



SECTION 2

Overview of Organ Donation Activity in Australia and New Zealand

SUMMARY

This section summaries organ donation in Australia and New Zealand. Figures reported here include the number of donors per million population; and number of transplant recipients and organs transplanted during 2021 in comparison to previous years.

Contents

Executive Summary2
Suggested Citation2
Actual Deceased Organ Donors3
Organ Donation Activity5
Organ Donation Pathway5
Organ Donation Overview5
Deceased Organ Donation Location8

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 COVID-19 pandemic significantly reduced activity in organ donation and transplantation across Australia and New Zealand, for a second year in a row in 2021. Experiences amongst jurisdictions were influenced by the differing rates of COVID-19 infections during the period.

Suggested Citation

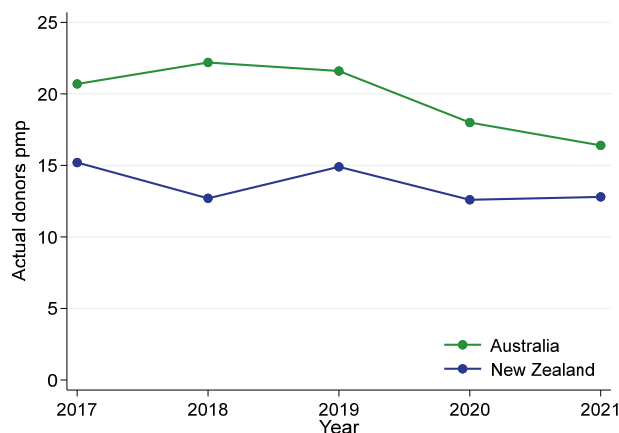
ANZOD Registry, 2022 Annual Report, Section 2. Overview of Organ Donation Activity in Australia and New Zealand. Australia and New Zealand Dialysis and Transplant Registry, Adelaide, Australia. 2022. Available at <https://www.anzdata.org.au/anzod>

Actual Deceased Organ Donors

Australian and New Zealand donor figures include all donors consented for organ and tissue donation who went to the operating theatre for the purpose of organ or tissue retrieval for transplantation. This is consistent with international reporting (World Health Organisation - Human Organ and Tissue Transplantation. http://www.who.int/ethics/topics/human_transplant/en/). These are termed “actual donors”.

The rate of deceased organ donors per million population (dpmp) fell in Australia to 16.4 dpmp in 2021, from 18.0 dpmp in 2020. In New Zealand, the rate rose to 12.8 dpmp in 2021, from 12.6 dpmp in 2020.

Figure 2.1 - Number of Actual Deceased Donors Per Million Population - Australia and New Zealand, 2017–2021



In Australia, there remains variation in organ donation rates between jurisdictions (Table 2.1). In 2021, rates varied from 8.1 dpmp in NT to 28.2 dpmp in SA.

Table 2.1 Number of Actual Deceased Donors (Rate Per Million Population) 2017–2021

State*/Country	2017 (dpmp)	2018 (dpmp)	2019 (dpmp)	2020 (dpmp)	2021 dpmp)
NSW**	135 (17.7)	151 (19.5)	144 (18.3)	122 (15.4)	109 (13.7)
VIC	148 (23.4)	193 (29.9)	162 (24.6)	131 (19.6)	110 (16.5)
QLD	105 (21.3)	94 (18.8)	106 (20.8)	86 (16.6)	91 (17.4)
SA	32 (18.6)	36 (20.7)	52 (29.7)	46 (26.0)	50 (28.2)
WA	54 (21.0)	41 (15.8)	52 (19.8)	49 (18.4)	44 (16.4)
TAS	19 (36.4)	14 (26.5)	18 (33.7)	13 (24.0)	7 (12.9)
NT	3 (12.1)	4 (16.2)	4 (16.3)	3 (12.2)	2 (8.1)
ACT**	14 (22.0)	21 (32.4)	10 (15.2)	13 (19.6)	8 (12.0)
AUS	510 (20.7)	554 (22.2)	548 (21.6)	463 (18.0)	421 (16.4)
NZ	73 (15.2)	62 (12.7)	74 (14.9)	64 (12.6)	66 (12.8)

This table relates to the number of donors for whom the retrieval operation commenced for the purpose of transplantation. It includes donors who may have been deemed medically unsuitable at the time of the surgery or after removal of organs.

