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; for New Zealand, analyses include Maori and Pacific Peoples. In all cases, indigenous origin is reported by the renal unit on the basis of self-description. Maori and Pacific Peoples resident in Australia and Aboriginal and Torres Strait islanders resident in New Zealand are not considered "indigenous" unless otherwise specified. For some tables, we have also included data on Maori and Pacific Peoples living in Australia. While not indigenous to Australia, these have been included as useful comparators with the NZ experience of this group.

Figure 12.1

New Patients 2007 - 2012

		Australia			New Zealand			
Mode of Treatment		Non-Indigenous	ATSI	Total	Non-Indigenous	Maori	Pacific People	Total
2007	PD	532	56	588	83	35	13	131
	HD	1,546	183	1,729	139	108	64	311
	Graft	65	0	65	23	3	0	26
2008	PD	606	51	657	96	35	22	153
	HD	1,593	199	1,792	136	119	65	320
	Graft	100	0	100	21	3	0	24
2009	PD	552	35	587	124	53	22	199
	HD	1,558	159	1,717	158	121	81	360
	Graft	115	2	117	22	2	0	24
2010	PD	460	36	496	88	47	28	163
	HD	1,554	168	1,722	147	106	80	333
	Graft	101	0	101	14	2	0	16
2011	PD	513	30	543	90	37	22	149
	HD	1,591	220	1,811	152	89	72	313
	Graft	99	0	99	15	0	0	15
2012	PD	614	43	657	100	46	18	164
	HD	1577	211	1788	138	120	73	331
	Graft	89	0	89	16	1	1	18
	Total	**15,535**	**1,623**	**17,158**	**1,819**	**1,100**	**642**	**3,561**

NEW PATIENTS

Figures 12.1 - 12.7

Australia

A total of 254 Aboriginal and Torres Strait Islander People commenced dialysis in Australia during 2012. The majority (88%) were treated with haemodialysis as their initial RRT modality. No pre-emptive transplants were performed among Aboriginal Australians in 2012.

New Zealand

The number of Maori and Pacific People starting dialysis increased in 2012 (166 patients) and decreased (91 patients) respectively.

46 (28% of total) Maori patients commenced on PD in 2012 while the number of Pacific Peoples starting with PD was 20%.

Figure 12.2

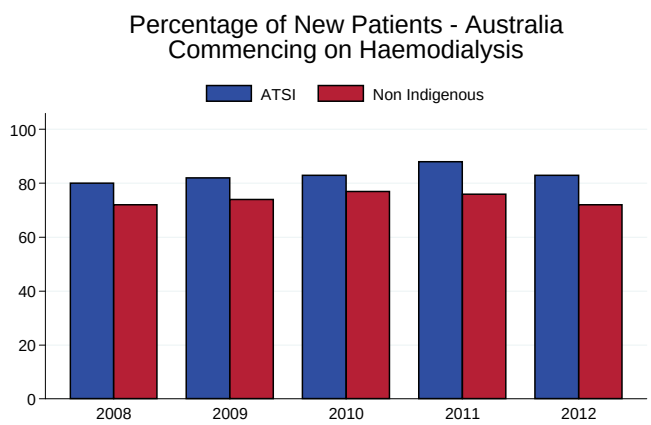
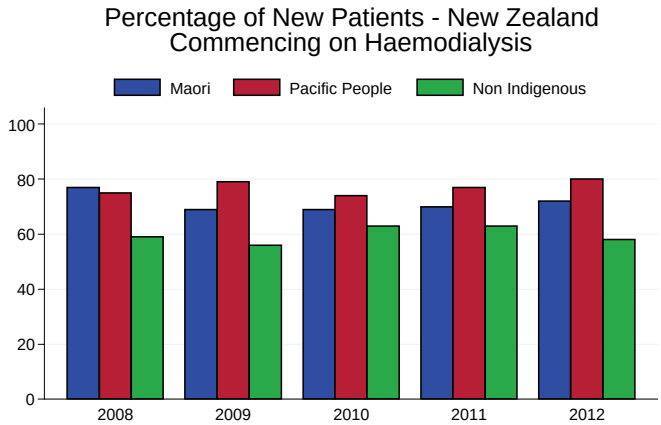


Figure 12.3

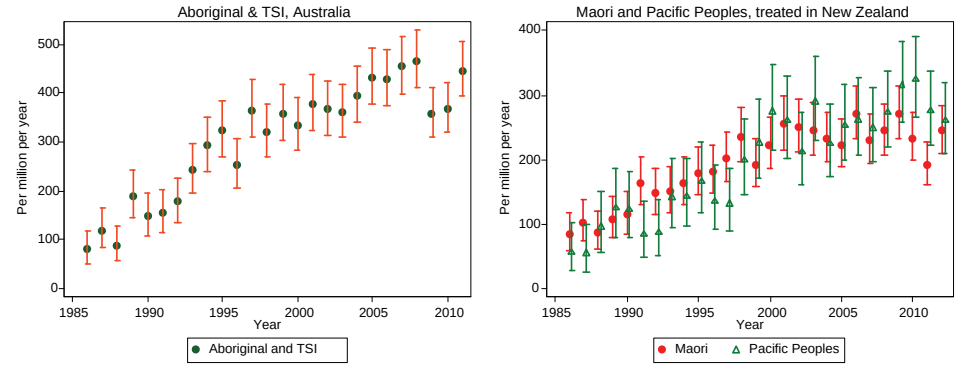


INCIDENCE RATES

Overall, the incidence rates (per million population) of indigenous peoples in Australia and NZ are considerably higher than that 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. The relative rate differs with age and also (for Aboriginal Australians) with gender - this is illustrated in Figure 12.5.

Figure 12.4

Unadjusted incident RRT rate



ANZDATA
Note X and Y scales differ

Figure 12.5

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.

Relative incidence rate Aboriginal vs non Aboriginal
Australia, 2008-2012

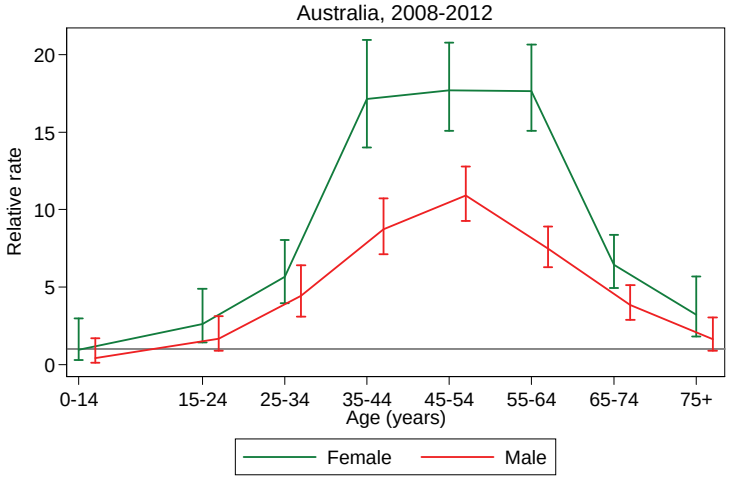
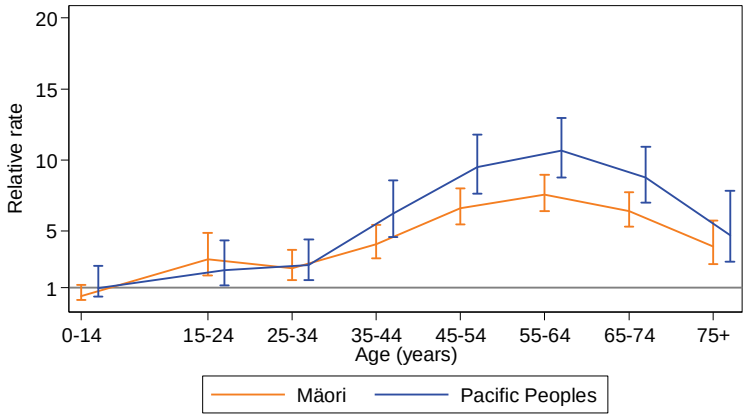


Figure 12.6

Among Maori and Pacific People the excess rate is concentrated among older groups, and there is no gender difference.

