



SECTION 4

Deceased Organ Donor Profile

This section provides a detailed description of organ donor demographic characteristics, including gender, age, ethnicity and religions. Data also describes pre-existing medical condition and virology screening assessed prior to deceased organ donation.

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Suggested Citation:

ANZOD Registry, 2018 Annual Report, Section 4: Deceased Organ Donor Profile. Australia and New Zealand Dialysis and Transplant Registry, Adelaide, Australia. 2018. Available at www.anzdata.org.au

Donor Demographics

Table 4.1 contains a description of actual donors in Australia and New Zealand in 2017 compared to 2016. In Australia there continues to be more male than female donors. In both countries there is a preponderance of blood groups O and A.

Table 4.1.1 Demography of Deceased Donors in Australia 2016 - 2017

Australian Donor	2016			2017		
	DBD	DCD	Total	DBD	DCD	Total
Gender						
Male	198 (53%)	79 (62%)	277 (55%)	185 (52%)	90 (60%)	275 (54%)
Female	177 (47%)	49 (38%)	226 (45%)	174 (48%)	61 (40%)	235 (46%)
Age						
0-4	7 (2%)	3 (2%)	10 (2%)	6 (2%)	2 (1%)	8 (2%)
5-14	12 (3%)	4 (3%)	16 (3%)	12 (3%)	5 (3%)	17 (3%)
15-24	51 (14%)	9 (7%)	60 (12%)	30 (8%)	16 (11%)	46 (9%)
25-34	46 (12%)	17 (13%)	63 (13%)	50 (14%)	12 (8%)	62 (12%)
35-44	60 (16%)	15 (12%)	75 (15%)	60 (17%)	24 (16%)	84 (16%)
45-54	73 (19%)	38 (30%)	111 (22%)	77 (21%)	31 (21%)	108 (21%)
55-64	70 (19%)	24 (19%)	94 (19%)	60 (17%)	41 (27%)	101 (20%)
65-74	41 (11%)	18 (14%)	59 (12%)	55 (15%)	20 (13%)	75 (15%)
75+	15 (4%)	-	15 (3%)	9 (3%)	-	9 (2%)
BMI (kg/m2)						
Underweight (<18.5)	24 (6%)	6 (5%)	30 (6%)	20 (6%)	10 (7%)	30 (6%)
Normal (18.5-<25)	143 (38%)	42 (33%)	185 (37%)	130 (36%)	42 (28%)	172 (34%)
Overweight (25-<30)	127 (34%)	52 (41%)	179 (36%)	120 (33%)	60 (40%)	180 (35%)
Obese (>=30)	81 (22%)	28 (22%)	109 (22%)	89 (25%)	38 (25%)	127 (25%)
Unknown	-	-	-	-	1 (1%)	1 (0%)
Blood Group						
A	143 (38%)	55 (43%)	198 (39%)	129 (36%)	51 (34%)	180 (35%)
AB	6 (2%)	3 (2%)	9 (2%)	10 (3%)	5 (3%)	15 (3%)
B	36 (10%)	13 (10%)	49 (10%)	34 (9%)	13 (9%)	47 (9%)
O	190 (51%)	57 (45%)	247 (49%)	186 (52%)	82 (54%)	268 (53%)
Ethnicity¹						
Australian	285 (76%)	100 (78%)	385 (77%)	266 (74%)	119 (79%)	385 (75%)
Aboriginal/Torres Strait Islander	15 (4%)	5 (4%)	20 (4%)	10 (3%)	2 (1%)	12 (2%)
New Zealand European	2 (1%)	2 (2%)	4 (1%)	4 (1%)	1 (1%)	5 (1%)
New Zealand Māori	5 (1%)	-	5 (1%)	4 (1%)	1 (1%)	5 (1%)
Pacific Islander	2 (1%)	1 (1%)	3 (1%)	1 (0%)	1 (1%)	2 (0%)
European	32 (9%)	11 (9%)	43 (9%)	44 (12%)	16 (11%)	60 (12%)
North African and Middle Eastern	2 (1%)	-	2 (0%)	1 (0%)	2 (1%)	3 (1%)
Asian	27 (7%)	7 (5%)	34 (7%)	24 (7%)	8 (5%)	32 (6%)
American	3 (1%)	1 (1%)	4 (1%)	2 (1%)	1 (1%)	3 (1%)
Sub-Saharan African	2 (1%)	1 (1%)	3 (1%)	3 (1%)	-	3 (1%)

