



SECTION 2

Overview of Organ Donation Activity

SUMMARY

This section summarises organ donation in Australia and New Zealand. In 2016 both countries reached the highest rates of donation. Figures reported here include the number of donors per million population; and number of transplant recipients and organs transplanted during 2016 in comparison to previous years.

Contents

Actual Deceased Organ Donors	2
Organ Donation Activity	5
Organ Donation Pathway	6
Organ Donation Overview	7
Organ Transplants.....	8
Deceased Organ Donation Location	11

Table of Figures

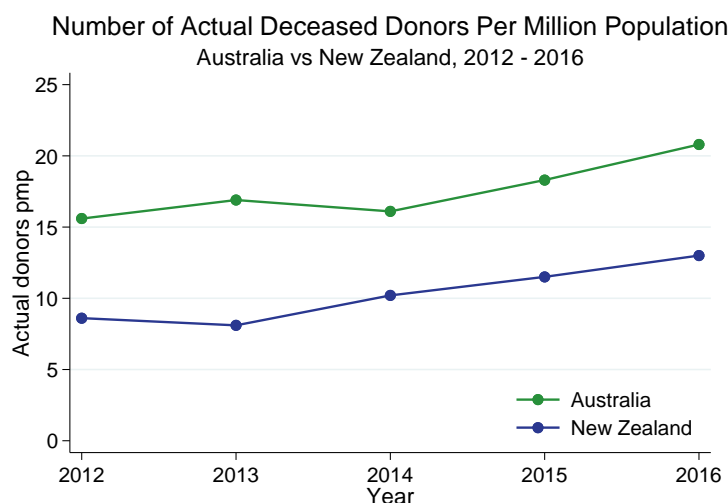
Figure 2. 1 Number of Actual Deceased Donors Per Million Population, Australia & New Zealand, 2012 - 2016.....	2
Figure 2. 2 Number of Actual Deceased Donors, Australian States and Territories, 1998 - 2016.....	3
Figure 2. 3 Number of Actual Deceased Donors, New Zealand, 1998 - 2016.....	3
Figure 2. 4 Number of Actual Deceased Donors Per 10,000 Deaths, 2005 - 2015.....	4
Figure 2. 5 Actual Deceased Organ Donors, Procedures, Recipients & Organs, PMP, Australia, 1998 - 2016.....	5
Figure 2. 6 Actual Deceased Donors, Procedures, Recipients & Organs, PMP, New Zealand, 1998 - 2016	5
Figure 2. 7 Organ Donation Pathway, Australia, 1998 - 2016.....	6
Figure 2. 8 Organ Donation Pathway, New Zealand, 1998 - 2016.....	6
Figure 2. 9 Number of Organs Transplanted per Donor, 2004 – 2016.....	8
Figure 2. 10 Organs Transplanted, 1998 - 2016, Per Million Population, Australia.....	9
Figure 2. 11 Organs Transplanted, 1998 - 2016, Per Million Population, New Zealand.....	9
Figure 2. 12 Organs Transplanted from DCD Donors, 1998 - 2016, Per million Population, Australia	10
Figure 2. 13 Organs Transplanted from DCD Donors, 1998 - 2016, Per Million Population, New Zealand	10

Actual Deceased Organ Donors

Australian and New Zealand donor figures include all donors consented for organ and tissue donation who went to the operating theatre for the purpose of organ or tissue retrieval for transplantation. This is consistent with international reporting (World Health Organisation - Human Organ and Tissue Transplantation. http://www.who.int/ethics/topics/human_transplant/en/).

The deceased organ donors per million population (dpmp) figures in Australia increased to 20.8 dpmp in 2016 from 18.3 dpmp in 2015. In New Zealand, the rate rose to 13 dpmp in 2016, from 11.3 dpmp in 2015.

Figure 2. 1 Number of Actual Deceased Donors Per Million Population, Australia & New Zealand, 2012 – 2016



In Australia, there remains variation in organ donation rates between jurisdictions (Table 2.1). In 2016, rates varied from 17.7 dpmp in New South Wales to 32.3 dpmp in the Australian Capital Territory.

