



SECTION 5

Deceased Donor Kidney Donation

SUMMARY

This section summarises kidney donation activity from deceased donors in 2019, compared with previous years. The rate of kidneys transplanted in 2019 was 33.8 pmp in Australia and 26.4 pmp in New Zealand.

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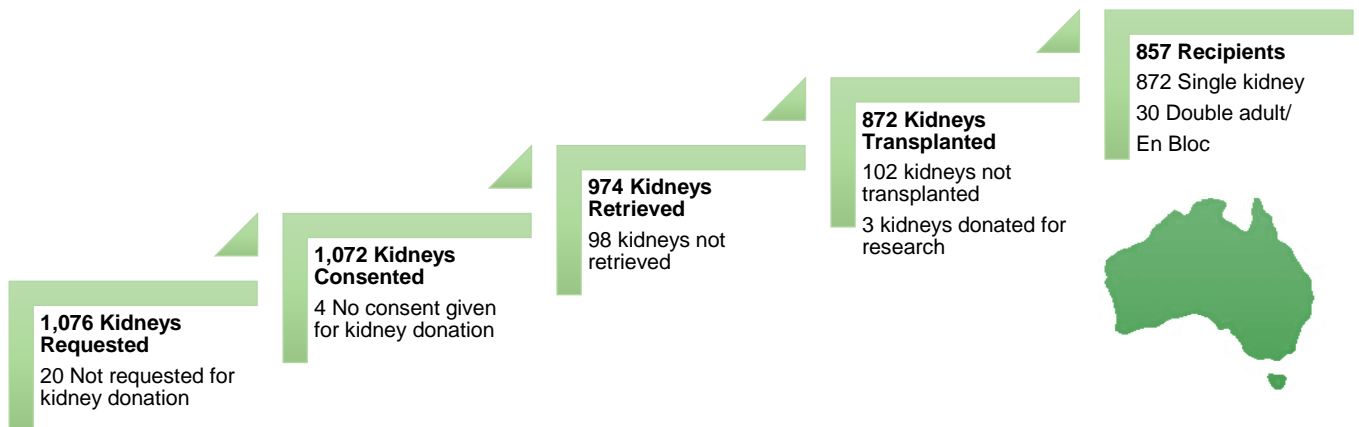
Kidney Donation

Of the 548 actual deceased organ donors in 2019 in Australia, 536 (97.8%) consented to kidney donation. From these kidney donors, 974 kidneys were retrieved and transplanted into 857 recipients. Of these 857 kidney transplant recipients, there were 38 kidney/pancreas recipients, 9 double adult kidney recipients, six en bloc kidney recipients, 10 combined kidney/liver recipients, four combined kidney heart transplant recipients.

There were 603 kidneys from the brain death donation pathway and 269 kidneys following donation after circulatory death in 2019, compared with 667 and 255 respectively in 2018.

There was an overall decrease of 4.5% in the total number of kidney transplant recipients (857) in 2019 compared to the previous year (897); and a decrease to 33.8 per million population (pmp) compared to 35.9 pmp in 2018. Figure 5.1 below shows the outcomes of requests for kidney donation in Australia.