¹ Ethnicity categories listed in Table 4.1.1 and 4.1.2 are based on the Australian Bureau of Statistics (ABS) and Stats NZ ethnicity classifications below:

Australian: Oceanian - Australian

Aboriginal/Torres Strait Islander: Oceanian - Australian Aboriginal/Australian South Sea Islander/Torres Strait Islander

New Zealand European: Oceanian - New Zealand European

New Zealand Māori: Oceanian - New Zealand Māori

Pacific Islander: Oceanian - Melanesian And Papuan/Micronesian/Polynesian/Cook Islander/Fijian/Niuean/Samoan/Tongan/Tokelauan

European: North-West European, Southern and Eastern European - Italian/Greek

North African and Middle Eastern: North African and Middle Eastern - Arab/Turkish

Asian: South-East Asian - Vietnamese/Filipino/Indonesian/Malay, North-East Asian - Chinese, Southern and Central Asian - Indian

American: North American, Hispanic North American, South American, Central American, Caribbean Islander

Sub-Saharan African: Sub-Saharan African

Table 4.1.2 Demography of Deceased Donors in New Zealand 2016 – 2017

New Zealand Donors	2016			2017		
	DBD	DCD	Total	DBD	DCD	Total
Gender						
Male	31(56%)	4(67%)	35 (57%)	28(46%)	8(67%)	36 (49%)
Female	24(44%)	2(33%)	26 (43%)	33(54%)	4(33%)	37 (51%)
Age						
5-14	-	-	-	1(2%)	-	1 (1%)
15-24	8(15%)	-	8 (13%)	7(11%)	2(17%)	9 (12%)
25-34	10(18%)	1(17%)	11 (18%)	8(13%)	1(8%)	9 (12%)
35-44	3(5%)	1(17%)	4 (7%)	6(10%)	-	6 (8%)
45-54	9(16%)	4(67%)	13 (21%)	9(15%)	6(50%)	15 (21%)
55-64	15(27%)	-	15 (25%)	18(30%)	3(25%)	21 (29%)
65-74	9(16%)	-	9 (15%)	9(15%)	-	9 (12%)
75+	1(2%)	-	1 (2%)	3(5%)	-	3 (4%)
BMI (kg/m2)						
Underweight (<18.5)	1(2%)	-	1 (2%)	-	-	-
Normal (18.5-<25)	26(47%)	4(67%)	30 (49%)	28(46%)	3(25%)	31 (42%)
Overweight (25-<30)	19(35%)	1(17%)	20 (33%)	22(36%)	3(25%)	25 (34%)
Obese (>=30)	9(16%)	1(17%)	10 (16%)	11(18%)	6(50%)	17 (23%)
Blood Group						
A	22(40%)	-	22 (36%)	20(33%)	3(25%)	23 (32%)
AB	4(7%)	-	4 (7%)	2(3%)	1(8%)	3 (4%)
B	1(2%)	1(17%)	2 (3%)	5(8%)	4(33%)	9 (12%)
O	28(51%)	5(83%)	33 (54%)	34(56%)	4(33%)	38 (52%)
Ethnicity¹						
Australian	1(2%)	-	1 (2%)	1(2%)	-	1 (1%)
New Zealand European	36(65%)	5(83%)	41 (67%)	38(62%)	4(33%)	42 (58%)
New Zealand Māori	4(7%)	1(17%)	5 (8%)	7(11%)	-	7 (10%)
Pacific Islander	1(2%)	-	1 (2%)	-	4(33%)	4 (5%)
European	5(9%)	-	5 (8%)	10(16%)	1(8%)	11 (15%)
North African and Middle Eastern	1(2%)	-	1 (2%)	-	-	-
Asian	6(11%)	-	6 (10%)	1(2%)	3(25%)	4 (5%)
American	1(2%)	-	1 (2%)	1(2%)	-	1 (1%)
Sub-Saharan African	-	-	-	3(5%)	-	3 (4%)

