



SECTION 5

Deceased Donor Kidney Donation

SUMMARY

This section summarises kidney donation activity from deceased donors in 2020, compared with previous years. The rate of kidneys transplanted in 2020 was 27.4 pmp in Australia and 19.6 pmp in New Zealand.

Contents

Executive Summary	2
Suggested Citation	2
Kidney Donation	3
Age of Kidney Donors	4
Donor Kidney Function.....	5
Kidneys Not Retrieved.....	5
Kidneys Retrieved and Not Utilised for Transplantation	6
Outcome of Kidney Donation	6

Executive Summary

Since its inception in 1989 in Australia and 1993 in New Zealand, the Australian and New Zealand Organ Donation Registry (ANZOD) continues to record and report on organ donation within Australia and New Zealand.

Data related to organ donation and transplantation activity is essential in identifying opportunities for improving the care of donors, informing on the quality of transplant organs and transplant recipient outcomes.

One organ donor can benefit a number of recipients suffering from end stage organ disease. One donor could donate up to 9 organs including, kidneys (left and right), liver (split left and right), heart, lungs (left and right), pancreas and intestine, improving the lives of people wait listed for an organ transplant.

Of importance for this reporting period was the emergence of COVID-19 that spread across the world, with the first reported case in Australia on 25th January 2020. Rapid evolution of the pandemic saw precautionary steps taken by the transplant sector which effected the organ donation programs in Australia and New Zealand. During the peak emergence of COVID-19 (late-March through to mid-May 2020) the COVID-19 National Transplantation and Donation Rapid Response Taskforce was established, comprised of members from the Transplantation Society of Australia and New Zealand (TSANZ) and Organ Tissue Authority (OTA). Recommendations from the Taskforce saw transplant programs for kidney, pancreas and islets transplants suspended and restrictions placed on liver, heart, lung, pediatric and multi-organ transplant programs to consider only recipients likely to die within four months if not transplanted. This was subject to case-by-case review of donor-recipient characteristics at a unit level. Limitations on movement of organs between states was also observed during this period due to challenges faced including border closures, flight restrictions and COVID-19 restrictions.

Consideration of the effect of the COVID-19 pandemic should be given when analysing the data included in this chapter.

Suggested Citation

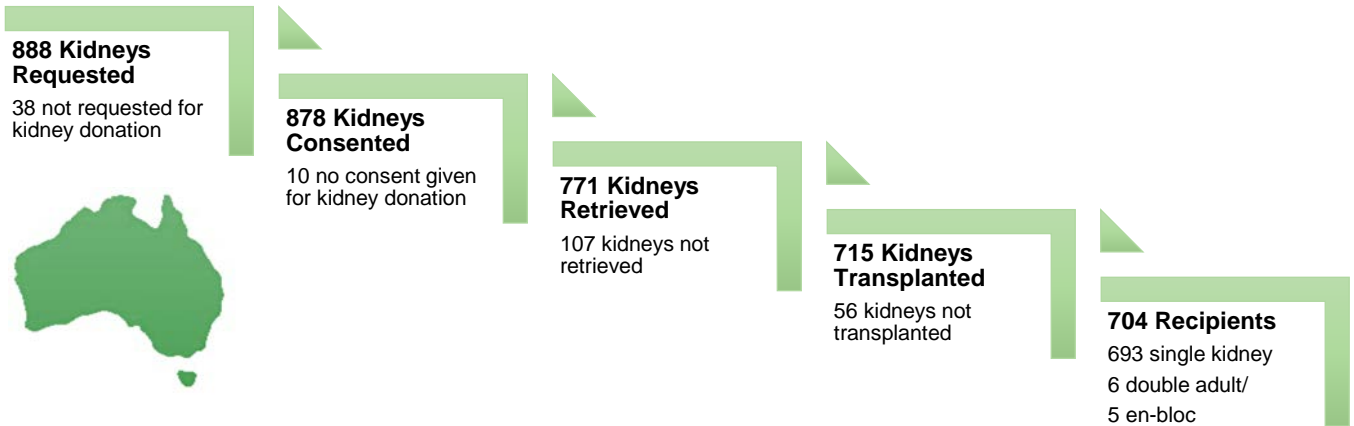
ANZOD Registry. 2021 Annual Report, Section 5: Deceased Donor Kidney Donation. Australia and New Zealand Dialysis and Transplant Registry, Adelaide, Australia. 2021. Available at: www.anzdata.org.au

