



## CHAPTER 9

# KIDNEY DONATION

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## 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>.

Figures 9.1 and 9.2 show the different types of deceased kidney donors in each country over 2003-2012. 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 proportion of ECD and DCD donors are much lower than in Australia.

Figure 9.1

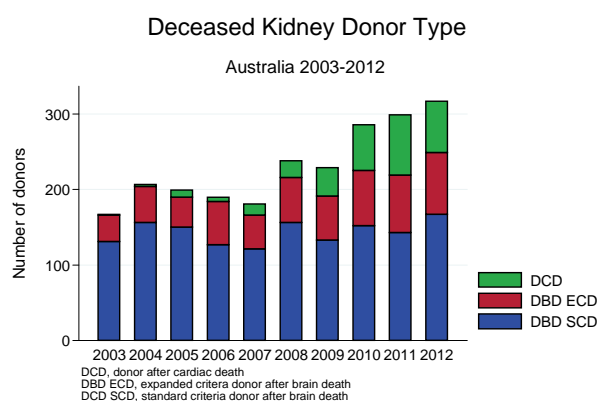
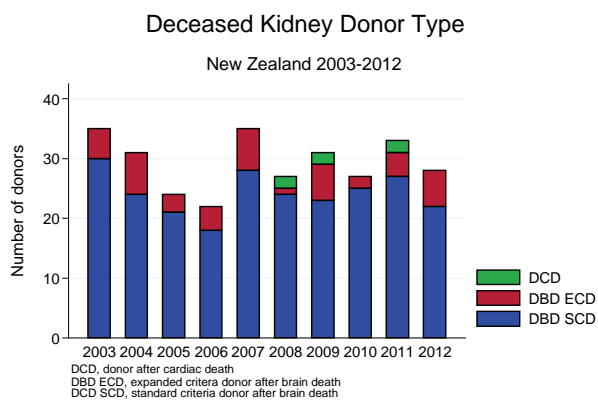


Figure 9.2



The causes of death of deceased donors are shown in Figures 9.3 and 9.4. 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 9.3

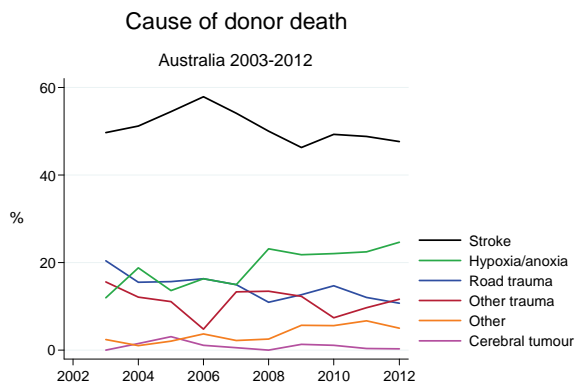
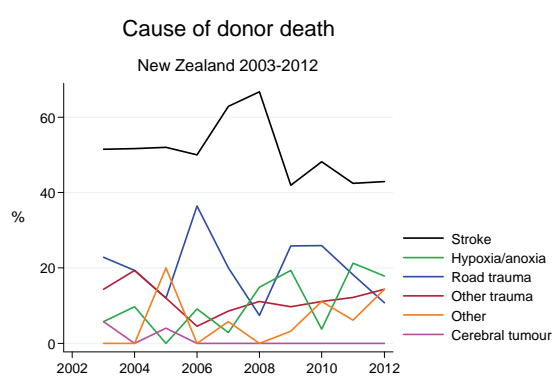


Figure 9.4



Figures 9.5 and 9.6 show 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 36 years in 1993 to 46 years in 2012. In New Zealand the trend is less clear, and donors are generally younger than in Australia; the mean donor age in 2012 was 44 years.

