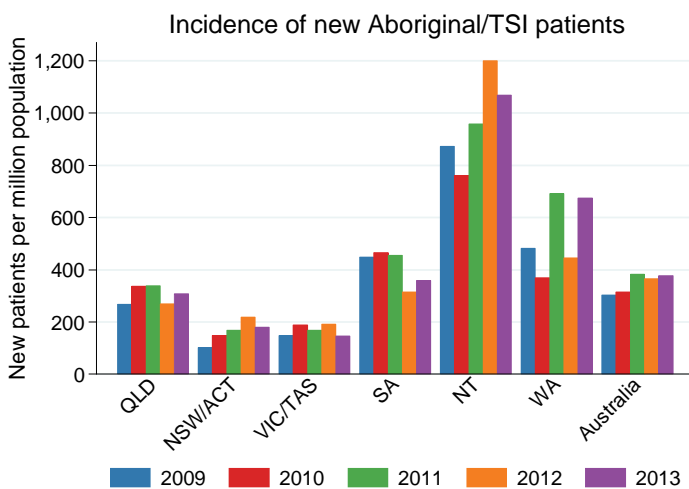
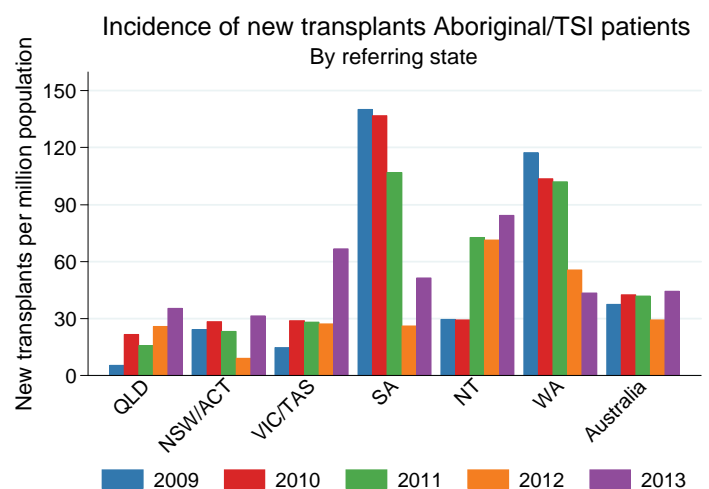


