



Chapter 4

Donor Profile



2015
ANZOD Registry
Annual Report
Data to 31-Dec-2014



Donor Profile 2014

Table 4.1 contains a detailed description of organ donors in Australia in 2014 compared to 2013. Key observations are the gender discrepancy for DCD donors (where there are greater numbers of males than females; the preponderance of Caucasian donors, and the distribution of blood groups (largely O and A).

Table 4.1

Demographics of Deceased Donors in Australia 2013 - 2014						
	2013			2014		
	DBD	DCD	Total	DBD	DCD	Total
Gender						
Male	158(52%)	48(56%)	206 (53%)	131(48%)	77(72%)	208 (55%)
Female	147(48%)	38(44%)	185 (47%)	140(52%)	30(28%)	170 (45%)
Age						
0-4	6(2%)	2(2%)	8 (2%)	4(1%)		4 (1%)
5-14	7(2%)	3(3%)	10 (3%)	8(3%)	2(2%)	10 (3%)
15-24	44(14%)	13(15%)	57 (15%)	14(5%)	8(7%)	22 (6%)
25-34	35(11%)	9(10%)	44 (11%)	39(14%)	14(13%)	53 (14%)
35-44	40(13%)	9(10%)	49 (13%)	41(15%)	15(14%)	56 (15%)
45-54	54(18%)	16(19%)	70 (18%)	63(23%)	27(25%)	90 (24%)
55-64	56(18%)	23(27%)	79 (20%)	53(20%)	34(32%)	87 (23%)
65-74	45(15%)	11(13%)	56 (14%)	38(14%)	7(7%)	45 (12%)
75+	18(6%)		18 (5%)	11(4%)		11 (3%)
BMI (kg/m²)						
Underweight (<18.5)	18(6%)	5(6%)	23 (6%)	11(4%)	3(3%)	14 (4%)
Normal (18.5-<25)	109(36%)	32(37%)	141 (36%)	98(36%)	37(35%)	135 (36%)
Overweight(25-<30)	103(34%)	33(38%)	136 (35%)	106(39%)	35(33%)	141 (37%)
Obese(>=30)	75(25%)	15(17%)	90 (23%)	56(21%)	32(30%)	88 (23%)
Unknown		1(1%)	1 (0%)			
Australia Blood Group						
A	103(34%)	36(42%)	139 (36%)	106(39%)	42(39%)	148 (39%)
AB	7(2%)	2(2%)	9 (2%)	8(3%)	3(3%)	11 (3%)
B	39(13%)	5(6%)	44 (11%)	27(10%)	13(12%)	40 (11%)
O	156(51%)	43(50%)	199 (51%)	130(48%)	49(46%)	179 (47%)
Racial\Ethnic Origin						
Caucasian	265(87%)	81(94%)	346 (88%)	240(89%)	88(82%)	328 (87%)
Aboriginal	6(2%)	2(2%)	8 (2%)	3(1%)	2(2%)	5 (1%)
Asian	19(6%)	2(2%)	21 (5%)	13(5%)	10(9%)	23 (6%)
Maori	4(1%)		4 (1%)	1(0%)		1 (0%)
Pacific Islander	3(1%)		3 (1%)	1(0%)	1(1%)	2 (1%)
Other	8(3%)	1(1%)	9 (2%)	13(5%)	6(6%)	19 (5%)
Cause of Death						
CVA	152(50%)	26(30%)	178 (46%)	144(53%)	37(35%)	181 (48%)
Trauma (road)	36(12%)	9(10%)	45 (12%)	23(8%)	11(10%)	34 (9%)
Trauma (non-road)	36(12%)	6(7%)	42 (11%)	16(6%)	9(8%)	25 (7%)
Hypoxia-Anoxia	65(21%)	38(44%)	103 (26%)	68(25%)	45(42%)	113 (30%)
Cerebral Tumour	2(1%)		2 (1%)	1(0%)		1 (0%)
Other	14(5%)	7(8%)	21 (5%)	19(7%)	5(5%)	24 (6%)

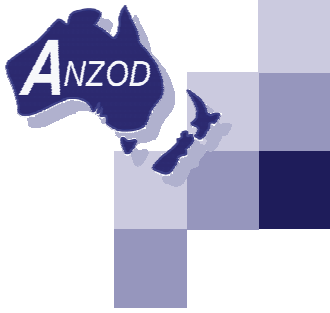
Donor Profile 2014



In New Zealand in 2014 there were six DCD donors. There was a lower proportion of donors <25 years, compared with Australia, but a similar proportion of donors ≥65 years. (Table 4.2).

