



Australia &
New Zealand Dialysis
& Transplant Registry

Chapter 9

Kidney Donors

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Suggested Citation:

ANZDATA Registry. 37th Report, Chapter 9: Kidney Donors. Australia and New Zealand Dialysis and Transplant Registry, Adelaide, Australia. 2015. Available at: <http://www.anzdata.org.au>

Deceased Kidney Donors

The data for this section come from the Australia and New Zealand Organ Donor (ANZOD) Registry. Much more information about deceased organ donors in Australia and New Zealand can be found on the ANZOD website,

<http://www.anzdata.org.au/anzod/v1/indexanzod.html>

Figure 9.1 shows the different types of deceased kidney donors in each country over 2004-2013. In Australia there has been a large increase in the number of donors since 2008, driven primarily by an increase in expanded criteria (ECD) and in particular cardiac death (DCD) donors. In New Zealand the donor numbers are steady and the proportions of donors classified as ECD and DCD are much lower than in Australia.

Figure 9.1.1 Deceased Kidney Donor Type
Australia 2004-2013

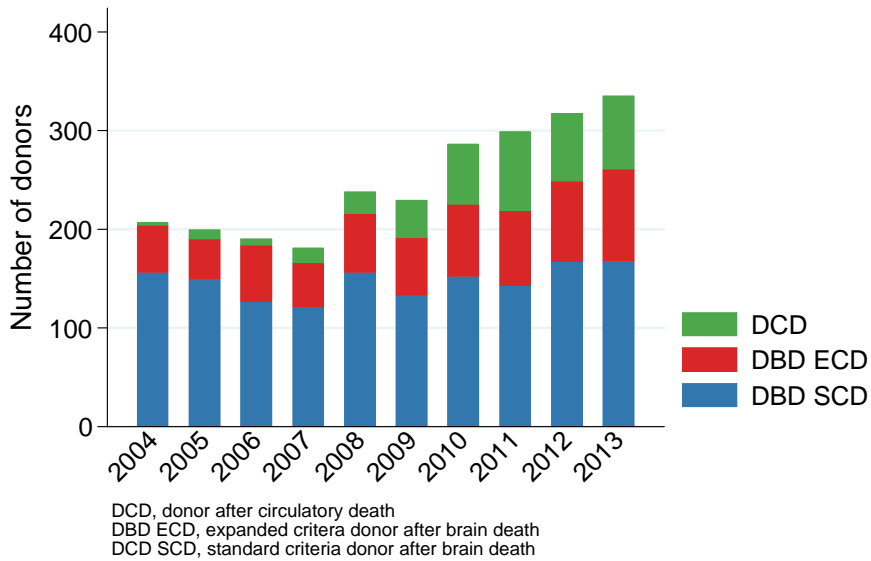
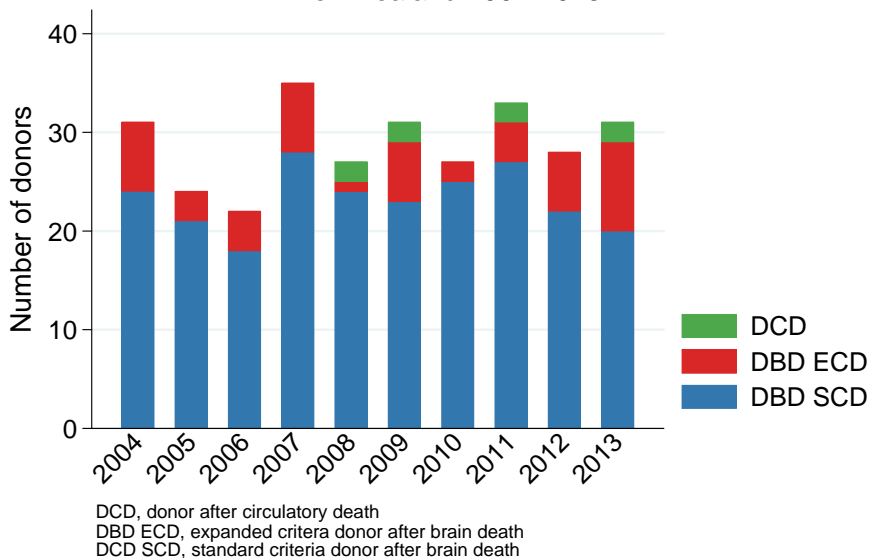