Table 2.1 Number of Actual Deceased Donors ¹ by State ² /Country 2012 – 2016					
n (Donors Per Million Population)	2012	2013	2014	2015	2016
Queensland	78 (17.1)	77 (16.6)	71 (15)	72 (15.1)	106 (21.9)
New South Wales ³	88 (12.4)	102 (14.2)	92 (12.6)	127 (17.2)	133 (17.7)
Australian Capital Territory ³	12 (20.2)	6 (10)	11 (18.2)	13 (21.2)	20 (32.3)
Victoria	92 (16.3)	110 (19.2)	117 (20)	126 (21.2)	140 (23.1)
Tasmania	15 (29.3)	8 (15.6)	9 (17.5)	9 (17.4)	11 (21.2)
South Australia	29 (17.5)	34 (20.4)	36 (21.4)	42 (24.7)	40 (23.4)
Northern Territory	8 (33.9)	7 (28.9)	7 (28.8)	4 (16.4)	6 (24.5)
Western Australia	32 (13.1)	47 (18.7)	35 (13.7)	42 (16.2)	47 (18)
Australia	354 (15.6)	391 (16.9)	378 (16.1)	435 (18.3)	503 (20.8)
New Zealand	38 (8.6)	36 (8.1)	46 (10.2)	53 (11.5)	61 (13)

¹ This figure relates to the number of donors for whom the retrieval operation commenced for the purpose of transplantation. It includes donors who may have been deemed medically unsuitable at the time of the surgery or after removal of organs.

² refers to retrieval State (i.e. Albury-NSW donors are retrieved by Victoria)

³ NSW population excludes residents of the NSW Southern Area Health Service (included in ACT population). Population Data - June 2016. Please refer to methodology section of annual report for detail.

The variation, since 1998, in the number of actual deceased donors by Australian state/territory is shown in Figure 2.2 and for New Zealand shown in Figure 2.3.

Figure 2. 2 Number of Actual Deceased Donors, Australian States and Territories, 1998 - 2016

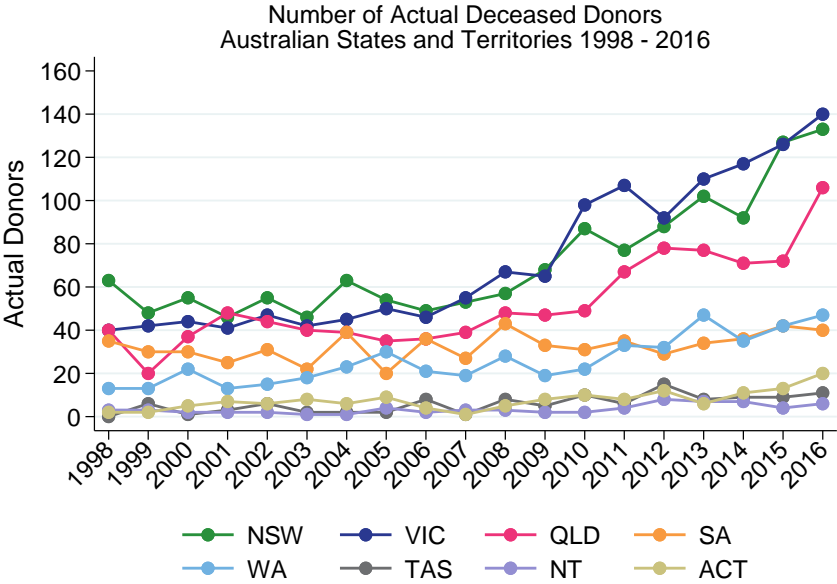
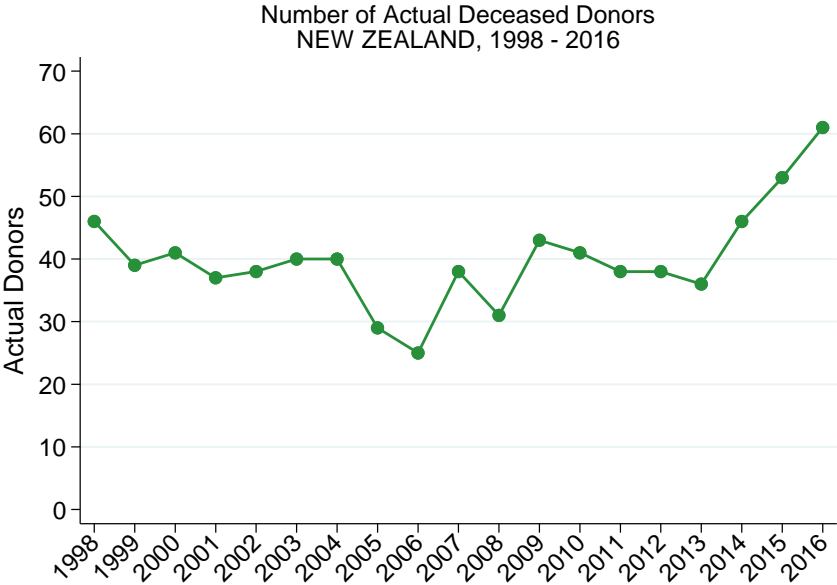
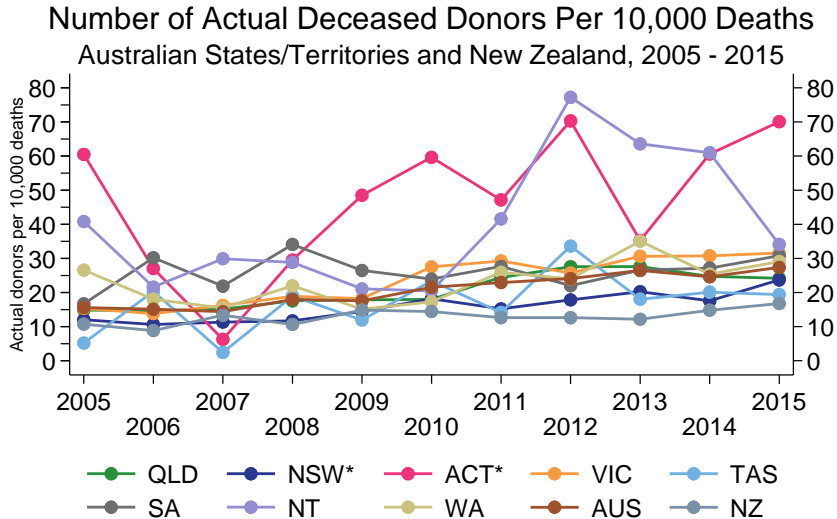