Table 4.2

Demographics of Deceased Donors in New Zealand 2013 - 2014							
	2013			2014			
	DBD	DCD	Total	DBD	DCD	Total	
New Zealand	Gender						
	Male	12(35%)	1(50%)	13 (36%)	26(65%)	5(83%)	31 (67%)
	Female	22(65%)	1(50%)	23 (64%)	14(35%)	1(17%)	15 (33%)
	Age						
	0-4		1(50%)	1 (3%)	1(3%)		1 (2%)
	5-14	1(3%)		1 (3%)	1(3%)		1 (2%)
	15-24	1(3%)	1(50%)	2 (6%)	7(18%)	1(17%)	8 (17%)
	25-34	5(15%)		5 (14%)	3(8%)		3 (7%)
	35-44	6(18%)		6 (17%)	6(15%)	1(17%)	7 (15%)
	45-54	11(32%)		11 (31%)	10(25%)	1(17%)	11 (24%)
	55-64	4(12%)		4 (11%)	6(15%)	3(50%)	9 (20%)
	65-74	5(15%)		5 (14%)	3(8%)		3 (7%)
	75+	1(3%)		1 (3%)	3(8%)		3 (7%)
	BMI (kg/m2)						
	Underweight (<18.5)	1(3%)		1 (3%)			
	Normal (18.5-<25)	14(41%)	1(50%)	15 (42%)	17(43%)	1(17%)	18 (39%)
	Overweight(25-<30)	15(44%)		15 (42%)	16(40%)	5(83%)	21 (46%)
	Obese(≥30)	4(12%)		4 (11%)	6(15%)		6 (13%)
	Unknown		1(50%)	1 (3%)	1(3%)		1 (2%)
	Blood Group						
	A	14(41%)		14 (39%)	22(55%)	2(33%)	24 (52%)
	AB				2(5%)		2 (4%)
	B	4(12%)	1(50%)	5 (14%)		1(17%)	1 (2%)
	O	16(47%)	1(50%)	17 (47%)	16(40%)	3(50%)	19 (41%)
	Racial Origin						
	Caucasian	28(82%)	1(50%)	29 (81%)	30(75%)	6(100%)	36 (78%)
	Asian	3(9%)		3 (8%)	1(3%)		1 (2%)
Maori	2(6%)	1(50%)	3 (8%)	5(13%)		5 (11%)	
Pacific Islander				1(3%)		1 (2%)	
Other	1(3%)		1 (3%)	3(8%)		3 (7%)	
Cause of Death							
CVA	26(76%)		26 (72%)	19(48%)	1(17%)	20 (43%)	
Trauma (road)	1(3%)		1 (3%)	4(10%)	1(17%)	5 (11%)	
Trauma (non-road)	1(3%)	1(50%)	2 (6%)	9(23%)	1(17%)	10 (22%)	
Hypoxia-Anoxia	5(15%)	1(50%)	6 (17%)	5(13%)	3(50%)	8 (17%)	
Other	1(3%)		1 (3%)	3(8%)		3 (7%)	



Age and Gender Distribution in Australia and New Zealand

In Australia in 2014, 11.9% of donors (45) were 65-74 years of age and 2.9% (11 donors) were aged 75 years or older. The oldest donor was 84.5 years and the youngest 3 months. In New Zealand in 2014, 13% of donors (6) were 65 years or older. The age range was from 2½ months to 82.4 years.

The mean age of donors in Australia in 2014 was 47.8 years. The mean age in New Zealand was 45.6 years. The mean age of donors in 1989 for Australia and New Zealand combined was 32.4 years and the age range was between 16.5 months and 69.5 years.

Figures 4.1 - 4.6 show donors according to age and gender in Australia and New Zealand for the years 2006-2008, 2009-2011 and 2012-2014.