* Refers to retrieval State (i.e., Albury-NSW donors are retrieved by Victoria)

** NSW population excludes residents of the NSW Southern Area Health Service (included in ACT population). Population Data - June 2021. Please refer to methodology section of this report for detail.

*** In 2019, death registrations increased in Victoria as a result of the of deaths from 2017 and 2018 that had previously not been reported.

The variation, since 1998, in the number of actual deceased donors by Australian state/territory and for New Zealand is shown in Figure 2.2.

Figure 2.2.1 - Number of Actual Deceased Donors Australian States and Territories 1998–2021

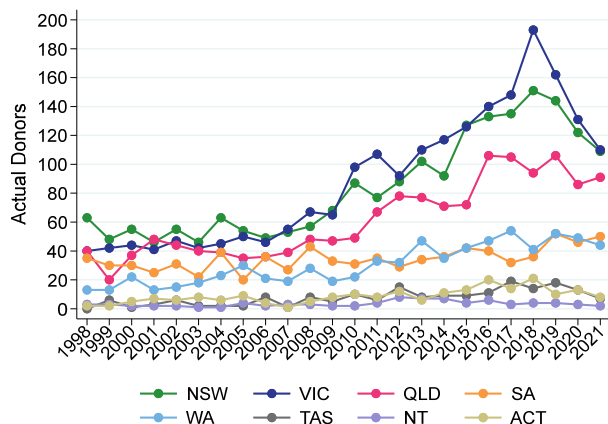
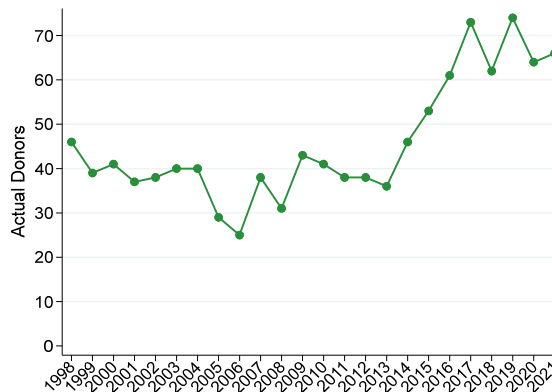
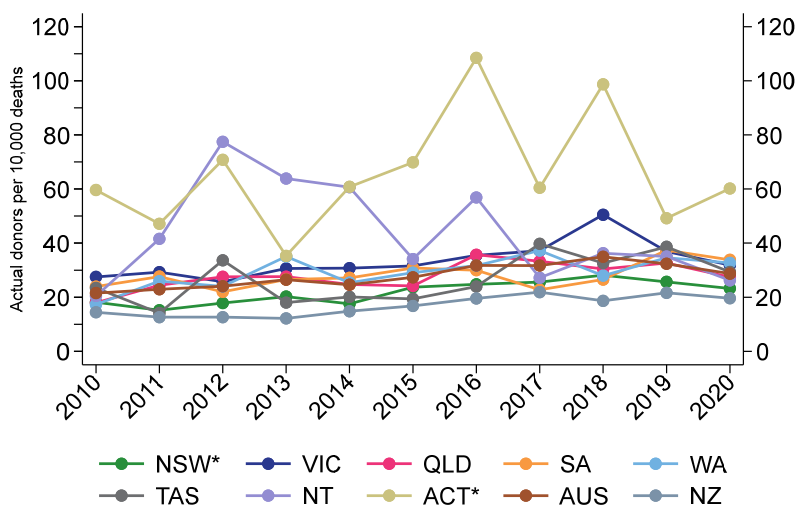


Figure 2.2.2 - Number of Actual Deceased Donors New Zealand, 1998–2021



There has been a steady decline in overall death rates among most ages in Australia over recent years. In many respects, using the number of deaths as the denominator to illustrate organ donation outcomes may be a more meaningful comparator. Rates for various jurisdictions using this metric are shown in Figure 2.3 and Table 2.2.