Figure 9.1.2 Deceased Kidney Donor Type
New Zealand 2004-2013



The causes of death of deceased donors are shown in Figure 9.2. Stroke remains the most common cause of kidney donor death in both Australia and New Zealand. In Australia there has been a slight reduction in the

proportion of deaths due to road trauma, with a corresponding increase in the proportion due to hypoxia/anoxia.

Figure 9.2.1

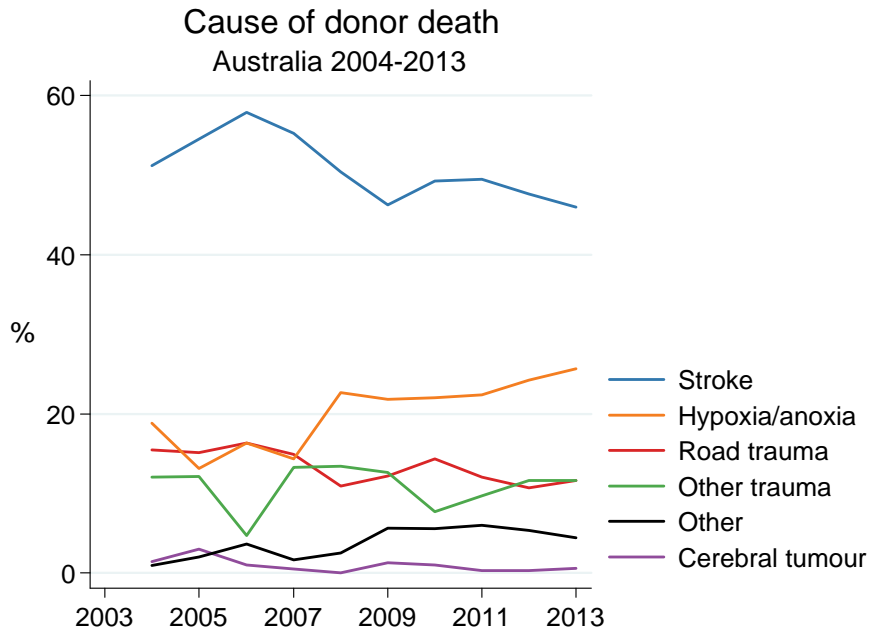


Figure 9.2.2

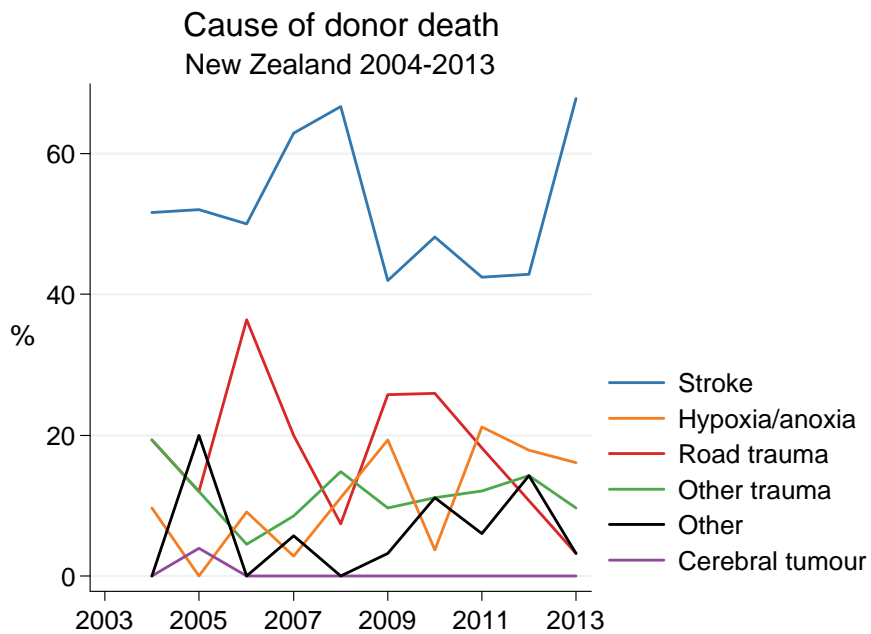


Figure 9.3 shows the mean age of deceased kidney donors in Australia and New Zealand over the last 20 years. In Australia the mean age has increased steadily from 35 years in 1994 to 46 years in 2013. In New