Figure 4.1

Age and Gender of Deceased Donors
Australia 2006-2014

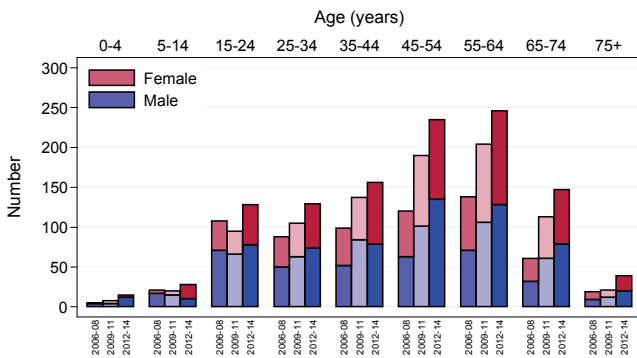


Figure 4.2

Age and Gender of Deceased Donors
New Zealand 2006-2014

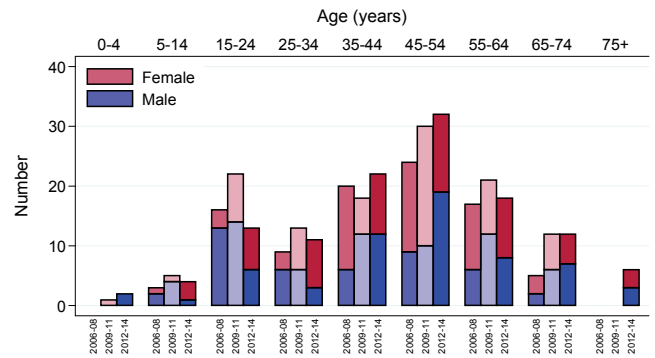


Figure 4.3

Age and Gender of Donors After Brain Death
Australia 2006-2014

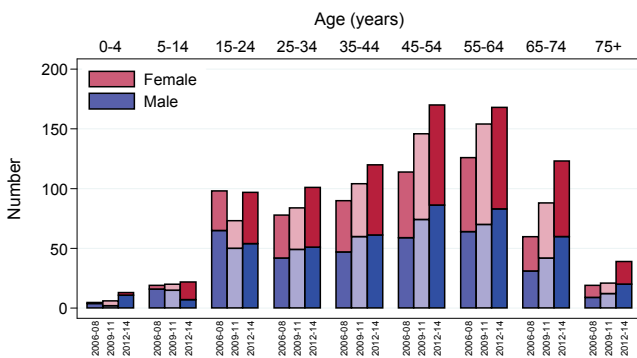


Figure 4.4

Age and Gender of Donors After Brain Death
New Zealand 2006-2014

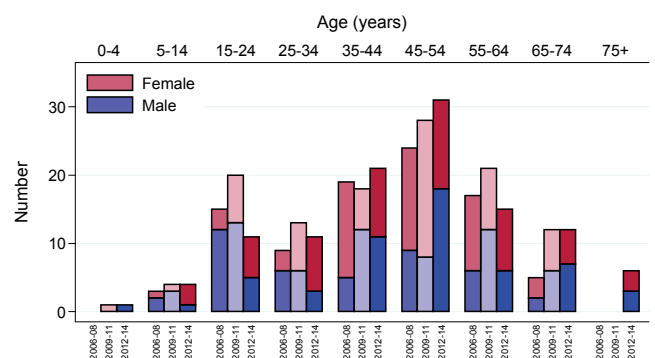


Figure 4.5

Age and Gender of Donors After Circulatory Death
Australia 2006-2014

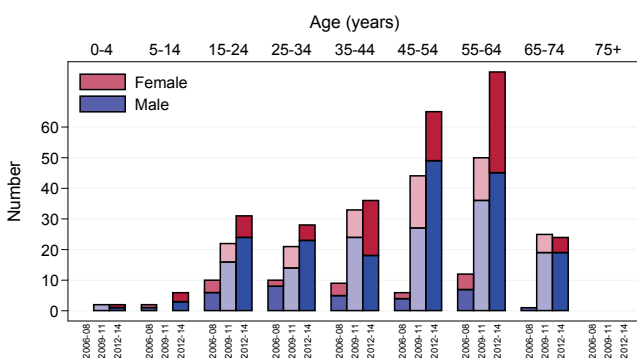
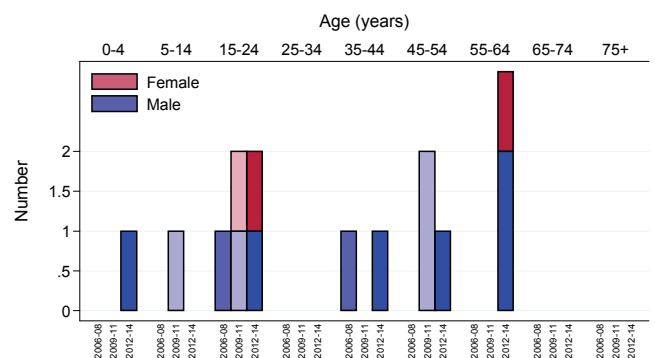


Figure 4.6

Age and Gender of Donors After Circulatory Death
New Zealand 2006-2014





Donor Profile 2014

Australia

The mean age of donors for Australia in 2014 was 47.8 years. Across Australian States the mean age ranged from 41.3 years in Queensland to 53.5 years in the Australian Capital Territory.

The median age of donors for Australian States in 2014 ranged from 44.2 years in the Northern Territory to 59.1 years in the Australia Capital Territory.

The median age for Australian donors in 2014 was 50.6 years.

