



SECTION 5

Deceased Donor Kidney Donation

SUMMARY

This section summarises kidney donation activity from deceased donors in 2022, compared with previous years. The rate of kidneys transplanted in 2022 was 27.5 pmp in Australia and 20.3 pmp in New Zealand.

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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 nine 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.

The impact of the COVID-19 pandemic continued to be felt across the health sector in 2022, causing a decrease in organ and tissue donation activity across the last 3 years. However, a small increase in organ donors and the number of people receiving transplants in 2022 points to early signs of recovery from the impacts of COVID-19.

Suggested Citation

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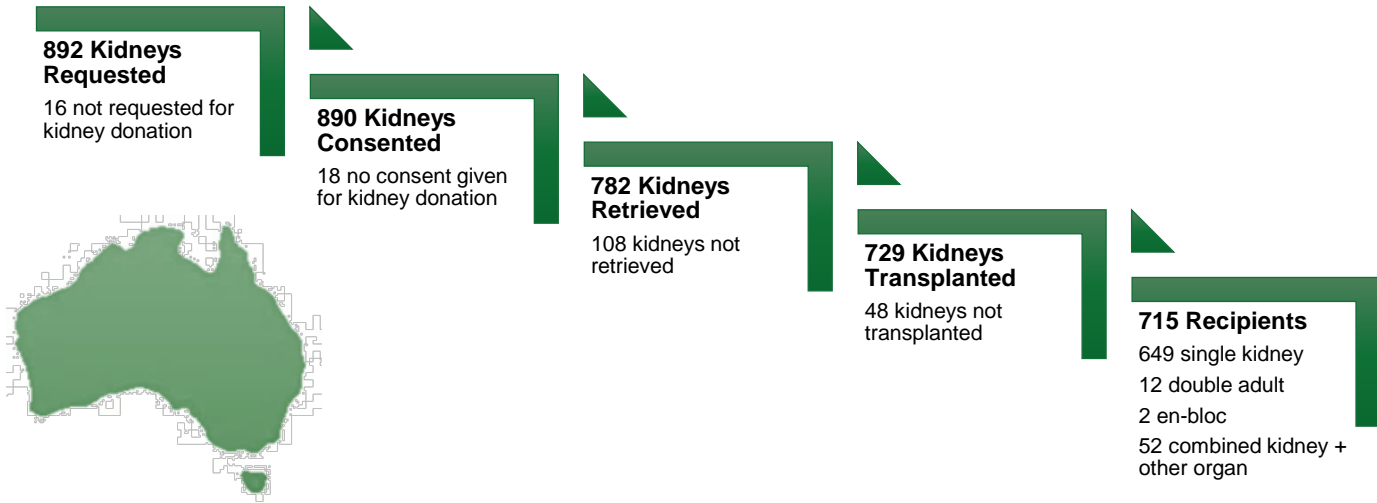
Kidney Donation

Of the 454 actual deceased organ donors in 2022 in Australia, 445 (98.0%) consented to kidney donation. From these kidney donors, 782 kidneys were retrieved and transplanted into 715 recipients. Of the 715 kidney transplant recipients, there were 42 kidney/pancreas recipients, 12 double adult kidney recipients, 2 en bloc kidney recipients, 9 combined single kidney/liver recipients and 1 combined double/en-bloc kidney/liver recipient.

There were 545 kidneys from the brain death donation pathway and 184 kidneys following donation after circulatory death in 2022, compared with 486 and 182 respectively in 2021.

There was an overall increase of 9.0% in the total number of kidney transplant recipients (715) in 2022 compared to the previous year (656); and an increase to 27.5 per million population (pmp) from 25.5 (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 for Australia 2022