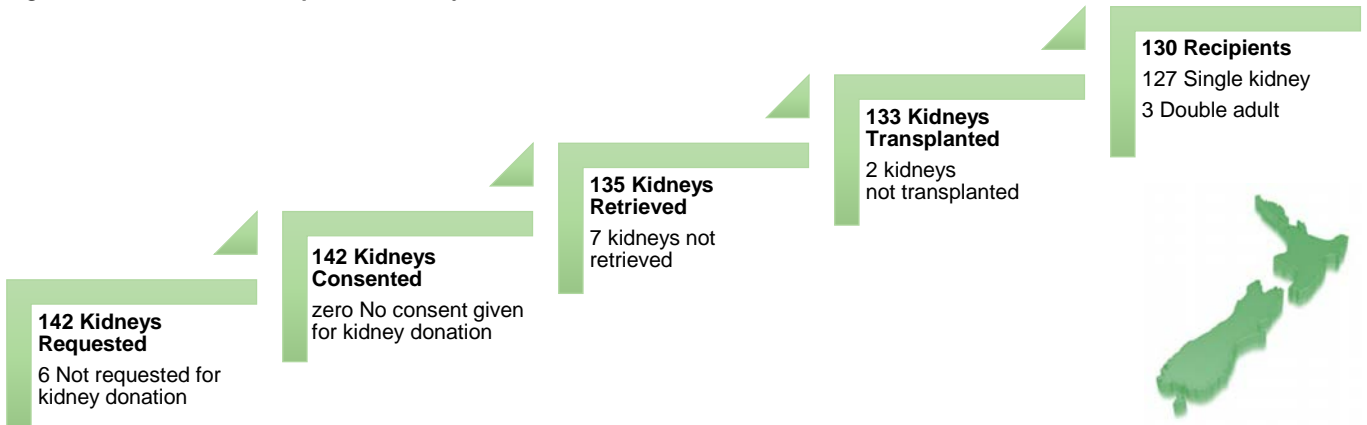
Figure 5.1.1 Outcomes of Request for Kidney Donation from Actual Donors in Australia 2019



In New Zealand, there were 71 actual donors (95.9%) who consented to kidney donation. From these kidney donors, 135 kidneys were retrieved, of which 133 were transplanted into 130 recipients. There were 115 kidneys transplanted from donation from the brain death donation pathway and 18 kidneys transplanted following donation after circulatory death. Of the 130 recipients, four received a combined kidney/pancreas. There was three double adult kidney transplant and no en bloc kidney transplants in 2019.

There was an overall decrease of 32.7% in the total number of kidney transplant recipients (130) in 2019 compared to the 2018 (98); the rate of transplantation increased to 26.4 pmp in 2019 compared to 20.2 pmp in 2018. Figure 5.1.2 below 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 2019



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 2019, and DBD kidneys from 2010 to 2019 in Australia.

