



SECTION 5

Deceased Donor Kidney Donation

This section summarises kidney donation activity from deceased donors in 2017, compared with previous years. The rate of kidney transplant procedures in 2017 was 33.8 pmp in Australia and 19.2 pmp in New Zealand.

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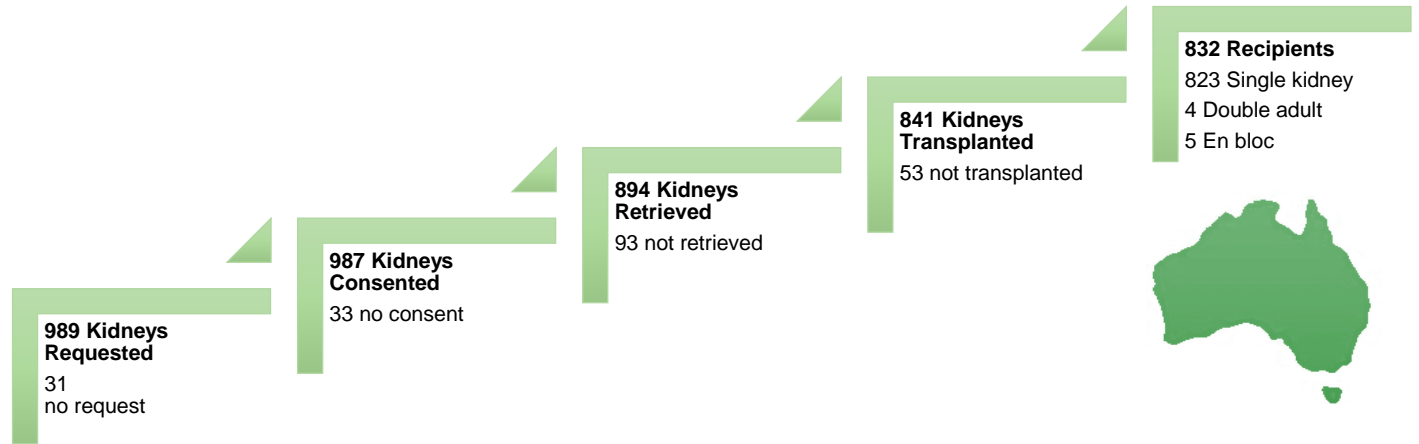
Kidney Donation

Of the 510 actual deceased organ donors in 2017 in Australia, 494 (96.9%) consented to kidney donation. From these kidney donors, 894 kidneys were retrieved and transplanted into 832 recipients. Of these 832 kidney transplant recipients, there were 47 kidney/pancreas recipients, four double adult kidney recipients, five en bloc kidney recipients, eight combined kidney/liver recipients, one combined kidney heart transplant recipient, one combined kidney double lung transplant recipient and one combined kidney pancreas liver and intestine transplant recipient.

There were 601 kidneys from the brain death donation pathway and 240 kidneys following donation after circulatory death, compared with 640 and 201 respectively in 2016.

There was an overall increase in the total number of kidney transplant recipients (832) compared to the previous year (821); although a slight decrease to 33.8 per million population (pmp) from 33.9 (pmp). Figure 5.1.1 shows the outcomes of requests for kidney donation in Australia.

Figure 5.1.1 Outcomes of Request for Kidney Donation from Actual Donors in Australia 2016