¹ Ethnicity categories listed in Table 4.1.1 and 4.1.2 are based on the Australian Bureau of Statistics (ABS) and Stats NZ ethnicity classifications below:

- Australian: Oceanian - Australian
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- New Zealand European: Oceanian - New Zealand European
- New Zealand Māori: Oceanian - New Zealand Māori
- Pacific Islander: Oceanian - Melanesian And Papuan/Micronesian/Polynesian/Cook Islander/Fijian/Niuean/Samoan/Tongan/Tokelauan
- European: North-West European, Southern and Eastern European - Italian/Greek
- North African and Middle Eastern: North African and Middle Eastern - Arab/Turkish
- Asian: South-East Asian - Vietnamese/Filipino/Indonesian/Malay, North-East Asian - Chinese, Southern and Central Asian - Indian
- American: North American, Hispanic North American, South American, Central American, Caribbean Islander
- Sub-Saharan African: Sub-Saharan African

Donor Age and Gender

In Australia in 2017, 14.7% of donors (75) were 65-74 years of age and 1.8% (9 donors) were aged 75 years or older. The oldest donor was 81.6 years and the youngest was less than 1 year. In New Zealand in 2017, 16.4% of donors (12) were 65 years or older. The age range was from 14.3 years to 82.6 years.

The mean age of donors in Australia in 2017 was 46.4 years. The mean age in New Zealand was 48.7 years.

Figures 4.1.1 and 4.1.2 show the trends in donor numbers for each age group and gender; while there has been growth in all age groups this is more marked in the older age group.

Figure 4.1.1 - Age and Gender of Deceased Donors Australia 2009-2017

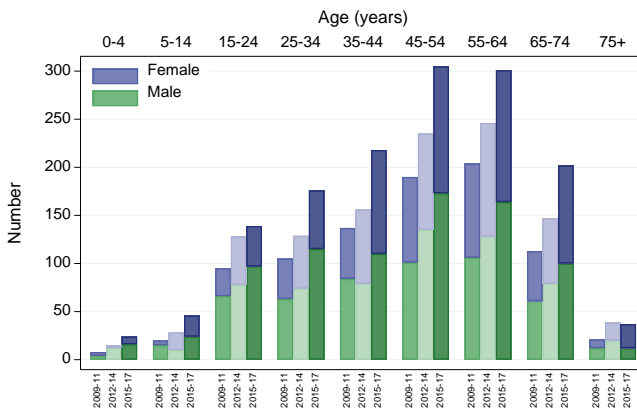
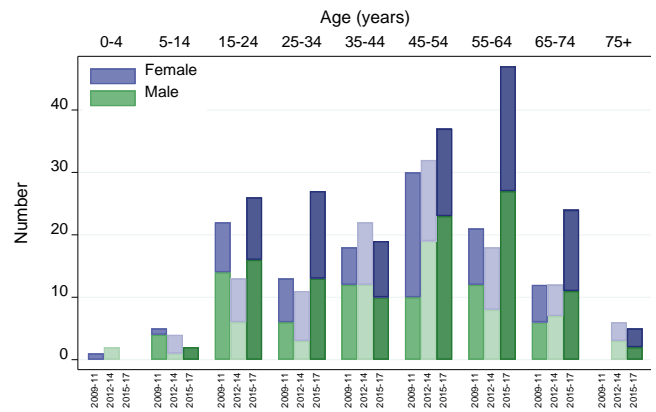


Figure 4.1.2 - Age and Gender of Deceased Donors New Zealand 2009-2017



The median age for Australian donors in 2017 was 47.0 years (Figure 4.2). The median age across Australian jurisdictions in 2017 ranged from 41.9 years in Western Australia to 54.7 years in the Australian Capital Territory.

The median age for New Zealand was 51.6 years in 2017. There were three donors aged 75 years or over and one donor aged less than 15 years.