Relative incidence rate
Mäori & Pacific Peoples vs non-Mäori
New Zealand, 2008-2012

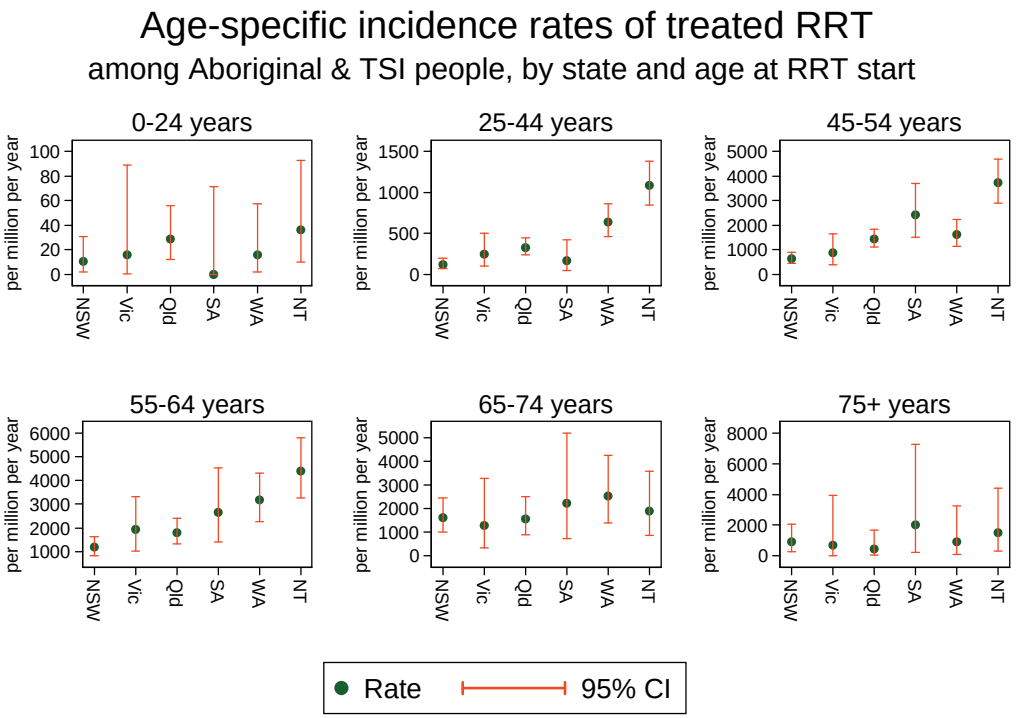


The relative rates for male and female are similar at all ages for Mäori and Pacific Peoples

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 12.7.

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 is shown for a three year period given the small numbers in some locations.

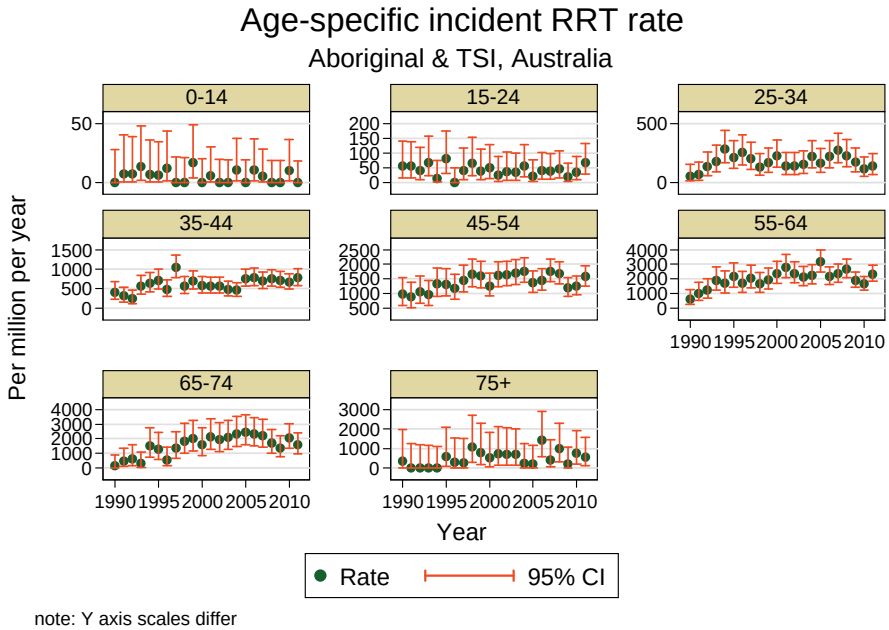
Figure 12.7



ANZDATA and ABS data, 2010-12

The overall stabilisation of rates among Aboriginal Australians is seen consistently across each age group. In some age groups (such as 25-34 & 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.

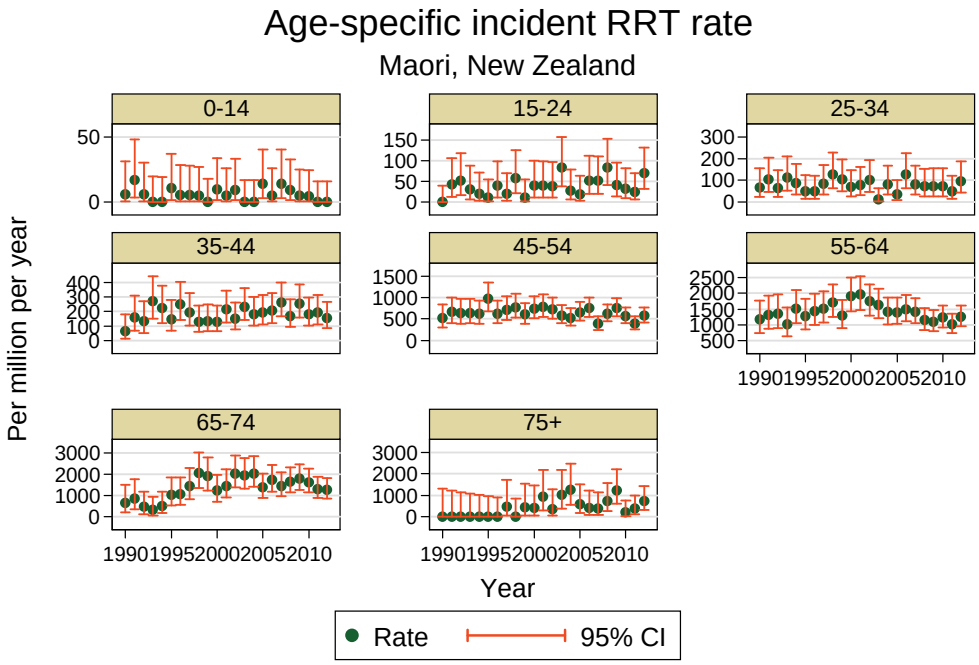
Figure 12.8



note: Y axis scales differ

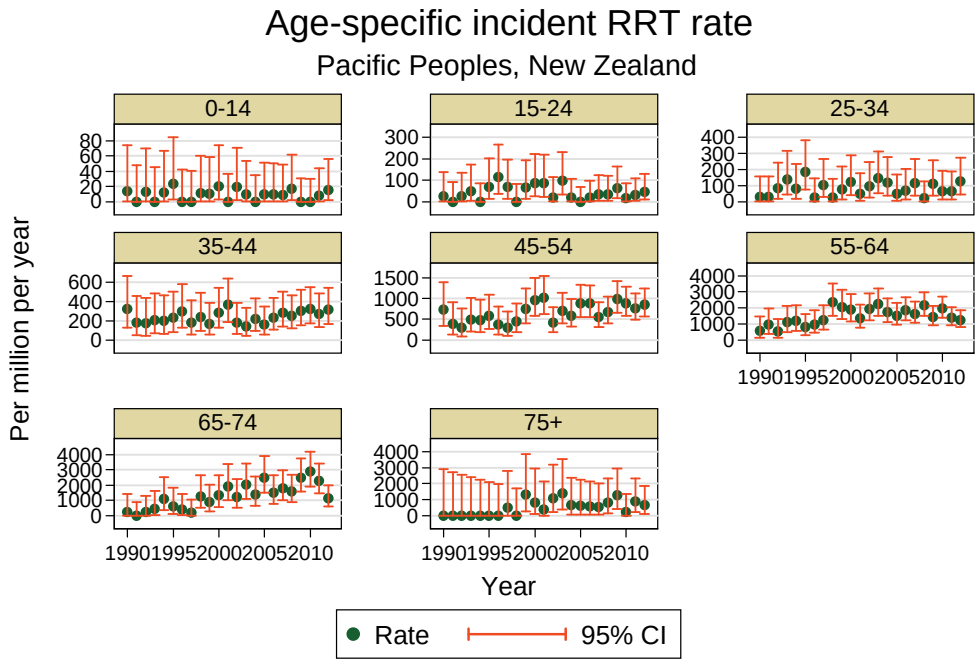
Age specific trends for Maori and Pacific Peoples are shown in Figures 12.9 and 12.10. Note that the Y axis scale varies.

Figure 12.9



note: Y axis scales differ

Figure 12.10



note: Y axis scales differ

NEW TRANSPLANTS

In both Australia and New Zealand numbers of transplants to indigenous recipients were low.

Australia

Over the period 2002-2012 there was an increase in the number of transplants from deceased donors, which now have stabilised. Numbers from living donors remain extremely low. The table also contains transplants to Maori and Pacific people resident in Australia; the number of these increased over 2002-2010, and has now stabilised.

New Zealand

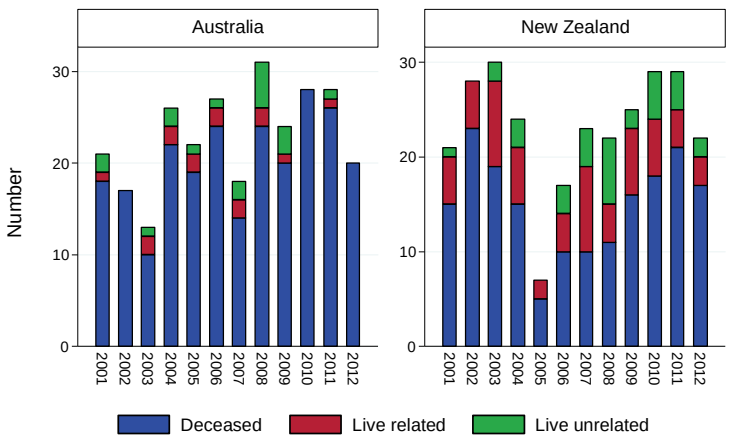
The number of transplants to Maori and Pacific Peoples recipients remains stable. In contrast to the situation in Australia, there is a higher proportion of transplants from living donors.