Figure 2. 3 Number of Actual Deceased Donors, New Zealand, 1998 - 2016



There has been a steady decline in overall death rates among most ages in Australia over recent years. In many respects, using the number of deaths as the denominator to illustrate organ donation outcomes may be a more meaningful comparator. Rates for various jurisdictions using this metric are shown in Figure 2.4 and Table 2.2.

Figure 2. 4 Number of Actual Deceased Donors Per 10,000 Deaths, 2005 - 2015



* NSW and ACT values are not adjusted for the NSW Southern Area Health Service, as death data were not available. Australian data on deaths 2015 was the latest release at the time of this publication. Australian Bureau of Statistics - Deaths 3302.0 and Statistics New Zealand

Year	QLD	NSW	ACT	VIC	TAS	SA	NT	WA	AUS	NZ
2012	65 (38%)	46 (33%)	132 (36%)	91 (32%)	40 (35%)	89 (31%)	56 (75%)	68 (38%)	67 (34%)	34 (37%)
2013	74 (37%)	54 (33%)	207 (34%)	84 (31%)	98 (34%)	72 (30%)	101 (76%)	64 (37%)	71 (34%)	34 (37%)
2014	72 (38%)	61 (33%)	90 (39%)	98 (31%)	51 (36%)	84 (32%)	87 (73%)	93 (38%)	77 (34%)	33 (37%)
2015	67 (37%)	53 (33%)	170 (36%)	95 (32%)	56 (36%)	89 (31%)	82 (75%)	67 (38%)	72 (34%)	41 (36%)
2016	65 (37%)	72 (33%)	192 (37%)	102 (31%)	56 (35%)	99 (31%)	47 (72%)	77 (38%)	81 (34%)	46 (36%)

* The number of actual donors is compared to the number of deaths that are aged less than 75 years. Australian Bureau of Statistics - Deaths 3302.0 and Statistics New Zealand. Australian data on deaths 2014 was the latest release at the time of this publication.

Organ Donation Activity

Figure 2.5 and 2.6 represents the number of actual deceased organ donors; transplant recipients and organ transplants as per million population over time for Australia and New Zealand respectively.