Figure 4.2.1 - Age of Male and Female Donors 2009-2017 Australia

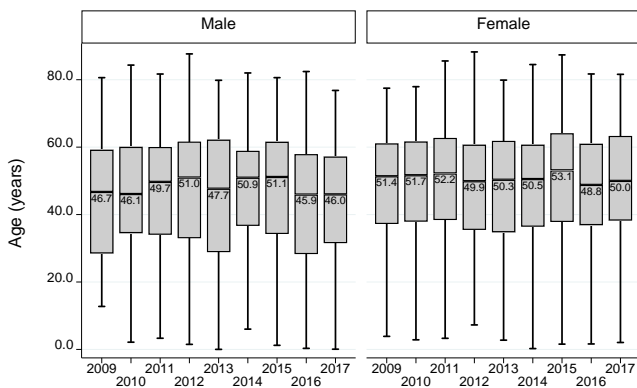
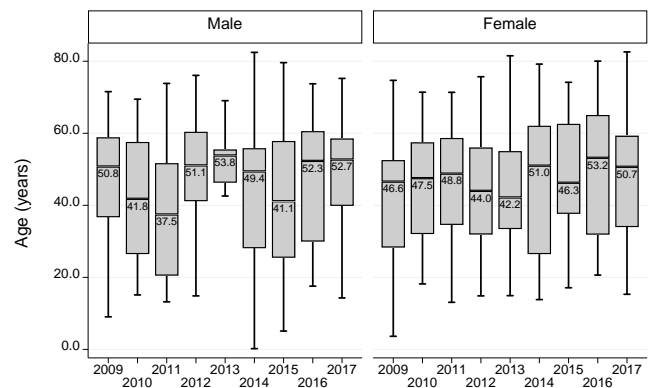
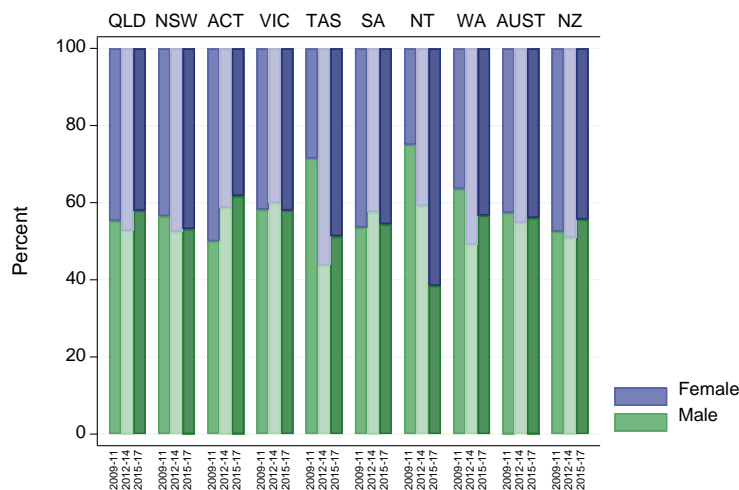


Figure 4.2.2 - Age of Male and Female Donors 2009-2017 New Zealand



Donor gender in each State, Australia and New Zealand is shown in three-year cohorts in Figure 4.3.

Figure 4.3 - Gender by State, Australia, New Zealand, 2009-2017



Donor Ethnic Origins

There have been no significant changes in the documented ethnicity of donors over the past five years in either Australia or New Zealand (Table 4.2).