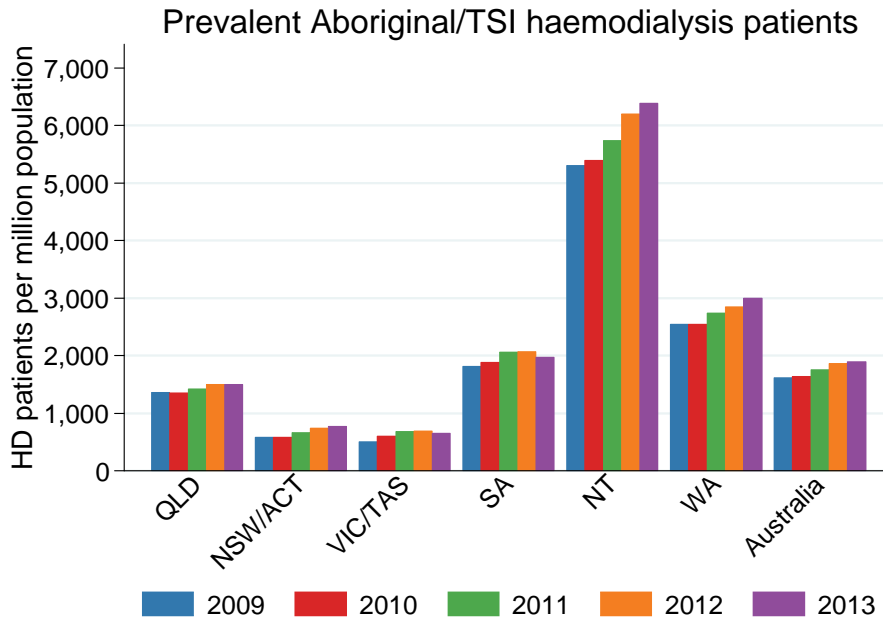
Figure 12.15



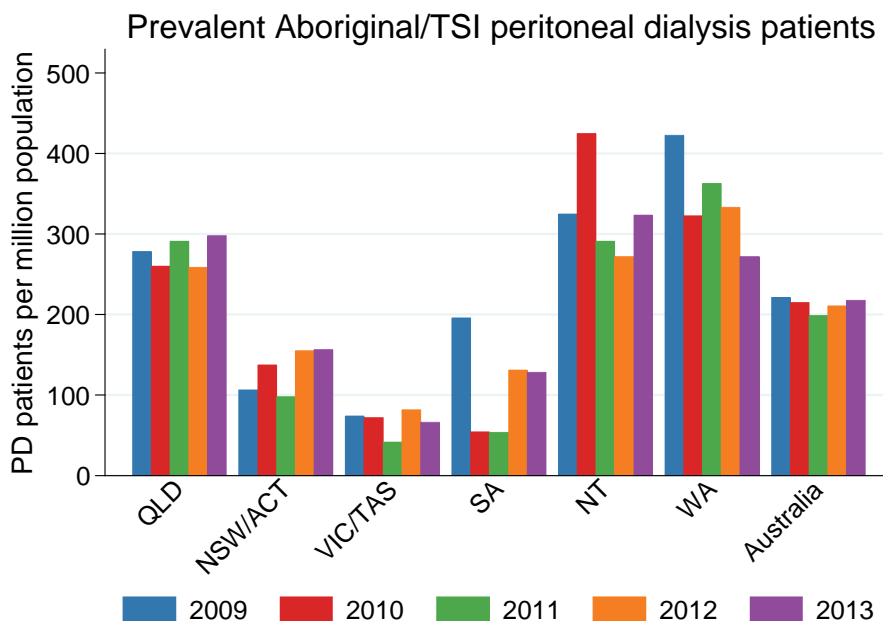
### Dialysis by Resident State

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**



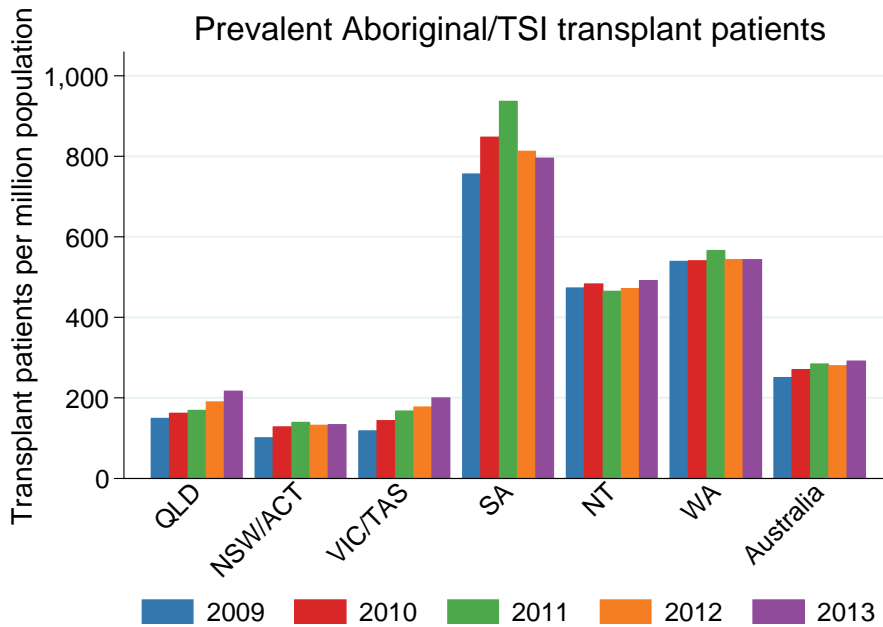