Zealand the trend is less clear, and donors are generally younger than in Australia; although in 2013 the mean donor age was also 46 years.

Figure 9.3.1

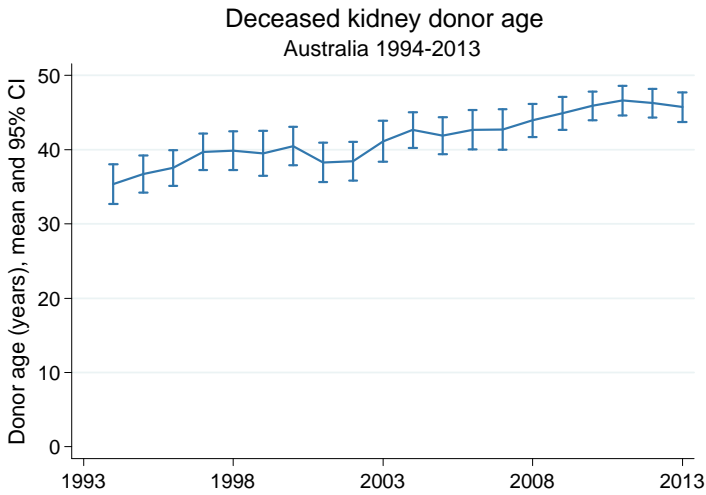


Figure 9.3.2

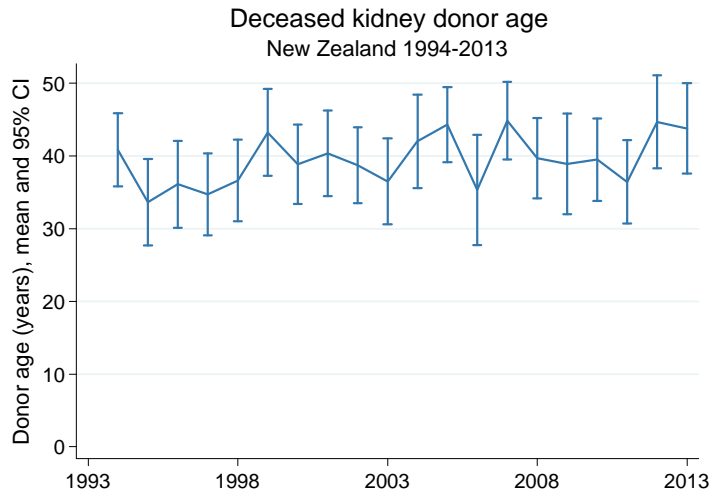


Figure 9.4 shows the discard rate of retrieved kidneys – the proportion of kidneys that were retrieved for the purpose of transplantation, but not ultimately transplanted into a recipient (either due to an absence of suitable recipients, or the kidney being found to be medically unsuitable after retrieval). Despite the

increasing age and complexity of donors in Australia the discard rate remained steady at around 3% over 2004-2012. However, in 2013 the discard rate rose to 6.7% (95% CI 4.9 to 8.8). In New Zealand discard rates have historically been slightly higher than in Australia (note the different y-axis scales).