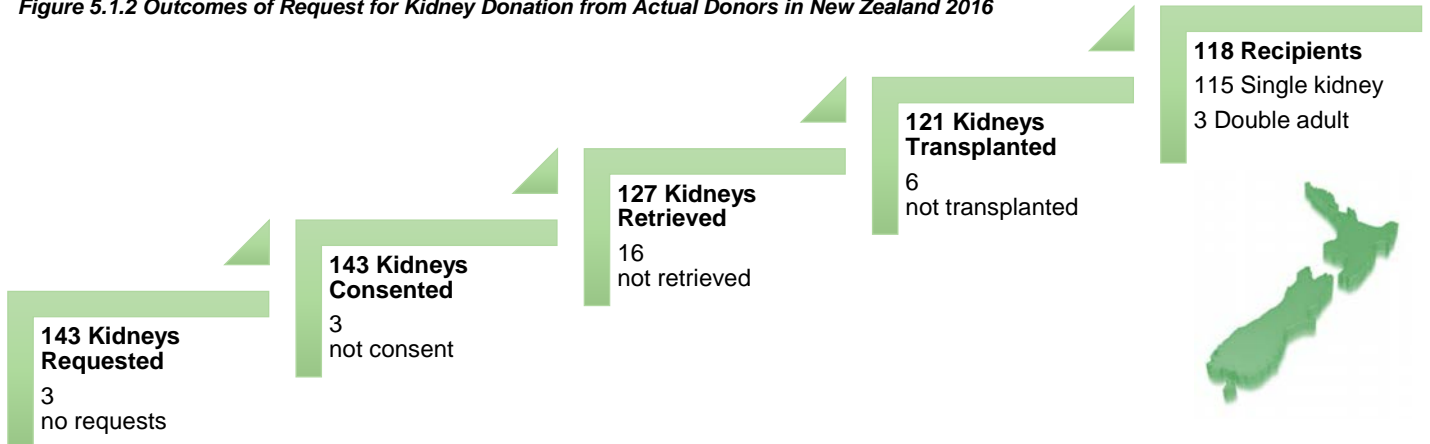


In New Zealand, there were 72 actual donors (98.6%) who consented to kidney donation. From these kidney donors, 127 kidneys were retrieved, of which 121 were transplanted into 118 recipients. There were 101 kidneys transplanted from donation from the brain death donation pathway and 20 kidneys transplanted following donation after circulatory death.

Of the 118 recipients, four received a combined kidney/pancreas, one received a combined kidney/liver transplant. There were 3 double adult kidney transplants and no en bloc kidney transplants in 2017.

There was an overall increase of 31.1% in the total number of kidney transplant recipients (118) in 2017 compared to the previous year (90); the rate of transplantation rose to 24.6 per million population from 19.2 pmp in 2016. Figure 5.1.2 shows the outcomes of requests for kidney donation in New Zealand.

Figure 5.1.2 Outcomes of Request for Kidney Donation from Actual Donors in New Zealand 2016



Figures 5.2 and 5.3 show the number of kidneys transplanted by donation pathway and the number of kidney recipients by jurisdiction. Figure 5.2 particularly shows an increase in DCD kidneys from 2006 to 2017, and DBD kidneys from 2010 to 2017 in Australia.