Kidney Donation

Of the 463 actual deceased organ donors in 2020 in Australia, 439 (94.8%) consented to kidney donation. From these kidney donors, 771 kidneys were retrieved and transplanted into 704 recipients. Of these 704 kidney transplant recipients, there were 46 kidney/pancreas recipients, 6 double adult kidney recipients, 5 en-bloc kidney recipients, 8 combined kidney/liver recipients, 4 combined kidney/heart transplant recipients and 3 combined kidney/double lung recipients. There were 505 kidneys from the brain death donation pathway and 210 kidneys following donation after circulatory death in 2020, compared with 603 and 269 respectively in 2019.

There was an overall decrease of 17.9% in the total number of kidney transplant recipients (704) in 2020 compared to the previous year (857); and a decrease to 27.4 per million population (pmp) from 33.8 (pmp). Figure 5.1.1 shows the outcomes of requests for kidney donation in Australia.

Table 5.1.1 Outcomes of Request for Kidney Donation from Actual Donors in Australia 2020

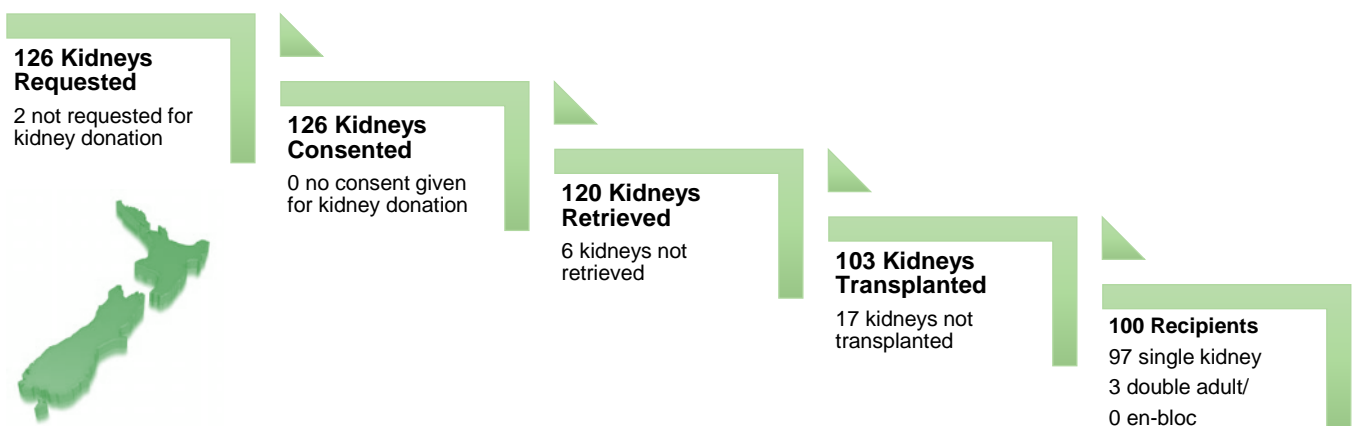


In New Zealand, there were 63 actual donors (98.4%) who consented to kidney donation. From these kidney donors, 120 kidneys were retrieved, of which 103 were transplanted into 100 recipients. There were 90 kidneys transplanted from the brain death donation pathway and 13 kidneys transplanted following donation after circulatory death.

Of the 100 recipients, 2 received a combined kidney/pancreas. There were 3 double adult kidney transplants and 0 en-bloc kidney transplants in 2020.

There was an overall decrease of 23.1% in the total number of kidney transplant recipients (100) in 2020 compared to the previous year (130); the rate of transplantation fell to 19.6 per million population in 2020 from 26.1 pmp in 2019. Figure 5.1.2 shows the outcomes of requests for kidney donation in New Zealand.