Figure 4.7

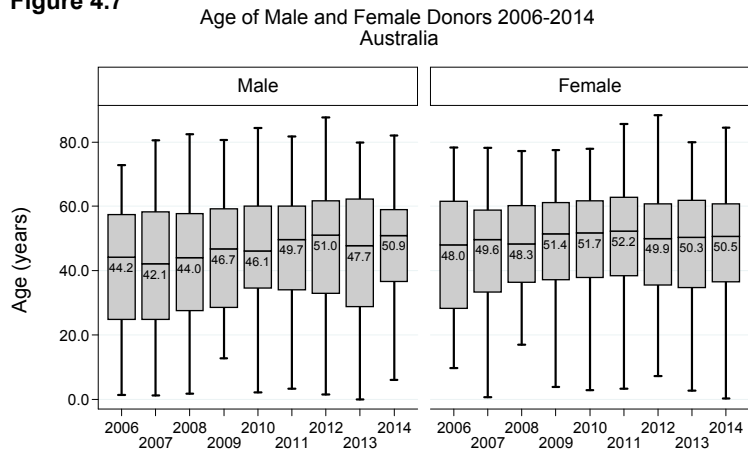
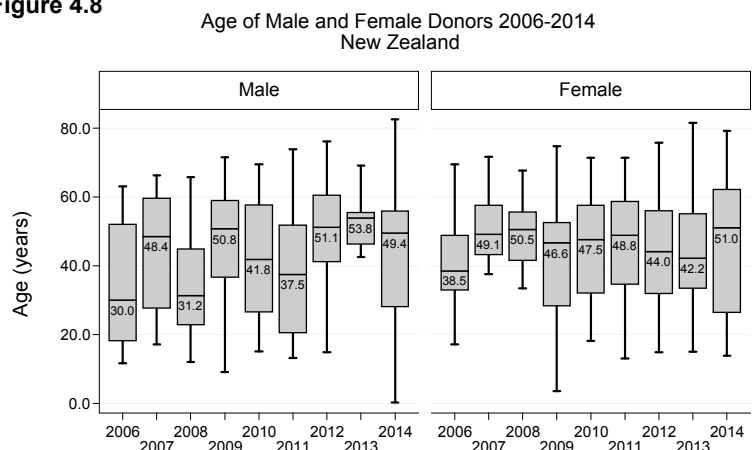


Figure 4.8

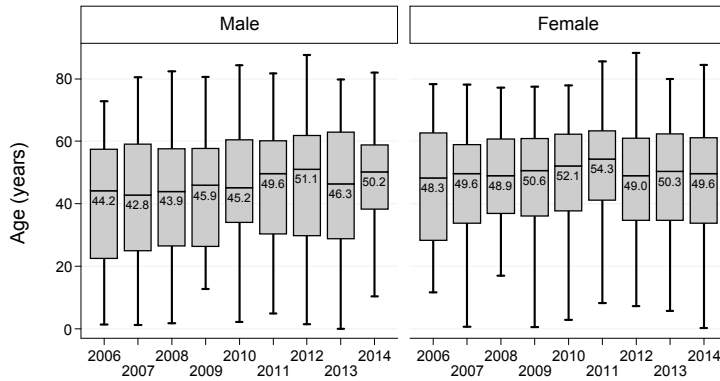


New Zealand

For New Zealand the mean age of donors was 45.6 years.

The median age for New Zealand was 50.2 years in 2014. There were three donors aged 75 years or over (up from 1 in 2013) and one donor aged less than 5 years.

Figure 4.9 Age of Male and Female Donors After Brain Death 2006-2014 Australia



The age and gender of donors by donation pathway is shown per year from 2006 - 2014 for Australia and New Zealand in Figures 4.10 to 4.11.



Figure 4.10 Age of Male and Female Donors After Circulatory Death 2006-2014 Australia

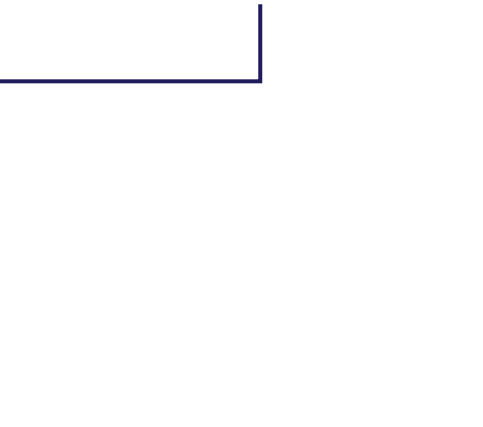
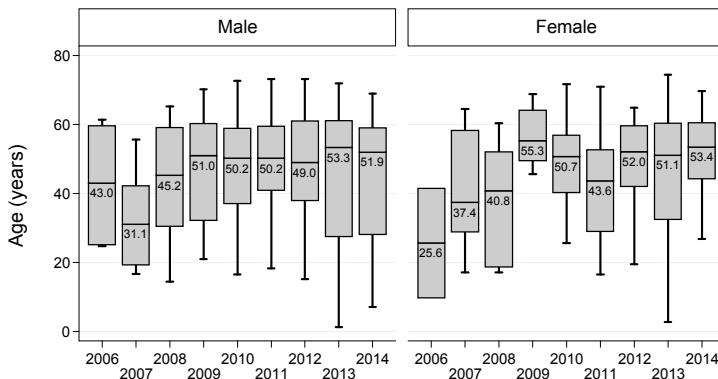
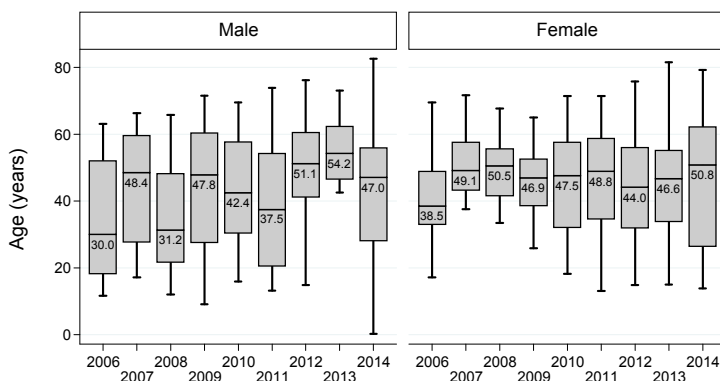