Figure 12.11

New Transplants 2001 - 2012

		Australia				New Zealand			
Year	Donor Source	Non-Indigenous	ATSI	Maori	Pacific People	Non-Indigenous	ATSI	Maori	Pacific People
2002	LD	226	0	1	3	43		3	2
	DD	353	17	1	3	46		10	13
	Total	**579**	**17**	**2**	**6**	**89**		**13**	**15**
2003	LD	214	3	0	1	33		8	3
	DD	314	10	1		48		8	11
	Total	**528**	**13**	**1**	**1**	**81**		**16**	**14**
2004	LD	239	4	0	1	39		5	4
	DD	377	22	1	6	42		7	8
	Total	**616**	**26**	**1**	**7**	**81**		**12**	**12**
2005	LD	239	3	0	4	44			2
	DD	357	19	0	1	42		3	2
	Total	**596**	**22**	**0**	**5**	**86**		**3**	**4**
2006	LD	265	3	0	5	42		4	3
	DD	337	24	5	2	31		6	4
	Total	**602**	**27**	**5**	**7**	**73**		**10**	**7**
2007	LD	261	4	1	5	45		9	4
	DD	327	14	1	2	55		8	2
	Total	**588**	**18**	**2**	**7**	**100**		**17**	**6**
2008	LD	341	7	2	4	58		7	4
	DD	430	24	0	5	42		5	6
	Total	**771**	**31**	**2**	**9**	**100**		**12**	**10**
2009	LD	320	4	2	1	58		8	1
	DD	418	20	3	5	38		11	5
	Total	**738**	**24**	**5**	**6**	**96**		**19**	**6**
2010	LD	292	0	1	3	49		7	4
	DD	512	28	1	9	32		13	5
	Total	**804**	**28**	**2**	**12**	**81**		**20**	**9**
2011	LD	249	2	1	3	49		6	2
	DD	521	26	10	13	40		14	7
	Total	**770**	**28**	**11**	**16**	**89**		**20**	**9**
2012	LD	235	0	3	0	49		4	1
	DD	566	20	8	13	37		11	6
	Total	**801**	**20**	**11**	**13**	**86**		**15**	**7**

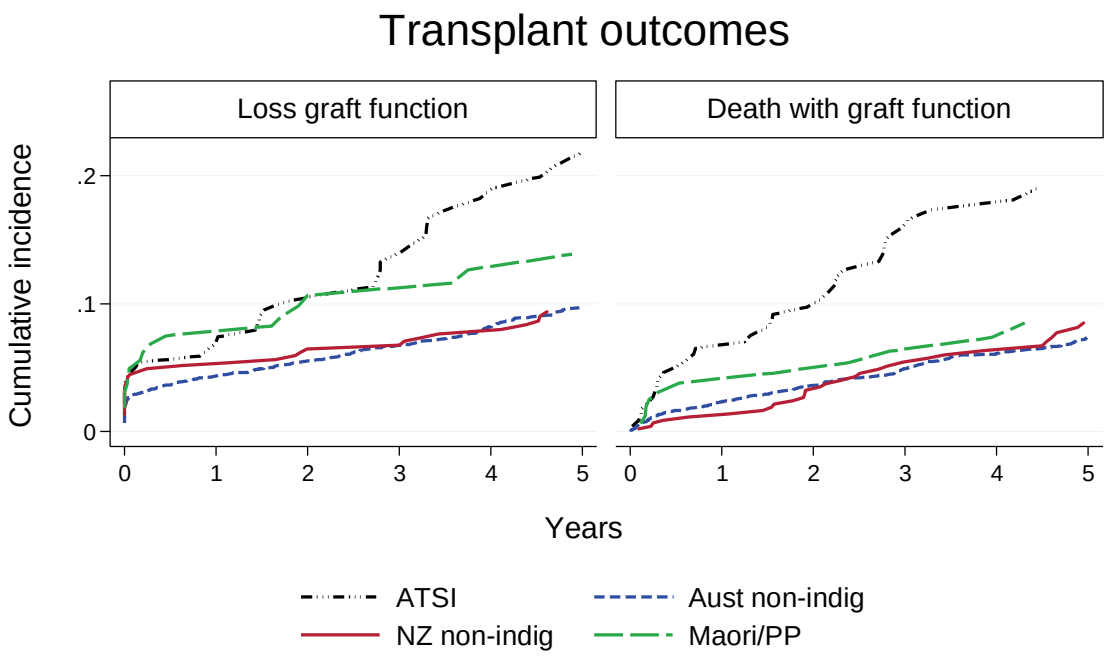
Figure 12.12
Indigenous Transplant Numbers. Australian figures include ATSI only.



Indigenous transplants numbers
ATSI in Australia, Maori and PP in New Zealand

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 12.13. 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. Both of these differences are progressive over time. Lesser differences are seen for Maori / PP. In particular, the excess death rate among Maori/PP stabilises after the initial months.

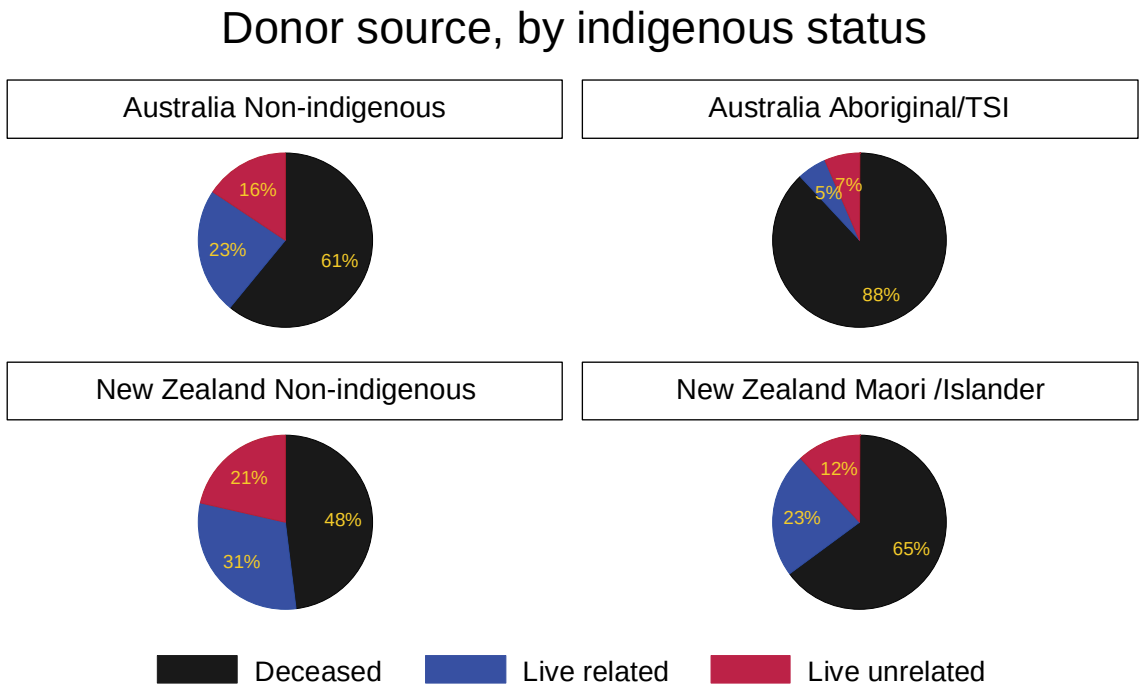
Figure 12.13



ANZDATA, all grafts 1 Jan 2001 to 31 Dec 2012
DD1, cumulative incidence competing risks

Information on donor source is shown in Figure 12.14. There are substantially lower rates of living donation among indigenous groups in Australia, with a lesser difference in New Zealand. Australian figures include ATSI only.

Figure 12.14



ANZDATA, Donor source, grafts 1 Jan 2001 to 31 Dec 2012

TREATMENT OF PREVALENT PATIENTS

Australia

The number of prevalent Aboriginal and Torres Strait Islander People with treated end-stage kidney disease increased to 1618, continuing a gradual increase. The percentage of ATSI on home haemodialysis was 7% in 2012 (this includes patients who perform independent self-care dialysis in community settings).

The percentage of ATSI treated with peritoneal dialysis was steady in 2012.

New Zealand

The number of prevalent Maori with treated end-stage kidney disease increased in 2012, whilst Pacific People remained the same. The percentage of Maori (24%) treated with home haemodialysis remains similar to past years, whilst in Pacific People this percentage (17%) has increased since 2008.