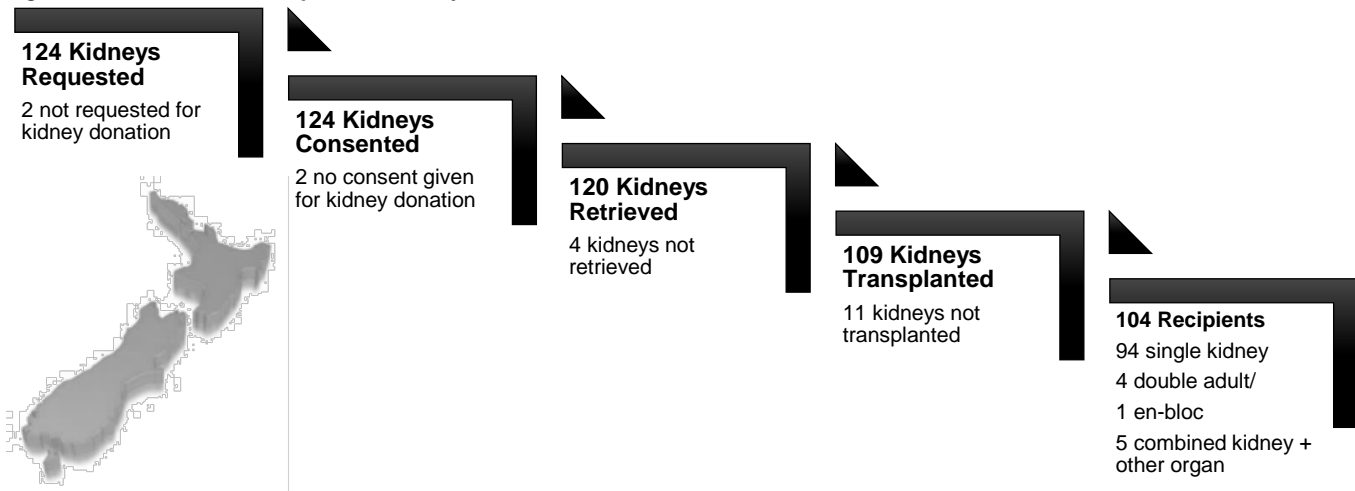


In New Zealand, there were 62 actual donors (98.4%) who consented to kidney donation. From these kidney donors, 120 kidneys were retrieved, of which 109 were transplanted into 104 recipients. There were 94 kidneys transplanted from the brain death donation pathway and 15 kidneys transplanted following donation after circulatory death.

Of the 104 recipients, 4 received a combined kidney/pancreas and 1 a combined kidney/liver. There was 4 double adult kidney transplant and 1 en bloc kidney transplant in 2022.

There was an overall increase of 2% in the total number of kidney transplant recipients (104) in 2022 compared to the previous year (102); the rate of transplantation rose to 20.3 per million population in 2022 from 20.0 pmp in 2021. 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 for Australia 2022



Figures 5.2 and 5.3 show the number of kidneys transplanted by the donation pathway and the number of kidney recipients by transplant region.