Figure 4.11 Age of Male and Female Donors After Brain Death 2006-2014 New Zealand



Donor Profile 2014

Figure 4.12 Age of Deceased Donors 2006-2014 Queensland

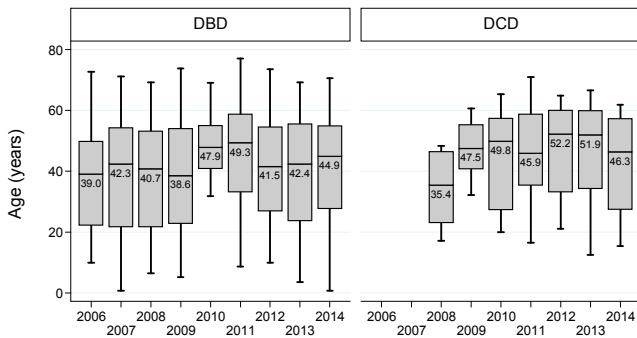


Figure 4.13 Age of Deceased Donors 2006-2014 New South Wales

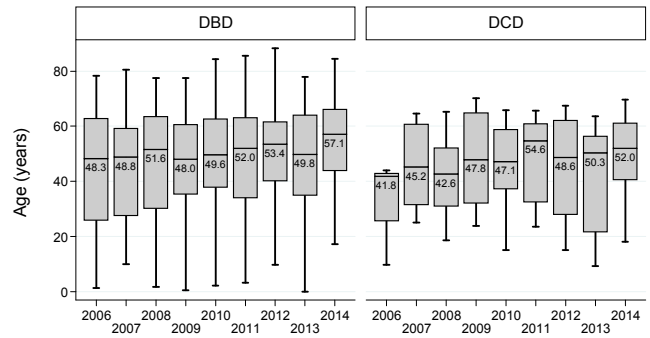


Figure 4.14 Age of Deceased Donors 2006-2014 Australian Capital Territory

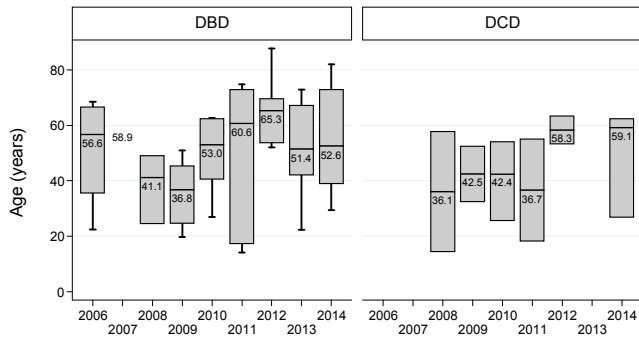


Figure 4.15 Age of Deceased Donors 2006-2014 Victoria

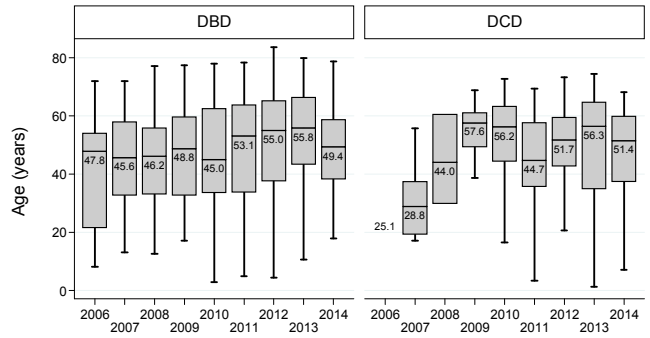


Figure 4.16 Age of Deceased Donors 2006-2014 Tasmania

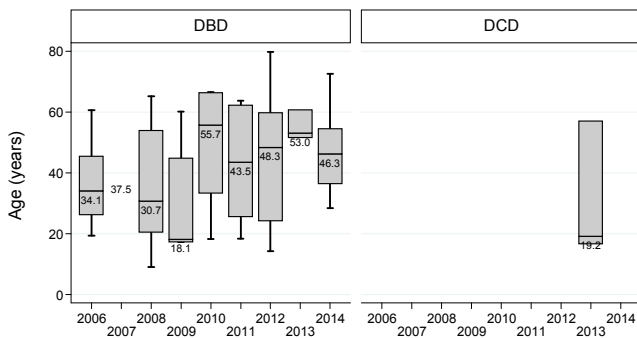


Figure 4.17 Age of Deceased Donors 2006-2014 South Australia

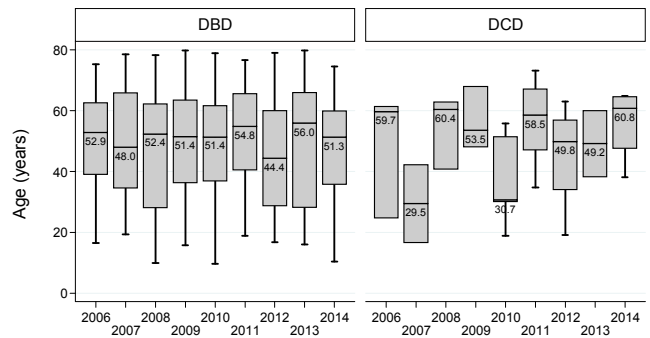


Figure 4.18 Age of Deceased Donors 2006-2014 Northern Territory

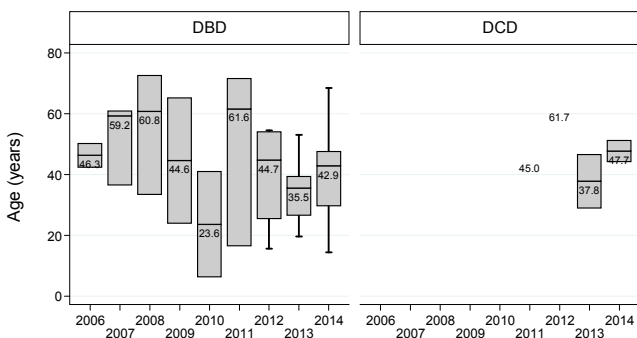
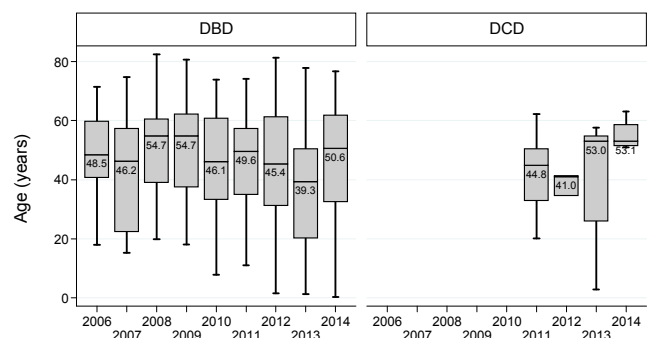
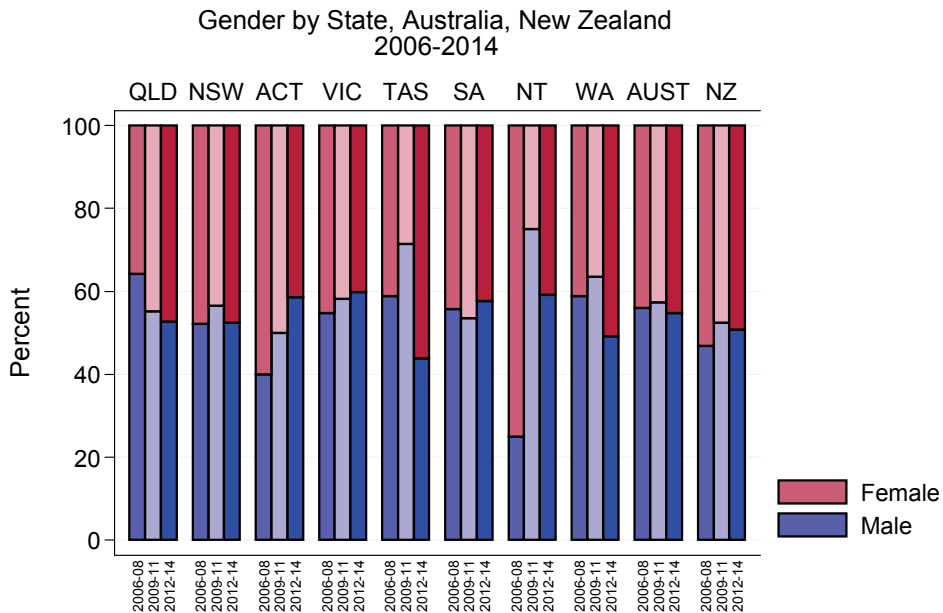


Figure 4.19 Age of Deceased Donors 2006-2014 Western Australia



