



SECTION 5

Deceased Donor Kidney Donation

SUMMARY

This section summarises kidney donation activity from deceased donors in 2018, compared with previous years. The rate of kidneys transplanted in 2018 was 35.9 pmp in Australia and 20.1 pmp in New Zealand.

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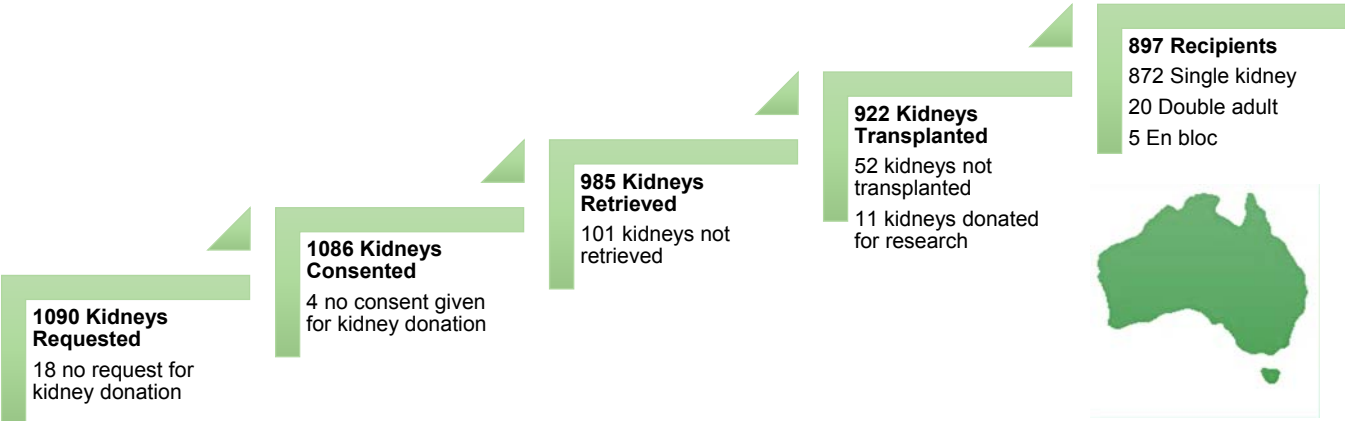
Kidney Donation

Of the 554 actual deceased organ donors in 2018 in Australia, kidney donation occurred from 544 (98.2%) donors. From these kidney donors, 985 kidneys were retrieved and transplanted into 897 recipients. Of these 897 kidney transplant recipients, there were 47 kidney/pancreas recipients, 20 double adult kidney recipients, five en bloc kidney recipients, nine combined kidney/liver recipients, five combined kidney heart transplant recipients and three combined kidney double lung transplant recipients.

There were 667 kidneys from the brain death donation pathway and 255 kidneys following donation after circulatory death in 2018, compared with 601 and 240 respectively in 2017.

There was an overall increase of 7.8% in the total number of kidney transplant recipients (897) in 2018 compared to the previous year (832); and an increase to 35.9 per million population (pmp) from 33.8 (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 2018