Figure 2.3 - Number of Actual Deceased Donors Per 10,000 Deaths - Australian States/Territories and New Zealand, 2010–2020



*NSW and ACT values are not adjusted for the NSW Southern Area Health Service, as death data were not available. Australian data on deaths 2020 was the latest release at the time of this publication. Australian Bureau of Statistics - Deaths 3302.0 and Statistics New Zealand.

Table 2.2 Actual Deceased Donors per 10,000 Deaths Aged < 75 Years, 2016–2020 () is the % Deaths < 75 years as a proportion of all deaths*

Year	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Australia	New Zealand
2016	76 (32%)	113 (31%)	95 (37%)	96 (31%)	88 (36%)	65 (37%)	80 (71%)	313 (35%)	94 (34%)	32 (62%)
2017	79 (32%)	120 (31%)	90 (37%)	72 (32%)	100 (37%)	113 (35%)	37 (73%)	180 (34%)	94 (34%)	35 (62%)
2018	85 (33%)	160 (32%)	81 (37%)	83 (32%)	74 (38%)	94 (35%)	53 (68%)	290 (34%)	102 (34%)	30 (63%)
2019	78 (33%)	111 (33%)	88 (37%)	118 (32%)	95 (36%)	109 (35%)	52 (68%)	151 (33%)	94 (34%)	35 (62%)
2020	71 (33%)	100 (32%)	74 (37%)	107 (32%)	88 (37%)	82 (36%)	38 (70%)	176 (34%)	84 (34%)	31 (63%)

*The number of actual donors is compared to the number of deaths that are aged less than 75 years. Australian Bureau of Statistics - Deaths 3302.0 and Statistics New Zealand. Australian data on deaths in 2020 was the latest release at the time of this publication.

Organ Donation Activity

Figure 2.4 shows the number of actual deceased organ donors, organs transplanted, transplant recipients and transplantation procedures as per million population over time for Australia and New Zealand.

Figure 2.4.1 - Total Number of Actual Deceased Organ Donors, Procedures, Recipients and Organ Transplanted Per Million Population, Australia, 1998-2021

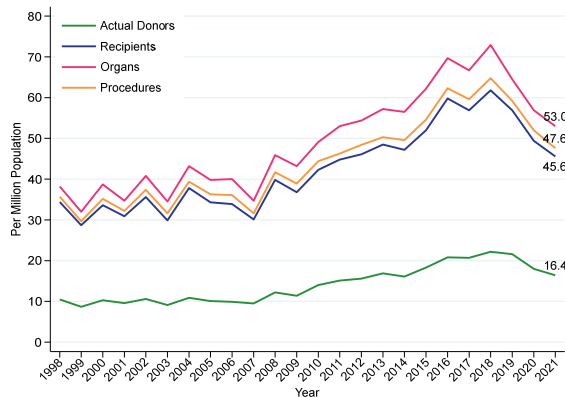
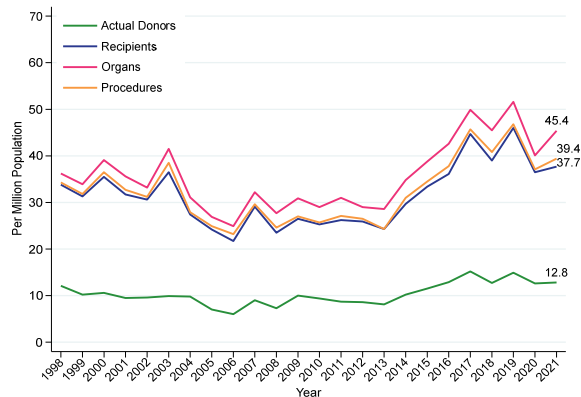


Figure 2.4.2 - Total Number of Actual Deceased Organ Donors, Procedures, Recipients and Organ Transplanted Per Million Population, New Zealand, 1998-2021



Organ Donation Pathway

Much of the increase in donor numbers has arisen from changes in rates of donors after circulatory death (DCD), demonstrated in Figure 2.5.

