



SECTION 4

Deceased Organ Donor Profile

SUMMARY

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

Contents

Suggested Citation	2
Donor Demographics	3
Donor Age and Gender.....	5
Donor Ethnic Origins	6
Donor Religion.....	6
Donor Weight.....	7
Donor Medical Conditions.....	7
Diabetes	8
Cancer in Donor.....	8
Virology Screening.....	8

DRAFT

Suggested Citation

ANZOD Registry. 2020 Annual Report, Section 4: Deceased Organ Donor Profile. Australia and New Zealand Dialysis and Transplant Registry, Adelaide, Australia. 2020. Available at: www.anzdata.org.au

Donor Demographics

Table 4.1 contains a description of actual donors in Australia and New Zealand in 2019 compared to 2018. 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 2018 - 2019

Australian Donors	2018			2019		
	DBD	DCD	Total	DBD	DCD	Total
Gender						
Male	226 (57%)	99 (64%)	325 (59%)	224 (60%)	116 (67%)	340 (62%)
Female	174 (44%)	55 (36%)	229 (41%)	152 (40%)	56 (33%)	208 (38%)
Age						
0-4	5 (1%)	1 (1%)	6 (1%)	6 (2%)	2 (1%)	8 (1%)
5-14	10 (3%)	-	10 (2%)	7 (2%)	4 (2%)	11 (2%)
15-24	37 (9%)	17 (11%)	54 (10%)	28 (7%)	13 (8%)	41 (7%)
25-34	41 (10%)	17 (11%)	58 (10%)	43 (11%)	19 (11%)	62 (11%)
35-44	62 (16%)	25 (16%)	87 (16%)	53 (14%)	28 (16%)	81 (15%)
45-54	87 (22%)	35 (23%)	122 (22%)	82 (22%)	38 (22%)	120 (22%)
55-64	70 (18%)	34 (22%)	104 (19%)	77 (20%)	52 (30%)	129 (24%)
65-74	73 (18%)	25 (16%)	98 (18%)	59 (16%)	16 (9%)	75 (14%)
75+	15 (4%)	-	15 (3%)	21 (6%)	-	21 (4%)
BMI (kg/m2)						
Underweight (<18.5)	20 (5%)	6 (4%)	26 (5%)	13 (3%)	9 (5%)	22 (4%)
Normal (18.5-<25)	159 (40%)	45 (29%)	204 (37%)	120 (32%)	56 (33%)	176 (32%)
Overweight (25-<30)	134 (34%)	53 (34%)	187 (34%)	138 (37%)	52 (30%)	190 (35%)
Obese (>=30)	87 (22%)	50 (32%)	137 (25%)	105 (28%)	55 (32%)	160 (29%)
Blood Group						
A	151 (38%)	65 (42%)	216 (39%)	137 (36%)	65 (38%)	202 (37%)
AB	21 (5%)	4 (3%)	25 (5%)	13 (3%)	6 (3%)	19 (3%)
B	52 (13%)	13 (8%)	65 (12%)	48 (13%)	17 (10%)	65 (12%)
O	176 (44%)	72 (47%)	248 (45%)	178 (47%)	84 (49%)	262 (48%)
Ethnicity						
Australian Non-indigenous	295 (74%)	117 (76%)	412 (74%)	281 (75%)	124 (72%)	405 (74%)
Australian Indigenous	15 (4%)	3 (2%)	18 (3%)	11 (3%)	5 (3%)	16 (3%)
New Zealand European	8 (2%)	1 (1%)	9 (2%)	9 (2%)	6 (3%)	15 (3%)
New Zealand Māori	1 (0%)	1 (1%)	2 (0%)	2 (1%)	-	2 (0%)
Pacific Islander	1 (0%)	1 (1%)	2 (0%)	2 (1%)	-	2 (0%)
European	32 (8%)	17 (11%)	49 (9%)	35 (9%)	22 (13%)	57 (10%)
North African and Middle Eastern	5 (1%)	1 (1%)	6 (1%)	2 (1%)	-	2 (0%)
Asian	37 (9%)	11 (7%)	48 (9%)	28 (7%)	12 (7%)	40 (7%)
American	4 (1%)	1 (1%)	5 (1%)	3 (1%)	-	3 (1%)
Sub-Saharan African	2 (1%)	1 (1%)	3 (1%)	3 (1%)	3 (2%)	6 (1%)