Figure 2. 5 Actual Deceased Organ Donors, Procedures, Recipients & Organs, PMP, Australia, 1998 - 2016

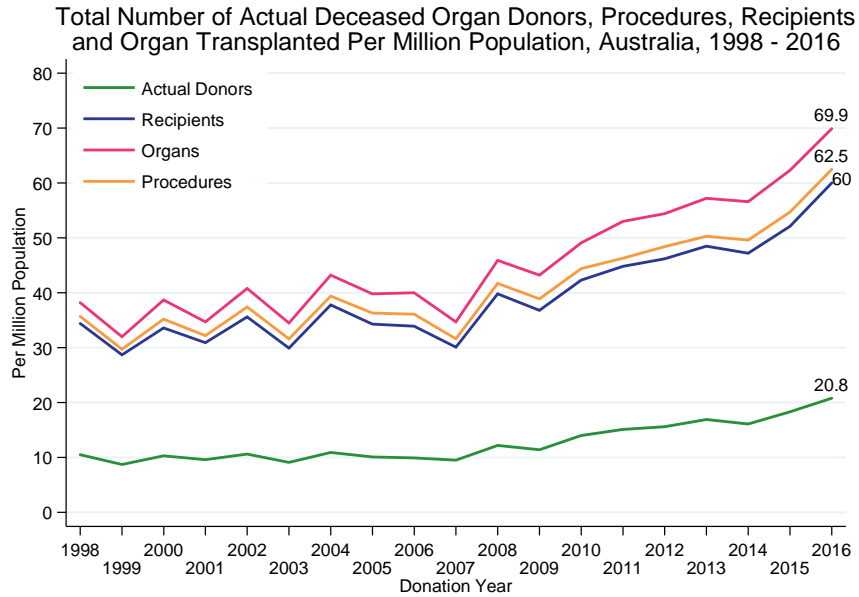
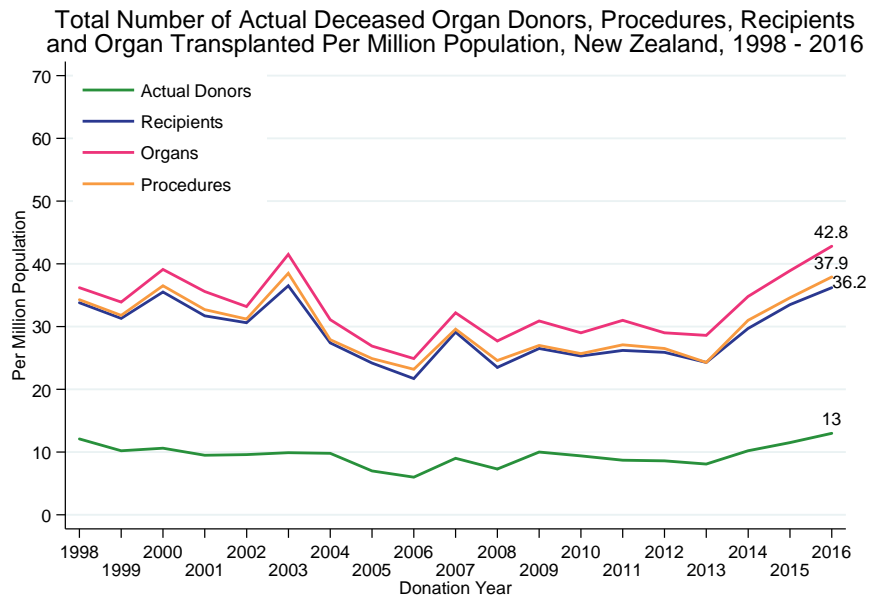


Figure 2. 6 Actual Deceased Donors, Procedures, Recipients & Organs, PMP, New Zealand, 1998 - 2016



Organ Donation Pathway

Much of the increase in donor numbers has arisen from changes in rates of donors after circulatory death (DCD), demonstrated in Figure 2.7 and Figure 2.8.