Table 5.1.2 Outcomes of Request for Kidney Donation from Actual Donors in New Zealand 2020



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 5.2.1 - Kidneys Transplanted by Donation Pathway Australia 1998–2020

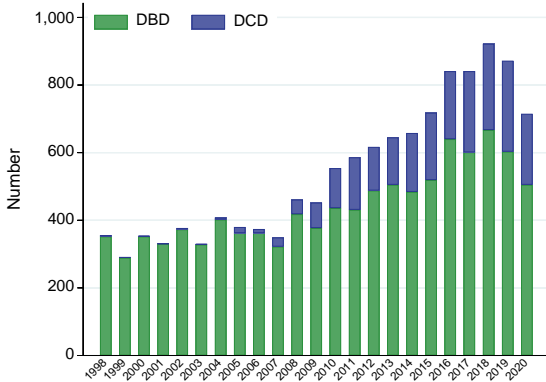


Figure 5.2.2 - Kidneys Transplanted by Donation Pathway New Zealand 1998–2020

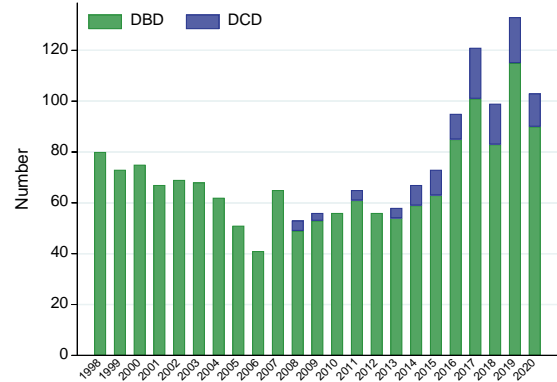
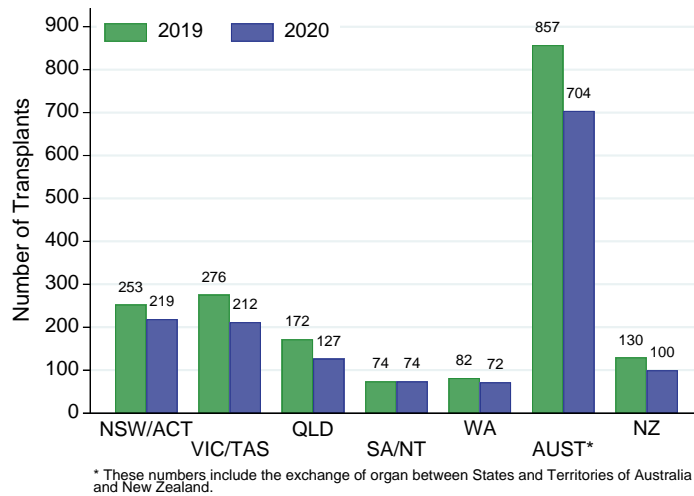


Figure 5.3 - Deceased Donor Kidney Transplant Recipients* by Transplant Region, Australia and New Zealand, 2019–2020



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 New Australia 2020

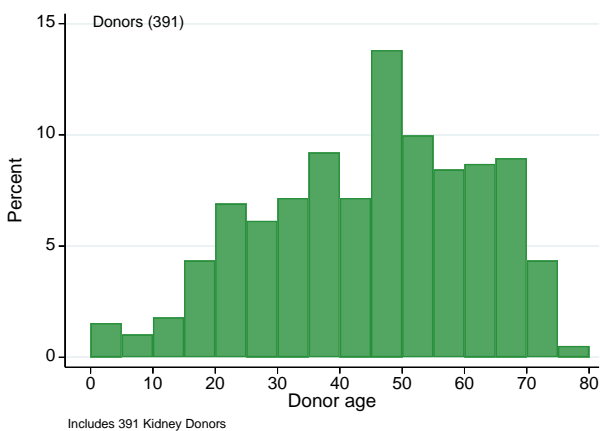
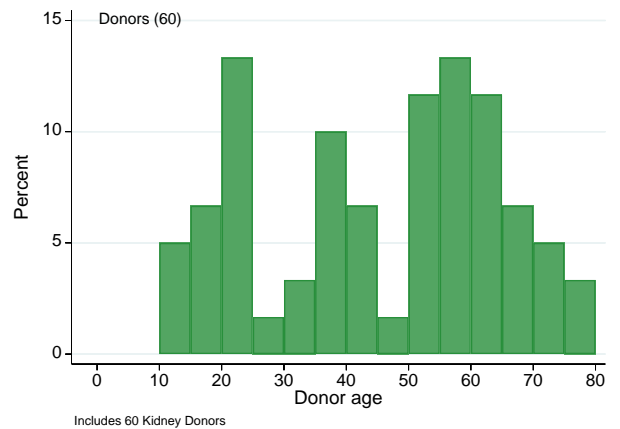