Figure 9.5

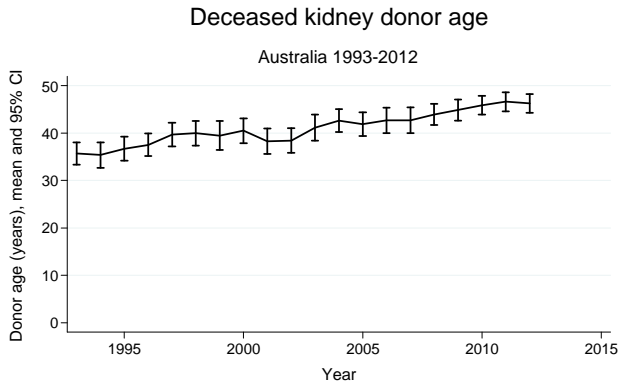
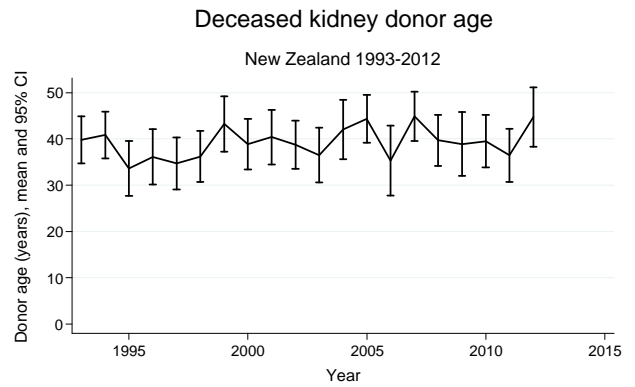


Figure 9.6



Figures 9.7 and 9.8 show 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. The error bars represent 95% confidence intervals. Despite the increasing age and complexity of donors in Australia the discard rate has remained steady at around 3% over the last 10 years. In New Zealand discard rates have historically been slightly higher than in Australia (note the different y-axis scales), although over 2011-2012 the discard rate was <2%.

Figure 9.7

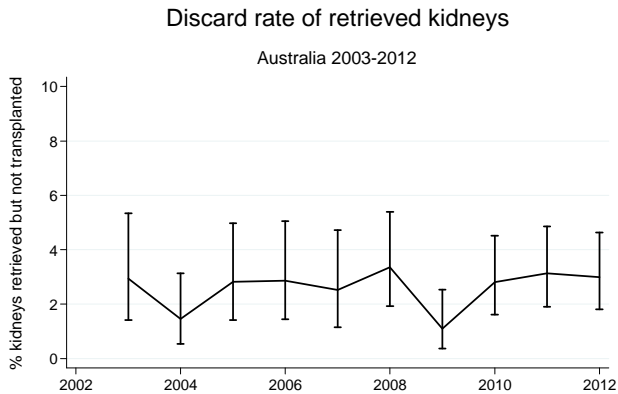
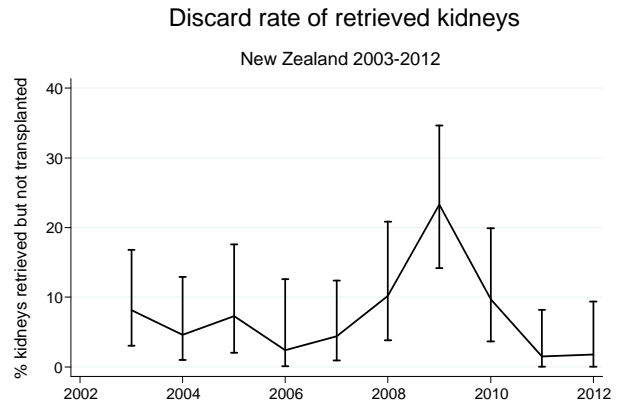


Figure 9.8





## LIVING KIDNEY DONORS

Figure 9.9

Living Donor Operations as a Proportion (%) of Annual Transplantation  
Australia 2007 - 2012