Figure 2.7 Organ Donation Pathway, Australia, 1998 - 2016

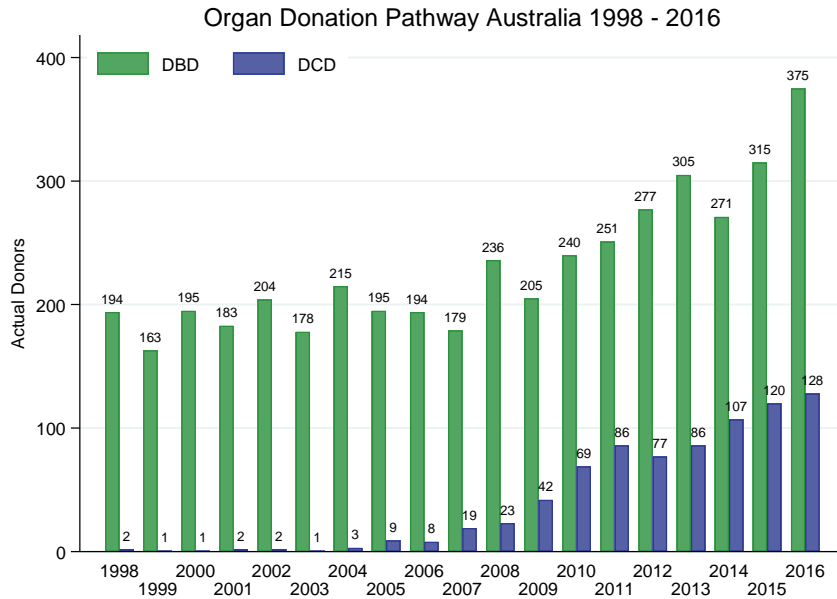
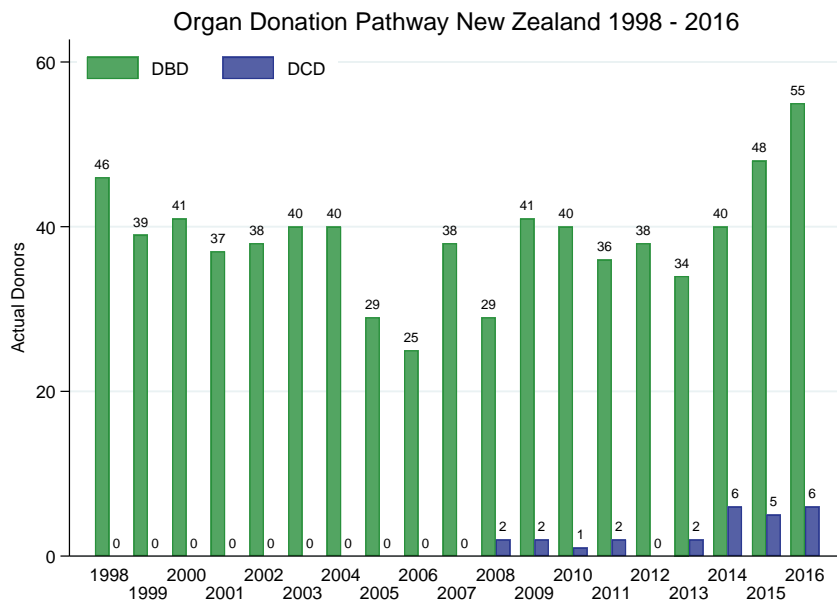


Figure 2.8 Organ Donation Pathway, New Zealand, 1998 - 2016



Organ Donation Overview

Table 2.3 Australian Overview – 2016 (pmp) per million population

Population (million)	24.1
Actual Deceased Organ Donors - both DBD & DCD included (pmp)	503 (20.8)
Kidney Transplant Recipients from deceased donors - includes all combinations (pmp)	821 (34)
Liver Transplant Recipients from deceased donors - includes all combinations (pmp)	314 (13)
Heart Transplant Recipients from deceased donors - includes all combinations (pmp)	124 (5.1)
Lung Transplant Recipients from deceased donors - includes all combinations (pmp)	196 (8.1)
Pancreas Transplant Recipients from deceased donors - includes all combinations (pmp)	52 (2.2)
Intestine Transplant Recipients from deceased donors - includes all combinations (pmp)	1 (0)
TOTAL number of Transplanted Recipients (pmp)¹	1447 (60)
TOTAL number of Organs Transplanted (pmp)²	1687 (69.9)

Table 2.4 New Zealand Overview – 2016 (pmp) per million population

Population (million)	4.7
Actual Deceased Organ Donors - both DBD & DCD included (pmp)	61 (13)
Kidney Transplant Recipients from deceased donors (pmp)	90 (19.2)
Liver Transplant Recipients from deceased donors (pmp)	53 (11.3)
Heart Transplant Recipients from deceased donors (pmp)	11 (2.3)
Lung Transplant Recipients from deceased donors (pmp)	20 (4.3)
Pancreas Transplant Recipients from deceased donors (pmp)	4 (.9)
TOTAL number of Transplanted Recipients (pmp)¹	170 (36.2)
TOTAL number of Organ Transplant (pmp)²	201 (42.8)

¹ The total number of recipients includes all combinations of multi-organ transplants as a single count of transplantation

² The total number of transplanted organs differs from total number of transplant recipients as each organ, with the exception of double-kidney, is counted as a single organ transplant.