Figure 5.2.1 - Kidneys Transplanted by Donation Pathway Australia 1998-2017

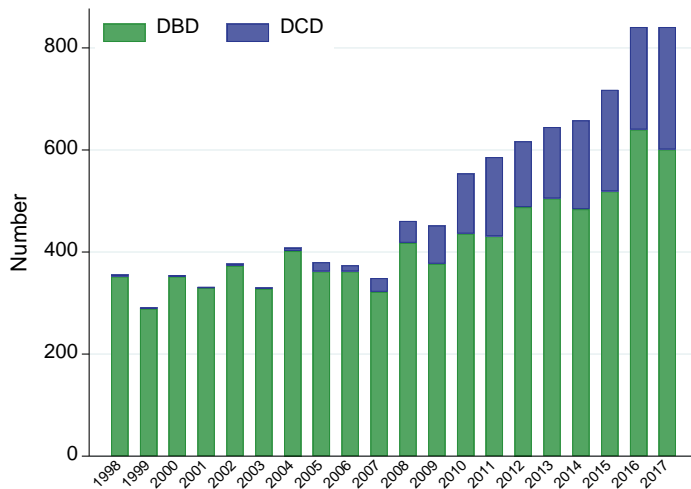


Figure 5.2.2 - Kidneys Transplanted by Donation Pathway New Zealand 1998-2017

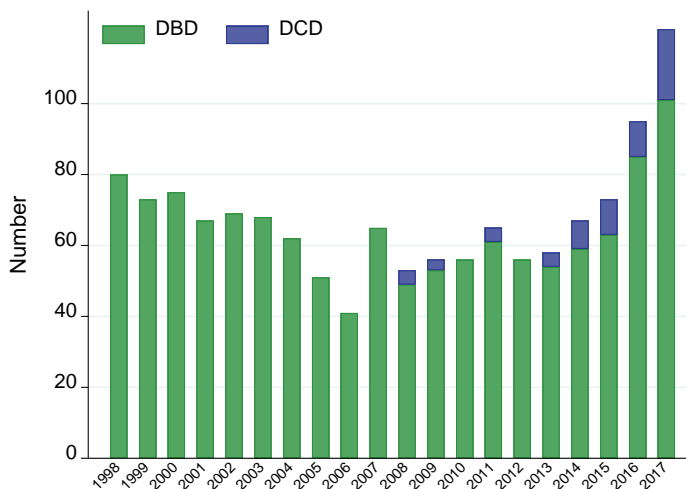
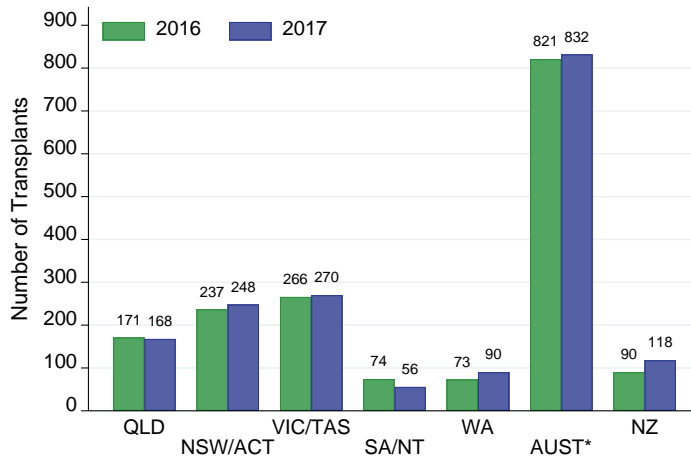


Figure 5.3 - Deceased Donor Kidney Transplant Recipients* by Transplant State, Australia and New Zealand, 2016-2017



* These numbers include the exchange of organ between States and Territories of Australia and New Zealand.

Age of Kidney Donors

The age distribution of donors providing retrieved kidneys for Australia and New Zealand is shown in Figure 5.4.

Figure 5.4.1 - Age of Donors Providing Retrieved Kidneys Australia 2017

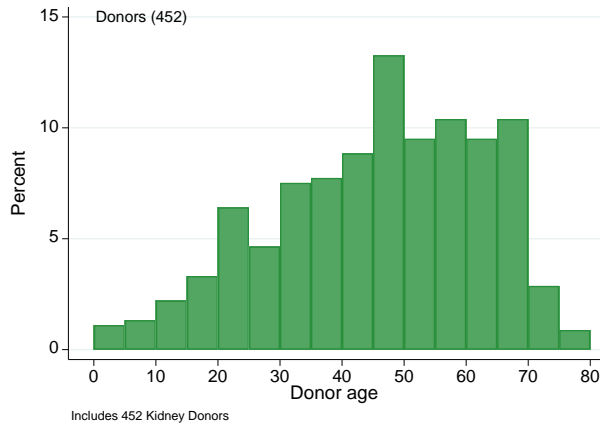
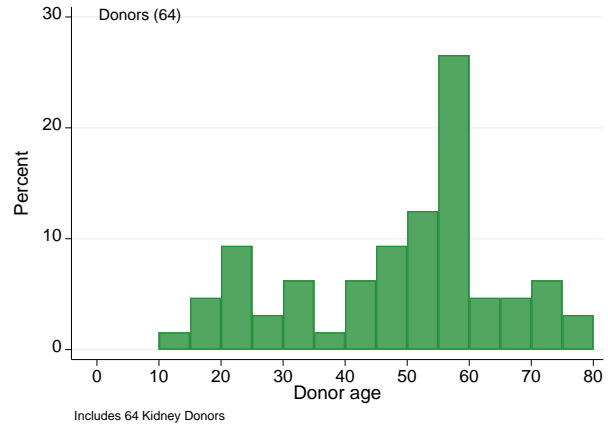


Figure 5.4.2 - Age of Donors Providing Retrieved Kidneys New Zealand 2017



Donor Kidney Function

In 2017 in Australia, 93 donors (18%) had a terminal serum creatinine concentration of $\geq 125 \mu\text{mol/L}$ (Table 5.1). In 2017 in New Zealand, 5 donors (7%) had a terminal serum creatinine concentration of $\geq 125 \mu\text{mol/L}$.