Recipient Age Groups	Year of Transplantation					
	2007	2008	2009	2010	2011	2012
00-04 years	89%	75%	55%	60%	50%	71%
05-14 years	56%	59%	71%	60%	46%	68%
15-24 years	65%	67%	73%	76%	58%	58%
25-34 years	57%	53%	54%	44%	40%	29%
35-44 years	38%	36%	41%	41%	35%	32%
45-54 years	43%	41%	39%	26%	22%	21%
55-64 years	35%	39%	37%	31%	28%	21%
65-74 years	45%	44%	33%	18%	23%	25%
75-84 years	0%	0%	0%	67%	50%	50%
<b>All Recipients</b>	<b>44%</b>	<b>44%</b>	<b>42%</b>	<b>35%</b>	<b>31%</b>	<b>28%</b>

### AUSTRALIA

There were 238 living donor kidney transplants performed in 2012 in Australia, representing 28% of all transplant operations (Figure 9.9). Living donor transplants have been falling as a proportion of all transplants since 2008 (Figure 9.10).

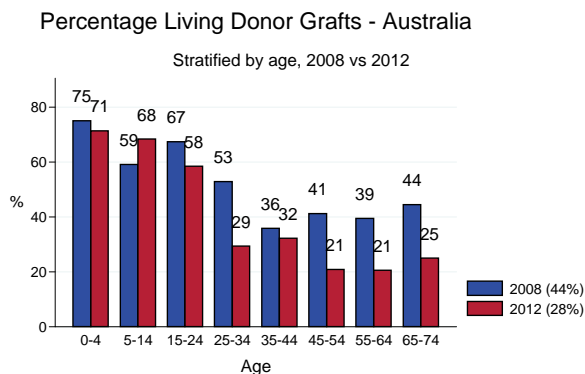
Figure 9.12 shows the number of living donors for the years 2003-2012 by donor age. Since 2008 the number of living donors decreased in the most common age groups of 35-44, 45-54 and 55-64.

The proportion of living donor transplants for each State and New Zealand for recipients aged 25-44 years is shown for the years 2005-2008 and 2009-2012 in Figure 9.11. Overall there has been a decrease in this age group for both countries from 2005-2008 to 2009-2012, more pronounced in Australia.

The proportion of genetically unrelated donors was 40% (96 donors) in 2012 compared with 50% (127 donors) in 2011, shown in Figures 9.13 and 9.16. Fifty-four percent of living unrelated donors were spouses or partners. The age distribution of living donors is shown in Figure 9.12.

There were five non-directed donors in 2012. ABO incompatible transplants in 2012 fell to 28 from a peak of 40 in 2010 (Figure 9.15).

Figure 9.10



### NEW ZEALAND

The number of living donor transplants decreased by 5% (54 donors) in New Zealand in 2012, as shown in Figure 9.14.

There were 32 genetically unrelated kidney donors in 2012, compared with 33 in 2011.

Fifty percent of grafts were from a living donor.

Unrelated donors represented 57% of all living donors in 2012, shown in Figures 9.14 and 9.16. More friends donated than spouses or partners.

There were four non-directed donors in 2012, similar to previous years.