**Figure 12.17**



### 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.

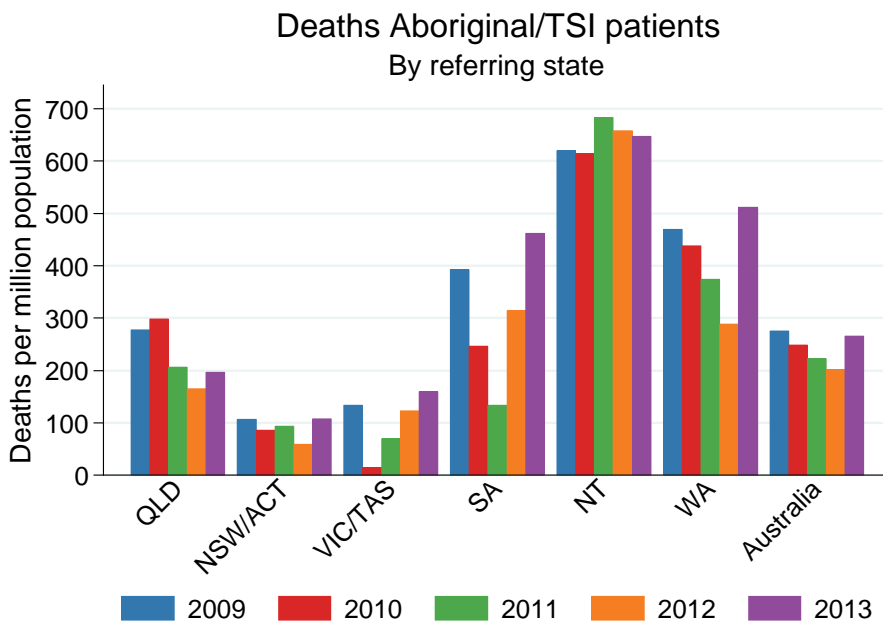
Figure 12.18



### 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

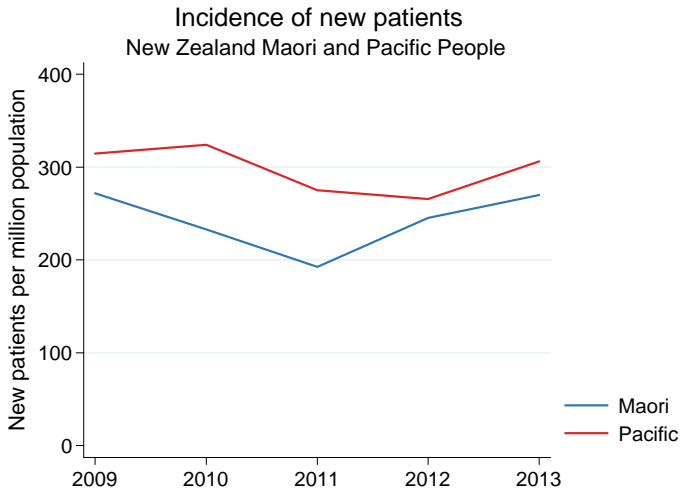


Figure 12.21