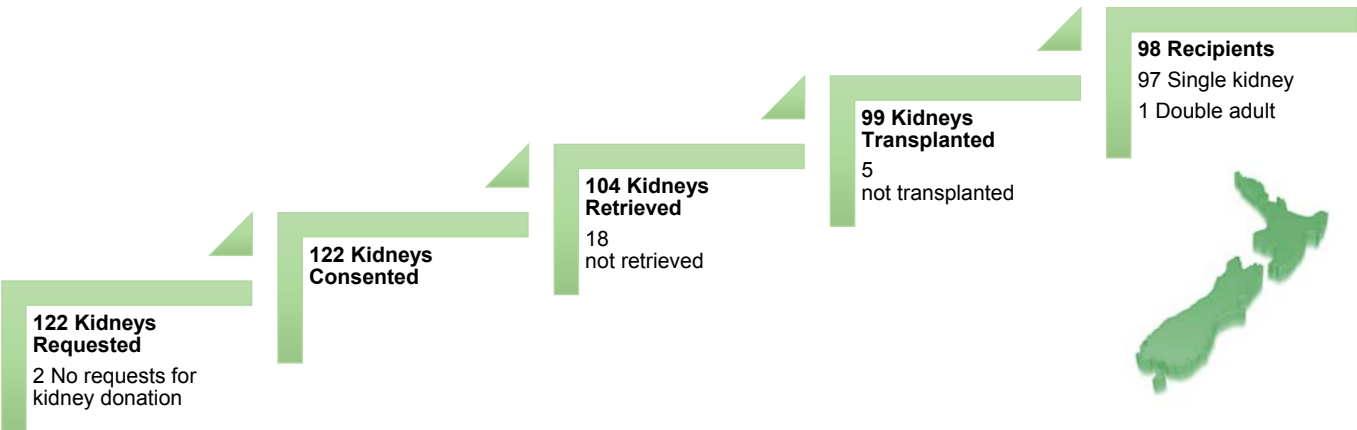


In New Zealand, there were 61 actual donors (98.4%) who consented to kidney donation. From these kidney donors, 104 kidneys were retrieved, of which 99 were transplanted into 98 recipients. There were 83 kidneys transplanted from donation from the brain death donation pathway and 16 kidneys transplanted following donation after circulatory death.

Of the 98 recipients, six received a combined kidney/pancreas, two received a combined kidney/liver transplant. There was one double adult kidney transplant and no en bloc kidney transplants in 2018.

There was an overall decrease of 16.9% in the total number of kidney transplant recipients (98) in 2018 compared to the previous year (118); the rate of transplantation fell to 20.1 per million population in 2018 from 24.6 pmp in 2017. 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 2018



Figures 5.2 and 5.3 show the number of kidneys transplanted by donation pathway and the number of kidney recipients by transplant region. Figure 5.2 particularly shows an increase in DCD kidneys from 2006 to 2018, and DBD kidneys from 2010 to 2018 in Australia.