Figure 2.5.1 - Organ Donation Pathway Australia 1998-2021

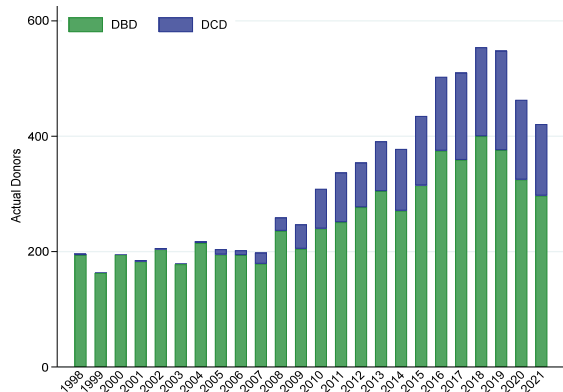
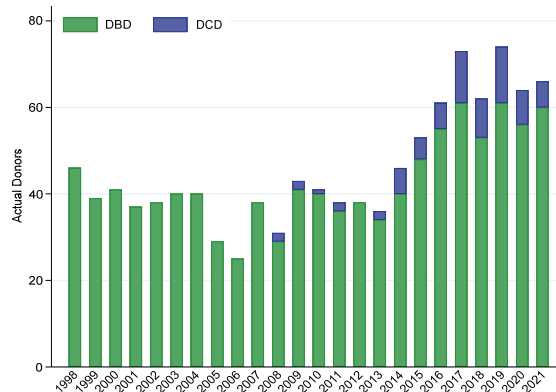


Figure 2.5.2 - Organ Donation Pathway New Zealand 1998-2021



Organ Donation Overview

Tables 2.3 and 2.4 show the number (and rate) of recipients who received various organs from donors in 2021.

Table 2.3 Australia Overview - 2021 (pmp) per million population*

Population (million)	25.7
Actual Deceased Organ Donors (pmp)	421 (16.4)
Kidney Transplant Recipients from deceased donors- includes all combinations (pmp)	656 (25.5)
Liver Transplant Recipients from deceased donors- includes all combinations (pmp)	252 (9.8)
Heart Transplant Recipients from deceased donors- includes all combinations (pmp)	112 (4.4)
Lung Transplant Recipients from deceased donors- includes all combinations (pmp)	167 (6.5)
Pancreas Transplant Recipients from deceased donors- includes all combinations (pmp)	37 (1.4)
Intestine Transplant Recipients from deceased donors- includes all combinations (pmp)	2 (0.1)
Total Number of Transplanted Recipients (pmp)**	1173 (45.6)
Total Number of Organs Transplanted (pmp)***	1363 (53.0)

*By donor country, recipients/organs from Australian donors.

**The total number of recipients includes all combinations of multi-organ transplants as a single count of transplantation.

***The total number of transplanted organs differs from total number of transplant recipients as each organ is counted as a single organ transplant.

Table 2.4 New Zealand Overview - 2021 (pmp) per million population*

Population (million)	5.2
Actual Deceased Organ Donors (pmp)	66 (12.8)
Kidney Transplant Recipients from deceased donors- includes all combinations (pmp)	102 (19.7)
Liver Transplant Recipients from deceased donors- includes all combinations (pmp)	52 (10.1)
Heart Transplant Recipients from deceased donors- includes all combinations (pmp)	14 (2.7)
Lung Transplant Recipients from deceased donors- includes all combinations (pmp)	30 (5.8)
Pancreas Transplant Recipients from deceased donors- includes all combinations (pmp)	6 (1.2)
Total Number of Transplanted Recipients (pmp)**	195 (37.7)
Total Number of Organs Transplanted (pmp)***	235 (45.4)

*By donor country, recipients/organs from New Zealand donors.