Figure 12.15

Prevalent Patients 2008 - 2012
(% Haemodialysis Patients on Home HD)

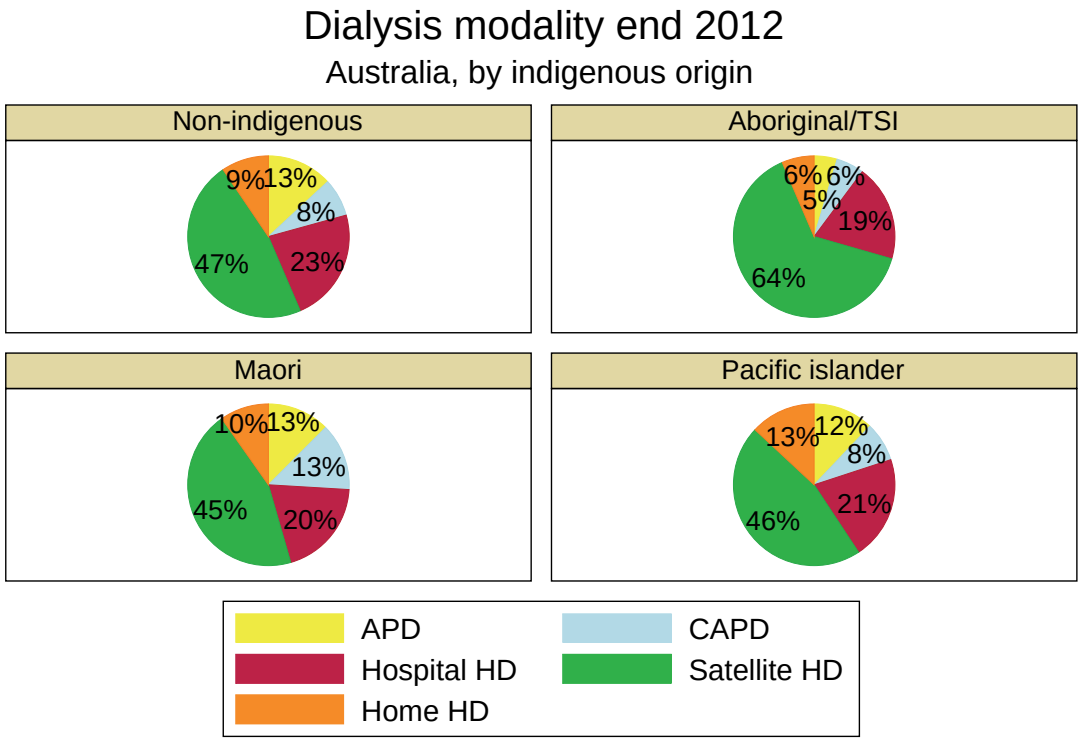
		Australia				New Zealand		
Year	**Mode of Treatment**	**Non-Indigenous**	**Aboriginal/ TSI**	**Maori**	**Pacific People**	**Non-Indigenous**	**Maori**	**Pacific People**
2008	**PD**	2015	166	21	40	434	224	108
	HD	6711 (13%)	997 (5%)	58 (14%)	169 (14%)	550 (32%)	463 (24%)	329 (13%)
	Func TX*	7430	159	29	62	1154	110	81
2009	**PD**	1997	142	18	46	453	238	109
	HD	6981 (12%)	1042 (7%)	69 (16%)	177 (16%)	605 (33%)	492 (26%)	380 (13%)
	Func TX*	7809	160	34	65	1196	117	84
2010	**PD**	1882	142	25	44	455	255	121
	HD	7270 (12%)	1072 (7%)	78 (17%)	194 (15%)	628 (36%)	507 (26%)	421 (17%)
	Func TX*	8232	177	33	73	1223	128	86
2011	**PD**	1868	134	22	48	428	247	120
	HD	7498 (12%)	1173 (6%)	79 (18%)	211 (18%)	649 (36%)	500 (26%)	449 (16%)
	Func TX*	8569	190	42	83	1252	141	88
2012	**PD**	1995	145	29	58	422	240	110
	HD	7624 (12%)	1280 (7%)	83 (13%)	232 (16%)	674 (38%)	533 (24%)	490 (17%)
	Func TX*	8978	193	49	90	1286	148	89

* By Resident Country at 31st December

DIALYSIS MODALITY

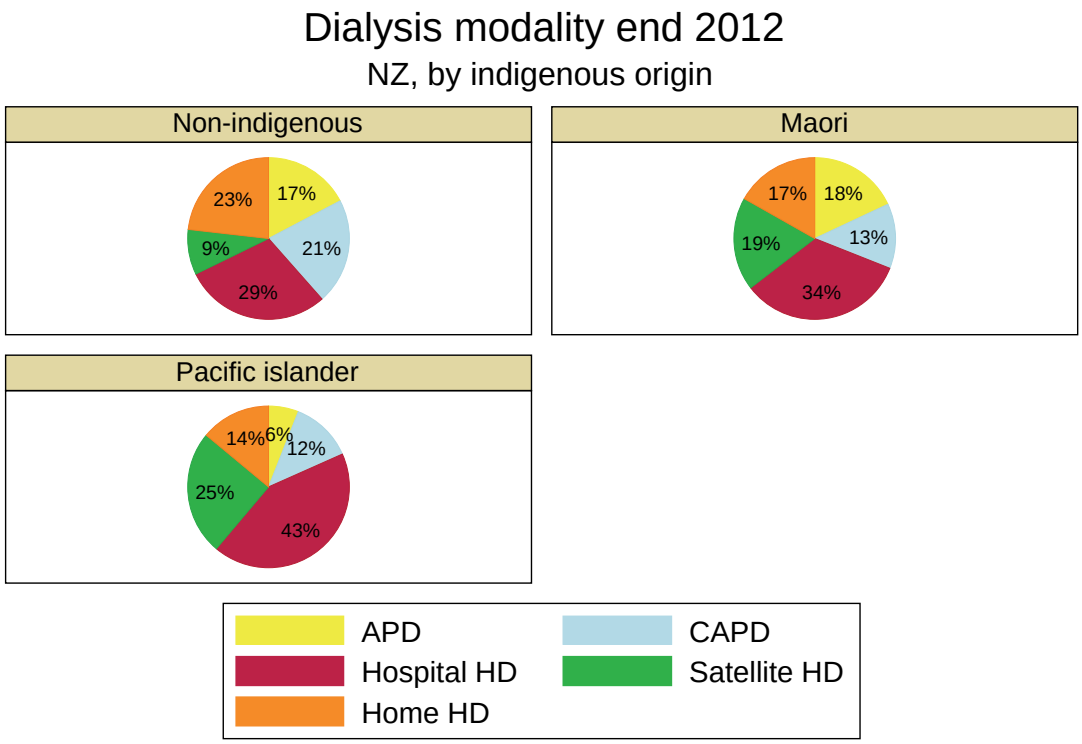
The distribution of dialysis modality is shown graphically in Figures 12.16 below. Among indigenous Australians, the principal differences are a substantially lower rate of home HD and APD. This figure also includes the experience for Maori and Pacific Peoples treated in Australia at the end of 2012; their experience is similar to non-indigenous groups. Similar data is shown for New Zealand in Figure 12.17. Again, rates of home treatments (home HD in particular) are lower among the indigenous groups.