Figure 5.2.1 - Kidneys Transplanted by Donation Pathway Australia 1998-2018

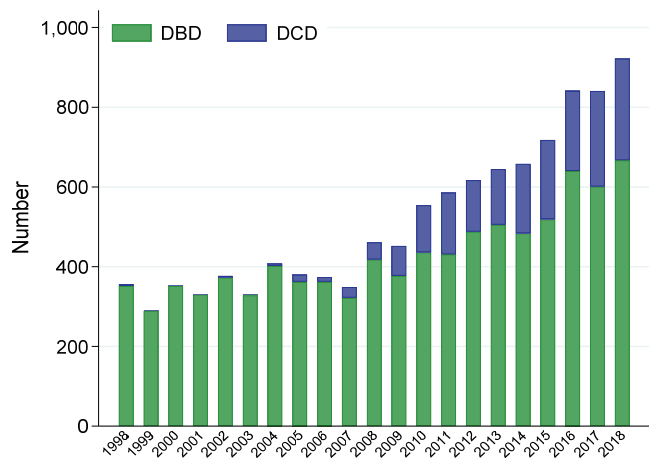


Figure 5.2.2 - Kidneys Transplanted by Donation Pathway New Zealand 1998-2018

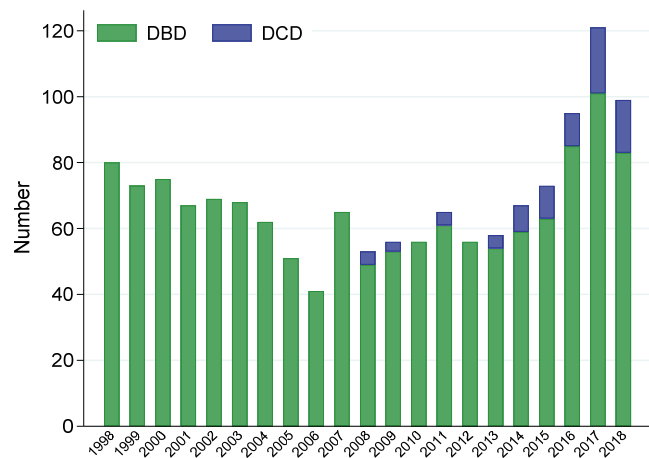
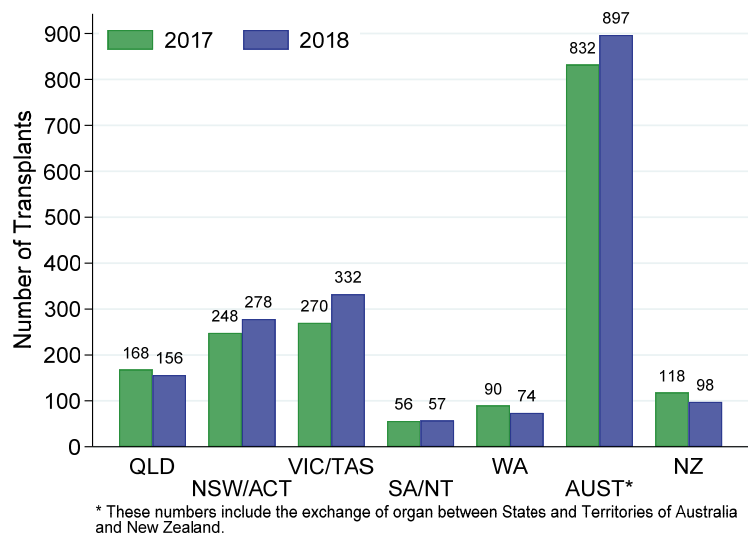


Figure 5.3 - Deceased Donor Kidney Transplant Recipients* by Transplant Region, Australia and New Zealand, 2017-2018



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 2018

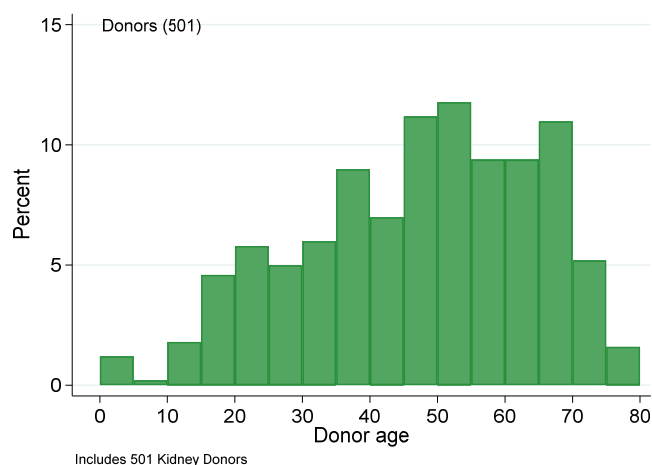
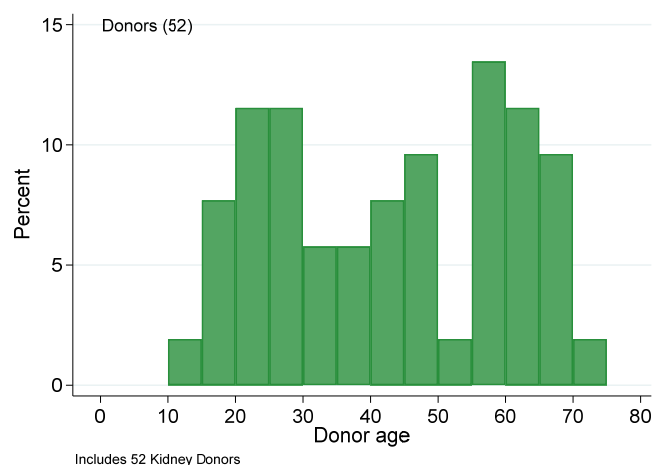


Figure 5.4.2 - Age of Donors Providing Retrieved Kidneys New Zealand 2018



Donor Kidney Function

In 2018 in Australia, 102 donors (18%) had a terminal serum creatinine concentration of $\geq 125 \mu\text{mol/L}$ (Table 5.1). In 2018 in New Zealand, eight donors (15%) had a terminal serum creatinine concentration of $\geq 125 \mu\text{mol/L}$.