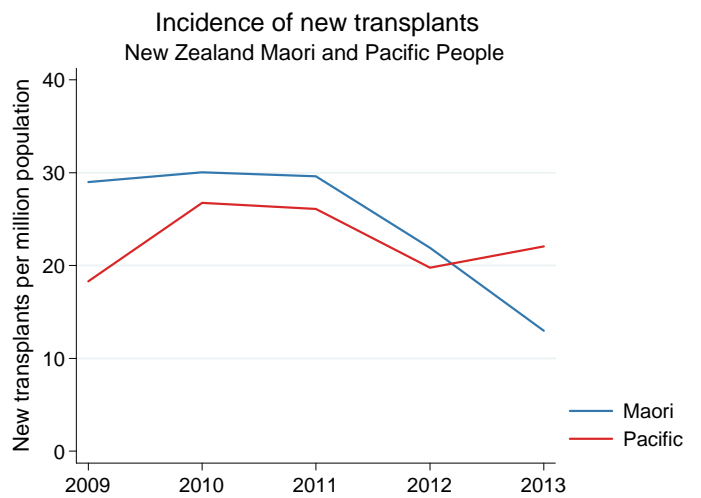


Figure 12.22

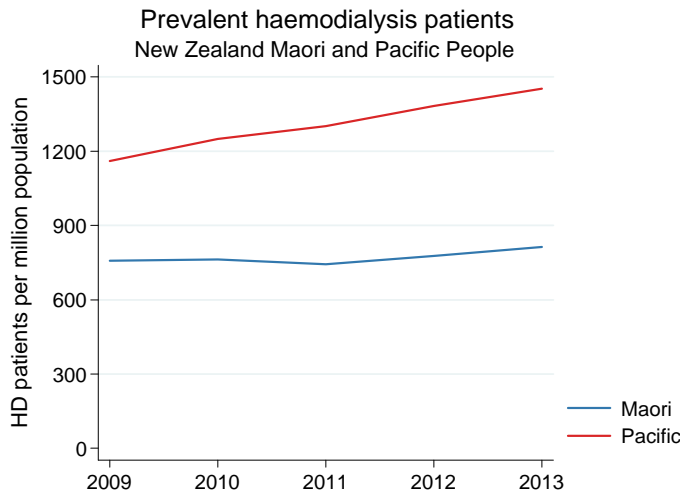


Figure 12.23

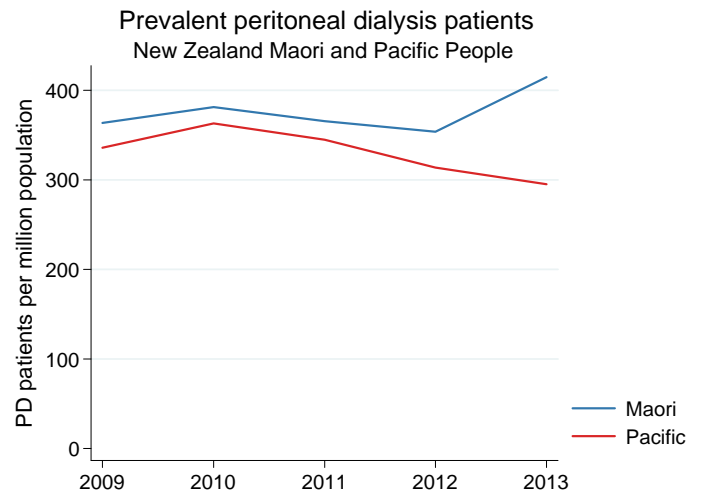


Figure 12.24

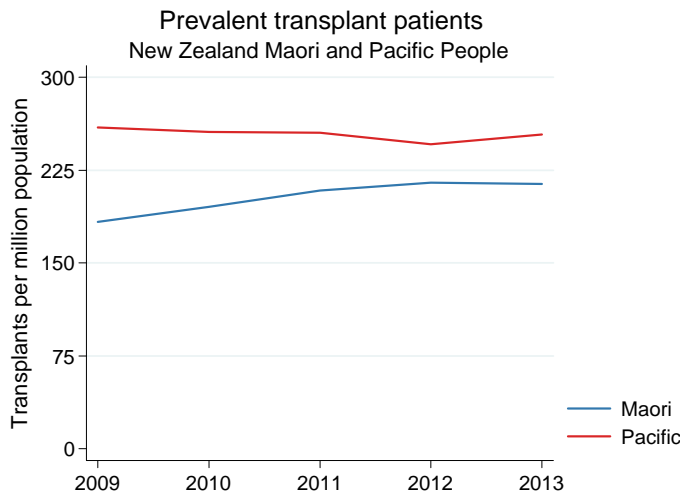
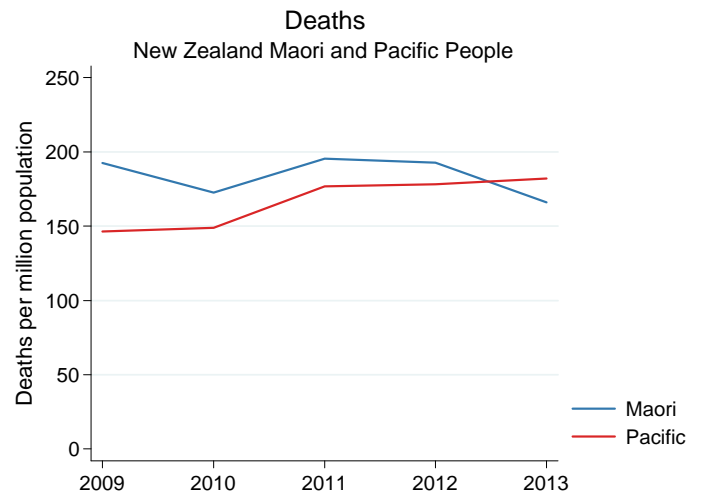