*Ethnicity categories listed in Table 4.1 are based on the Australian Bureau of Statistics (ABS) and Stats NZ ethnicity classifications below:

Australian Non-indigenous: Oceanian - Australian

Australian Indigenous: 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

Table 4.1.2 Demography of Deceased Donors in New Zealand 2018 - 2019

New Zealand Donors	2018			2019		
	DBD	DCD	Total	DBD	DCD	Total
Gender						
Male	28(53%)	4(44%)	32 (52%)	33(54%)	10(77%)	43 (58%)
Female	25(47%)	5(56%)	30 (48%)	28(46%)	3(23%)	31 (42%)
Age						
5-14	1(2%)	-	1 (2%)	1(2%)	-	1 (1%)
15-24	9(17%)	1(11%)	10 (16%)	10(16%)	1(8%)	11 (15%)
25-34	9(17%)	-	9 (15%)	6(10%)	4(31%)	10 (14%)
35-44	7(13%)	1(11%)	8 (13%)	8(13%)	3(23%)	11 (15%)
45-54	7(13%)	-	7 (11%)	7(11%)	1(8%)	8 (11%)
55-64	7(13%)	7(78%)	14 (23%)	17(28%)	3(23%)	20 (27%)
65-74	10(19%)	-	10 (16%)	9(15%)	1(8%)	10 (14%)
75+	3(6%)	-	3 (5%)	3(5%)	-	3 (4%)
BMI (kg/m2)						
Underweight (<18.5)	1(2%)	-	1 (2%)	-	-	-
Normal (18.5-<25)	19(36%)	2(22%)	21 (34%)	24(39%)	5(38%)	29 (39%)
Overweight (25-<30)	23(43%)	3(33%)	26 (42%)	23(38%)	4(31%)	27 (36%)
Obese (>=30)	10(19%)	4(44%)	14 (23%)	14(23%)	4(31%)	18 (24%)
Blood Group						
A	22(42%)	1(11%)	23 (37%)	20(33%)	5(38%)	25 (34%)
AB	3(6%)	1(11%)	4 (6%)	1(2%)	-	1 (1%)
B	5(9%)	4(44%)	9 (15%)	11(18%)	2(15%)	13 (18%)
O	23(43%)	3(33%)	26 (42%)	29(48%)	6(46%)	35 (47%)
Ethnicity						
New Zealand European	35(66%)	8(89%)	43 (69%)	46(75%)	11(85%)	57 (77%)
New Zealand Māori	6(11%)	1(11%)	7 (11%)	5(8%)	1(8%)	6 (8%)
Pacific Islander	4(8%)	-	4 (6%)	2(3%)	-	2 (3%)
European	1(2%)	-	1 (2%)	3(5%)	-	3 (4%)
North African and Middle Eastern	-	-	-	-	1(8%)	1 (1%)
Asian	4(8%)	-	4 (6%)	4(7%)	-	4 (5%)
American	2(4%)	-	2 (3%)	1(2%)	-	1 (1%)
Sub-Saharan African	1(2%)	-	1 (2%)	-	-	-

*Ethnicity categories listed in Table 4.1 are based on the Australian Bureau of Statistics (ABS) and Stats NZ ethnicity classifications below:

Australian Non-indigenous: Oceanian - Australian

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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 Age and Gender

In Australia in 2019 13.7% of donors (75) were 65-74 years of age and 3.8% of donors (21) were aged 75 years or older. The oldest donor was 84.2 years and the youngest was less than 1 year. In New Zealand in 2019, 17.6% of donors (13) were 65 years or older. The age range was from 13.7 years to 82.9 years.

The mean age of donors in Australia in 2019 was 48.7 years. The mean age in New Zealand was 47.4 years. Figure 4.1 shows 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 groups.