Donor gender in each State, Australia and New Zealand is shown in three year cohorts in Figures 4.20

Figure 4.20



The ethnic origin of donors has remained stable over the past 5 years, in Australia and New Zealand (Table 4.3).



Table 4.3

Ethnic Origin of Donors 2010- 2014										
Donor racial/ ethnic origin	Australia					New Zealand				
	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014
Caucasian	289 (94%)	323 (96%)	331 (94%)	346 (88%)	328 (87%)	32 (78%)	30 (79%)	28 (74%)	29 (81%)	36 (78%)
Aboriginal	4 (1%)	3 (1%)	4 (1%)	8 (2%)	5 (1%)	-	-	-	-	-
Asian	15 (5%)	9 (3%)	10 (3%)	21 (5%)	23 (6%)	2 (5%)	1 (3%)	3 (8%)	3 (8%)	1 (2%)
Māori	-	-	4 (1%)	4 (1%)	1 (0%)	5 (12%)	3 (8%)	6 (16%)	3 (8%)	5 (11%)
Pacific Islander	-	1 (0%)	2 (1%)	3 (1%)	2 (1%)	1 (2%)	4 (11%)	1 (3%)	-	1 (2%)
Other	1 (0%)	1 (0%)	3 (1%)	9 (2%)	19 (5%)	1 (2%)	-	-	1 (3%)	3 (7%)

Donor Profile 2014

Table 4.4 shows the religious denomination of donors. This has remained stable over the 5 years to 2014.