Figure 9.4.1

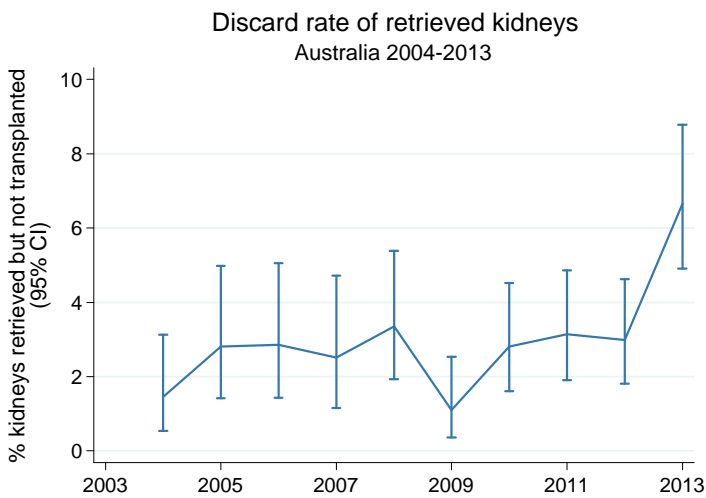
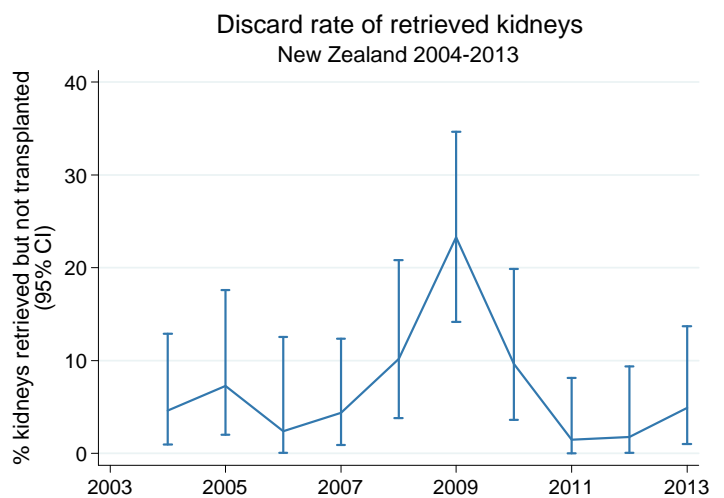


Figure 9.4.2



Living Kidney Donors

Australia

There were 252 living donor kidney transplants performed in 2013 in Australia, representing 29% of all transplant operations (table 9.1). Living donor transplants have been falling as a proportion of all transplants since 2008 (figure 9.5).

The proportion of living donor transplants for each state and New Zealand for recipients aged 25-44 years is shown for the years 2006-2009 and 2010-2013 in figure 9.6. Overall there has been a decrease in this age group for both countries from 2006-2009 to 2010-2013, more pronounced in Australia.

Table 9.1

Proportion of Living Kidney Donor Transplants by Age Group 2008 - 2013

Age group	2008	2009	2010	2011	2012	2013
0-4	75%	55%	60%	50%	67%	60%
5-14	59%	71%	60%	46%	70%	55%
15-24	67%	73%	76%	58%	58%	53%
25-34	53%	54%	44%	40%	29%	36%
35-44	36%	40%	41%	35%	32%	26%
45-54	41%	39%	26%	22%	21%	28%
55-64	39%	37%	31%	28%	21%	24%
65-74	44%	33%	18%	23%	25%	18%
75-84	0%	0%	67%	50%	50%	0%
All recipients	44%	42%	35%	31%	28%	29%