Figure 5.2.1 - Kidneys Transplanted by Donation Pathway Australia 1998–2022

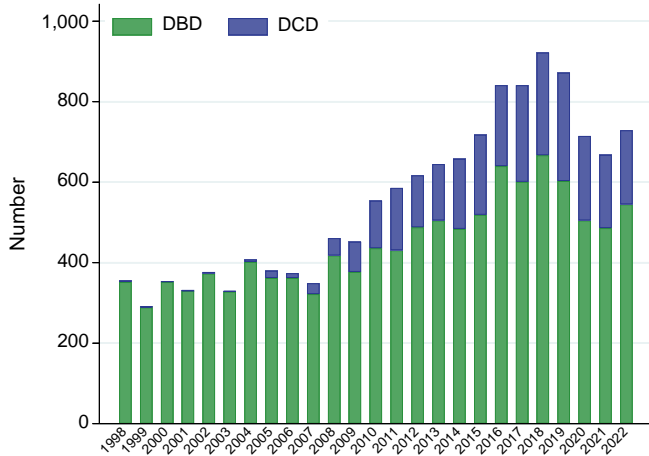


Figure 5.2.2 - Kidneys Transplanted by Donation Pathway New Zealand 1998–2022

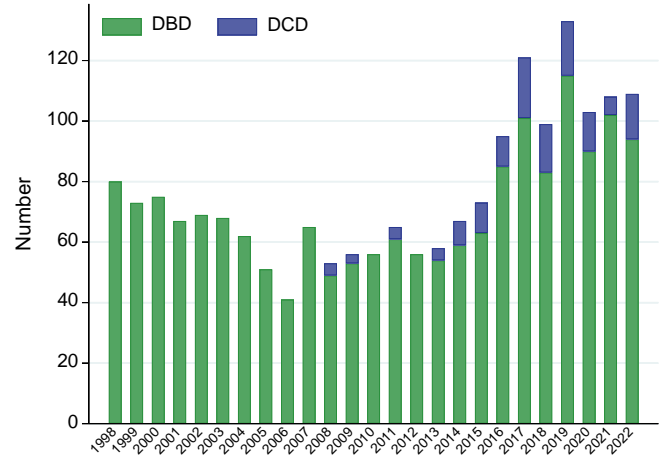
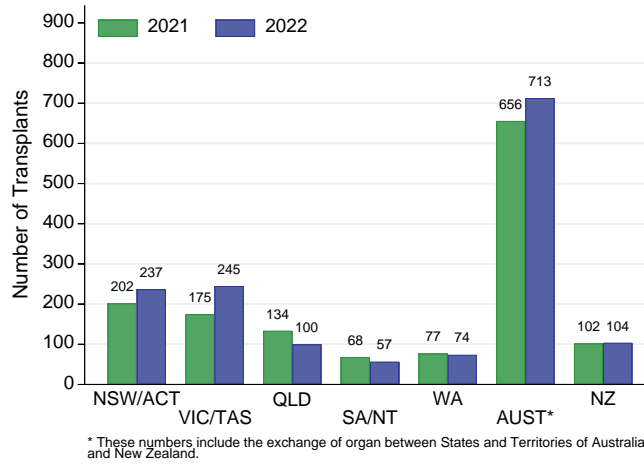


Figure 5.3 - Deceased Donor Kidney Transplant Recipients* by Transplant Region, Australia and New Zealand, 2021–2022



Age of Kidney Donors

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

Figure 5.4.1 - Age of Donors Providing Retrieved Kidneys Australia 2022

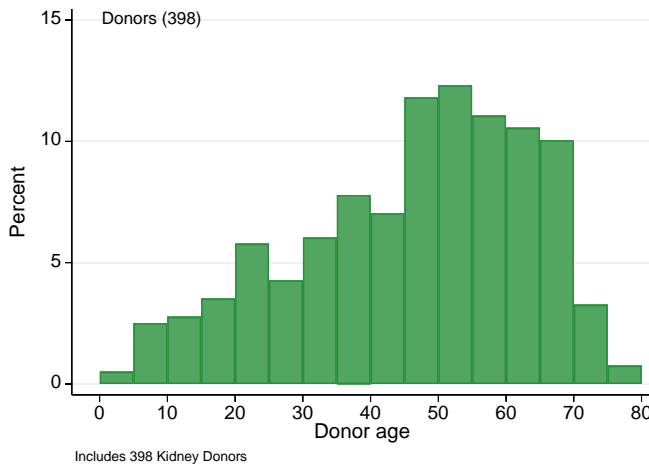
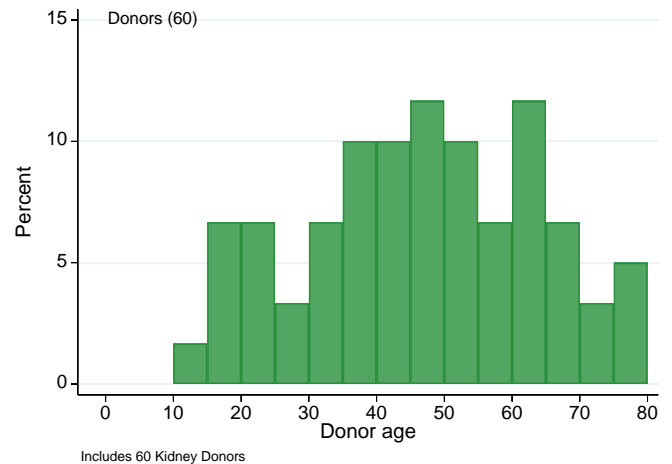


Figure 5.4.2 - Age of Donors Providing Retrieved Kidneys New Zealand 2022



Donor Kidney Function

In 2022 in Australia, 88 donors (19%) had a terminal serum creatinine concentration of ≥ 125 $\mu\text{mol/L}$ (Table 5.1). In 2022 in New Zealand, 8 donors (13%) had a terminal serum creatinine concentration of ≥ 125 $\mu\text{mol/L}$.