Table 4.2 Ethnic Origin of Donors 2013-2017

Donor racial / ethnic origin ¹	Australia					New Zealand				
	2013	2014	2015	2016	2017	2013	2014	2015	2016	2017
Australian	335 (86%)	286 (76%)	326 (75%)	385 (77%)	385 (75%)	-	4 (9%)	-	1 (2%)	1 (1%)
Australian Aboriginal/Torres Strait Islander	8 (2%)	9 (2%)	11 (3%)	20 (4%)	12 (2%)	-	-	-	-	-
New Zealand European	-	7 (2%)	5 (1%)	4 (1%)	5 (1%)	29 (81%)	27 (59%)	41 (77%)	41 (67%)	42 (58%)
New Zealand Māori	4 (1%)	1 (0%)	1 (0%)	5 (1%)	5 (1%)	3 (8%)	6 (13%)	5 (9%)	5 (8%)	7 (10%)
Pacific Islander	3 (1%)	2 (1%)	4 (1%)	3 (1%)	2 (0%)	-	1 (2%)	-	1 (2%)	4 (5%)
European	8 (2%)	31 (8%)	44 (10%)	43 (9%)	60 (12%)	-	4 (9%)	2 (4%)	5 (8%)	11 (15%)
North African and Middle Eastern	3 (1%)	2 (1%)	4 (1%)	2 (0%)	3 (1%)	-	-	-	1 (2%)	-
Asian	22 (6%)	25 (7%)	32 (7%)	34 (7%)	32 (6%)	3 (8%)	1 (2%)	2 (4%)	6 (10%)	4 (5%)
American	-	10 (3%)	5 (1%)	4 (1%)	3 (1%)	-	2 (4%)	3 (6%)	1 (2%)	1 (1%)
Sub-Saharan African	-	5 (1%)	3 (1%)	3 (1%)	3 (1%)	-	1 (2%)	-	-	3 (4%)
Not reported	8 (2%)	-	-	-	-	1 (3%)	-	-	-	-

¹ Ethnicity categories listed in Table 4.2 are based on the Australian Bureau of Statistics (ABS) and Stats NZ ethnicity classifications below:

Australian: Oceanian - Australian

Australian Aboriginal/Torres Strait Islander: Oceanian - Australian

Aboriginal/Australian South Sea Islander/Torres Strait Islander

New Zealand European: Oceanian - New Zealand European

New Zealand Māori: Oceanian - New Zealand Māori

Pacific Islander: Oceanian - Melanesian And Papuan/Micronesian/Polynesian/Cook Islander/Fijian/Niuean/Samoan/Tongan/Tokelauan

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Asian: South-East Asian - Vietnamese/Filipino/Indonesian/Malay, North-East Asian - Chinese, Southern and Central Asian - Indian

American: North American, Hispanic North American, South American, Central American, Caribbean Islander

Sub-Saharan African: Sub-Saharan African

Donor Religion

Table 4.3 shows the reported religion of donors. This has remained stable over the 5 years to 2017.

Table 4.3 Religion of Donors, 2013-2017 n (%)

Donor Religion	Australia					New Zealand				
	2013	2014	2015	2016	2017	2013	2014	2015	2016	2017
Christianity	122 (31%)	96 (25%)	136 (31%)	150 (30%)	178 (35%)	3 (8%)	4 (9%)	3 (6%)	4 (7%)	2 (3%)
Judaism	3 (1%)	2 (1%)	2 (0%)	1 (0%)	-	-	-	-	1 (2%)	-
Islam	2 (1%)	-	1 (0%)	3 (1%)	3 (1%)	-	-	-	-	-
Buddhism	1 (0%)	7 (2%)	6 (1%)	8 (2%)	6 (1%)	-	-	-	-	-
Hinduism	-	2 (1%)	3 (1%)	4 (1%)	1 (0%)	1 (3%)	-	-	-	1 (1%)
Others	5 (1%)	3 (1%)	4 (1%)	6 (1%)	1 (0%)	-	-	-	-	-
No religion	77 (20%)	87 (23%)	92 (21%)	123 (24%)	123 (24%)	-	1 (2%)	-	-	-
Unknown	181 (46%)	181 (48%)	191 (44%)	208 (41%)	198 (39%)	32 (89%)	41 (89%)	50 (94%)	56 (92%)	70 (96%)

Donor Weight

The allocation of heart, lungs and livers are based in part on the matching of recipient and donor size and weight. In 2017 there were 18 donors in Australia and no donors in New Zealand who weighed less than 40 kilograms. There were 73 donors 100 kilograms and over in Australia and 11 donors in New Zealand. (Table 4.4)

