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# SECTION 2

## Overview of Organ Donation Activity in Australia and New Zealand

This section summarises organ donation and transplant activity in Australia and New Zealand. Information is provided about the numbers and rates of deceased donors and resulting transplants over time and across jurisdictions.

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## EXECUTIVE SUMMARY

Organ donation after death (deceased organ donation) can occur via two 'pathways'. Donation after the neurological determination of death (DNDD) is when donation occurs after death has been determined using criteria that indicate the irreversible cessation of all brain function, also termed brain death. Donation after the circulatory determination of death (DCDD) is when donation occurs after death has been determined using criteria that indicate the irreversible (permanent) cessation of circulation of blood.

Donation activity varies between regions and over time. The number of actual donors and resulting organs transplanted or transplant recipients can be compared, as well as rates. Internationally, the (living) population is often used to determine rates, although the number of deaths is arguably a more relevant denominator for comparing deceased donation activity.

The following provides comparative data between regions and over time for donation and transplantation activity in Australia and New Zealand.

## SUGGESTED CITATION

H Opdam, C Davies, K Marshall, G Irish 28<sup>th</sup> Report, Section 2: Overview of Organ Donation Activity in Australia and New Zealand. Australia and New Zealand Organ Donation Registry, Adelaide, Australia. 2024.

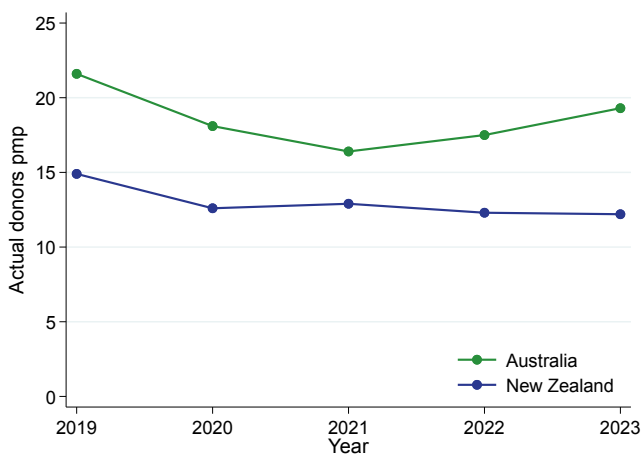
Available at <https://www.anzdata.org.au/anzod/publications-2/annual-reports/>

# ACTUAL DECEASED ORGAN DONORS

The following figures include all actual organ donors, defined as those for whom consent for donation was provided and the organ retrieval procedure commenced in the operating room (with surgical incision) for the purpose of organ donation for transplantation. This definition of a deceased organ donor is consistent with international reporting (World Health Organisation: Human Organ and Tissue Transplantation. <https://www.who.int/publications/m/item/global-glossary-on-donation-and-transplantation>)

Worldwide practice for comparing donation activity is to relate the number of donors to the living population. The rate of actual deceased organ donors per million population (dpmp) rose in Australia to 19.3 dpmp in 2023, from 17.5 in 2022. In New Zealand, the rate fell to 12.2 dpmp in 2023, from 12.3 dpmp in 2022.

**Figure 2.1**  
**Number of Actual Deceased Donors Per Million Population - Australia and New Zealand, 2019-2023**



In Australia, there is variation in deceased organ donation rates between jurisdictions (Table 2.1). In 2023, rates varied from 11.3 dpmp in ACT to 36.7 dpmp in TAS.