Table 5.1 Terminal Serum Creatinine Concentration 2018–2022

Terminal Serum Creatinine ($\mu\text{mol/L}$)	Australia					New Zealand				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
0–99	75%	70%	78%	77%	72%	75%	75%	72%	80%	81%
100–124	7%	7%	5%	6%	9%	10%	10%	17%	5%	6%
125–149	5%	5%	4%	3%	4%	8%	4%	5%	7%	3%
150–174	2%	4%	2%	2%	2%	4%	3%	2%	2%	3%
175–199	2%	2%	2%	2%	2%	-	1%	2%	-	2%
200–224	1%	2%	1%	2%	0%	2%	-	-	-	2%
225–249	1%	1%	2%	1%	1%	-	1%	2%	2%	-
≥ 250	8%	9%	7%	6%	10%	2%	4%	2%	5%	3%

In Australia, 73 donors (16%) had a terminal serum urea concentration of ≥ 9 mmol/L and a creatinine concentration of ≥ 125 $\mu\text{mol/L}$. In New Zealand, 5 donors (8%) 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.

Table 5.2 Reasons for Kidney Not Retrieved in 2022

Reason	Australia	New Zealand
Intraoperative assessment	15	4
Post WCRS did not die in timeframe	0	0
Cardiac arrest prior to WCRS/X- Clamp	0	0
Surgical retrieval injury	1	0
Declined in offer process	57	0
Organ not offered - pathway	2	0
Organ not offered - age of donor	0	0
Organ not offered - not medically suitable	33	0
No consent from Coroner	0	0
Family withdrew consent	0	0
Total	108	4

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 - Australia 2018–2022

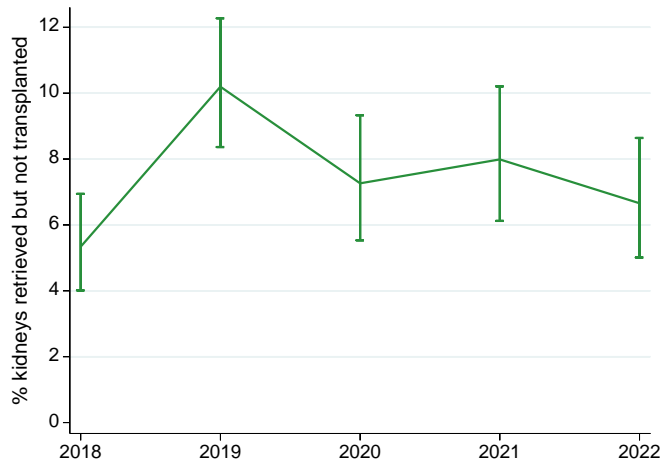
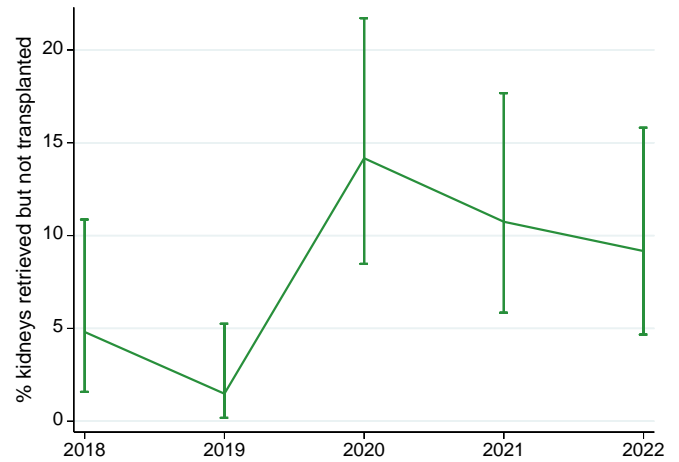