Figure 9.5

Percentage Living Donor Grafts - Australia
Stratified by age, 2009 vs 2013

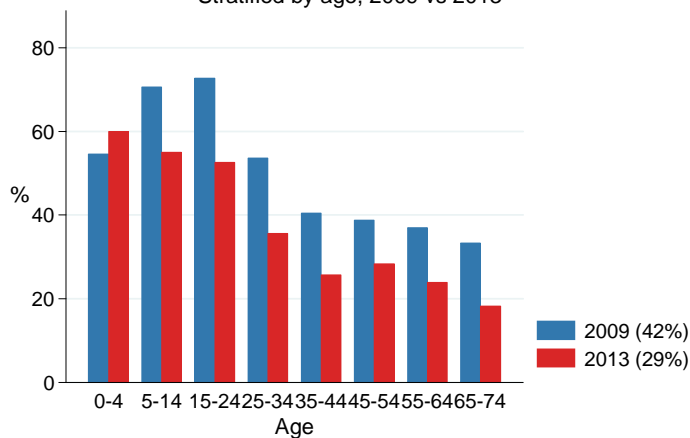


Figure 9.6

Percentage Living Donor Grafts
Age 25-44, 2006-2009 vs 2010-2013

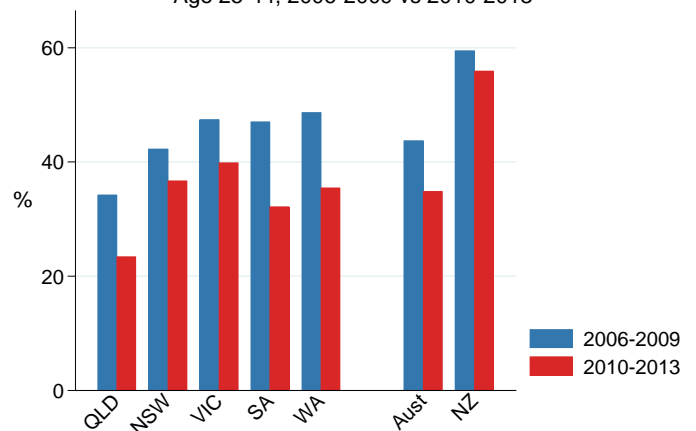
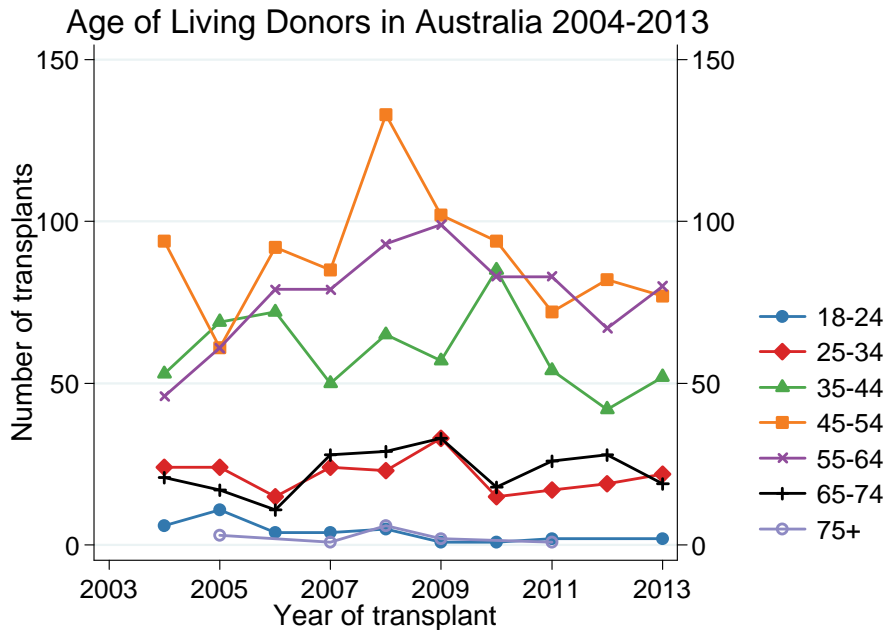


Figure 9.7 shows the number of living donors for the years 2004-2013 by donor age. Since 2008 the number of living donors decreased in the most common age groups of 35-44, 45-54 and 55-64.

The proportion of genetically unrelated donors was 50% (125 donors) in 2013 compared with 40% (96 donors) in 2012, shown in figure 9.8. Fifty-two percent of living unrelated donors were spouses or partners (table 9.2).

Figure 9.7



New Zealand

There were 58 living kidney donors in New Zealand in 2013. Exactly half of these were genetically unrelated to their recipient. More friends donated than spouses or partners.

Overall fifty percent of grafts were from a living donor. There were eight non-directed donors in 2012, slightly more than the previous four years (table 9.2).