**Table 2.1**  
**Number of Actual Deceased Donors (Rate Per Million Population) 2019-2023**

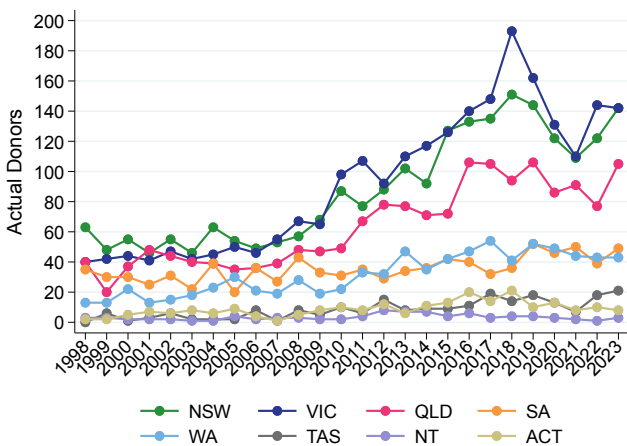
State */ Country	2019	2020	2021	2022	2023
NSW**	144 (18.4)	122 (15.5)	109 (13.9)	122 (15.4)	142 (17.5)
VIC	162 (24.8)	131 (19.8)	110 (16.8)	144 (21.7)	142 (20.8)
QLD	106 (20.8)	86 (16.6)	91 (17.4)	77 (14.5)	105 (19.2)
SA	52 (29.4)	46 (25.7)	50 (27.7)	39 (21.4)	49 (26.5)
WA	52 (19.6)	49 (18.1)	44 (16.0)	43 (15.4)	43 (14.9)
TAS	18 (32.9)	13 (23.3)	7 (12.3)	18 (31.5)	21 (36.7)
NT	4 (16.2)	3 (12.1)	2 (8.1)	1 (4.0)	3 (11.9)
ACT**	10 (15.0)	13 (19.1)	8 (11.6)	10 (14.3)	8 (11.3)
<b>Aus</b>	<b>548 (21.6)</b>	<b>463 (18.1)</b>	<b>421 (16.4)</b>	<b>454 (17.5)</b>	<b>513 (19.3)</b>
<b>NZ</b>	<b>74 (14.9)</b>	<b>64 (12.6)</b>	<b>66 (12.9)</b>	<b>63 (12.3)</b>	<b>64 (12.2)</b>

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 the removal of organs.

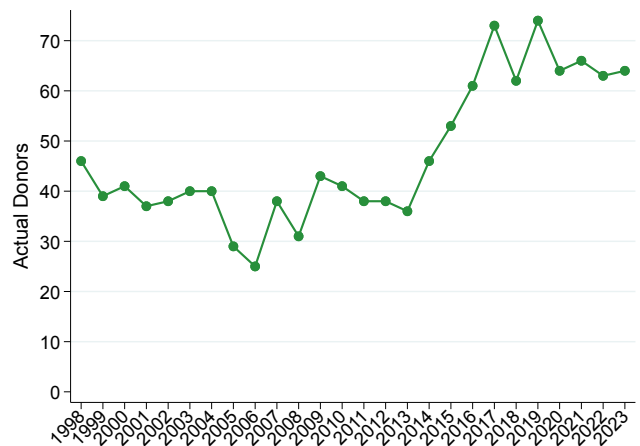
\* Refers to retrieval State (i.e. Albury-NSW donors are retrieved by Victoria)  
 \*\* NSW population excludes residents of the NSW Southern Area Health Service (included in ACT population).  
 Population Data - June 2023. Please refer to the methodology section of this report for detail.

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

**Figure 2.2.1**  
**Number of Actual Deceased Donors Australian States and Territories 1998-2023**

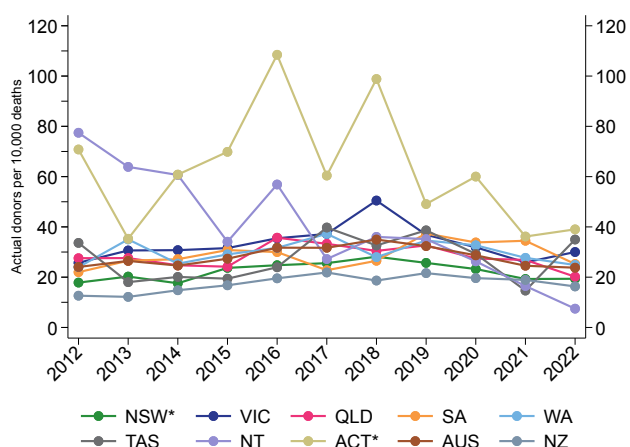


**Figure 2.2.2**  
**Number of Actual Deceased Donors New Zealand, 1998-2023**



There has been a steady decline in the overall death rates amongst most age groups 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. The number of deaths under the age of 75 years is more reflective of the donor pool, as per Table 2.2.