Figure 12.25



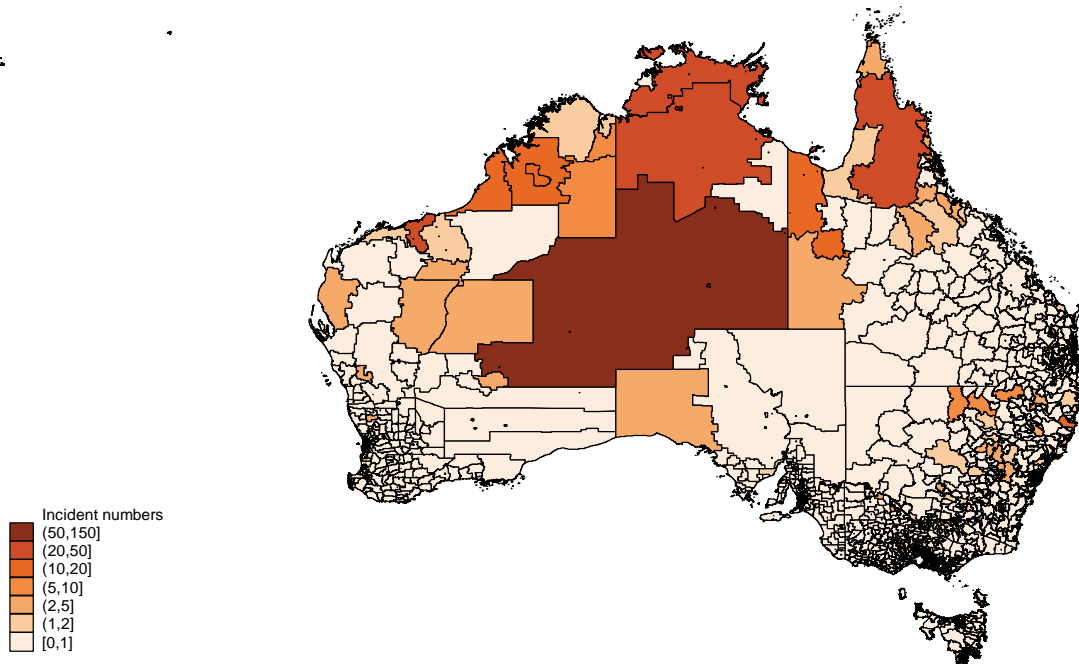


## Geographical distribution

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 (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 2009-2013 By postcode



**Figure 12.27**

### Prevalent indigenous patients 2013 By state

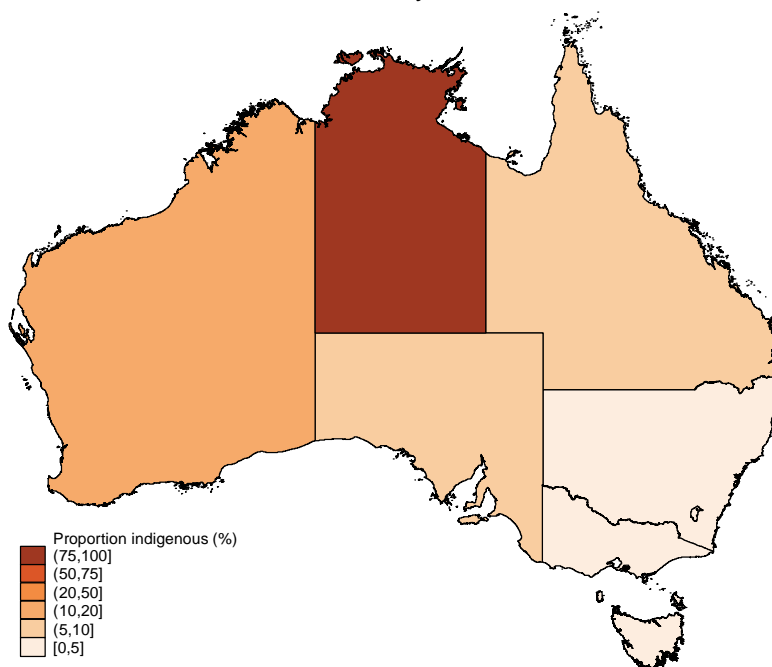
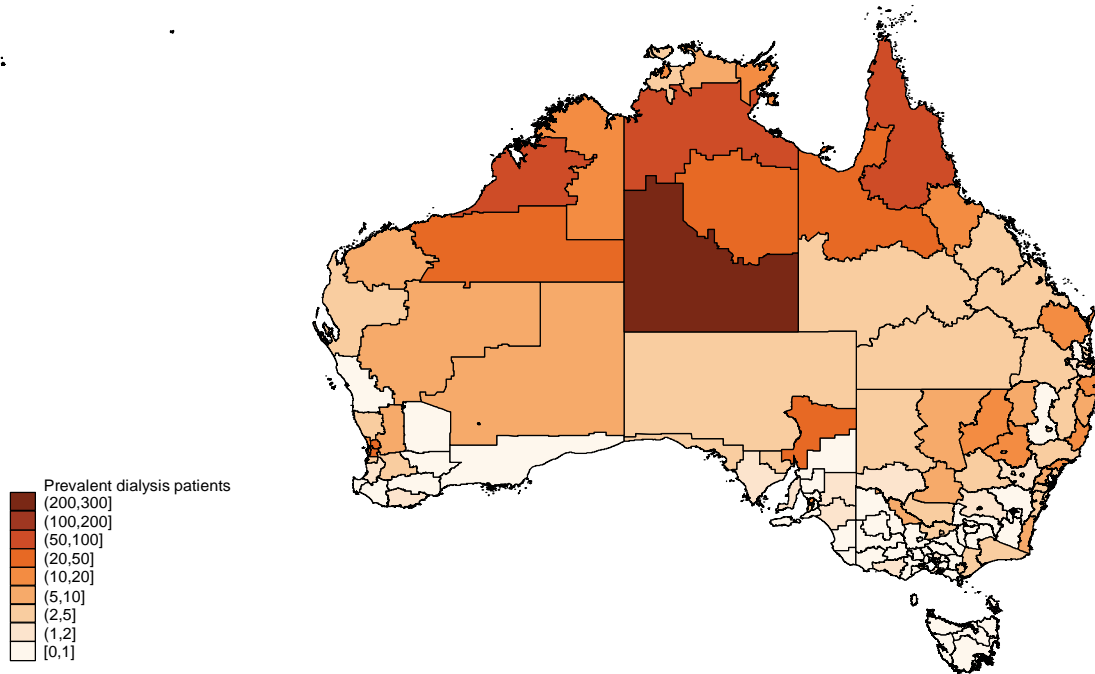