**The total number of recipients includes all combinations of multi-organ transplants as a single count of transplantation.

***The total number of transplanted organs differs from total number of transplant recipients as each organ is counted as a single organ transplant.

Table 2.5 shows the number (and rate) of various organs transplanted by jurisdiction of donation.

Table 2.5 Number of Organs Transplanted in 2021 by State & Country (pmp) in Australia and New Zealand

Organs	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUSRALIA	NEW ZEALAND
Kidney	179	171	149	68	72	10	4	15	668¹ (26.0)	108² (20.9)
Liver	63	60	60	28	18	4	1	4	238³ (9.2)	49⁴ (9.5)
Heart	35	25	29	10	7	3	1	2	112 (4.4)	14 (2.7)
Lung	73	85	74	28	33	7	0	6	306⁵ (11.9)	58⁶ (11.2)
Pancreas	9	9	8	7	3	0	0	1	37 (1.4)	6 (1.2)
Intestine	0	2	0	0	0	0	0	0	2 (0.1)	0 (0.0)
Total	359	352	320	141	133	24	6	28	1,363 (53.0)	235 (45.4)

The kidneys and lungs are counted as two separate organs (i.e., left and right kidney; left and right lung).

¹ Includes 644 single kidney, seven double adult kidney and five en-bloc kidney transplant procedures in Australia.

² Includes 96 single kidney, one double adult kidney and five en-bloc kidney transplant procedures in New Zealand.

³ Includes 223 whole liver, 28 split liver and on reduced size liver transplant procedures in Australia.

⁴ Includes 46 whole liver, six split liver and no reduced size liver transplant procedures in New Zealand.

⁵ Includes 139 double lung and 28 single lung transplant procedures in Australia.

⁶ Includes 28 double lung and two single lung transplant procedures in New Zealand.

The mean number of organs transplanted per donor is calculated from the number of organs retrieved from actual donors for the purpose of transplantation and subsequently transplanted, divided by the number of actual donors. The number of organs transplanted per donor each year from 2004-2021 in Australia and New Zealand is shown in Figure 2.6. The mean number of transplant organs per deceased donor across Australia ranged from 2.8 in SA to 3.5 in QLD.

Figure 2.6 - Number of Organs Transplanted per Donor 2004–2021

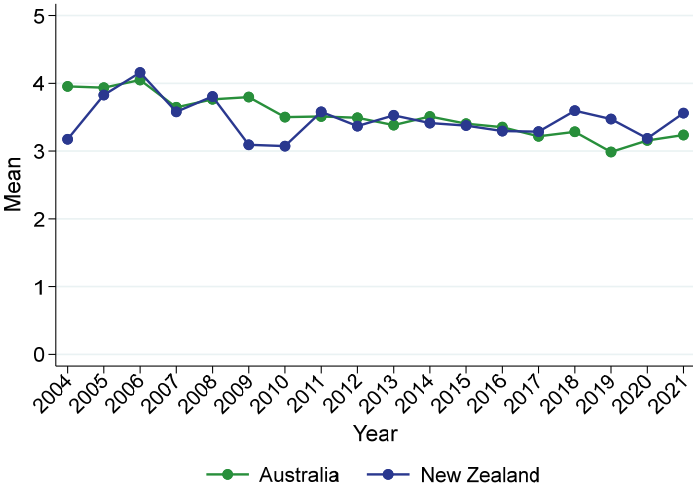


Figure 2.7 shows the organ-specific transplant rates for Australia and New Zealand over the period 1998–2021 (rates are of organ transplants per million population).