In Australia, 76 donors (15%) had a terminal serum urea concentration of $\geq 9 \text{ mmol/L}$ and creatinine concentration of $\geq 125 \mu\text{mol/L}$. In New Zealand, 4 donors (6%) had a terminal serum urea concentration of $\geq 9 \text{ mmol/L}$ and creatinine concentration of $\geq 125 \mu\text{mol/L}$.

Table 5.1 Terminal Serum Creatinine Concentration 2013-2017

Terminal Serum Levels	Australia					New Zealand				
	2013	2014	2015	2016	2017	2013	2014	2015	2016	2017
0-99	79%	77%	71%	74%	73%	81%	83%	88%	69%	91%
100-124	7%	7%	7%	8%	9%	6%	15%	10%	19%	2%
125-149	4%	4%	5%	4%	4%	6%	-	2%	4%	2%
150-174	3%	2%	3%	3%	3%	3%	-	-	4%	2%
175-199	2%	1%	3%	2%	2%	-	2%	-	-	-
200-224	1%	2%	1%	1%	1%	-	-	-	2%	2%
225-249	0%	0%	1%	1%	2%	3%	-	-	-	2%
≥ 250	4%	5%	9%	7%	7%	-	-	-	4%	2%

Kidneys Not Retrieved

In 2017, there were 93 kidneys not retrieved from 510 Australian donors and 16 not retrieved from 73 New Zealand donors.

For Australia, the main reason was due to the kidney not being medically suitable (77), followed by trauma to the organ (5). In New Zealand, there were 12 non-retrieved kidneys due to not being medically suitable and 4 due to no suitable recipient for the kidney.

Table 5.2 Reasons for Kidney Not Retrieved in 2017

Reason	Australia	New Zealand
Logistics	0	0
Not Medically Suitable	77	12
Surgically Unsuitable	0	0
Trauma to Organ	5	0
No Suitable Recipients	4	4
Age of Donor	4	0
DCD Donor	0	0
Consent Withdrawn	2	0
Others	1	0
Total	93	16

Kidneys Retrieved and Not Utilised for Transplantation

The reasons why kidneys were not utilised for organ transplantation are presented in Table 5.3.

Table 5.3 Reasons Kidneys Retrieved & Not Utilised for Transplantation, Australia (New Zealand) 2013-2017

Reason	2013	2014	2015	2016	2017
Logistics	2 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Not Medically Suitable	32 (3)	32 (6)	41 (4)	32 (3)	34 (6)
Not Surgically Suitable	1 (0)	1 (1)	0 (0)	2 (0)	0 (0)
Trauma to Organ	7 (0)	2 (0)	2 (1)	2 (0)	3 (0)
No Suitable Recipients	3 (0)	5 (0)	0 (0)	6 (1)	10 (0)
Recipient Issue	1 (0)	1 (0)	2 (0)	0 (0)	2 (0)
Research	0 (0)	0 (0)	0 (0)	0 (0)	4 (0)
Other	0 (0)	1 (0)	0 (0)	0 (0)	0 (0)
Total	46 (3)	42 (7)	45 (5)	42 (4)	53 (6)

Figure 5.5 shows the non-utilisation rate of retrieved kidneys – the proportion of kidneys that were retrieved for the purpose of solid organ transplantation, but not ultimately transplanted into a recipient (either due to an absence of suitable recipients, or the kidney being found to be medically or surgically unsuitable after retrieval). Of note, while the rate appears constant in Australia over the period 2013-2017, this rate is higher than that over the period prior to 2013.