In Australia, 89 donors (16%) 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, four donors (8%) 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 2014-2018

Terminal Serum Creatinine ($\mu\text{mol/L}$)	Australia					New Zealand				
	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018
0-99	77%	71%	74%	73%	75%	83%	88%	69%	91%	75%
100-124	7%	7%	8%	9%	7%	15%	10%	19%	2%	10%
125-149	4%	5%	4%	4%	5%	-	2%	4%	2%	8%
150-174	2%	3%	3%	3%	2%	-	-	4%	2%	4%
175-199	1%	3%	2%	2%	2%	2%	-	-	-	-
200-224	2%	1%	1%	1%	1%	-	-	2%	2%	2%
225-249	0%	1%	1%	2%	1%	-	-	-	2%	-
≥ 250	5%	9%	7%	7%	8%	-	-	4%	2%	2%

Kidneys Not Retrieved

The reasons why kidneys were not retrieved for organ transplantation are presented in Table 5.2.

Table 5.2 Reasons for Kidney Not Retrieved in 2018

Reason	Australia	New Zealand
Logistics	1	0
Not Medically Suitable	78	16
Surgically Unsuitable	0	0
Trauma to Organ	4	0
No Suitable Recipients	13	0
Age of Donor	2	2
DCD Donor	2	0
Consent Withdrawn	0	0
Others	1	0
Total	101	18

Kidneys Retrieved and Not Utilised for Transplantation

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 2014-2018, this rate is higher than that over the period prior to 2013.

Figure 5.5.1 - Non-utilisation Rate of Retrieved Kidneys - Australia 2014-2018

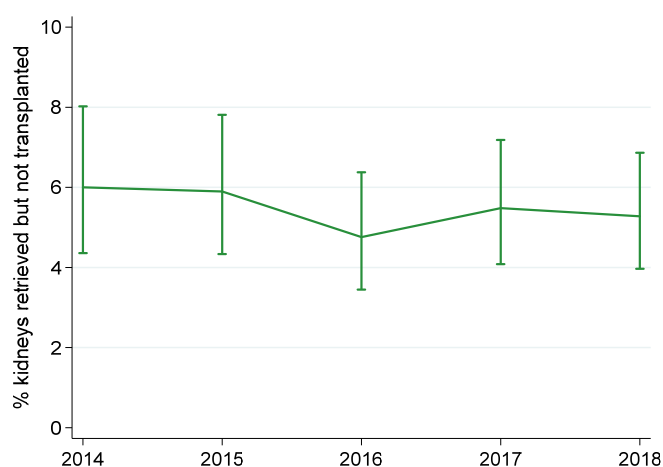
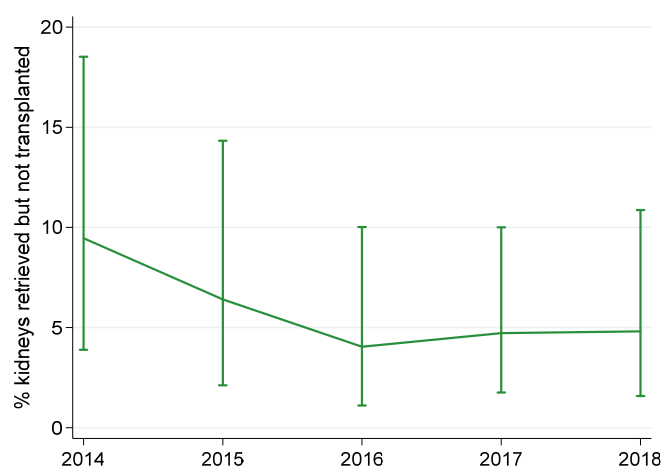