Figure 4.1.1 - Age and Gender of Deceased Donors Australia 2011 – 2019

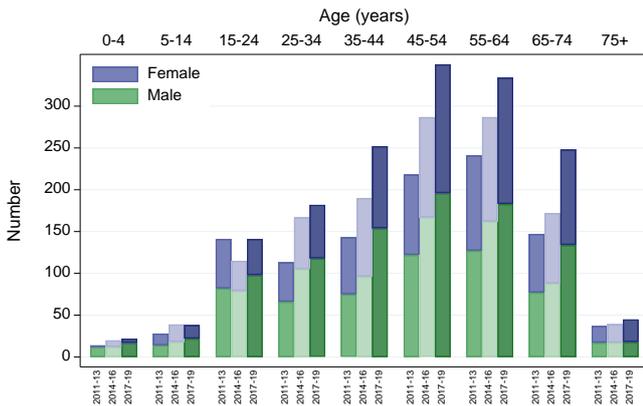
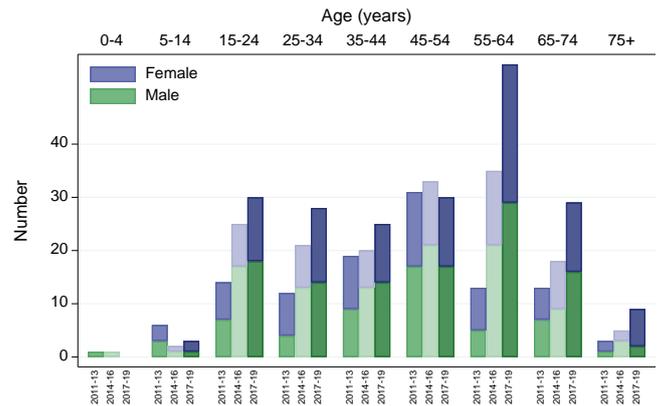


Figure 4.1.2 - Age and Gender of Deceased Donors New Zealand 2011 – 2019



The median age for Australian donors in 2019 was 51.5 years (Figure 4.2 below). The median age across Australian jurisdictions in 2019 ranged from 35.6 years in NT to 54.7 years in TAS.

The median age for New Zealand below was 51.1 years in 2019.

Figure 4.2.1 - Age of Male and Female Donors 2011 – 2019 Australia

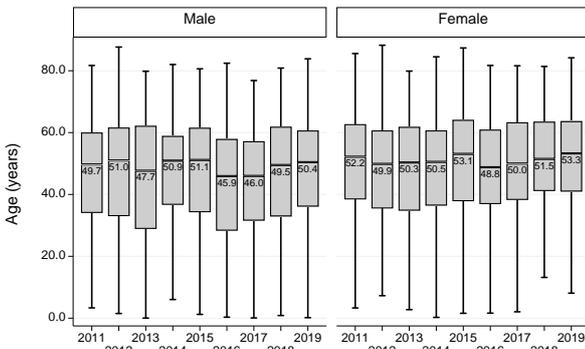
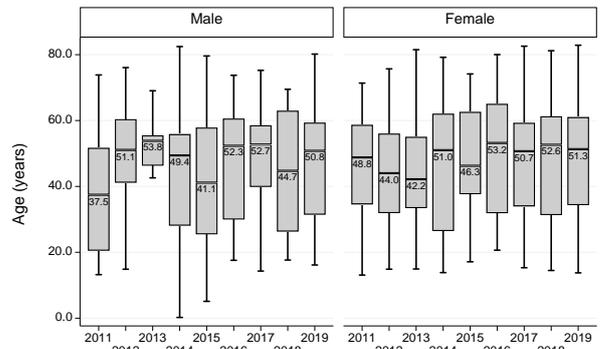
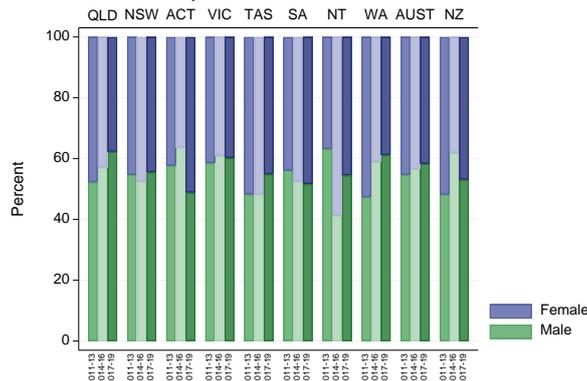