Figure 9.11

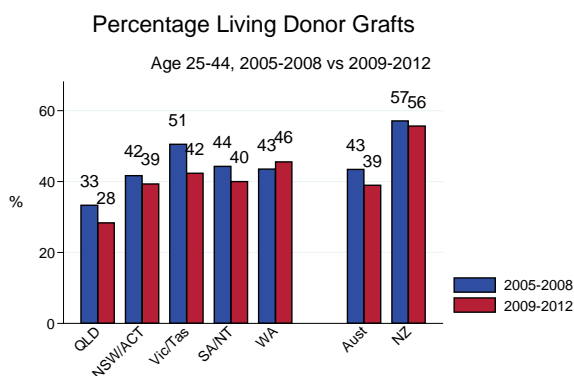


Figure 9.12

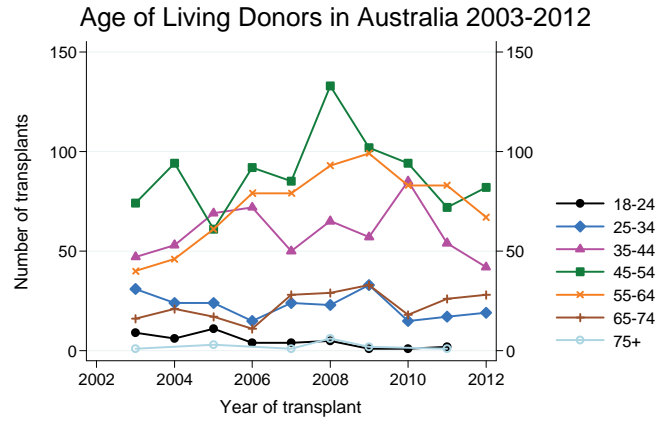


Figure 9.13

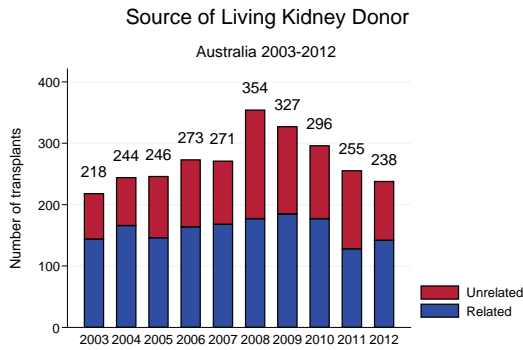


Figure 9.14

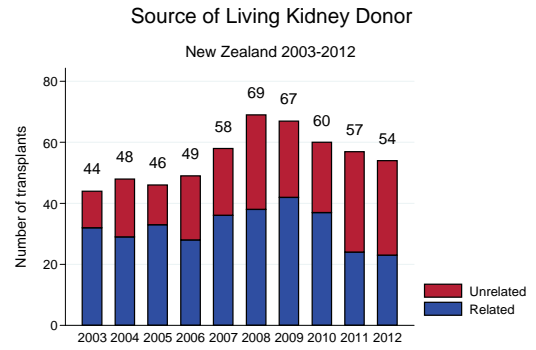


Figure 9.15

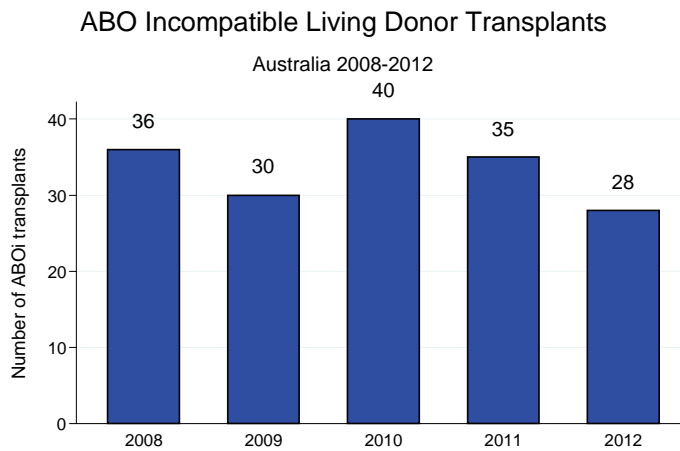




Figure 9.16

Source of Living Donor Kidneys 2008 - 2012 (x = identical twin) (+ = non identical twin)										
Source	Australia					New Zealand				
	2008	2009	2010	2011	2012	2008	2009	2010	2011	2012
Total Living Donors	354	327	296	255	238	69	67	60	57	54
Related	(175)	(186)	(177)	(128)	(142)	(38)	(41)	(37)	(24)	(23)
Mother	46	53	48	38	40	6	5	3	0	4
Father	41	27	37	33	35	9	6	5	3	6
Sister	30	41	35	22	26	9	8	6	9	3
Brother	33	32	26	18	20	5	11	10	5	1
Identical twin sister	0	0	1	0	0	0	0	0	0	0
Identical twin brother	0	0	0	1	0	0	0	0	1	0
Non-identical twin sister	1	2	0	1	0	0	0	0	0	0
Non-identical twin brother	0	0	2	0	0	0	0	0	0	0
Daughter	6	4	4	5	3	1	4	2	2	4
Son	3	4	7	1	3	2	3	3	2	4
Grandmother	2	5	3	0	3	0	0	0	0	0
Grandfather	0	0	1	1	0	0	0	0	0	0
Cousin	5	5	4	2	4	2	0	3	1	0
Niece	0	1	1	1	0	1	2	1	0	1
Nephew	0	3	0	0	0	0	0	0	0	0
Aunt	7	6	7	3	4	1	2	2	0	0
Uncle	1	3	1	2	4	2	0	2	1	0
Unrelated	(179)	(141)	(119)	(127)	(96)	(31)	(26)	(23)	(33)	(31)
Wife	64	63	47	47	32	5	2	5	10	8
Husband	35	33	21	20	15	5	1	2	4	1
Mother-in-law	0	1	1	0	1	0	0	0	0	0
Father-in-law	1	0	1	0	1	0	0	0	0	0
Stepmother	1	0	0	0	0	0	0	0	0	0
Stepfather	2	0	0	0	1	1	0	1	0	0
Stepsister	1	0	0	0	0	0	1	0	0	0
Sister-in-law	4	4	0	2	1	1	0	0	0	0
Brother-in-law	1	3	1	0	2	1	0	1	1	0
Daughter-in-law	0	0	1	0	0	0	0	0	0	0
Son-in-law	1	1	0	0	0	0	1	0	1	0
Stepdaughter	1	0	0	0	0	0	0	0	0	0
Stepson	0	0	1	1	0	0	0	0	0	0
Partner	10	6	6	6	5	0	1	2	4	1
Friend	27	18	16	12	7	10	13	7	5	14