Table 4.4

Religious Denomination of Donors 2010 - 2014										
Donor Religion	Australia					New Zealand				
	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014
Christian	99 (32%)	108 (32%)	108 (31%)	120 (31%)	95 (25%)	3 (7%)	7 (18%)	5 (13%)	3 (8%)	4 (9%)
Jewish	1 (0%)	-	-	3 (1%)	2 (1%)	-	-	-	-	-
Orthodox	-	3 (1%)	2 (1%)	2 (1%)	-	-	-	-	-	-
Muslims	-	-	1 (0%)	2 (1%)	-	-	-	-	-	-
Buddhist	1 (0%)	1 (0%)	4 (1%)	1 (0%)	7 (2%)	-	-	-	-	-
Hindu	2 (1%)	-	2 (1%)	-	2 (1%)	-	-	-	1 (3%)	-
No religion	-	-	-	4 (1%)	4 (1%)	-	-	-	-	-
Other	64 (21%)	75 (22%)	59 (17%)	77 (20%)	86 (23%)	-	-	-	-	1 (2%)
Unknown	142 (46%)	150 (45%)	178 (50%)	182 (47%)	182(48%)	38 (93%)	31 (82%)	33 (87%)	32 (89%)	41 (89%)

Donor Weight

The allocation of heart, lungs and livers are based in part on the matching of recipient and donor size and weight. In 2014 there were 10 donors in Australia and one donor in New Zealand who weighed less than 40 kilograms. There were 38 donors 100 kilograms and over in Australia and four donors in New Zealand.

Table 4.5

Donor Weight 2010 - 2014												
Kilograms												
		0-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100 +	Total
Australia	2010	2	5	4	2	20	43	62	70	53	48	309
	2011	3	4	1	6	31	59	73	74	48	38	337
	2012	2	4	0	7	23	73	70	85	44	46	354
	2013	10	2	3	7	24	62	95	90	53	45	391
	2014	4	4	2	4	29	54	104	86	53	38	378
New Zealand	2010	1	0	0	1	2	6	14	8	4	5	41
	2011	0	0	0	2	1	11	7	9	4	4	38
	2012	0	0	0	0	6	5	10	5	8	4	38
	2013	1	0	1	0	3	9	11	4	5	2	36
	2014	1	0	0	0	3	8	7	16	7	4	46



Medical Condition of Donors

Table 4.6 lists the medical conditions of donors by States, Territories and Country for 2014 compared to 2013 by Donor type.

Table 4.6

Medical Condition of Donors by States/Country 2014 (2013)											
Donor Type	Medical Condition	QLD	NSW	ACT	VIC	TAS	SA	NT	WA	AUST	NZ
DBD	Diabetes Type I	1 (0)	2 (1)	0 (0)	2 (1)	0 (0)	0 (2)	0 (0)	0 (0)	5 (4)	1 (0)
	Diabetes Type II	2 (2)	4 (6)	0 (1)	3 (7)	1 (0)	2 (2)	0 (0)	2 (2)	14 (20)	1 (3)
	Hypertension	7 (5)	25 (26)	2 (1)	19 (22)	2 (2)	10 (10)	0 (0)	12 (7)	77 (73)	11 (5)
	Smoking-Current	27 (27)	28 (31)	2 (2)	33 (30)	5 (3)	14 (13)	2 (2)	10 (21)	121 (129)	7 (6)
	Cancer	1 (3)	2 (4)	0 (1)	0 (1)	0 (0)	3 (0)	0 (0)	1 (4)	7 (13)	0 (1)
DCD	Diabetes Type I	0 (0)	0 (0)	0 (0)	1 (2)	0 (0)	0 (0)	0 (0)	0 (0)	1 (2)	0 (0)
	Diabetes Type II	0 (0)	2 (0)	0 (0)	2 (3)	0 (0)	0 (0)	0 (0)	0 (0)	4 (3)	0 (0)
	Hypertension	3 (5)	4 (1)	0 (0)	13 (13)	0 (0)	1 (1)	0 (0)	1 (3)	22 (23)	1 (0)
	Smoking-Current	6 (9)	10 (7)	0 (0)	21 (12)	0 (1)	1 (0)	0 (1)	2 (1)	40 (31)	1 (1)
	Cancer	1 (1)	1 (1)	1 (0)	0 (1)	0 (0)	0 (0)	0 (0)	0 (0)	3 (3)	0 (0)

Diabetes

There were 24 donors with diabetes in Australia in 2014, six donors with Type 1 and 18 with Type 2 diabetes. There were two donors in New Zealand with diabetes; one each of Type 1 and Type 2 diabetes.