Figure 4.2.2 - Age of Male and Female Donors 2011 – 2019 New Zealand



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

Figure 4.3 - Gender by State (Australia and New Zealand) 2011 – 2019



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 2015 – 2019

Donor racial / ethnic origin*	Australia					New Zealand				
	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Australian Non-indigenous	326 (75%)	385 (77%)	385 (75%)	412 (74%)	405 (74%)	-	1 (2%)	1 (1%)	-	-
Australian Indigenous	11 (3%)	19 (4%)	12 (2%)	18 (3%)	16 (3%)	-	-	-	-	-
New Zealand European	5 (1%)	4 (1%)	5 (1%)	9 (2%)	15 (3%)	41 (77%)	41 (67%)	42 (58%)	43 (69%)	57 (77%)
New Zealand Māori	1 (0%)	5 (1%)	5 (1%)	2 (0%)	2 (0%)	5 (9%)	5 (8%)	7 (10%)	7 (11%)	6 (8%)
Pacific Islander	4 (1%)	4 (1%)	2 (0%)	2 (0%)	2 (0%)	-	1 (2%)	4 (5%)	4 (6%)	2 (3%)
European	44 (10%)	43 (9%)	60 (12%)	49 (9%)	57 (10%)	2 (4%)	5 (8%)	11 (15%)	1 (2%)	3 (4%)
North African and Middle Eastern	4 (1%)	2 (0%)	3 (1%)	6 (1%)	2 (0%)	-	1 (2%)	-	-	1 (1%)
Asian	32 (7%)	34 (7%)	32 (6%)	48 (9%)	40 (7%)	2 (4%)	6 (10%)	4 (5%)	4 (6%)	4 (5%)
American	5 (1%)	4 (1%)	3 (1%)	5 (1%)	3 (1%)	3 (6%)	1 (2%)	1 (1%)	2 (3%)	1 (1%)
Sub-Saharan African	3 (1%)	3 (1%)	3 (1%)	3 (1%)	6 (1%)	-	-	3 (4%)	1 (2%)	-

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

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

New Zealand European: Oceanian - New Zealand European

New Zealand Māori: Oceanian - New Zealand Māori

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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 Religion

Table 4.3 shows the reported religion of donors. This has remained stable over the 5 years to 2019.

Table 4.3 Religion of Donors, 2015 – 2019 n (%)

Donor Religion	Australia					New Zealand				
	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Christianity	136 (31%)	150 (30%)	178 (35%)	163 (29%)	173 (32%)	3 (6%)	4 (7%)	2 (3%)	8 (13%)	1 (1%)
Judaism	2 (0%)	1 (0%)	-	3 (1%)	-	-	1 (2%)	-	-	-
Islam	1 (0%)	3 (1%)	3 (1%)	3 (1%)	1 (0%)	-	-	-	-	-
Buddhism	6 (1%)	8 (2%)	6 (1%)	13 (2%)	9 (2%)	-	-	-	1 (2%)	-
Hinduism	3 (1%)	4 (1%)	1 (0%)	5 (1%)	7 (1%)	-	-	1 (1%)	1 (2%)	-
Others	4 (1%)	6 (1%)	1 (0%)	1 (0%)	4 (1%)	-	-	-	-	-
No religion	92 (21%)	123 (24%)	123 (24%)	167 (30%)	186 (34%)	-	-	-	-	-
Unknown	191 (44%)	208 (41%)	198 (39%)	199 (36%)	168 (31%)	50 (94%)	56 (92%)	70 (96%)	52 (84%)	73 (99%)