Figure 9.8.1

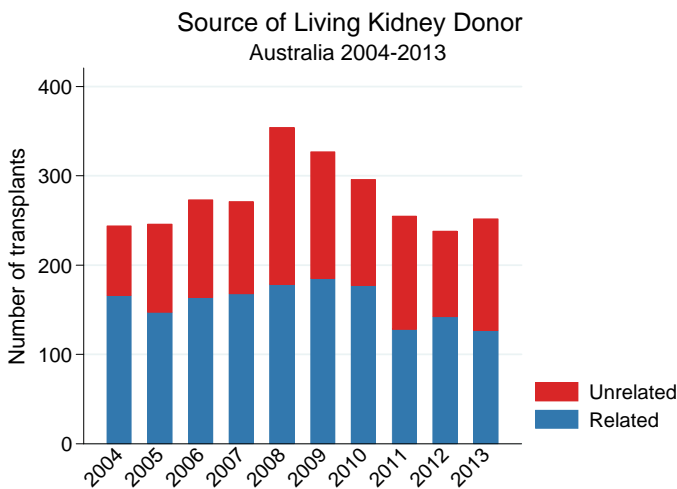


Figure 9.8.2

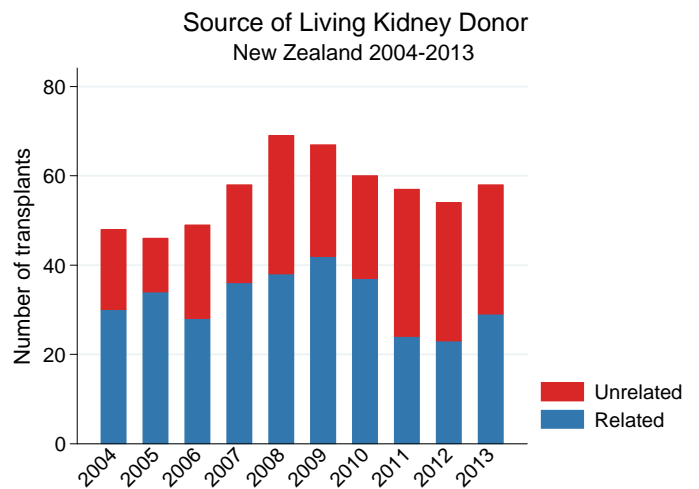


Table 9.2.1

Living Kidney Donor by Relation to Recipient in Australia 2009-2013

Country	Source	2009	2010	2011	2012	2013
	Total	327	296	255	238	252
	Related	185	177	128	142	127
	Mother	53	48	38	40	29
	Father	27	37	33	35	28
	Sister	41	35	22	26	24
	Brother	32	26	18	20	24
	Identical twin sister	0	1	0	0	0
	Identical twin brother	0	0	1	0	0
	Non-identical twin sister	2	0	1	0	1
	Non-identical twin brother	0	2	0	0	0
	Daughter	4	4	5	3	2
	Son	4	7	1	3	6
	Grandmother	5	3	0	3	1
	Grandfather	0	1	1	0	1
	Cousin	5	4	2	4	6
	Niece	1	1	1	0	0
	Nephew	2	0	0	0	0
	Aunt	6	7	3	4	1
	Uncle	3	1	2	4	3
	Other related	0	0	0	0	1
	Unrelated	142	119	127	96	125
	Wife	63	47	47	32	41
	Husband	33	21	20	15	19
	Mother-in-law	1	1	0	1	0
	Father-in-law	0	1	0	1	1
	Stepfather	0	0	0	1	0
	Stepsister	0	0	0	0	0
	Sister-in-law	4	0	2	1	1
	Brother-in-law	3	1	0	2	4
	Daughter-in-law	0	1	0	0	0
	Son-in-law	1	0	0	0	0
	Stepson	0	1	1	0	0
	Partner	6	6	6	5	5
	Friend	18	16	12	7	14
	Non-directed	4	1	4	5	2
	Pathological	6	11	9	12	3
	Paired kidney exchange	2	8	26	11	31
	Other unrelated	1	4	0	3	4