Figure 5.2.1 - Kidneys Transplanted by Donation Pathway Australia 1998 – 2019

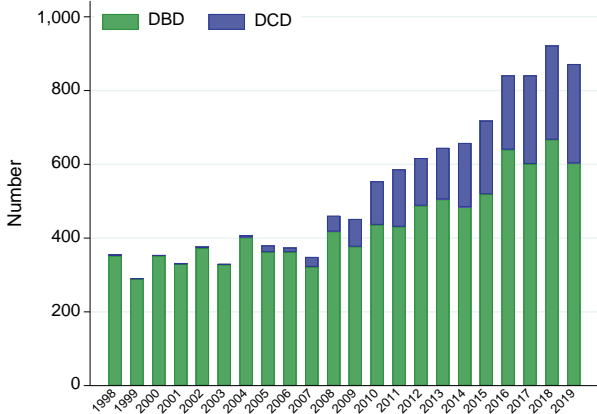


Figure 5.2.2 - Kidneys Transplanted by Donation Pathway New Zealand 1998 – 2019

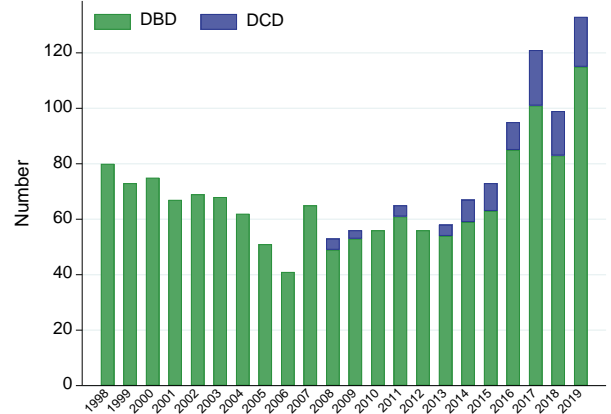
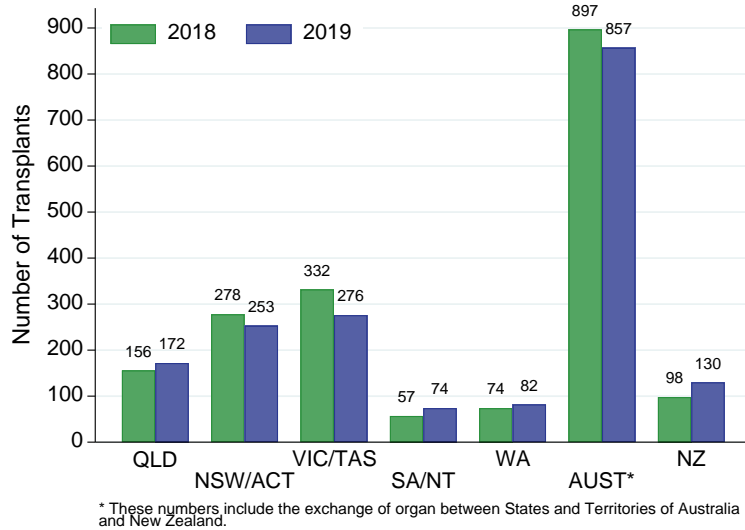


Figure 5.3 - Deceased Donor Kidney Transplant Recipients* by Transplant Region, Australia and New Zealand, 2018 – 2019



Age of Kidney Donors

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

Figure 5.4.1 - Age of Donors Providing Retrieved Kidneys Australia 2019

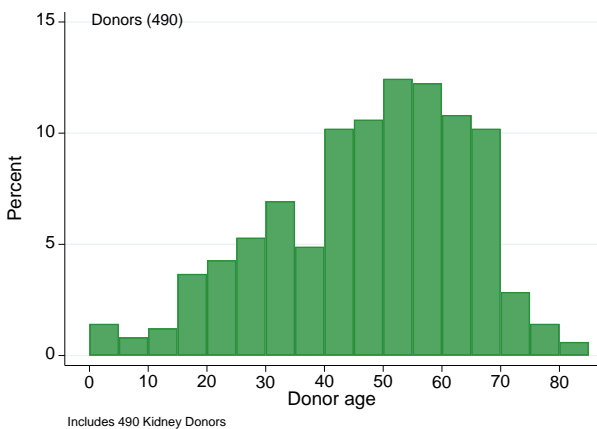
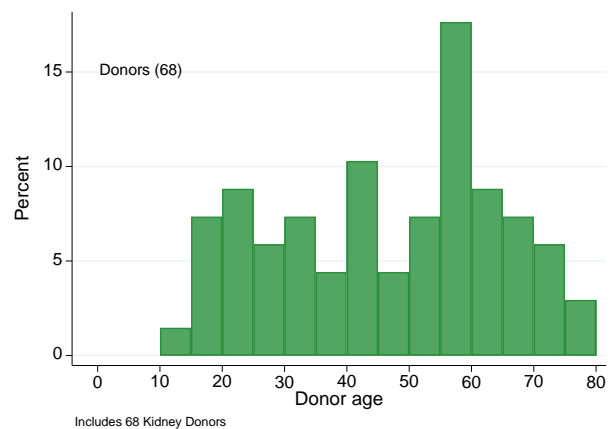


Figure 5.4.2 - Age of Donors Providing Retrieved Kidneys New Zealand 2019



Donor Kidney Function

In 2019 in Australia, 126 donors (22%) had a terminal serum creatinine concentration of $\geq 125 \mu\text{mol/L}$ (Table 5.1). In 2019 in New Zealand, 10 donors (14%) had a terminal serum creatinine concentration of $\geq 125 \mu\text{mol/L}$.