Figure 12.28

### Prevalent indigenous dialysis patients 2013 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 2013 decreased to 15% from 17% in 2012. For Pacific People, the proportion referred late increased to 22%.

Table 12.5

#### Percentage of Late Referral by Indigenous Status 2009 - 2013

Year	Australia		New Zealand		
	Non-indigenous	Aboriginal/TSI	Non-indigenous	Māori	Pacific People
2009	21%	22%	15%	22%	13%
2010	22%	25%	15%	19%	16%
2011	22%	30%	22%	18%	26%
2012	22%	26%	15%	17%	16%
2013	19%	18%	11%	15%	22%

## 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 2013 (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 2009-2013

Year	Vascular access	Australia		New Zealand		
		Non-indigenous	Aboriginal/TSI	Non-indigenous	Māori	Pacific People
2009	AVF	650 (41%)	62 (39%)	43 (27%)	31 (26%)	30 (37%)
	AVG	37 (2%)	2 (1%)	4 (3%)	3 (2%)	0 (0%)
	CVC	879 (56%)	94 (59%)	111 (70%)	87 (72%)	51 (63%)
	Not reported	1 (<1%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
2010	AVF	595 (38%)	65 (38%)	39 (26%)	19 (18%)	19 (23%)
	AVG	38 (2%)	1 (1%)	1 (1%)	5 (5%)	1 (1%)
	CVC	927 (59%)	105 (61%)	109 (73%)	82 (77%)	61 (75%)
	Not reported	3 (<1%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
2011	AVF	703 (43%)	94 (42%)	47 (30%)	30 (34%)	16 (22%)
	AVG	29 (2%)	2 (1%)	1 (1%)	0 (0%)	1 (1%)
	CVC	891 (55%)	127 (56%)	108 (69%)	59 (66%)	56 (77%)
	Not reported	10 (1%)	3 (1%)	0 (0%)	0 (0%)	0 (0%)
2012	AVF	662 (41%)	82 (39%)	48 (35%)	39 (33%)	24 (32%)
	AVG	24 (1%)	3 (1%)	3 (2%)	1 (1%)	0 (0%)
	CVC	890 (55%)	118 (57%)	86 (62%)	79 (66%)	50 (67%)
	Not reported	32 (2%)	5 (2%)	1 (1%)	0 (0%)	1 (1%)
2013	AVF	607 (39%)	62 (28%)	47 (34%)	38 (30%)	26 (30%)
	AVG	28 (2%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	CVC	883 (57%)	160 (72%)	91 (65%)	86 (68%)	61 (69%)
	Not reported	19 (1%)	1 (<1%)	2 (1%)	2 (2%)	1 (1%)