Table 9.2.2

Living Kidney Donor by Relation to Recipient in New Zealand 2009-2013

Country	Source	2009	2010	2011	2012	2013
New Zealand	Total	67	60	57	54	58
	Related	42	37	24	23	29
	Mother	5	3	0	4	6
	Father	6	5	3	6	2
	Sister	8	6	9	3	5
	Brother	11	10	5	1	9
	Identical twin sister	0	0	0	0	0
	Identical twin brother	0	0	1	0	0
	Non-identical twin sister	0	0	0	0	0
	Non-identical twin brother	0	0	0	0	0
	Daughter	4	2	2	4	2
	Son	3	3	2	4	3
	Grandmother	0	0	0	0	0
	Grandfather	0	0	0	0	0
	Cousin	0	3	1	0	1
	Niece	2	1	0	1	0
	Nephew	0	0	0	0	0
	Aunt	2	2	0	0	1
	Uncle	0	2	1	0	0
	Other related	1	0	0	0	0
	Unrelated	25	23	33	31	29
	Wife	2	5	10	8	7
	Husband	1	2	4	1	3
	Mother-in-law	0	0	0	0	1
	Father-in-law	0	0	0	0	0
	Stepfather	0	1	0	0	0
	Stepsister	1	0	0	0	0
	Sister-in-law	0	0	0	0	1
	Brother-in-law	0	1	1	0	0
	Daughter-in-law	0	0	0	0	0
Son-in-law	1	0	1	0	1	
Stepson	0	0	0	0	0	
Partner	1	2	4	1	2	
Friend	13	7	5	14	5	
Non-directed	6	4	3	4	8	
Pathological	0	0	0	0	0	
Paired kidney exchange	0	0	2	2	1	
Other unrelated	0	1	3	1	0	

The sex distribution of living donors by relation to recipient, state and country is shown in table 9.3.

There were two non-directed donors in 2013. ABO incompatible transplant numbers have plateaued in the last 3 years (table 9.4).

Table 9.3

Sex Distribution of Living Donors by Relation to Recipient, State and Country 2009 - 2013

Donor source	Year Tx state	2009			2010			2011			2012			2013		
		M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Related	NSW/ACT	48%	52%	65	37%	63%	46	41%	59%	46	43%	57%	46	40%	60%	58
	VIC/TAS	26%	74%	58	42%	58%	66	50%	50%	44	40%	60%	50	65%	35%	34
	QLD	31%	69%	26	57%	43%	21	45%	55%	20	38%	62%	21	44%	56%	18
	SA/NT	44%	56%	16	40%	60%	20	30%	70%	10	57%	43%	14	60%	40%	5
	WA	55%	45%	20	42%	58%	24	50%	50%	8	55%	45%	11	83%	17%	12
	Aust.	39%	61%	185	42%	58%	177	45%	55%	128	44%	56%	142	52%	48%	127
	NZ	50%	50%	42	57%	43%	37	50%	50%	24	48%	52%	23	48%	52%	29
Unrelated	NSW/ACT	38%	62%	42	41%	59%	37	43%	57%	42	41%	59%	27	33%	67%	49
	VIC/TAS	35%	65%	40	41%	59%	39	43%	58%	40	47%	53%	36	49%	51%	49
	QLD	41%	59%	29	36%	64%	22	25%	75%	16	30%	70%	10	50%	50%	10
	SA/NT	86%	14%	7	38%	63%	8	50%	50%	6	33%	67%	9	43%	57%	7
	WA	38%	63%	24	23%	77%	13	43%	57%	23	36%	64%	14	60%	40%	10
	Aust.	40%	60%	142	38%	62%	119	41%	59%	127	41%	59%	96	43%	57%	125
	NZ	40%	60%	25	43%	57%	23	42%	58%	33	26%	74%	31	34%	66%	29