Figure 5.4.2 - Age of Donors Providing Retrieved Kidneys Zealand 2020



Donor Kidney Function

In 2020 in Australia, 77 donors (17%) had a terminal serum creatinine concentration of ≥ 125 $\mu\text{mol/L}$ (Table 5.1). In 2020 in New Zealand, 7 donors (12%) had a terminal serum creatinine concentration of ≥ 125 $\mu\text{mol/L}$.

Table 5.1 Terminal Serum Creatinine Concentration 2016–2020

Terminal Serum Creatinine ($\mu\text{mol/L}$)	Australia					New Zealand				
	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
0-99	74%	73%	75%	70%	78%	69%	91%	75%	75%	72%
100-124	8%	9%	7%	7%	5%	19%	2%	10%	10%	17%
125-149	4%	4%	5%	5%	4%	4%	2%	8%	4%	5%
150-174	3%	3%	2%	4%	2%	4%	2%	4%	3%	2%
175-199	2%	2%	2%	2%	2%	-	-	-	1%	2%
200-224	1%	1%	1%	2%	1%	2%	2%	2%	-	-
225-249	1%	2%	1%	1%	2%	-	2%	-	1%	2%
≥ 250	7%	7%	8%	9%	7%	4%	2%	2%	4%	2%

In Australia, 59 donors (13%) had a terminal serum urea concentration of ≥ 9 mmol/L and creatinine concentration of ≥ 125 $\mu\text{mol/L}$. In New Zealand, 3 donors (5%) had a terminal serum urea concentration of ≥ 9 mmol/L and creatinine concentration of ≥ 125 $\mu\text{mol/L}$.

Kidneys Not Retrieved

The reasons why kidneys were not retrieved for organ transplantation are presented in Table 5.2. In 2020 kidneys not retrieved due to logistics occurred in 30 instances.

Table 5.2 Reasons for Kidney Not Retrieved in 2020

Reason	Australia	New Zealand
Logistics	30	0
Not Medically Suitable	52	6
Surgically Unsuitable	0	0
Trauma to Organ	1	0
No Suitable Recipients	17	0
Age of Donor	1	0
DCD Donor	6	0
Consent Withdrawn	0	0
Others	0	0
Total	107	6

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).

Figure 5.5.1 - Non-utilisation Rate of Retrieved Kidneys - New Australia 2016–2020

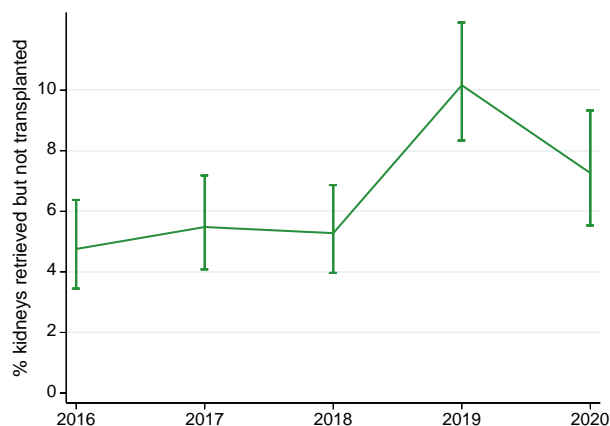
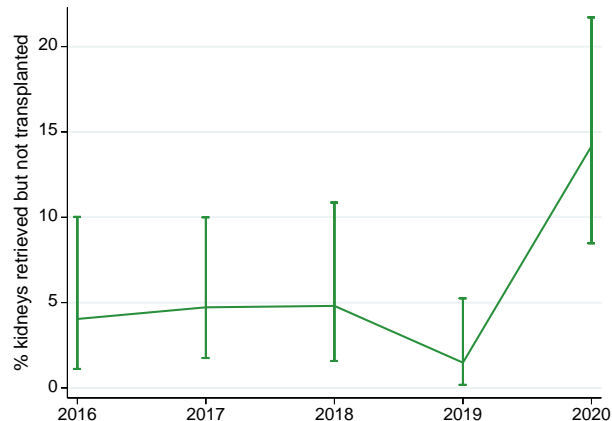