Figure 12.16



Patients at end 2012 dialysing and resident in Australia

Figure 12.17

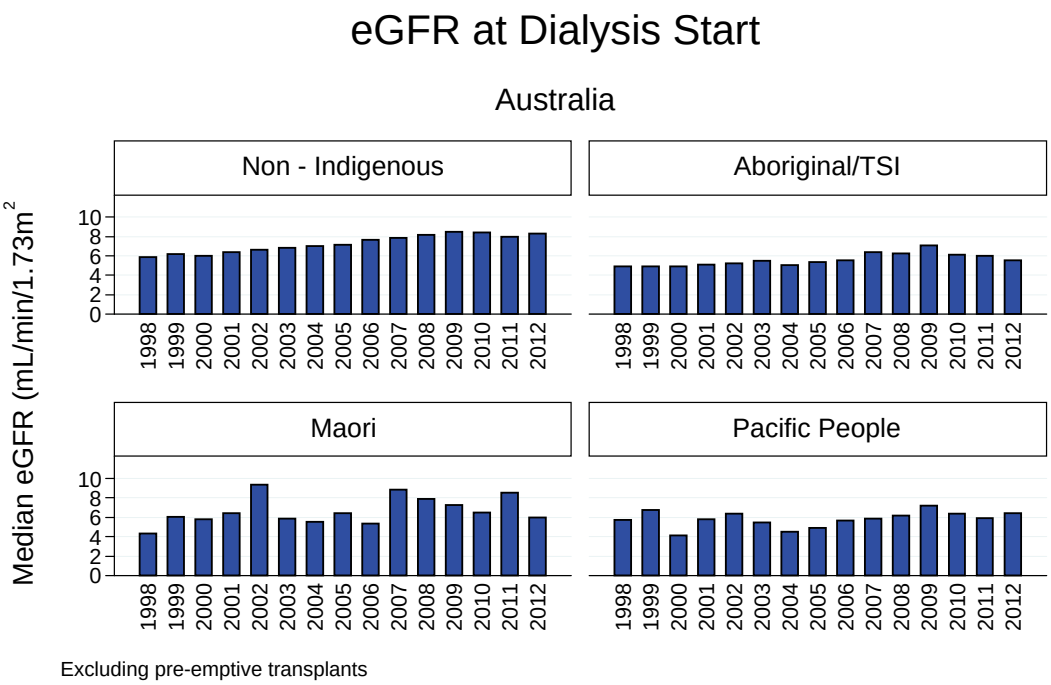


Patients at end 2012 dialysing and resident in New Zealand

ESTIMATED GLOMERULAR FILTRATION RATE AT TREATMENT START

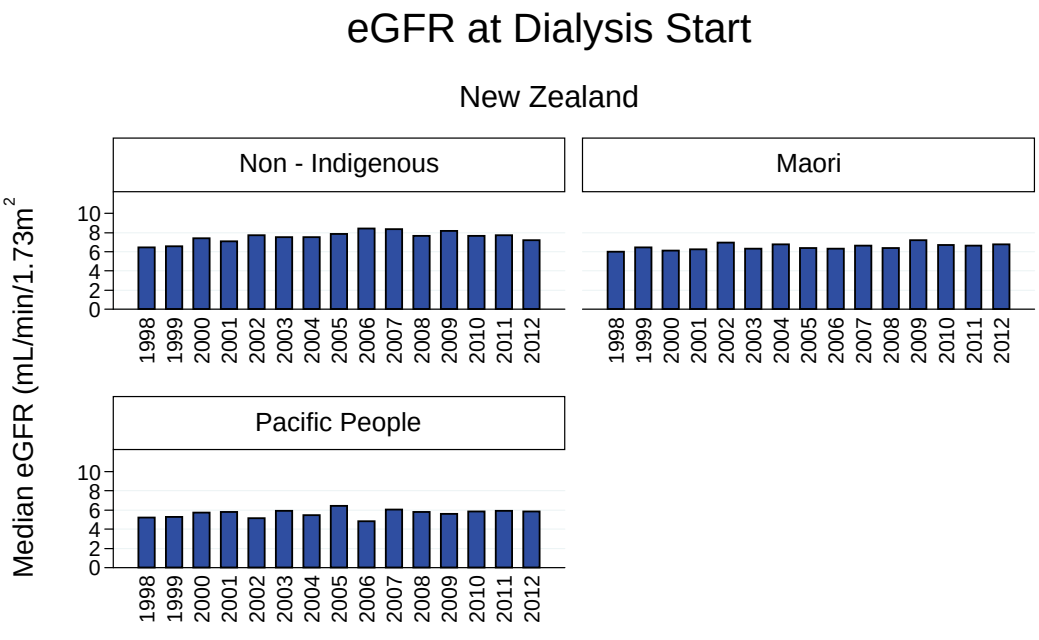
In both Australia and New Zealand, there has been a gradual trend towards lower eGFR at the time of dialysis start, over 2011/12 among all groups. However, there is also a consistent difference (in both countries) between indigenous and non-indigenous, with higher eGFR values among the non-indigenous groups.

Figure 12.18



Excluding pre-emptive transplants

Figure 12.19



Excluding pre-emptive transplants

INCIDENCE AND PREVALENCE BY STATE/TERRITORY

The next four pages show a variety of figures which 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 has the highest national incidence among indigenous people of treated end-stage kidney disease in Australia at 743pmp, the next highest is in South Australia (527 pmp).

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.