Figure 5.5.1 - Non-utilisation Rate of Retrieved Kidneys - Australia 2013-2017

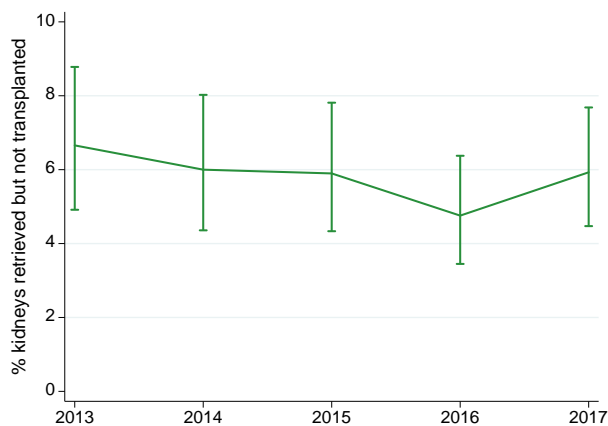
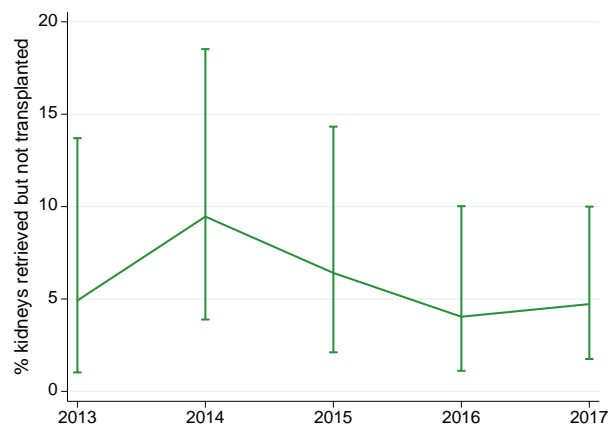


Figure 5.5.2 - Non-utilisation Rate of Retrieved Kidneys - New Zealand 2013-2017



Outcome of Kidney Donation

The outcome of kidney donation activity in Australia and New Zealand throughout the donation pathway is shown in table 5.4.

Table 5.4.1 Outcome of Request for Kidney Donation in Australia, 2013-2017

Outcome of Request	2013	2014	2015	2016	2017
Total Donors	391	378	435	503	510
Kidneys Requested for Donation	760	738	828	981	989
Kidneys Not Requested for Donation	22	18	42	25	31
Kidneys with Consent Given	758	738	824	977	987
Kidneys with Consent Not Given	2	0	4	4	2
Kidneys Retrieved	691	700	763	883	894
Kidneys Not Retrieved	67	38	61	94	93
Kidneys Transplanted	645	658	718	841	841
Left Kidney Transplanted	309	309	345	399	411
Right Kidney Transplanted	306	305	343	402	412
Double/Enbloc Kidney Transplanted	30	44	30	40	18
Total Kidneys Not Used for Transplantation	46	42	45	42	53
Left Kidney Not Used for Transplantation	23	20	21	19	26
Right Kidney Not Used for Transplantation	23	20	22	17	25
Double/Enbloc Kidney Not Used for Transplantation	0	2	2	6	2
Recipients Transplanted	630	636	703	821	832
Double Adult Kidney Procedures	9	17	9	11	4
En Bloc Kidney Procedures	6	5	6	9	5
Kidney Non-Utilisation Rate	6.66%	6.00%	5.90%	4.76%	5.93%
Kidney Utilised Rate	93.34%	94.00%	94.10%	95.24%	94.07%

Table 5.4.2 Outcome of Request for Kidney Donation in New Zealand, 2013-2017

Outcome of Request	2013	2014	2015	2016	2017
Total Donors	36	46	53	61	73
Kidneys Requested for Donation	68	88	100	120	143
Kidneys Not Requested for Donation	4	4	6	2	3
Kidneys with Consent Given	68	88	100	120	143
Kidneys with Consent Not Given	0	0	0	0	0
Kidneys Retrieved	61	74	78	99	127
Kidneys Not Retrieved	7	14	22	21	16
Kidneys Transplanted	58	67	73	95	121
Left Kidney Transplanted	26	33	37	42	58
Right Kidney Transplanted	26	32	36	43	57
Double/Enbloc Kidney Transplanted	6	2	0	10	6
Total Kidneys Not Used for Transplantation	3	7	5	4	6
Left Kidney Not Used for Transplantation	1	3	3	2	2
Right Kidney Not Used for Transplantation	2	4	2	2	4
Double/Enbloc Kidney Not Used for Transplantation	0	0	0	0	0
Recipients Transplanted	55	66	73	90	118
Double Adult Kidney Procedures	2	0	0	5	3
En Bloc Kidney Procedures	1	1	0	0	0
Kidney Non-Utilisation Rate	4.92%	9.46%	6.41%	4.04%	4.72%
Kidney Utilised Rate	95.08%	90.54%	93.59%	95.96%	95.28%