Table 4.4 Donor Weight in Kilograms 2013 - 2017

Country	Year	0-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	Total
AUSTRALIA	2013	10	2	3	7	24	62	95	90	53	45	391
	2014	4	4	2	4	29	53	104	86	54	38	378
	2015	7	4	3	8	33	70	93	86	63	68	435
	2016	9	6	4	10	34	82	115	113	73	57	503
	2017	8	6	4	8	41	91	97	102	80	73	510
NEW ZEALAND	2013	1	0	1	0	3	9	11	4	5	2	36
	2014	1	0	0	0	3	8	7	16	7	4	46
	2015	0	1	0	0	3	12	12	11	10	4	53
	2016	0	0	0	1	8	9	17	12	5	9	61
	2017	0	0	0	1	5	13	19	13	11	11	73

Donor Medical Conditions

Comorbid medical conditions are an important area in determining donor suitability, and one that has been changing over time. Table 4.5 lists the medical conditions of donors by jurisdiction for 2017 by donor type.

Table 4.5 Comorbid Medical Conditions of Actual Deceased Donors by Jurisdiction 2017 n (%)

Donor Type	Medical Condition	QLD	NSW	ACT	VIC	TAS	SA	NT	WA	AUS	NZ
DBD	Diabetes Type I	-	-	-	-	-	1 (4%)	-	1 (2%)	2 (1%)	-
	Diabetes Type II	2 (3%)	9 (9%)	-	12 (14%)	2 (12%)	2 (8%)	-	5 (11%)	32 (9%)	4 (7%)
	Hypertension	13 (18%)	33 (32%)	3 (43%)	26 (30%)	7 (41%)	8 (32%)	1 (33%)	7 (15%)	98 (27%)	17 (28%)
	Smoking-Current	29 (41%)	39 (38%)	1 (14%)	40 (47%)	10 (59%)	11 (44%)	1 (33%)	24 (51%)	155 (43%)	23 (38%)
	Cancer	5 (7%)	9 (9%)	-	2 (2%)	5 (29%)	2 (8%)	-	3 (6%)	26 (7%)	2 (3%)
	Total		71	103	7	86	17	25	3	47	359
DCD	Diabetes Type I	-	1 (3%)	-	1 (2%)	-	-	-	-	2 (1%)	-
	Diabetes Type II	-	1 (3%)	1 (14%)	7 (11%)	-	1 (14%)	-	-	10 (7%)	-
	Hypertension	5 (15%)	4 (13%)	2 (29%)	19 (31%)	2 (100%)	-	-	-	32 (21%)	4 (33%)
	Smoking-Current	12 (35%)	14 (44%)	2 (29%)	24 (39%)	-	2 (29%)	-	3 (43%)	57 (38%)	7 (58%)
	Cancer	-	6 (19%)	-	11 (18%)	-	-	-	-	17 (11%)	-
	Total		34	32	7	62	2	7	-	7	151

Diabetes

There were 46 donors with diabetes in Australia in 2017, 4 donors with Type 1 and 42 with Type 2 diabetes. There were 4 donors in New Zealand with diabetes, all with Type 2. In Australia, there were three Type 2 diabetic donors that did not have organs retrieved. The remaining 39 Type 2 donors provided 133 organ and tissue grafts for transplantation. This included one double adult kidney, 55 single kidneys, 14 livers, 12 double lungs, three single lungs and three hearts. The four Type 1 diabetic donors, provided 11 organs; six single kidneys, two livers, two double lungs and one heart.

In New Zealand, the four Type 2 diabetic donors provided four single kidneys and two livers.

Hypertension

A past history of hypertension was recorded in 25.5% of donors (130) in Australia and 28.8% (21) donors in New Zealand in 2017.

Smoking

In 2017, 41.6% (212) of Australian donors were recorded as current smokers while in New Zealand, 41.1% (30) donors were reported as current smokers.

Cancer in Donor

In Australia, 43 actual donors had a past history of cancer prior to donation. Of the 42 actual donors who had organs retrieved, there were 21 donors with skin only cancers, 20 with non-skin cancers and one donor of an uncertain cancer history. One actual donor did not have organs retrieved.

In New Zealand, two donors had a past history of cancer, both with a history of skin cancer.