Donor Weight

The allocation of heart, lungs and livers are based in part on the matching of recipient and donor size and weight. In 2019 there were 13 donors in Australia, and no donors in New Zealand who weighed less than 40 kilograms. There were 110 donors 100 kilograms, and over in Australia and 11 donors in New Zealand. (Table 4.4)

Table 4.4 Donor Weight in Kilograms 2015 – 2019

Country	Year	0-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	Total
AUSTRALIA	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
	2018	4	2	5	15	36	113	113	98	69	99	554
	2019	10	3	0	11	42	74	114	111	73	110	548
NEW ZEALAND	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
	2018	0	0	0	1	5	13	5	16	10	12	62
	2019	0	0	0	0	5	12	24	13	9	11	74

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 2019 by donor type.

Table 4.5 Comorbid Medical Conditions of Actual Deceased Donors by Jurisdiction 2019 n (%)

Donor Type	Medical Condition	QLD	NSW	ACT	VIC	TAS	SA	NT	WA	AUS	NZ
DBD	Diabetes Type I	3 (4%)	2 (2%)		3 (3%)				-	8 (2%)	1 (2%)
	Diabetes Type II	8 (10%)	13 (13%)		9 (9%)	2 (12%)	4 (11%)		2 (7%)	38 (10%)	2 (3%)
	Hypertension	23 (28%)	36 (35%)	1 (20%)	23 (22%)	6 (35%)	12 (33%)		9 (32%)	110 (29%)	12 (20%)
	Smoking-Current	36 (43%)	41 (40%)	3 (60%)	31 (30%)	7 (41%)	21 (58%)		9 (32%)	148 (39%)	20 (33%)
	Cancer	4 (5%)	13 (13%)		11 (11%)	4 (24%)	2 (6%)		2 (7%)	36 (10%)	4 (7%)
DBD Total		83	10		10	1	3		28	370	61
DCD	Diabetes Type I	-			1 (2%)				1 (4%)	2 (1%)	3 (23%)
	Diabetes Type II	2 (9%)	2 (5%)		5 (8%)		2 (13%)		3 (13%)	14 (8%)	1 (8%)
	Hypertension	4 (17%)	8 (20%)	1 (20%)	16 (27%)	1 (100%)	4 (25%)		9 (38%)	43 (25%)	4 (31%)
	Smoking-Current	9 (39%)	19 (46%)	1 (20%)	28 (47%)	1 (100%)	3 (19%)	3 (100%)	9 (38%)	73 (42%)	5 (38%)
	Cancer	2 (9%)	5 (12%)		8 (14%)				4 (17%)	19 (11%)	-
DCD Total		23	4		5		1		24	170	13
Total	Diabetes Type I	3 (3%)	2 (1%)		4 (2%)				1 (2%)	10 (2%)	4 (5%)
	Diabetes Type II	10 (9%)	15 (10%)		14 (9%)	2 (11%)	6 (12%)		5 (10%)	52 (9%)	3 (4%)
	Hypertension	27 (25%)	44 (31%)	2 (20%)	39 (24%)	7 (39%)	16 (31%)		18 (35%)	153 (28%)	16 (22%)
	Smoking-Current	45 (42%)	60 (42%)	4 (40%)	59 (36%)	8 (44%)	24 (46%)	3 (75%)	18 (35%)	221 (40%)	25 (34%)
	Cancer	6 (6%)	18 (13%)		19 (12%)	4 (22%)	2 (4%)		6 (12%)	55 (10%)	4 (5%)
Total Total		106	144	10	162	18	52		52	548	74

Diabetes

There were 62 donors with diabetes in Australia in 2019. There were two Australian Type 2 diabetic donors that did not have organs retrieved. The remaining 50 Australian Type 2 donors provided 142 organ and tissue grafts which were transplanted or stored. This included two double adult kidneys, 55 single kidneys, 21 livers, 10 double lungs and three hearts. The 10 Type one diabetic donors provided 21 organs that were transplanted; 9 single kidneys, four livers, seven double lungs and one heart. In New Zealand, the four donors with Type I diabetes provided four single kidneys, two livers and two double lungs. The three Type 2 diabetic donors provided five single kidneys and one liver which was transplanted.