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 12.23

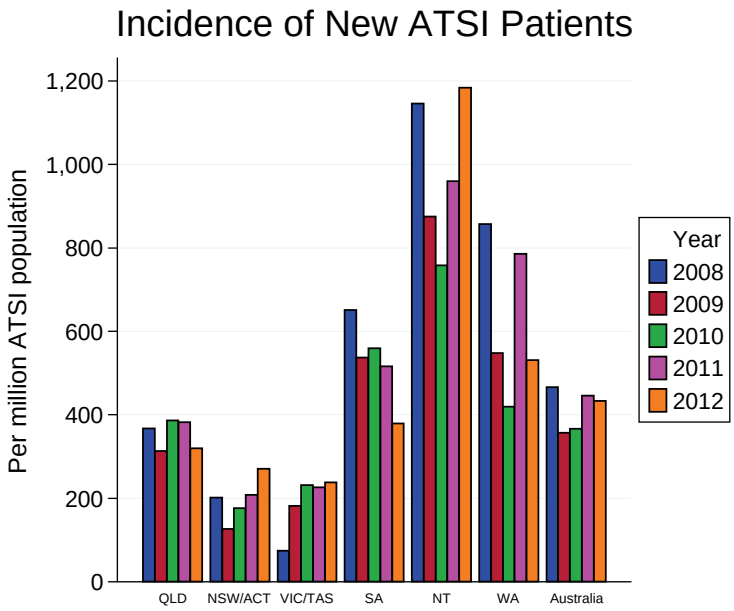


Figure 12.24

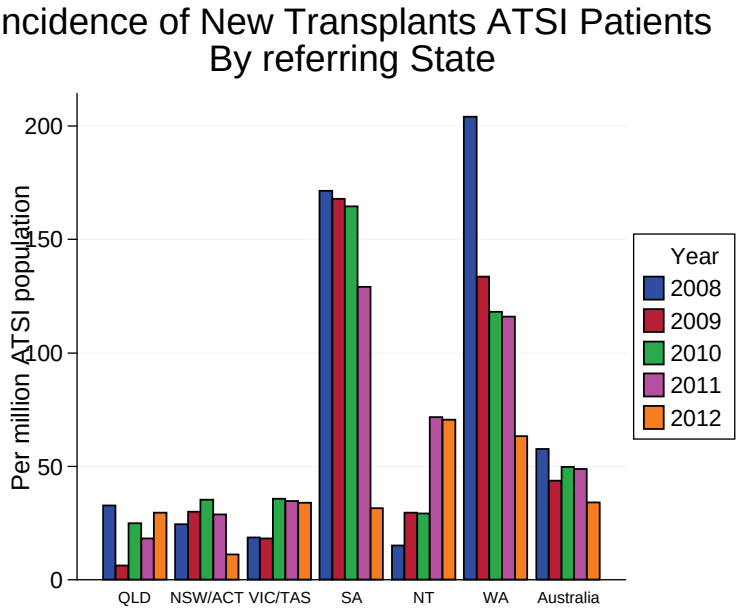


Figure 12.25

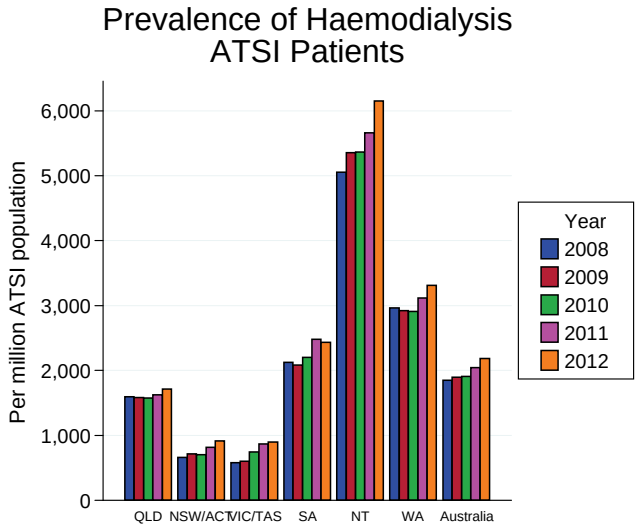


Figure 12.26

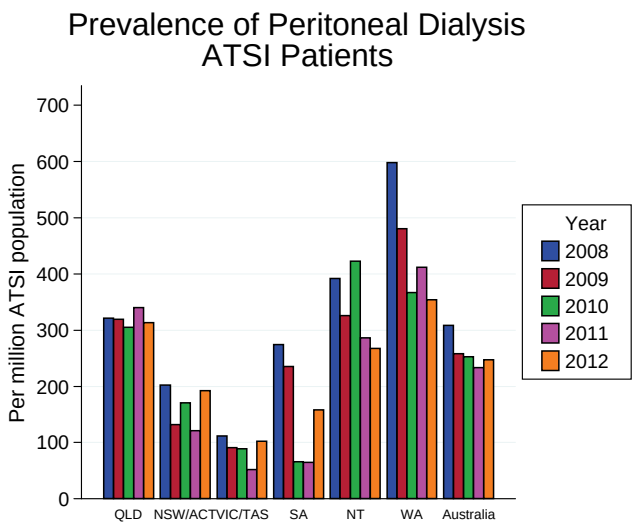


Figure 12.27

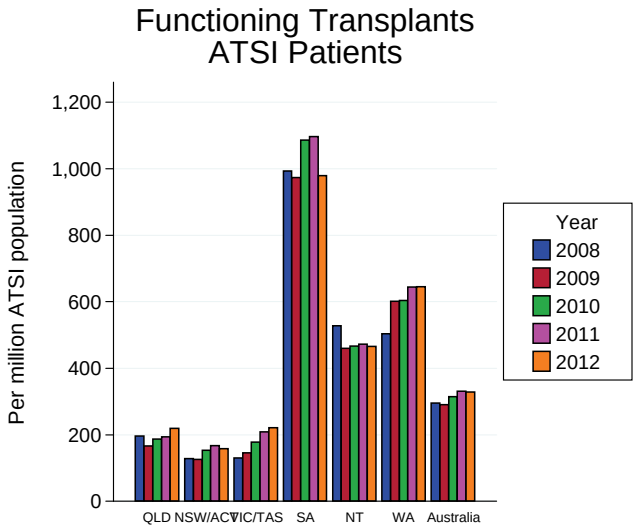


Figure 12.28

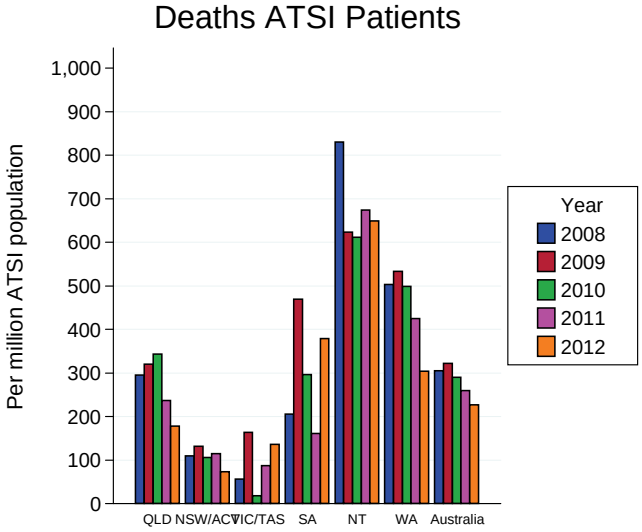


Figure 12.29

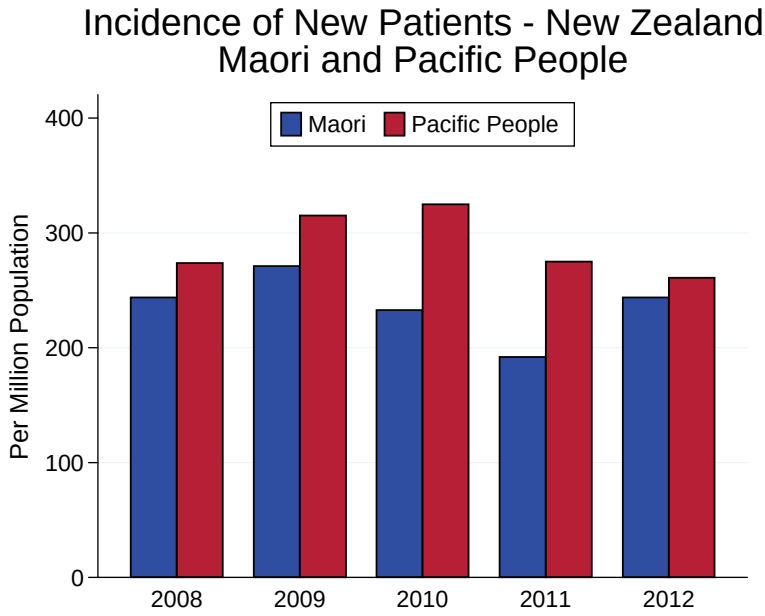


Figure 12.30

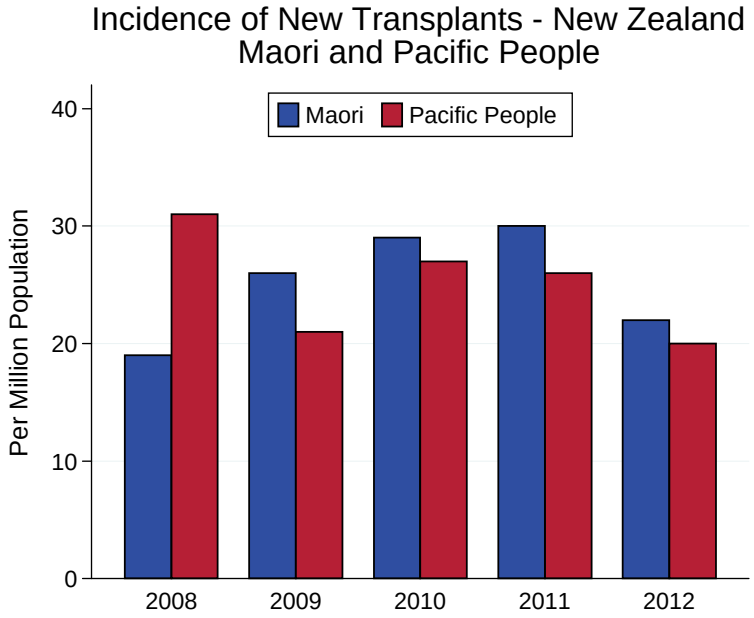


Figure 12.31

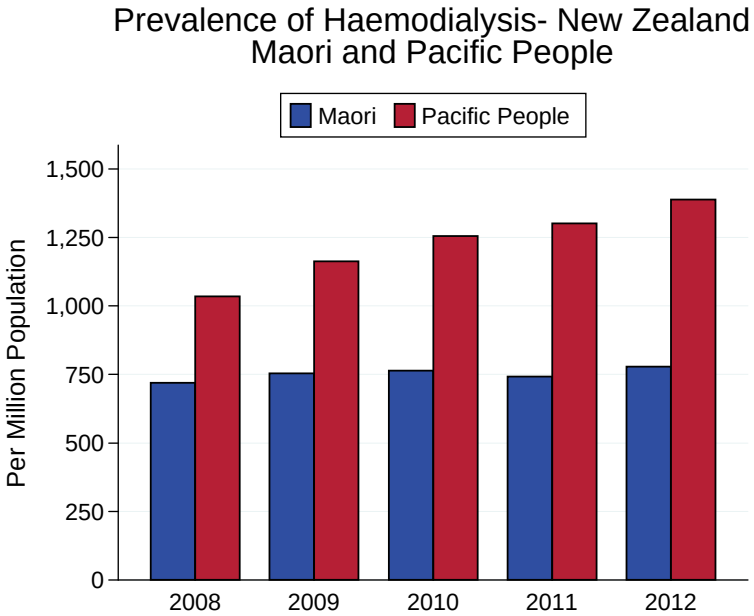


Figure 12.32

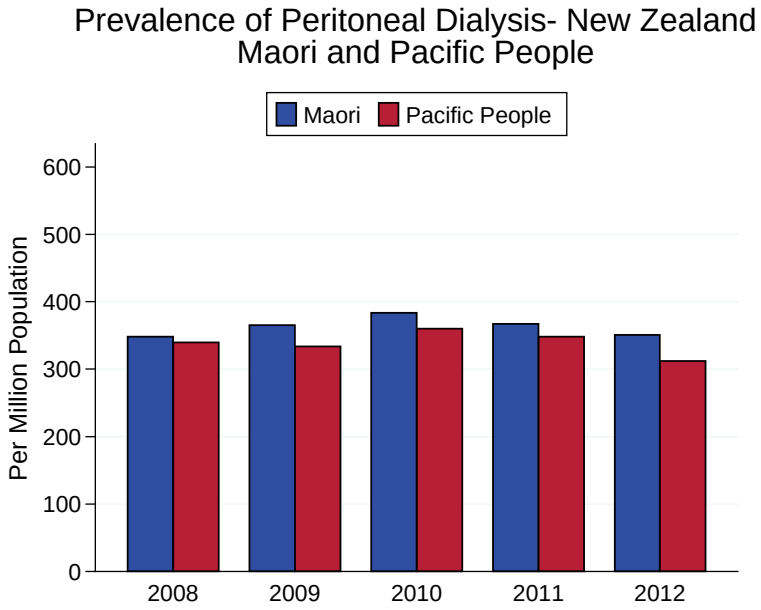


Figure 12.33

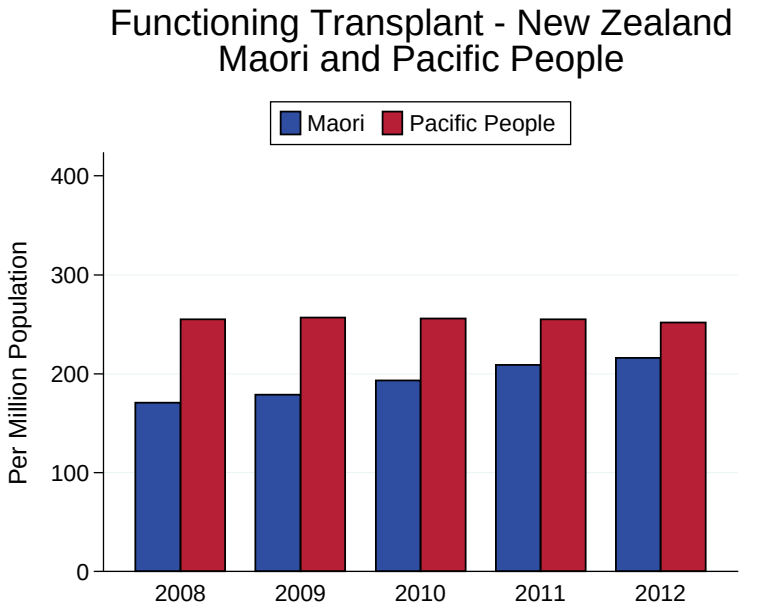
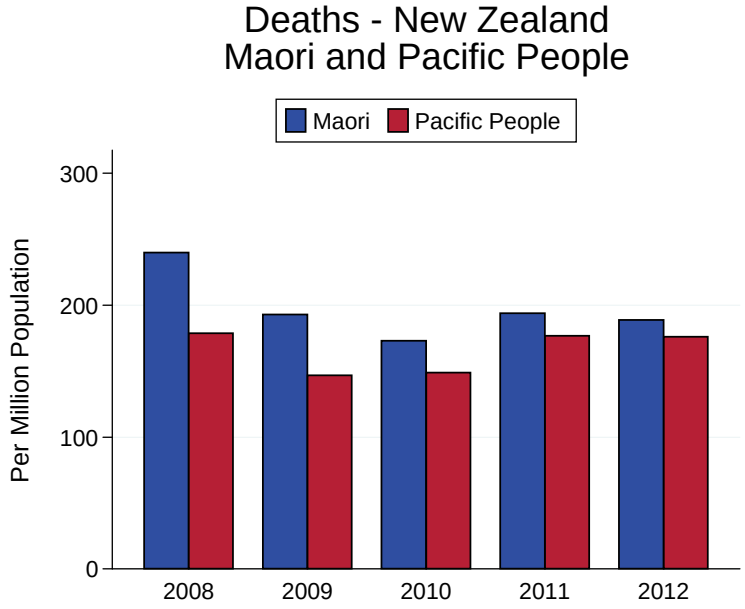
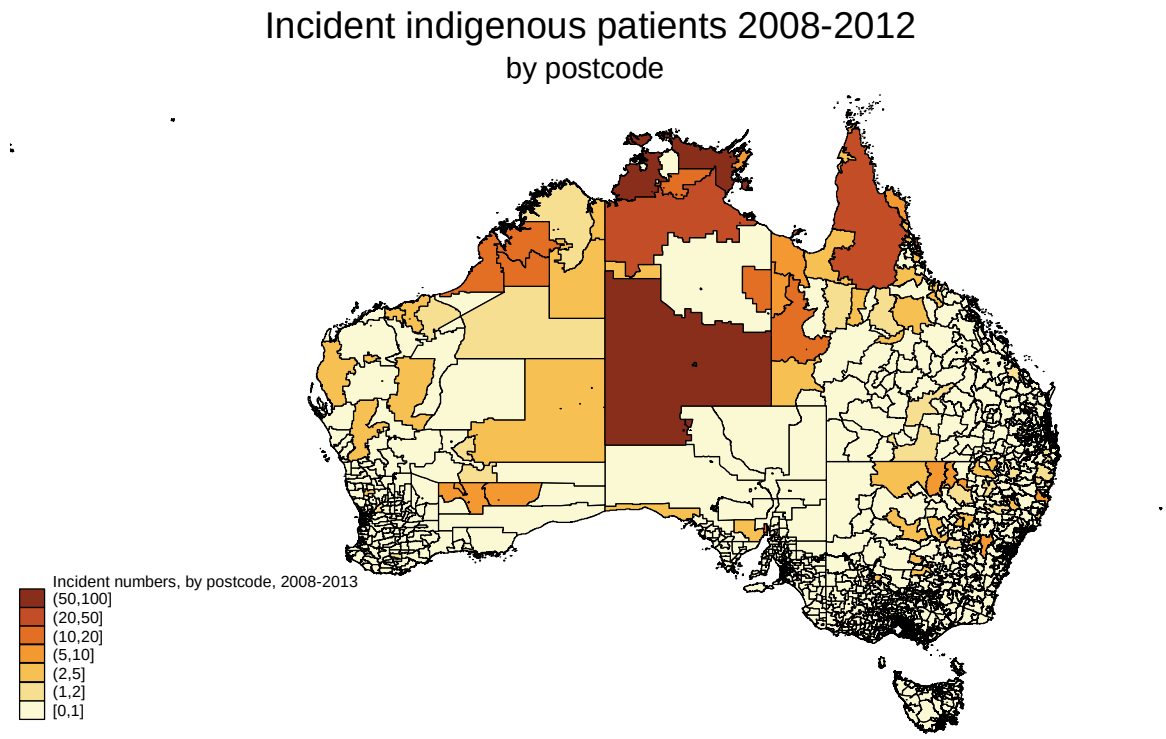


Figure 12.34



GEOGRAPHICAL DISTRIBUTION