Table 9.4

Transplant Numbers by Blood Group Status 2004 - 2013

Year	Country	Compatible	Incompatible	Unknown
2004	Australia	244	0	0
	NZ	48	0	0
2005	Australia	245	1	0
	NZ	46	0	0
2006	Australia	264	9	0
	NZ	48	1	0
2007	Australia	249	22	0
	NZ	58	0	0
2008	Australia	318	36	0
	NZ	68	1	0
2009	Australia	295	30	2
	NZ	65	2	0
2010	Australia	255	40	1
	NZ	59	1	0
2011	Australia	217	35	3
	NZ	52	3	2
2012	Australia	193	28	17
	NZ	47	5	2
2013	Australia	204	36	12
	NZ	52	6	0

Timing of Living Kidney Transplants

The timing of primary living donor transplants relative to the start of dialysis is shown in table 9.5.

The proportion of all primary living donor transplants performed “pre-emptively” in Australia was 38%, a number that has been stable for the last 5 years. The gradual reduction in the numbers of pre-emptive transplants over 2009-2012 has stopped (figure 9.9). Twenty-nine percent of recipients had received dialysis

treatment for twelve months or longer prior to a first living donor graft.

The proportion of pre-emptive primary living donor transplants in New Zealand was 27% in 2013, a stable number that is consistently slightly lower than that in Australia. Fifty-four percent received dialysis for twelve months or longer prior to being transplanted.

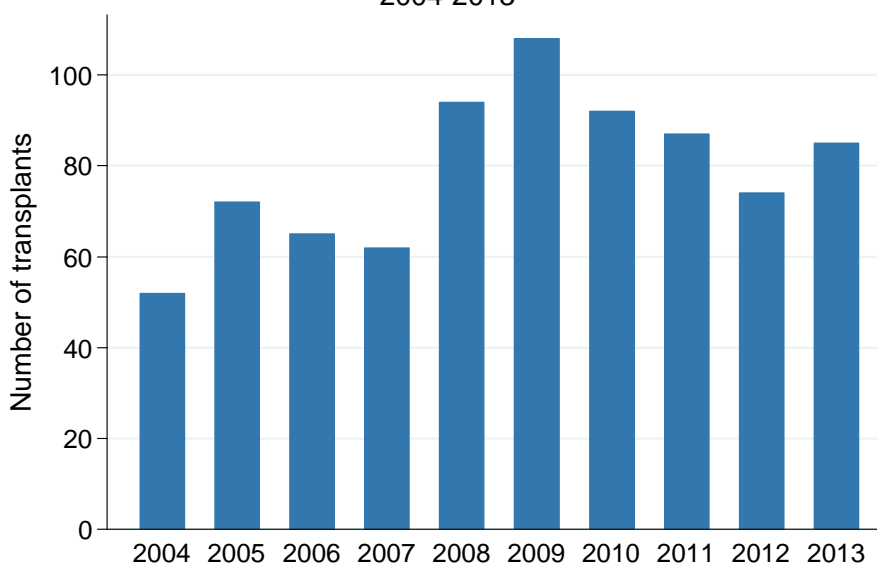
Table 9.5

Timing of Living Kidney Donor Transplants 2009 - 2013

Country	Timing of transplant	2009	2010	2011	2012	2013
Australia	Pre-emptive	108 (36%)	92 (35%)	87 (37%)	74 (35%)	85 (38%)
	<1 month post dialysis	10 (3%)	6 (2%)	7 (3%)	6 (3%)	9 (4%)
	1 month to <1 year post dialysis	81 (27%)	62 (23%)	66 (28%)	72 (34%)	64 (29%)
	≥1 year post dialysis	99 (33%)	106 (40%)	73 (31%)	62 (29%)	65 (29%)
NZ	Pre-emptive	18 (31%)	15 (25%)	12 (23%)	15 (31%)	15 (27%)
	<1 month post dialysis	1 (2%)	1 (2%)	1 (2%)	1 (2%)	2 (4%)
	1 month to <1 year post dialysis	8 (14%)	10 (17%)	11 (21%)	12 (24%)	9 (16%)
	≥1 year post dialysis	32 (54%)	33 (56%)	28 (54%)	21 (43%)	30 (54%)

Figure 9.9

**Pre-emptive Transplants - Australia
2004-2013**



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