Figure 5.5.2 - Non-utilisation Rate of Retrieved Kidneys - Zealand 2016–2020



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) 2016–2020

Reason	2016	2017	2018	2019	2020
Not Medically Suitable	32 (3)	34 (6)	34 (5)	71 (2)	40 (17)
Not Surgically Suitable	2 (0)	0 (0)	4 (0)	4 (0)	3 (0)
Trauma to Organ	2 (0)	3 (0)	3 (0)	8 (0)	4 (0)
No Suitable Recipients	6 (1)	10 (0)	9 (0)	15 (0)	5 (0)
Recipient too unwell for transplant	0 (0)	2 (0)	2 (0)	1 (0)	4 (0)
Total	42 (4)	49 (6)	52 (5)	99 (2)	56 (17)

Outcome of Kidney Donation

Kidneys are counted as separate organs. If consent for donation for transplantation was sought and not obtained, 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 pathway is shown in Table 5.4.

Table 5.4.1 Outcome of Request for Kidney Donation in Australia, 2016–2020

Outcome of Request	2016	2017	2018	2019	2020
Total Donors	503	510	554	548	463
Kidneys Requested for Donation	981	989	1090	1076	888
Kidneys Not Requested for Donation	25	31	18	20	38
Kidneys with Consent Given	977	987	1086	1072	878
Kidneys with Consent Not Given	4	2	4	4	10
Kidneys Retrieved	883	894	985	974	771
Kidneys Not Retrieved	94	93	101	98	107
Kidneys Transplanted	841	841	922	872	715
Left Kidney Transplanted	399	411	446	423	349
Right Kidney Transplanted	402	412	426	419	344
Double/En-bloc Kidney Transplanted	40	18	50	30	22
Total Kidneys Not Used for Transplantation	42	53	63	102	56
Left Kidney Not Used	19	24	20	43	27
Right Kidney Not Used	17	23	32	48	25
Double/En-bloc Kidney Not Used	6	2	0	8	4
Kidneys Retrieved for Research and Not for Transplantation	0	4	11	3	0
Recipients Transplanted	821	832	897	857	704
Double Adult Kidney Procedures	11	4	20	9	6
En-bloc Kidney Procedures	9	5	5	6	5
Kidney Non-Utilisation Rate	4.8%	5.5%	5.3%	10.2%	7.3%
Kidney Utilisation Rate	95.2%	94.1%	93.6%	89.5%	92.7%

Table 5.4.2 Outcome of Request for Kidney Donation in New Zealand, 2016-2020

Outcome of Request	2016	2017	2018	2019	2020
Total Donors	61	73	62	74	64
Kidneys Requested for Donation	120	143	122	142	126
Kidneys Not Requested for Donation	2	3	2	6	2
Kidneys with Consent Given	120	143	122	142	126
Kidneys with Consent Not Given	0	0	0	0	0
Kidneys Retrieved	99	127	104	135	120
Kidneys Not Retrieved	21	16	18	7	6
Kidneys Transplanted	95	121	99	133	103
Left Kidney Transplanted	42	58	48	64	48
Right Kidney Transplanted	43	57	49	63	49
Double/En-bloc Kidney Transplanted	10	6	2	6	6
Total Kidneys Not Used for Transplantation	4	6	5	2	17
Left Kidney Not Used	2	2	3	0	8
Right Kidney Not Used	2	4	2	0	7
Double/En-bloc Kidney Not Used	0	0	0	2	2
Kidneys Retrieved for Research and Not for Transplantation	0	0	0	0	0
Recipients Transplanted	90	118	98	130	100
Double Adult Kidney Procedures	5	3	1	3	3
En-bloc Kidney Procedures	0	0	0	0	0
Kidney Non-Utilisation Rate	4.0%	4.7%	4.8%	1.5%	14.2%
Kidney Utilisation Rate	96.0%	95.3%	95.2%	98.5%	85.8%