Cancer in Donor

In Australia, 55 actual donors had a past history of cancer prior to donation. Of these donors, there were 37 with skin only cancers, 18 with non-skin only cancers and zero with skin and non-skin cancers.

In New Zealand, four donors had a past history of cancer, all with non-skin only cancers.

Virology Screening

Table 4.6 lists the cytomegalovirus (CMV) status of donors by country from 2014 to 2019.

Table 4.6 Cytomegalovirus (CMV IgG) Status of Donors, 2014 – 2019

CMV IgG	Australia						New Zealand					
	2014	2015	2016	2017	2018	2019	2014	2015	2016	2017	2018	2019
Positive	228	268	332	309	361	345	23	26	33	47	33	42
Negative	148	167	169	200	192	203	23	27	26	26	29	31
Not Done	2	0	2	1	1	0	0	0	2	0	0	1
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0
Not Reported	0	0	0	0	0	0	0	0	0	0	0	0
Total	378	435	503	510	554	548	46	53	61	73	62	74

Table 4.7 shows the Epstein-Barr Virus (EBV) status of donors from 2014 to 2019.

Table 4.7 Epstein-Barr Virus (EBV IgG) Status of Donors, 2014 – 2019

EBV IgG	Australia						New Zealand					
	2014	2015	2016	2017	2018	2019	2014	2015	2016	2017	2018	2019
Positive	339	404	462	459	511	488	37	36	53	63	53	64
Negative	30	28	38	48	41	54	5	13	6	5	3	9
Not Done	5	1	2	2	1	3	3	2	2	5	5	1
Indeterminate	1	0	1	1	1	2	1	0	0	0	1	0
Not Reported	3	2	0	0	0	1	0	2	0	0	0	0
Total	378	435	503	510	554	548	46	53	61	73	62	74

Table 4.8 shows the Hepatitis C Antibody status of donors from 2014 to 2019.

Table 4.8 Hepatitis C Antibody Status of Donors (Anti-HCV), 2014 – 2019

Anti-HCV	Australia						New Zealand					
	2014	2015	2016	2017	2018	2019	2014	2015	2016	2017	2018	2019
Positive	8	11	17	12	17	15	2	1	1	2	0	1
Negative	364	420	482	496	534	525	44	52	59	70	61	73
Not Done	5	4	4	2	3	8	0	0	1	1	1	0
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0
Not Reported	1	0	0	0	0	0	0	0	0	0	0	0
Total	378	435	503	510	554	548	46	53	61	73	62	74

Table 4.9 shows the Hepatitis B Core Antibody status of actual donors from 2014 to 2019.

Table 4.9 Hepatitis B Core Antibody Status of Donors (Anti-HBcAb), 2014 – 2019

Anti-HBcAb	Australia						New Zealand					
	2014	2015	2016	2017	2018	2019	2014	2015	2016	2017	2018	2019
Positive	21	20	19	22	26	25	3	3	7	11	5	7
Negative	337	394	473	475	517	515	42	50	54	62	57	67
Not Done	19	21	11	13	11	8	1	0	0	0	0	0
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0
Not Reported	1	0	0	0	0	0	0	0	0	0	0	0
Total	378	435	503	510	554	548	46	53	61	73	62	74

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 2014 to 2019.

Table 4.10 Hepatitis B Surface Antigen Status of Donors (HBsAg), 2014 – 2019

HBsAg	Australia						New Zealand					
	2014	2015	2016	2017	2018	2019	2014	2015	2016	2017	2018	2019
Positive	1	0	2	1	0	3	1	0	1	0	0	0
Negative	375	431	499	507	551	542	45	53	60	73	62	73
Not Done	2	4	2	1	3	3	0	0	0	0	0	1
Indeterminate	0	0	0	1	0	0	0	0	0	0	0	0
Not Reported	0	0	0	0	0	0	0	0	0	0	0	0
Total	378	435	503	510	554	548	46	53	61	73	62	74