**Figure 2.3**  
**Number of Actual Deceased Donors Per 10,000 Deaths - Australian States/Territories and New Zealand, 2012-2022**



\* NSW and ACT values are not adjusted for the NSW Southern Area Health Service, as death data were not available. Australian data on deaths 2022 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, 2018-2022**  
**( ) is the % deaths < 75 years as a proportion of all deaths\***

Year	NSW	VIC**	QLD	SA	WA	TAS	NT	ACT	AUS	NZ
2018	85 (33%)	160 (32%)	81 (37%)	83 (32%)	74 (38%)	94 (35%)	53 (68%)	291 (34%)	102 (34%)	51 (37%)
2019	78 (33%)	111 (33%)	88 (37%)	118 (32%)	95 (36%)	109 (35%)	52 (68%)	150 (33%)	94 (34%)	59 (37%)
2020	71 (33%)	100 (32%)	74 (37%)	107 (32%)	88 (37%)	82 (36%)	38 (69%)	175 (34%)	84 (34%)	53 (37%)
2021	61 (32%)	82 (32%)	75 (36%)	111 (31%)	79 (35%)	43 (34%)	25 (65%)	105 (35%)	74 (33%)	52 (36%)
2022	64 (30%)	99 (30%)	60 (34%)	84 (30%)	72 (35%)	101 (34%)	11 (66%)	117 (33%)	75 (32%)	47 (35%)

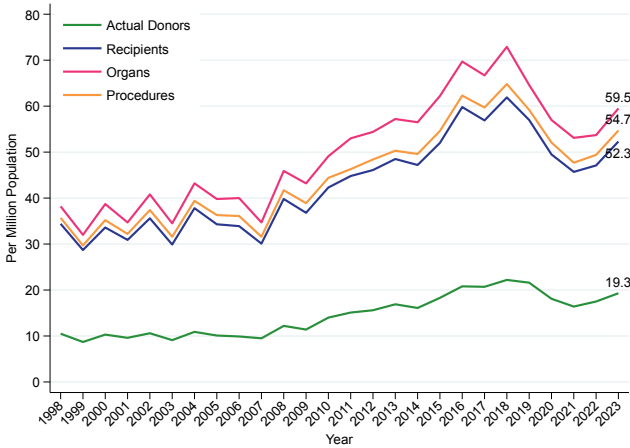
\*The number of actual donors is compared to the number of deaths that are aged less than 75 years.

\*\* In 2019, death registrations increased in Victoria as a result of deaths from 2017 and 2018 that had previously not been reported. Australian Bureau of Statistics - Deaths 3302.0 and Statistics New Zealand. Australian data on deaths in 2022 was the latest release at the time of this publication.

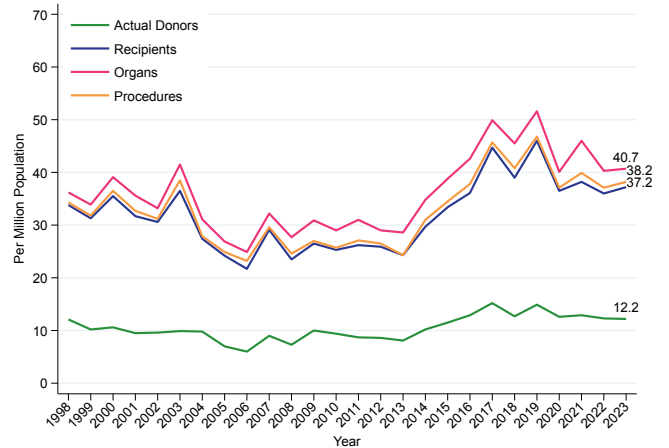
# ORGAN DONATION ACTIVITY

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

**Figure 2.4.1**  
**Total Number of Actual Deceased Organ Donors, Procedures, Recipients and Organ Transplanted pmp, Australia, 1998-2023**