Organ Transplants

Table 2.5 Number of Organs Transplanted in 2016 By State & Country (pmp) in Australia and New Zealand

Organs	QLD	NSW	ACT	VIC	TAS	SA	NT	WA	AUS	NZ
Kidney	179	208	34	249	14	67	12	78	841 [^] (34.9)	95 ^{^^} (20.2)
Liver	69	74	12	61	4	28	2	33	283 ⁺ (11.7)	51 ⁺⁺ (10.9)
Heart	31	28	7	29	2	15	2	10	124 (5.1)	11 (2.3)
Lung	79	92	10	127	14	26	4	34	386 [*] (16.0)	40 ^{**} (8.5)
Pancreas	10	10	4	17	1	2	0	8	52 (2.2)	4 (0.9)
Intestine	0	0	0	1	0	0	0	0	1 (0.0)	0 (0.0)
Total	368	412	67	484	35	138	20	163	1687 (69.9)	201 (42.8)

The kidneys and lungs are counted as two separate organs (i.e. left and right kidney; left and right lung)

[^] Includes 801 single kidneys, 11 double adult kidneys and nine en-bloc kidneys transplant procedures in Australia

^{^^} Includes 85 single kidneys, five double adult kidneys and zero en-bloc kidneys transplants in New Zealand

⁺ Includes 219 whole liver, 62 split liver and two cut down liver transplants in Australia

⁺⁺ Includes 41 whole liver, four split liver and zero cut down liver in New Zealand

^{*} Includes 190 Double lungs and 6 single lung transplants in Australia

^{**} Includes 20 double lungs in New Zealand

The number of organs transplanted per donor is calculated by the number of organs retrieved from actual donors for the purpose of transplantation and subsequently transplanted, divided by the number of actual donors. The number of organs transplanted per donor each year from 2004-2016 in Australia and New Zealand is shown in Figure 2.9. The mean number of transplant organs per deceased donor across Australia ranged from 3.1 in New South Wales to 3.5 across Queensland, Western Australia, Victoria and South Australia.

Figure 2. 9 Number of Organs Transplanted per Donor, 2004 – 2016

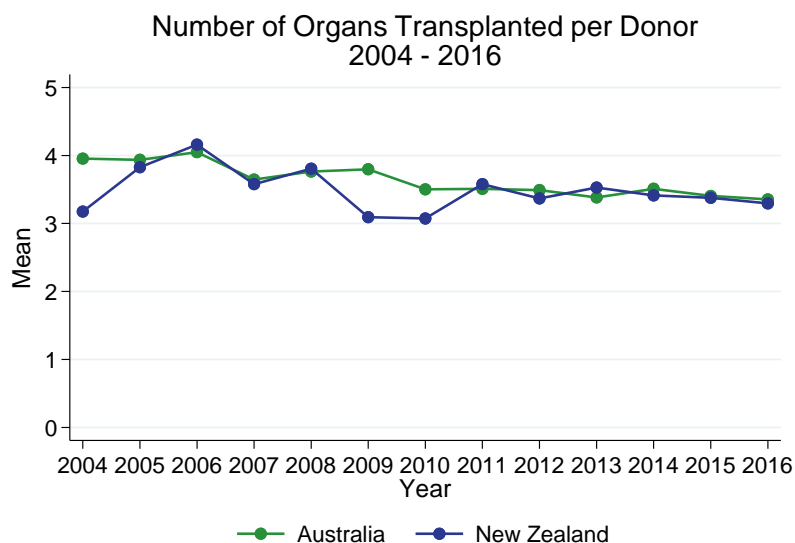


Figure 2.10 and Figure 2.11 shows the organ-specific transplant rates for Australia and New Zealand respectively over the period 1998 - 2016 (i.e. organ transplants per million population).