Virology Screening

Table 4.6 lists the cytomegalovirus (CMV) status of donors by country from 2012 to 2017

Table 4.6 Cytomegalovirus (CMV IgG) Status of Donors, 2012 - 2017.

CMV IgG	Australia						New Zealand					
	2012	2013	2014	2015	2016	2017	2012	2013	2014	2015	2016	2017
Positive	225	242	228	268	332	309	30	21	23	26	33	47
Negative	129	148	148	167	169	200	8	15	23	27	26	26
Not Done	0	0	2	0	2	1	0	0	0	0	2	0
Unknown	0	1	0	0	0	0	0	0	0	0	0	0
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0
Pending	0	0	0	0	0	0	0	0	0	0	0	0
Total	354	391	378	435	503	510	38	36	46	53	61	73

Table 4.7 shows the Epstein-Barr Virus (EBV) status of donors from 2012 to 2017.

Table 4.7 Epstein-Barr Virus (EBV IgG) Status of Donors, 2012 - 2017

EBV IgG	Australia						New Zealand					
	2012	2013	2014	2015	2016	2017	2012	2013	2014	2015	2016	2017
Positive	321	356	339	404	462	459	33	27	37	36	53	63
Negative	33	33	30	28	38	48	1	4	5	13	6	5
Not Done	0	2	5	1	2	2	4	0	3	2	2	5
Unknown	0	0	0	0	0	0	0	5	0	1	0	0
Indeterminate	0	0	1	0	1	1	0	0	1	0	0	0
Pending	0	0	3	2	0	0	0	0	0	1	0	0
Total	354	391	378	435	503	510	38	36	46	53	61	73

Table 4.8 shows there were 14 Hepatitis C positive actual donors in 2017 reported to the Registry; 12 in Australia and 2 in New Zealand.

Table 4.8 Hepatitis C Antibody Status of Donors (Anti-HCV), 2012 - 2017

Anti-HCV	Australia						New Zealand					
	2012	2013	2014	2015	2016	2017	2012	2013	2014	2015	2016	2017
Positive	5	13	8	11	17	12	2	1	2	1	1	2
Negative	349	378	364	420	482	496	36	35	44	52	59	70
Not Done	0	0	5	4	4	2	0	0	0	0	1	1
Unknown	0	0	1	0	0	0	0	0	0	0	0	0
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0
Pending	0	0	0	0	0	0	0	0	0	0	0	0
Total	354	391	378	435	503	510	38	36	46	53	61	73

Table 4.9 shows the Hepatitis B Core Antibody status of actual donors from 2012 to 2017.

Table 4.9 Hepatitis B Core Antibody Status of Donors (Anti-HBcAb), 2012 - 2017

Anti-HBcAb	Australia						New Zealand					
	2012	2013	2014	2015	2016	2017	2012	2013	2014	2015	2016	2017
Positive	15	17	21	20	19	22	8	2	3	3	7	11
Negative	339	374	337	394	473	475	30	34	42	50	54	62
Not Done	0	0	19	21	11	13	0	0	1	0	0	0
Unknown	0	0	1	0	0	0	0	0	0	0	0	0
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0
Pending	0	0	0	0	0	0	0	0	0	0	0	0
Total	354	391	378	435	503	510	38	36	46	53	61	73

Since 1993, all consented actual and intended donors in Australia and New Zealand have been tested for Hepatitis B surface antigen. Table 4.10 shows the status of actual donors from 2012 to 2017.

Table 4.10 Hepatitis B Surface Antigen Status of Donors (HBsAg), 2012 - 2017

HBsAg	Australia						New Zealand					
	2012	2013	2014	2015	2016	2017	2012	2013	2014	2015	2016	2017
Positive	0	2	1	0	2	1	0	2	1	0	1	0
Negative	354	389	375	431	499	507	38	34	45	53	60	73
Not Done	0	0	2	4	2	1	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Indeterminate	0	0	0	0	0	1	0	0	0	0	0	0
Pending	0	0	0	0	0	0	0	0	0	0	0	0
Total	354	391	378	435	503	510	38	36	46	53	61	73