In Australia, 99 donors (18%) 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, seven donors (10%) had a terminal serum urea concentration of $\geq 9 \text{ mmol/L}$ and creatinine concentration of $\geq 125 \mu\text{mol/L}$ (See table 5.1 below).

Table 5.1 Terminal Serum Creatinine Concentration in Australia and New Zealand 2015 – 2019

Terminal Serum Creatinine ($\mu\text{mol/L}$)	Australia					New Zealand				
	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
0-99	71%	74%	73%	75%	70%	88%	69%	91%	75%	75%
100-124	7%	8%	9%	7%	7%	10%	19%	2%	10%	10%
125-149	5%	4%	4%	5%	5%	2%	4%	2%	8%	4%
150-174	3%	3%	3%	2%	4%	-	4%	2%	4%	3%
175-199	3%	2%	2%	2%	2%	-	-	-	-	1%
200-224	1%	1%	1%	1%	2%	-	2%	2%	2%	-
225-249	1%	1%	2%	1%	1%	-	-	2%	-	1%
≥ 250	9%	7%	7%	8%	9%	-	4%	2%	2%	4%

Kidneys Not Retrieved

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

Table 5.2 Reasons for Kidney Not Retrieved in 2019

Reason	Australia	New Zealand
Logistics	0	0
Not Medically Suitable	84	6
Surgically Unsuitable	0	1
Trauma to Organ	1	0
No Suitable Recipients	5	0
Age of Donor	6	0
DCD Donor	0	0
Consent Withdrawn	0	0
Others	2	0
Total	98	7

Kidneys Retrieved and Not Utilised for Transplantation

Figure 5.5 shows the non-utilisation rate of retrieved kidneys in Australia and New Zealand – 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 2015 to 2019, this rate is higher than that over the period prior to 2013.

Figure 5.5.1 - Non-utilisation Rate of Retrieved Kidneys - Australia 2015 – 2019

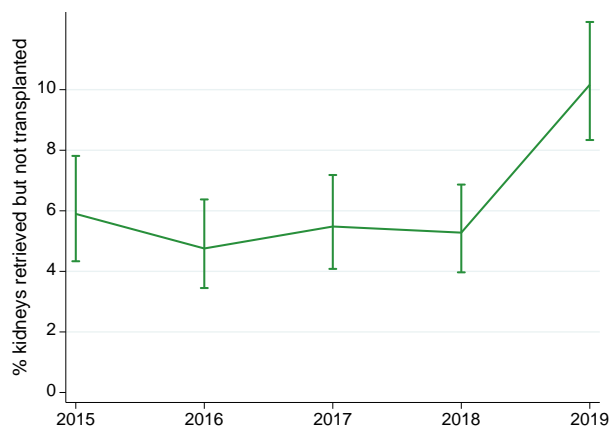
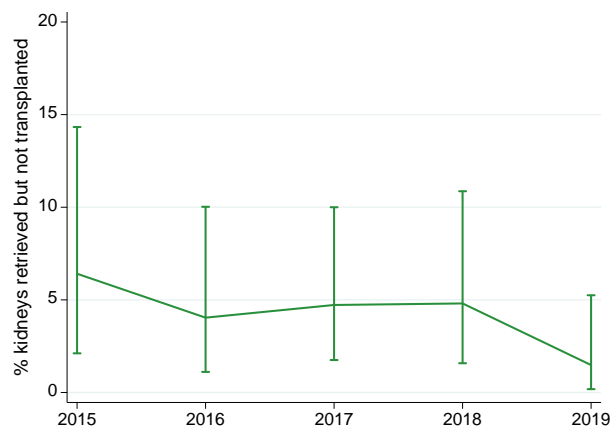


Figure 5.5.2 - Non-utilisation Rate of Retrieved Kidneys - New Zealand 2015 – 2019