Figure 2. 10 Organs Transplanted, 1998 - 2016, Per Million Population, Australia

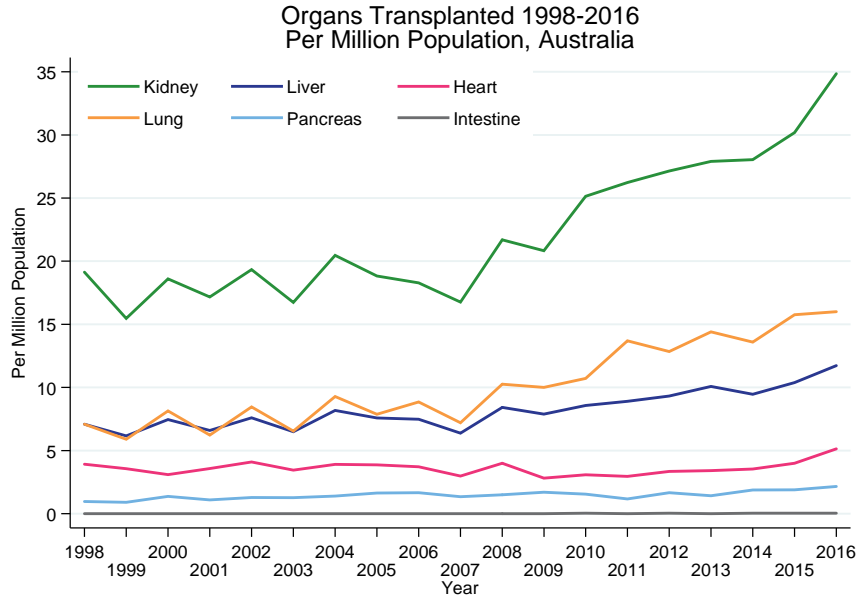


Figure 2. 11 Organs Transplanted, 1998 - 2016, Per Million Population, New Zealand

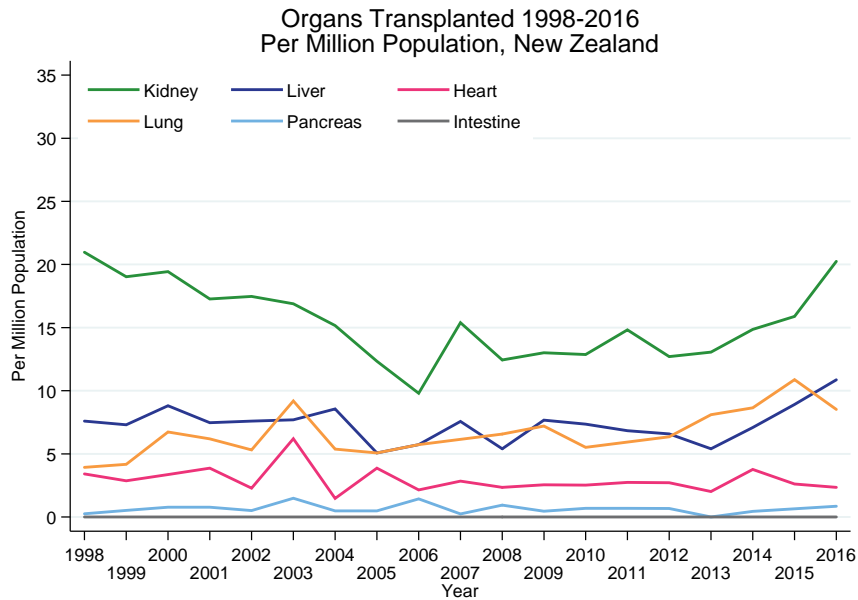


Figure 2.12 and 2.13 shows the corresponding rates for donation after circulatory death for Australia and New Zealand. Transplantation of organs from DCD has contributed to a significant increase in the rate of kidney transplantation.

Figure 2. 12 Organs Transplanted from DCD Donors, 1998 - 2016, Per million Population, Australia