Figure 12.35 shows the number of incident ATSI (patients by postcode) The distribution of prevalent dialysis patients are summarized in Figure 12.36 (by state) and 12.37 by statistical subdivision (obtained by mapping postcodes to SSD). Note that some postcodes were distributed over more than one SSD



ANZDATA, indigenous patients only, based on postcode at first RRT

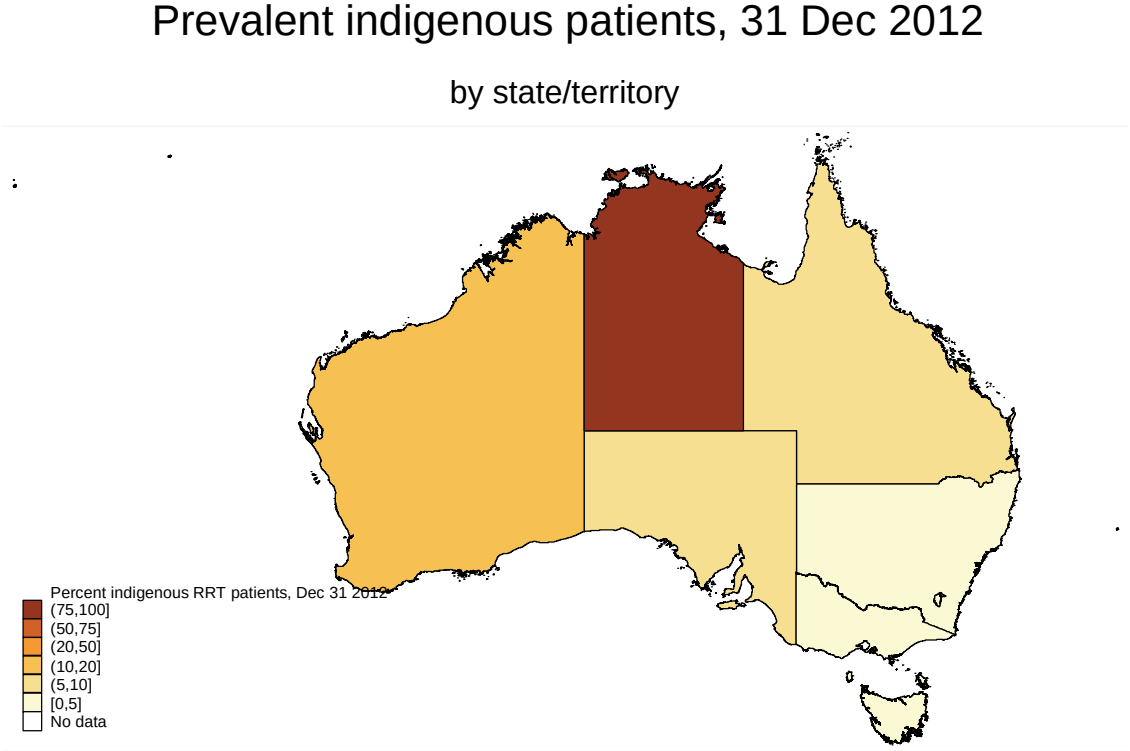
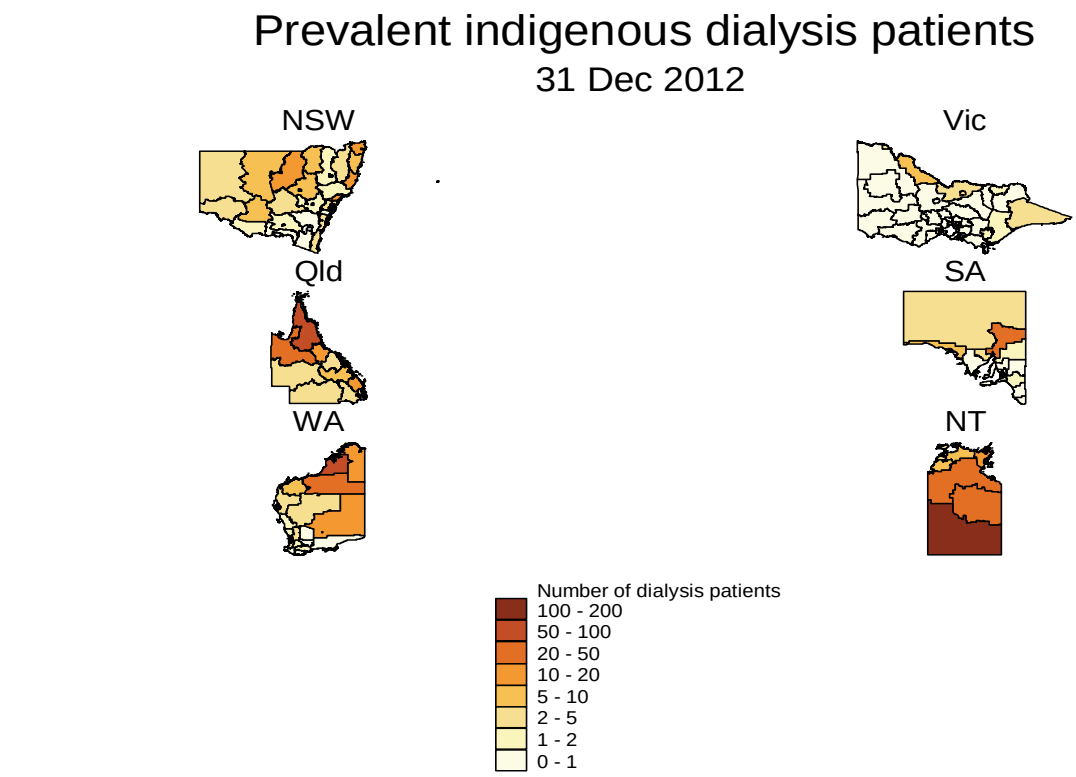


Figure 12.37



ANZDATA, based on postcode of residence reported at at end 2012 mapped to SSD using ABS concordance files

LATE REFERRAL

Australia

The percentage of Aboriginal and Torres Strait Islander People referred late for treatment has been stable for the last 3 years, and is very similar to the non-indigenous rate. In 2012 51% commenced haemodialysis using a catheter rather than permanent access (Figure 12.39); again this is a similar situation to the non-indigenous patients.