Figure 2.7.1 - Organs Transplanted 1998–2021 Per Million Population, Australia

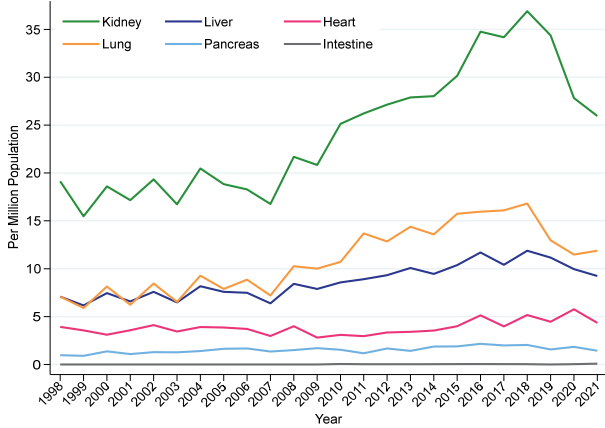


Figure 2.7.2 - Organs Transplanted 1998–2021 Per Million Population, New Zealand

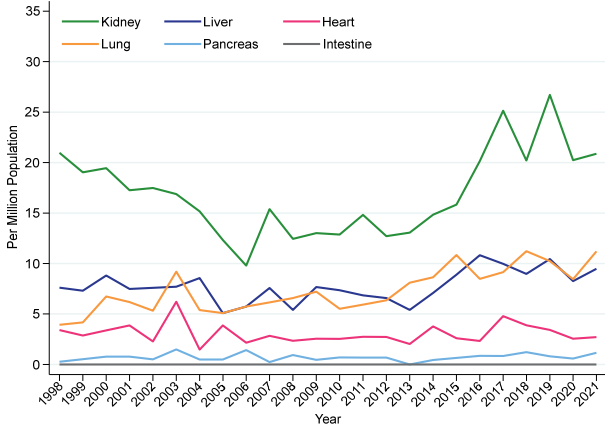


Figure 2.8 shows the corresponding rates for donation after circulatory death for Australia and New Zealand. Transplantation of organs from DCD has contributed to a significant increase in the rate of kidney transplantation and, in Australia, lung transplantation.

Figure 2.8.1 - Organs Transplanted from DCD Donors, 1998–2021 Per Million Population, Australia

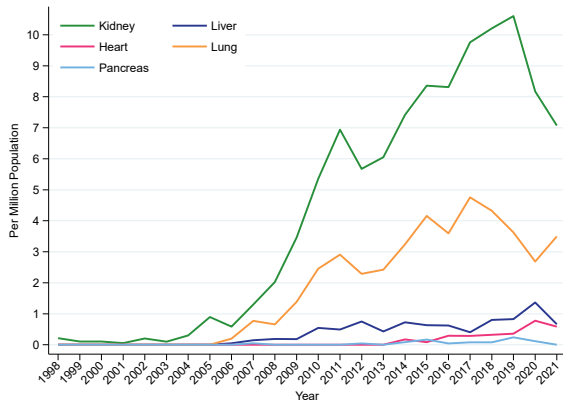


Figure 2.8.2 - Organs Transplanted from DCD Donors 1998–2021 Per Million Population, New Zealand

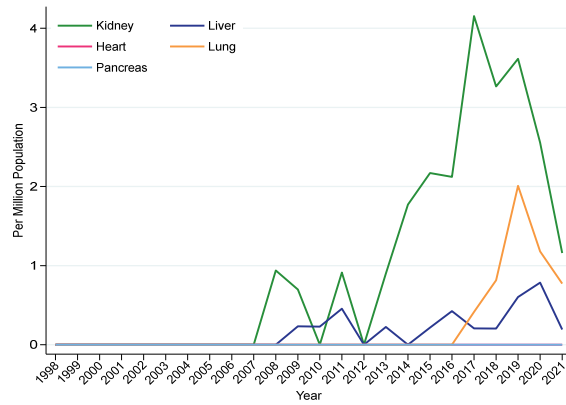


Figure 2.9 shows the corresponding rates for donation after brain death for Australia and New Zealand.