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 2009-2013

Year	Vascular access	Australia		New Zealand		
		Non-indigenous	Aboriginal/TSI	Non-indigenous	Māori	Pacific People
2009	AVF	5456 (76%)	863 (83%)	387 (64%)	348 (70%)	295 (78%)
	AVG	734 (10%)	43 (4%)	40 (7%)	32 (6%)	9 (2%)
	CVC	1025 (14%)	134 (13%)	178 (29%)	116 (23%)	76 (20%)
	Not reported	9 (<1%)	1 (<1%)	0 (0%)	0 (0%)	0 (0%)
2010	AVF	5772 (76%)	897 (84%)	439 (70%)	371 (73%)	319 (76%)
	AVG	713 (9%)	39 (4%)	36 (6%)	31 (6%)	12 (3%)
	CVC	1048 (14%)	135 (13%)	151 (24%)	106 (21%)	89 (21%)
	Not reported	17 (<1%)	2 (<1%)	2 (<1%)	0 (0%)	0 (0%)
2011	AVF	6067 (78%)	979 (83%)	455 (70%)	371 (74%)	342 (76%)
	AVG	659 (8%)	37 (3%)	38 (6%)	34 (7%)	8 (2%)
	CVC	1036 (13%)	151 (13%)	153 (24%)	95 (19%)	99 (22%)
	Not reported	40 (1%)	7 (1%)	0 (0%)	2 (<1%)	0 (0%)
2012	AVF	6046 (76%)	1022 (80%)	469 (70%)	388 (73%)	373 (76%)
	AVG	616 (8%)	40 (3%)	32 (5%)	26 (5%)	9 (2%)
	CVC	1101 (14%)	165 (13%)	160 (24%)	113 (21%)	101 (21%)
	Not reported	203 (3%)	47 (4%)	7 (1%)	5 (1%)	6 (1%)
2013	AVF	6274 (77%)	1061 (80%)	460 (69%)	403 (72%)	402 (76%)
	AVG	579 (7%)	41 (3%)	38 (6%)	30 (5%)	18 (3%)
	CVC	1174 (14%)	207 (16%)	159 (24%)	129 (23%)	106 (20%)
	Not reported	115 (1%)	17 (1%)	5 (1%)	1 (<1%)	1 (<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 2009-2013

Year	Event	QLD	NSW/ACT	VIC/TAS	SA	NT	WA	Australia
2009	New patients	48 (267)	21 (102)	10 (148)	16 (448)	59 (871)	41 (481)	195 (304)
	New Tx	1 (6)	6 (29)	1 (15)	7 (196)	0 (0)	9 (106)	24 (37)
	Preemptive Tx	0 (0)	2 (10)	0 (0)	0 (0)	0 (0)	0 (0)	2 (3)
	Prevalent dialysis	295 (1639)	143 (693)	39 (577)	72 (2018)	381 (5627)	253 (2969)	1183 (1841)
	Prevalent Tx	27 (150)	21 (102)	8 (118)	27 (757)	32 (473)	46 (540)	161 (251)
	Total prevalence	322 (1789)	164 (795)	47 (696)	99 (2774)	413 (6099)	299 (3509)	1344 (2092)
	Deaths	50 (278)	22 (107)	9 (133)	14 (392)	42 (620)	40 (469)	177 (275)
2010	New patients	62 (336)	31 (147)	13 (187)	17 (465)	52 (761)	32 (369)	207 (315)
	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	297 (1609)	153 (727)	47 (678)	71 (1942)	397 (5811)	249 (2868)	1214 (1850)
	Prevalent Tx	30 (163)	27 (128)	10 (144)	31 (848)	33 (483)	47 (541)	178 (271)
	Total prevalence	327 (1772)	180 (855)	57 (822)	102 (2789)	430 (6294)	296 (3410)	1392 (2121)
	Deaths	55 (298)	18 (85)	1 (14)	9 (246)	42 (615)	38 (438)	163 (248)
2011	New patients	64 (339)	36 (168)	12 (169)	17 (454)	66 (959)	61 (691)	256 (383)
	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	323 (1709)	164 (764)	52 (731)	79 (2112)	415 (6028)	274 (3104)	1307 (1953)
	Prevalent Tx	32 (169)	30 (140)	12 (169)	35 (936)	32 (465)	50 (566)	191 (285)
	Total prevalence	355 (1879)	194 (904)	64 (899)	114 (3047)	447 (6492)	324 (3671)	1498 (2238)
	Deaths	39 (206)	20 (93)	5 (70)	5 (134)	47 (683)	33 (374)	149 (223)
2012	New patients	52 (269)	48 (219)	14 (191)	12 (314)	84 (1200)	40 (444)	250 (366)
	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	340 (1757)	197 (900)	57 (779)	84 (2200)	453 (6473)	287 (3186)	1418 (2074)
	Prevalent Tx	37 (191)	29 (133)	13 (178)	31 (812)	33 (472)	49 (544)	192 (281)
	Total prevalence	377 (1948)	226 (1033)	70 (956)	115 (3011)	486 (6945)	336 (3730)	1610 (2354)
	Deaths	32 (165)	13 (59)	9 (123)	12 (314)	46 (657)	26 (289)	138 (202)
2013	New patients	61 (308)	40 (179)	11 (147)	14 (359)	76 (1068)	62 (674)	264 (378)
	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	356 (1795)	208 (932)	54 (720)	82 (2103)	477 (6706)	301 (3274)	1478 (2116)
	Prevalent Tx	43 (217)	30 (134)	15 (200)	31 (795)	35 (492)	50 (544)	204 (292)
	Total prevalence	399 (2012)	238 (1066)	69 (920)	113 (2898)	512 (7198)	351 (3818)	1682 (2408)
	Deaths	39 (197)	24 (108)	12 (160)	18 (462)	46 (647)	47 (511)	186 (266)