In Australia, there was one diabetic Type 2 donor who did not have organs retrieved (due to poor perfusion of the organs). The 18 Type 2 donors provided 23 kidneys, 10 livers, five double lungs, two hearts, 20 corneas, four sets of heart valves, four bone donations and one tissue donation. The six diabetic Type 1 donors in Australia, provided six kidneys, three liver, one heart, five double lungs and one bone donation.

In New Zealand, two kidneys, one heart, one liver, one double lungs and two corneas were retrieved from the two diabetic donors.

Donor Profile 2014



Hypertension

A past history of hypertension was recorded in 26.2% of donors (99) in Australia and 26.1% (12 donors) in New Zealand in 2014 (Table 4.6).

The Australian donors provided 154 kidneys, 54 livers, 11 hearts, 31 double lungs, three single lungs, one pancreas, two pancreas islets, 92 corneas, 18 sets of heart valves, 19 bone donations and nine tissue donations. Three of the 99 donors did not provide any organs; one due to disease in the organ, one due to poor perfusion and one did not die within the timeframe.

In New Zealand, the 12 donors with hypertension provided 12 kidneys, eight livers, four hearts, four double lungs and 18 corneas and one tissue donation.

Smoking

In 2014, 42.6% (161) of Australian donors were recorded as current smokers while in New Zealand, 17.4% (8) donors were reported as current smokers.

Cancer in Donor

In Australia, 10 donors had a history of cancer prior to donation. In New Zealand, no donors in 2014 had a history of previous cancer.

Australia (10 donors)

- * Two diagnosed with squamous cell carcinomas (1 cervical)
- * One melanoma
- * One ductal carcinoma
- * One with granulosa cell
- * Five reported as having cancer of unknown type or site

There were 16 kidneys, four livers, four double lungs, 16 corneas, three bone donation and two tissue donations from these 10 donors. Three were DCD donors.



Virology Screening

Table 4.7 shows the cytomegalovirus (CMV) status of donors from 2010 to 2014.

Table 4.7

Cytomegalovirus (CMV) Status of Donors 2010 - 2014										
	Australia					New Zealand				
	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014
Positive	191	214	225	242	230	23	21	30	21	22
Negative	118	123	129	148	146	18	17	8	15	23
Not done	0	0	0	0	2	0	0	0	0	1
Total	309	337	354	390	378	41	38	38	36	46

Table 4.8 shows the Epstein-Barr Virus (EBV) status of donors from 2010 to 2014.

Table 4.8

Epstein-Barr Virus (EBV) Status of Donors 2010 - 2014										
	Australia					New Zealand				
	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014
Positive	198	293	321	356	338	33	27	33	27	36
Negative	14	28	33	33	30	2	4	1	4	6
Not done	97	16	0	2	6	6	7	4	0	3
Total	309	337	354	391	374	41	38	38	31	45

Not all Australian States require organ donors to be tested for EBV.

Hepatitis C Antibody

There were eleven Hepatitis C positive donors in 2014, nine in Australia and two in New Zealand.

Of the positive donors in Australia, nine were DBD donors. There were two kidneys, seven livers, one heart, one double lungs and one single lung donated.

The two positive donors in New Zealand were DBD donors, who donated four kidneys, two livers, one heart, two corneas and one set of heart valves. There was one donor in Australia who was both HCV and HBV positive and who donated a liver.

Table 4.9

Hepatitis C Antibody Status of Donors 2010 - 2014										
	Australia					New Zealand				
	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014
Positive	2	7	5	13	9	0	1	2	1	2
Negative	307	330	349	378	364	41	37	36	35	44
Not done	0	0	0	0	4	0	0	0	0	0
Total	309	337	354	391	377	41	38	38	36	46



Donor Profile 2014

Hepatitis B Core Antibody

The Registry commenced collection of Hepatitis B core antibody results in 1998.

A positive result was recorded for 5% (20) of Australian donors and 7% (3) of New Zealand donors in 2014 (Table 4.10).

Of the positive donors in Australia, all were DBD donors. These 20 donors, provided 27 kidneys, 12 whole livers, two hearts, nine double lungs, one pancreas islets, two corneas and one set of heart valves tissue.

The three positive Hepatitis B donors in New Zealand provided, two kidneys, two whole livers and six corneas donated.

Figure 4.10

Hepatitis B Core Antibody Status of Donors 2010 - 2014										
	Australia					New Zealand				
	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014
Positive	20	11	15	17	20	2	5	8	2	3
Negative	289	326	339	374	340	39	33	30	34	42
Not done	0	0	0	0	17	0	0	0	0	1
Total	309	337	354	391	377	41	38	38	36	46

Hepatitis B Surface Antigen

Since 1993, all donors in Australia and New Zealand have been tested negative for Hepatitis B surface antigen, except one donor in 2004 who was not tested.