Figure 5.5.2 - Non-utilisation Rate of Retrieved Kidneys - New Zealand 2018–2022



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, 2021–2022

Country	Reason	2021	2022
Australia	Intraoperative assessment	27	16
	Assessment at transplant unit	20	21
	Surgical retrieval injury	3	2
	Other	6	9
Total		56	48
New Zealand	Intraoperative assessment	6	7
	Assessment at transplant unit	4	2
	Surgical retrieval injury	0	0
	Other	3	2
Total		13	11

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 kidney donors. 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, 2018–2022

Outcome of Request	2018	2019	2020	2021	2022
Total Donors	554	548	463	421	454
Kidneys Requested for Donation	1090	1076	888	817	892
Kidneys Not Requested for Donation	18	20	38	25	16
Kidneys with Consent Given	1086	1072	878	809	890
Kidneys with Consent Not Given	4	4	10	8	2
Kidneys Retrieved	985	974	771	726	782
Kidneys Not Retrieved	101	98	107	83	108
Kidneys Transplanted	922	872	715	668	729
Left Kidney Transplanted	446	423	349	322	354
Right Kidney Transplanted	426	419	344	322	347
Double/En Bloc Kidney Transplanted	50	30	22	24	28
Total Kidneys Not Used for Transplantation	63	102	56	58	53
Left Kidney Not Used	20	43	27	25	21
Right Kidney Not Used	32	48	25	29	27
Double/En Bloc Kidney Not Used	0	8	4	2	0
Kidneys Used for Research*	11	3	0	0	0
Kidneys Retrieved for Research**	0	0	0	0	1
Kidneys Retrieved for Transplantation and Used for Research***	0	0	0	2	4
Recipients Transplanted	897	857	704	656	715
Double Adult Kidney Procedures	20	9	6	7	12
En Bloc Kidney Procedures	5	6	5	5	2
Kidney Non-Utilisation Rate	5.3%	10.2%	7.3%	8.0%	6.7%
Kidney Utilisation Rate	94.7%	89.8%	92.7%	92.0%	93.3%

*Primary/Secondary Intention not recorded prior to Nov 2020

**Use for research primary intention of retrieval

**Use for research secondary intention of retrieval

Table 5.4.2 Outcome of Request for Kidney Donation in New Zealand, 2018–2022

Outcome of Request	2018	2019	2020	2021	2022
Total Donors	62	74	64	66	63
Kidneys Requested for Donation	122	142	126	128	124
Kidneys Not Requested for Donation	2	6	2	4	2
Kidneys with Consent Given	122	142	126	128	124
Kidneys with Consent Not Given	0	0	0	0	0
Kidneys Retrieved	104	135	120	121	120
Kidneys Not Retrieved	18	7	6	7	4
Kidneys Transplanted	99	133	103	108	109
Left Kidney Transplanted	48	64	48	50	50
Right Kidney Transplanted	49	63	49	46	49
Double/En Bloc Kidney Transplanted	2	6	6	12	10
Total Kidneys Not Used for Transplantation	5	2	17	13	11
Left Kidney Not Used	3	0	8	6	4
Right Kidney Not Used	2	0	7	9	5
Double/En Bloc Kidney Not Used	0	2	2	0	2
Kidneys Used for Research*	0	0	0	0	0
Kidneys Retrieved for Research**	0	0	0	0	0
Kidneys Retrieved for Transplantation and Used for Research***	0	0	0	0	0
Recipients Transplanted	98	130	100	102	104
Double Adult Kidney Procedures	1	3	3	1	4
En Bloc Kidney Procedures	0	0	0	5	1
Kidney Non-Utilisation Rate	4.8%	1.5%	14.2%	10.7%	9.2%
Kidney Utilisation Rate	95.2%	98.5%	85.8%	89.3%	90.8%

*Primary/Secondary Intention not recorded prior to Nov 2020

**Use for research primary intention of retrieval

**Use for research secondary intention of retrieval