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

**Table 12.8.2**

**Patient Flow (pmp) New Zealand 2009-2013**

Year	Event	Non-indigenous	Māori	Pacific
2009	New patients	303 (91)	178 (272)	103 (315)
	New Tx	96 (29)	19 (29)	6 (18)
	Preemptive Tx	22 (7)	2 (3)	0 (0)
	Prevalent dialysis	1057 (318)	734 (1121)	490 (1496)
	Prevalent Tx	1202 (362)	120 (183)	85 (260)
	Total prevalence	2259 (680)	854 (1304)	575 (1756)
	Deaths	194 (58)	126 (192)	48 (147)
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 (324)	762 (1144)	542 (1612)
	Prevalent Tx	1228 (367)	130 (195)	86 (256)
	Total prevalence	2312 (690)	892 (1340)	628 (1868)
	Deaths	190 (57)	115 (173)	50 (149)
2011	New patients	262 (78)	130 (192)	95 (275)
	New Tx	89 (26)	20 (30)	9 (26)
	Preemptive Tx	15 (4)	0 (0)	0 (0)
	Prevalent dialysis	1075 (320)	749 (1109)	568 (1646)
	Prevalent Tx	1257 (374)	141 (209)	88 (255)
	Total prevalence	2332 (693)	890 (1318)	656 (1901)
	Deaths	223 (66)	132 (195)	61 (177)
2012	New patients	255 (76)	168 (246)	94 (266)
	New Tx	86 (26)	15 (22)	7 (20)
	Preemptive Tx	16 (5)	1 (1)	1 (3)
	Prevalent dialysis	1093 (324)	774 (1131)	600 (1697)
	Prevalent Tx	1287 (382)	147 (215)	87 (246)
	Total prevalence	2380 (706)	921 (1346)	687 (1943)
	Deaths	201 (60)	132 (193)	63 (178)
2013	New patients	248 (73)	187 (270)	111 (306)
	New Tx	98 (29)	9 (13)	8 (22)
	Preemptive Tx	16 (5)	2 (3)	1 (3)
	Prevalent dialysis	1100 (325)	850 (1228)	634 (1748)
	Prevalent Tx	1332 (393)	148 (214)	92 (254)
	Total prevalence	2432 (718)	998 (1442)	726 (2002)
	Deaths	200 (59)	115 (166)	66 (182)

## Cause of Death

The causes of death in 2013 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.

Table 12.9

Cause of Death 2013

Modality	Cause of death	Australia		New Zealand		
		Non-indigenous	Aboriginal/TSI	Non-indigenous	Māori	Pacific People
Dialysis	Cardiovascular	390 (29%)	69 (39%)	59 (36%)	52 (47%)	30 (45%)
	Withdrawal	521 (39%)	36 (20%)	47 (28%)	19 (17%)	5 (8%)
	Cancer	57 (4%)	4 (2%)	3 (2%)	2 (2%)	2 (3%)
	Infection	107 (8%)	17 (10%)	24 (14%)	18 (16%)	13 (20%)
	Other	266 (20%)	51 (29%)	33 (20%)	19 (17%)	16 (24%)
	<b>Total</b>		<b>1341</b>	<b>177</b>	<b>166</b>	<b>110</b>
Transplant	Cardiovascular	53 (25%)	2 (22%)	8 (30%)	0 (0%)	0 (0%)
	Withdrawal	18 (8%)	0 (0%)	2 (7%)	0 (0%)	0 (0%)
	Cancer	62 (29%)	0 (0%)	8 (30%)	1 (25%)	0 (0%)
	Infection	37 (17%)	1 (11%)	4 (15%)	1 (25%)	0 (0%)
	Other	46 (21%)	6 (67%)	5 (19%)	2 (50%)	0 (0%)
	<b>Total</b>		<b>216</b>	<b>9</b>	<b>27</b>	<b>4</b>

**Suggested Citation:**

ANZDATA Registry. 37th Report, Chapter 12: Indigenous People and End Stage Kidney Disease. Australia and New Zealand Dialysis and Transplant Registry, Adelaide, Australia. 2015. Available at: <http://www.anzdata.org.au>

C-\ Royal Adelaide Hospital  
East Wing 9th Floor  
North Terrace, Adelaide  
South Australia  
Australia

[www.anzdata.org.au](http://www.anzdata.org.au)

2015 ©