Non-directed	6	4	1	5	5	8	6	4	3	4
Pathological	13	6	11	9	12	0	0	0	0	0
Paired kidney exchange	5	2	8	25	11	0	0	0	2	2
Other	7	0	4	0	3	0	1	1	3	1

Figure 9.17

Gender of Living Kidney Donors 2008 - 2012															
Source and State/ Country of Transplant	2008			2009			2010			2011			2012		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Related															
NSW/ACT	57%	43%	63	48%	52%	66	37%	63%	46	41%	59%	46	37%	57%	46
VIC/TAS	39%	61%	56	26%	74%	58	42%	58%	66	50%	50%	44	40%	60%	50
QLD	35%	65%	17	31%	69%	26	57%	43%	21	45%	55%	20	38%	62%	21
SA/NT	45%	55%	22	44%	56%	16	40%	60%	20	30%	70%	10	57%	43%	14
WA	41%	59%	17	55%	45%	20	42%	58%	24	50%	50%	8	55%	45%	11
<b>Australia</b>	<b>46%</b>	<b>54%</b>	<b>175</b>	<b>39%</b>	<b>61%</b>	<b>186</b>	<b>42%</b>	<b>58%</b>	<b>177</b>	<b>45%</b>	<b>55%</b>	<b>128</b>	<b>42%</b>	<b>56%</b>	<b>142</b>
<b>New Zealand</b>	<b>47%</b>	<b>53%</b>	<b>38</b>	<b>49%</b>	<b>51%</b>	<b>41</b>	<b>57%</b>	<b>43%</b>	<b>37</b>	<b>50%</b>	<b>50%</b>	<b>24</b>	<b>48%</b>	<b>52%</b>	<b>23</b>
Unrelated															
NSW/ACT	31%	69%	51	37%	63%	41	41%	59%	37	43%	57%	42	41%	59%	27
VIC/TAS	52%	48%	60	35%	65%	40	41%	59%	39	43%	58%	40	47%	53%	36
QLD	33%	67%	27	41%	59%	29	36%	64%	22	25%	75%	16	30%	70%	10
SA/NT	37%	63%	19	86%	14%	7	38%	63%	8	50%	50%	6	33%	67%	9
WA	32%	68%	22	38%	63%	24	23%	77%	13	43%	57%	23	36%	64%	14
<b>Australia</b>	<b>39%</b>	<b>61%</b>	<b>179</b>	<b>40%</b>	<b>60%</b>	<b>141</b>	<b>38%</b>	<b>62%</b>	<b>119</b>	<b>41%</b>	<b>59%</b>	<b>127</b>	<b>41%</b>	<b>59%</b>	<b>96</b>
<b>New Zealand</b>	<b>39%</b>	<b>61%</b>	<b>31</b>	<b>42%</b>	<b>58%</b>	<b>26</b>	<b>43%</b>	<b>57%</b>	<b>23</b>	<b>42%</b>	<b>58%</b>	<b>33</b>	<b>26%</b>	<b>74%</b>	<b>31</b>