Figure 5.5.2 - Non-utilisation Rate of Retrieved Kidneys - New Zealand 2014-2018



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) 2014-2018

Reason	2014	2015	2016	2017	2018
Logistics	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Not Medically Suitable	32 (6)	41 (4)	32 (3)	34 (6)	34 (5)
Not Surgically Suitable	1 (1)	0 (0)	2 (0)	0 (0)	4 (0)
Trauma to Organ	2 (0)	2 (1)	2 (0)	3 (0)	3 (0)
No Suitable Recipients	5 (0)	0 (0)	6 (1)	10 (0)	9 (0)
Recipient Issue	1 (0)	2 (0)	0 (0)	2 (0)	2 (0)
Other	1 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Total	42 (7)	45 (5)	42 (4)	49 (6)	52 (5)

Outcome of Kidney Donation

Kidneys are counted as a separate organ. The information relating to the request for kidney donation refers only to those patients who became a kidney donor. If consent was sought and not obtained for transplantation, the Registry has no record of these potential donors. The difference between a request and a consent is a known objection by the donor or family refusal for a specific organ to be donated for transplantation. Organ donation for the purpose of research are excluded when calculating a specific organs utilisation rate for transplantation.

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, 2014-2018

Outcome of Request	2014	2015	2016	2017	2018
Total Donors	378	435	503	510	554
Kidneys Requested for Donation	738	828	981	989	1090
Kidneys Not Requested for Donation	18	42	25	31	18
Kidneys with Consent Given	738	824	977	987	1086
Kidneys with Consent Not Given	0	4	4	2	4
Kidneys Retrieved	700	763	883	894	985
Kidneys Not Retrieved	38	61	94	93	101
Kidneys Transplanted	658	718	841	841	922
Left Kidney Transplanted	309	345	399	411	446
Right Kidney Transplanted	305	343	402	412	426
Double/En bloc Kidney Transplanted	44	30	40	18	50
Total Kidneys Not Used	42	45	42	53	63
Left Kidney Not Used for Transplantation	20	21	19	24	20
Right Kidney Not Used for Transplantation	20	22	17	23	32
Double/En bloc Kidney Not Used for Transplantation	2	2	6	2	0
Kidneys Retrieved for Research and Not for Transplantation	0	0	0	4	11
Recipients Transplanted	636	703	821	832	897
Double Adult Kidney Procedures	17	9	11	4	20
En Bloc Kidney Procedures	5	6	9	5	5
Kidney Non-Utilisation Rate	6.0%	5.9%	4.8%	5.5%	5.3%
Kidney Utilisation Rate	94.0%	94.1%	95.2%	94.1%	93.6%

Table 5.4.2 Outcome of Request for Kidney Donation in New Zealand, 2014-2018

Outcome of Request	2014	2015	2016	2017	2018
Total Donors	46	53	61	73	62
Kidneys Requested for Donation	88	100	120	143	122
Kidneys Not Requested for Donation	4	6	2	3	2
Kidneys with Consent Given	88	100	120	143	122
Kidneys with Consent Not Given	0	0	0	0	0
Kidneys Retrieved	74	78	99	127	104
Kidneys Not Retrieved	14	22	21	16	18
Kidneys Transplanted	67	73	95	121	99
Left Kidney Transplanted	33	37	42	58	48
Right Kidney Transplanted	32	36	43	57	49
Double/En bloc Kidney Transplanted	2	0	10	6	2
Total Kidneys Not Used for Transplantation	7	5	4	6	5
Left Kidney Not Used for Transplantation	3	3	2	2	3
Right Kidney Not Used for Transplantation	4	2	2	4	2
Recipients Transplanted	66	73	90	118	98
Double Adult Kidney Procedures	0	0	5	3	1
En Bloc Kidney Procedures	1	0	0	0	0
Kidney Non-Utilisation Rate	9.5%	6.4%	4.0%	4.7%	4.8%
Kidney Utilisation Rate	90.5%	93.6%	96.0%	95.3%	95.2%