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

Table 5.3 Reasons Kidneys Retrieved & Not Utilised for Transplantation, Australia (New Zealand) 2015 – 2019

Reason	2015	2016	2017	2018	2019
Logistics	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Not Medically Suitable	41 (4)	32 (3)	34 (6)	34 (5)	71 (2)
Not Surgically Suitable	0 (0)	2 (0)	4 (0)	15 (0)	7 (0)
Trauma to Organ	2 (1)	2 (0)	3 (0)	3 (0)	8 (0)
No Suitable Recipients	0 (0)	6 (1)	10 (0)	9 (0)	15 (0)
Recipient Issue	2 (0)	0 (0)	2 (0)	2 (0)	1 (0)
Other	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Total	45 (5)	42 (4)	53 (6)	63 (5)	102 (2)

Outcome of Kidney Donation

Kidneys are counted as separate organs. 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 is excluded when calculating a specific organ's non-utilisation rate for transplantation.

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

Table 5.4.1 Outcome of Request for Kidney Donation in Australia, 2015 – 2019

Outcome of Request	2015	2016	2017	2018	2019
Total Donors	435	503	510	554	548
Kidneys Requested for Donation	828	981	989	1090	1076
Kidneys Not Requested for Donation	42	25	31	18	20
Kidneys with Consent Given	824	977	987	1086	1072
Kidneys with Consent Not Given	4	4	2	4	4
Kidneys Retrieved	763	883	894	985	974
Kidneys Not Retrieved	61	94	93	101	98
Kidneys Transplanted	718	841	841	922	872
Left Kidney Transplanted	345	399	411	446	423
Right Kidney Transplanted	343	402	412	426	419
Double/En Bloc Kidney Transplanted	30	40	18	50	30
Total Kidneys Not Used for Transplantation	45	42	53	63	102
Left Kidney Not Used	21	19	24	20	43
Right Kidney Not Used	22	17	23	32	48
Double/En Bloc Kidney Not Used	2	6	2	0	8
Kidneys Retrieved for Research and Not for Transplantation	0	0	4	11	3
Recipients Transplanted	703	821	832	897	857
Double Adult Kidney Procedures	9	11	4	20	9
En Bloc Kidney Procedures	6	9	5	5	6
Kidney Non-Utilisation Rate	5.9%	4.8%	5.5%	5.3%	10.2%
Kidney Utilisation Rate	94.1%	95.2%	94.1%	93.6%	89.5%

Table 5.4.2 Outcome of Request for Kidney Donation in New Zealand, 2015 – 2019

Outcome of Request	2015	2016	2017	2018	2019
Total Donors	53	61	73	62	74
Kidneys Requested for Donation	100	120	143	122	142
Kidneys Not Requested for Donation	6	2	3	2	6
Kidneys with Consent Given	100	120	143	122	142
Kidneys with Consent Not Given	0	0	0	0	0
Kidneys Retrieved	78	99	127	104	135
Kidneys Not Retrieved	22	21	16	18	7
Kidneys Transplanted	73	95	121	99	133
Left Kidney Transplanted	37	42	58	48	64
Right Kidney Transplanted	36	43	57	49	63
Double/En Bloc Kidney Transplanted	0	10	6	2	6
Total Kidneys Not Used for Transplantation	5	4	6	5	2
Left Kidney Not Used	3	2	2	3	0
Right Kidney Not Used	2	2	4	2	0
Double/En Bloc Kidney Not Used	0	0	0	0	2
Kidneys Retrieved for Research and Not for Transplantation	0	0	0	0	0
Recipients Transplanted	73	90	118	98	130
Double Adult Kidney Procedures	0	5	3	1	3
En Bloc Kidney Procedures	0	0	0	0	0
Kidney Non-Utilisation Rate	6.4%	4.0%	4.7%	4.8%	1.5%
Kidney Utilisation Rate	93.6%	96.0%	95.3%	95.2%	98.5%