## TIMING OF LIVING DONOR TRANSPLANTS

The timing of primary living donor transplants relative to the start of dialysis is shown in Figure 9.18.

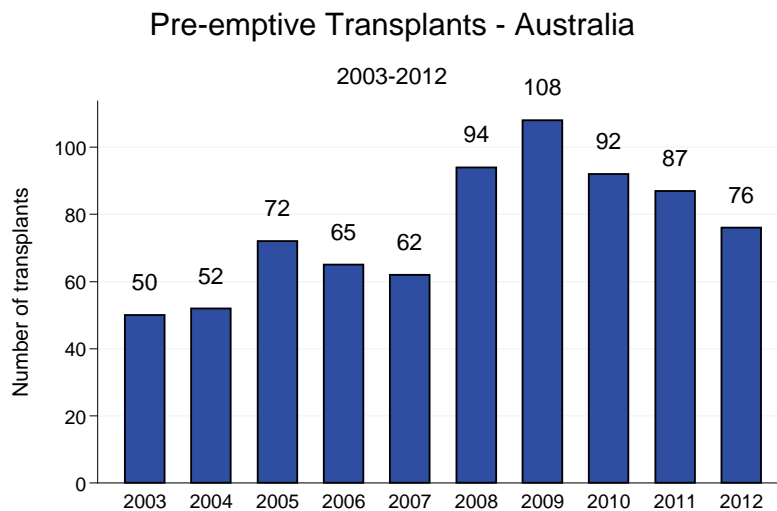
The proportion of all primary living donor transplants performed “pre-emptively” in Australia was 36%, compared with 37% in 2012. There has been a gradual reduction in the number of pre-emptive transplants over the last few years (Figure 9.19). Twenty-nine percent of recipients had received dialysis 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 31% in 2012 compared with 23% in 2011 (Figure 9.18). Forty-three percent received dialysis for twelve months or longer prior to being transplanted.

Figure 9.18

		2008	2009	2010	2011	2012
<b>Timing of Living Donor Transplantation for Primary Grafts in Relation to Date of Dialysis Start by Year of Transplant 2008 - 2012</b>						
<b>Aust</b>	Pre-emptive	94 (30%)	108 (36%)	92 (35%)	87 (37%)	76 (36%)
	<1 month post dialysis	5 (2%)	10 (3%)	6 (2%)	7 (3%)	6 (3%)
	1 month to <1 year post dialysis	77 (24%)	81 (27%)	62 (23%)	66 (28%)	70 (33%)
	>=1 year post dialysis	141 (44%)	99 (33%)	106 (40%)	73 (31%)	62 (29%)
<b>NZ</b>	Pre-emptive	20 (30%)	18 (31%)	15 (25%)	12 (23%)	15 (31%)
	<1 month post dialysis	2 (3%)	1 (2%)	1 (2%)	1 (2%)	1 (2%)
	1 month to <1 year post dialysis	14 (21%)	8 (14%)	10 (17%)	11 (21%)	12 (24%)
	>=1 year post dialysis	30 (45%)	32 (54%)	33 (56%)	28 (54%)	21 (43%)

Figure 9.19





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