Figure 2.9.1 - Organs Transplanted from DBD Donors, 1998–2021 Per Million Population, Australia

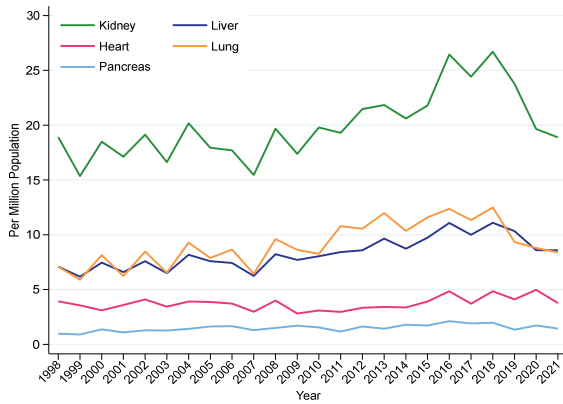
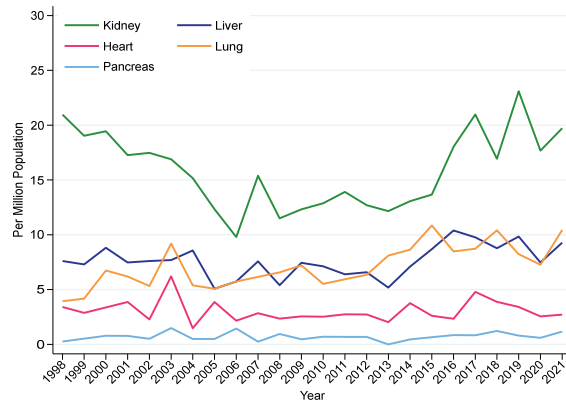


Figure 2.9.2 - Organs Transplanted from DBD Donors, 1998–2021 Per Million Population, New Zealand



Deceased Organ Donation Location

The number of deceased donors reported are based on the State/Territory/Country in which the donor died. Appendix 1 shows a more detailed breakdown of the number of donors by retrieval hospital.

Table 2.6 details the number and proportion of donors in Australia for 2017–2021 by the remoteness category of their postcode of residence. “Overseas” refers to donors who usually reside outside of Australia. The ABS standardised remoteness structure, known as the Accessibility/Remoteness Index of Australia (ARIA), is used (<http://www.abs.gov.au/websitedbs/D3310114.nsf/home/remoteness+structure>). Postcode was allocated to remoteness area based on the population weighted correspondence '2017 Postcode to 2016 Remoteness Area'. This is from 1270.0.55.005 - Australian Statistical Geography Standard (ASGS): Volume 5 - Remoteness Structure, July 2016.

In 2021, there were one deceased donor in Australia who were considered overseas visitors.

Postcode information was not collected for deceased donors in New Zealand.

Table 2.6 Location of Postcodes of Deceased Donors 2017–2021

Remoteness Area of Postcode	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUSTRALIA
Major Cities of Australia	460 (70%)	512 (69%)	272 (57%)	147 (68%)	194 (81%)	0 (0%)	1 (6%)	46 (71%)	1,632 (66%)
Inner Regional Australia	149 (23%)	188 (25%)	122 (25%)	41 (19%)	15 (6%)	48 (68%)	1 (6%)	14 (22%)	578 (23%)
Outer Regional Australia	40 (6%)	32 (4%)	71 (15%)	19 (9%)	11 (5%)	19 (27%)	11 (69%)	4 (6%)	207 (8%)
Remote Australia	1 (<1%)	1 (<1%)	7 (1%)	5 (2%)	8 (3%)	2 (3%)	1 (6%)	0 (0%)	25 (1%)
Very Remote Australia	0 (0%)	0 (0%)	3 (1%)	1 (<1%)	8 (3%)	2 (3%)	2 (13%)	0 (0%)	16 (1%)
Overseas	7 (1%)	7 (1%)	5 (1%)	2 (1%)	4 (2%)	0 (0%)	0 (0%)	1 (2%)	26 (1%)
Total	657	740	480	215	240	71	16	65	2,484