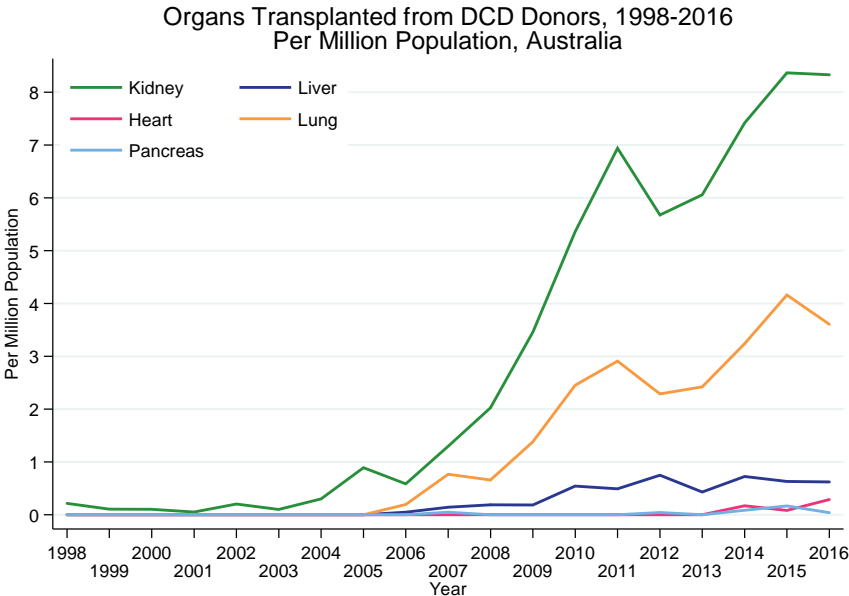
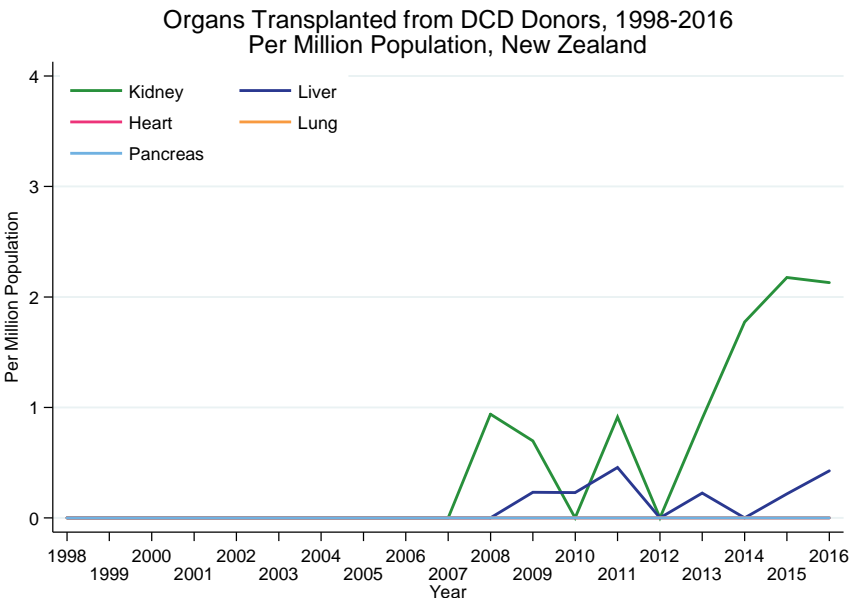


Figure 2. 13 Organs Transplanted from DCD Donors, 1998 -2016, Per Million Population, New Zealand



Deceased Organ Donation Location

The number of deceased donors reported are based on the State/Territory and country location in which the donor died. Supplement 1 shows a more detailed breakdown of the number of donors by retrieval hospital.

Table 2.6 details the number and proportion of donors in Australia by remoteness category. Overseas refers to donors who usually reside outside of Australia and New Zealand. The ABS standardised remoteness structure known as the Accessibility/Remoteness Index of Australia (ARIA) is used.

(<http://www.abs.gov.au/websitedbs/D3310114.nsf/home/remoteness+structure#Anchor2b>).

Table 2.6 Location of Postcodes of Deceased Donors 2012 - 2016									
Postcode	QLD	NSW	ACT	VIC	TAS	SA	NT	WA	AUST
Major Cities of Australia	223 (55%)	403 (75%)	35 (56%)	393 (68%)	1 (2%)	124 (69%)	2 (6%)	142 (70%)	1323 (64%)
Inner Regional Australia	101 (25%)	101 (19%)	22 (35%)	151 (26%)	32 (62%)	19 (10%)	1 (3%)	30 (15%)	457 (22%)
Outer Regional Australia	64 (16%)	23 (4%)	4 (6%)	32 (5%)	17 (33%)	28 (15%)	21 (66%)	16 (8%)	205 (10%)
Remote Australia	1 (<1%)	3 (1%)	0 (0%)	0 (0%)	1 (2%)	6 (3%)	4 (13%)	7 (3%)	22 (1%)
Very Remote Australia	5 (1%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (1%)	2 (6%)	3 (1%)	12 (1%)
Overseas	9 (2%)	8 (1%)	1 (2%)	6 (1%)	1 (2%)	2 (1%)	2 (6%)	4 (2%)	33 (2%)
Total	403	538	62	582	52	181	32	202	2052

In 2016, there were 33 deceased donors who were not permanent residents or citizens of either Australia were considered overseas visitors. There were no donors identified as overseas visitors reported in New Zealand in 2015.

Suggested Citation:

ANZOD Registry, 2017 Annual Report, Section 2: Overview of Organ Donation Activity in Australia and New Zealand. Australia and New Zealand Dialysis and Transplant Registry, Adelaide, Australia. 2017. Available at www.anzdata.org.au