New Zealand

The proportion of Maori people referred late in 2012 decreased to 17% from 18% in 2011. For Pacific People referred late, the proportion decreased to 16% . Most Maori (60%) and Pacific People (61%) commenced haemodialysis with a catheter (Figure 12.39).

Figure 12.38

Late Referral 2008 - 2012

% Late Referral of (Total Number of Patients)

	Australia				New Zealand		
Year	**ATSI**	**Maori**	**Pacific People**	**Non-Indigenous**	**Maori**	**Pacific People**	**Non-Indigenous**
2008	24% (251)	24% (21)	32% (41)	21% (2238)	31% (157)	22% (87)	17% (253)
2009	22% (196)	32% (22)	37% (38)	20% (2175)	22% (177)	13% (103)	15% (304)
2010	25% (206)	19% (26)	26% (42)	22% (2056)	19% (155)	16% (109)	15% (251)
2011	30% (256)	19% (21)	17% (46)	22% (2173)	18% (129)	26% (95)	22% (261)
2012	25% (254)	34% (29)	26% (57)	21% (2194)	17% (167)	16% (92)	14% (254)

VASCULAR ACCESS

For all indigenous groups in Australia and New Zealand the vascular access rates (at first HD) are stable over recent years. For both indigenous and non-indigenous groups these rates are higher in NZ than Australia.

Figure 12.39

Vascular Access Use at First ESKD Treatment

Where this is Haemodialysis 2008 - 2012

		Australia				New Zealand		
Year	**Vascular Access**	**ATSI**	**Maori**	**Pacific People**	**Non-Indigenous**	**Maori**	**Pacific People**	**Non-Indigenous**
2008	CVC	138 (58%)	9 (60%)	23 (64%)	1078 (58%)	100 (70%)	60 (85%)	128 (71%)
	AVF/AVG	87	6	11	685	29	10	37
2009	CVC	110 (56%)	13 (52%)	25 (76%)	983 (54%)	99 (71%)	56 (64%)	138 (68%)
	AVF/AVG	76	11	8	738	34	30	51
2010	CVC	113 (59%)	10 (56%)	23 (64%)	1003 (56%)	90 (74%)	65 (69%)	123 (66%)
	AVF/AVG	69	7	10	692	24	20	44
2011	CVC	135 (55%)	10 (45%)	26 (63%)	976 (52%)	68 (61%)	65 (74%)	135 (64%)
	AVF/AVG	104	9	13	769	31	17	52
2012	CVC	125 (51%)	15 (79%)	33 (69%)	928 (51%)	88 (60%)	55 (61%)	99 (57%)
	AVF/AVG	92	2	12	700	41	24	53

Figure 12.40

Incidence and Prevalence - Aboriginal And Torres Strait Islanders 2008- 2012 by Resident State (Number per million ATSI population in each state)

Australia								
Year	**Mode of Treatment**	**QLD**	**NSW/ACT**	**VIC/TAS**	**SA**	**NT**	**WA**	**Australia**
2008	New Patients	56 (367)	33 (202)	4 (75)	19 (651)	76 (1146)	63 (857)	251 (466)
	Prevalent HD	243 (1593)	108 (662)	31 (578)	62 (2124)	335 (5054)	218 (2965)	997 (1852)
	Prevalent PD	49 (321)	33 (202)	6 (112)	8 (274)	26 (392)	44 (598)	166 (308)
	Functioning	30 (197)	21 (129)	7 (130)	29 (994)	35 (528)	37 (503)	159 (295)
	Transplant	5 (33)	4 (25)	1 (19)	5 (171)	1 (15)	15 (204)	31 (58)
	Deaths	45 (295)	18 (110)	3 (56)	6 (206)	55 (830)	37 (503)	164 (305)
2009	New Patients	49 (313)	21 (126)	10 (182)	16 (537)	59 (875)	41 (548)	196 (356)
	Prevalent HD	248 (1585)	119 (715)	33 (601)	62 (2082)	361 (5353)	219 (2925)	1042 (1895)
	Prevalent PD	50 (320)	22 (132)	5 (91)	7 (235)	22 (326)	36 (481)	142 (258)
	Functioning	26 (166)	21 (126)	8 (146)	29 (974)	31 (460)	45 (601)	160 (291)
	Transplant	1 (6)	5 (30)	1 (18)	5 (168)	2 (30)	10 (134)	24 (44)
	Deaths	50 (320)	22 (132)	9 (164)	14 (470)	42 (623)	40 (534)	177 (322)
2010	New Patients	62 (386)	30 (177)	13 (232)	17 (560)	52 (758)	32 (420)	206 (367)
	Prevalent HD	253 (1576)	120 (707)	42 (748)	67 (2205)	368 (5365)	222 (2913)	1072 (1909)
	Prevalent PD	49 (305)	29 (171)	5 (89)	2 (66)	29 (423)	28 (367)	142 (253)
	Functioning	30 (187)	26 (153)	10 (178)	33 (1086)	32 (466)	46 (604)	177 (315)
	Transplant	4 (25)	6 (35)	2 (36)	5 (165)	2 (29)	9 (118)	28 (50)
	Deaths	55 (343)	18 (106)	1 (18)	9 (296)	42 (612)	38 (499)	163 (290)
2011	New Patients	63 (383)	36 (208)	13 (226)	16 (516)	67 (960)	61 (786)	256 (446)
	Prevalent HD	268 (1627)	141 (814)	50 (870)	77 (2483)	395 (5663)	242 (3118)	1173 (2044)
	Prevalent PD	56 (340)	21 (121)	3 (52)	2 (65)	20 (287)	32 (412)	134 (234)
	Functioning	32 (194)	29 (167)	12 (209)	34 (1097)	33 (473)	50 (644)	190 (331)
	Transplant	3 (18)	5 (29)	2 (35)	4 (129)	5 (72)	9 (116)	28 (49)
	Deaths	39 (237)	20 (115)	5 (87)	5 (161)	47 (674)	33 (425)	149 (260)
2012	New Patients	54 (320)	48 (271)	14 (238)	12 (379)	84 (1185)	42 (532)	254 (433)
	Prevalent HD	290 (1716)	162 (916)	53 (902)	77 (2433)	436 (6149)	262 (3316)	1280 (2183)
	Prevalent PD	53 (314)	34 (192)	6 (102)	5 (158)	19 (268)	28 (354)	145 (247)
	Functioning	37 (219)	28 (158)	13 (221)	31 (980)	33 (465)	51 (645)	193 (329)
	Transplant	5 (30)	2 (11)	2 (34)	1 (32)	5 (71)	5 (63)	20 (34)
	Deaths	30 (178)	13 (73)	8 (136)	12 (379)	46 (649)	24 (304)	133 (227)

Figure 12.41

Cause of Death 2012

			Australia				New Zealand		
Year	Modality	Cause	Aboriginal / TSI	Maori	Pacific People	Non-Indigenous	Maori	Pacific People	Non-Indigenous
2012	Dialysis	Cardiac	53 (43%)	4 (44%)	13	379 (29%)	66 (53%)	33 (55%)	59 (34%)
	Dialysis	Vascular	7 (6%)	1 (11%)	1 (6%)	96 (7%)	9 (7%)	4 (7%)	10 (6%)
	Dialysis	Infection	15 (12%)	1 (11%)	1 (6%)	102 (8%)	11 (9%)	6 (10%)	12 (7%)
	Dialysis	Social	35 (28%)	1 (11%)	1 (6%)	499 (39%)	17 (14%)	8 (13%)	54 (31%)
	Dialysis	Malignancy	2 (2%)	-	-	74 (6%)	6 (5%)	-	7 (4%)
	Dialysis	Miscellaneous	11 (9%)	2 (22%)	2 (11%)	142 (11%)	15 (12%)	9 (15%)	31 (18%)
	Dialysis	Total	123	9	18	1292	124	60	173
	Transplant	Cardiac	2 (33%)	-	-	33 (21%)	2 (50%)	1 (50%)	6 (29%)
	Transplant	Vascular	-	-	-	16 (10%)	-	1 (50%)	2 (10%)
	Transplant	Infection	2 (33%)	-	-	22 (14%)	1 (25%)	-	2 (10%)
	Transplant	Social	-	-	-	16 (10%)	-	-	1 (5%)
	Transplant	Malignancy	2 (33%)	1 (100%)	-	45 (29%)	1 (25%)	-	8 (38%)
	Transplant	Miscellaneous	-	-	1	24 (15%)	-	-	2 (10%)
	Transplant	Total	6	1	1	156	4	2	21

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