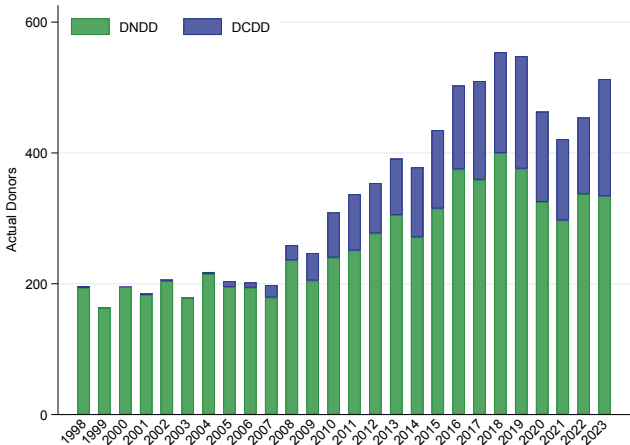
**Figure 2.4.2**  
**Total Number of Actual Deceased Organ Donors, Procedures, Recipients and Organ Transplanted pmp, New Zealand, 1998-2023**



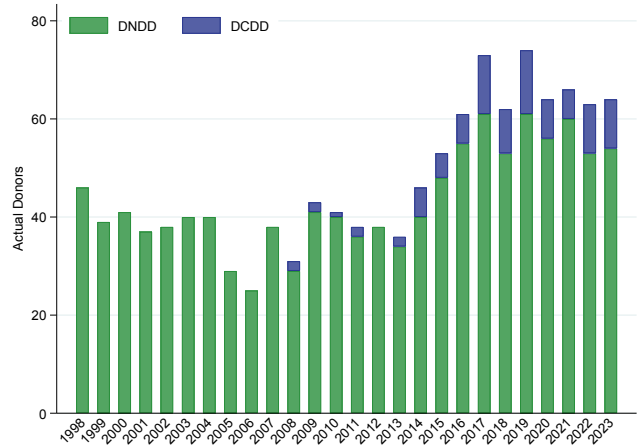
# ORGAN DONATION PATHWAY

Donation has risen through both an increase in donor after neurological determination of death (DNDD), also known as donation after brain death, and also the uptake of donation after circulatory determination of death (DCDD), see Figure 2.5.

**Figure 2.5.1**  
**Organ Donation Pathway Australia 1998-2023**



**Figure 2.5.2**  
**Organ Donation Pathway New Zealand 1998-2023**



# ORGAN DONATION OVERVIEW

Tables 2.3 and 2.4 show the number (and rate) of recipients by organ type who received transplants from deceased donors in 2023.

**Table 2.3**  
**Australia Overview - 2023 (pmp) per million population\***

<b>Population (million)</b>	<b>26.6</b>
<b>Actual Deceased Organ Donors - both DNDD &amp; DCDD included (pmp)</b>	<b>513 (19.3)</b>
Kidney Transplant Recipients (pmp)	829 (31.1)
Liver Transplant Recipients (pmp)	287 (10.8)
Heart Transplant Recipients (pmp)	129 (4.8)
Lung Transplant Recipients (pmp)	164 (6.2)
Pancreas Transplant Recipients (pmp)	46 (1.7)
Intestine Transplant Recipients (pmp)	1 (0.0)
<b>Total Number of Transplanted Recipients (pmp)**</b>	<b>1394 (52.3)</b>
<b>Total Number of Organs Transplanted (pmp)***</b>	<b>1586 (59.5)</b>

\*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 the total number of transplant recipients as each organ is counted as a single organ transplant.

**Table 2.4**  
**New Zealand Overview - 2023 (pmp) per million population\***

<b>Population (million)</b>	<b>5.2</b>
<b>Actual Deceased Organ Donors - both DNDD &amp; DCDD included (pmp)</b>	<b>64 (12.2)</b>
Kidney Transplant Recipients (pmp)	101 (19.3)
Liver Transplant Recipients (pmp)	55 (10.5)
Heart Transplant Recipients (pmp)	16 (3.1)
Lung Transplant Recipients (pmp)	25 (4.8)
Pancreas Transplant Recipients (pmp)	3 (0.6)
<b>Total Number of Transplanted Recipients (pmp)**</b>	<b>195 (37.2)</b>
<b>Total Number of Organs Transplanted (pmp)***</b>	<b>213 (40.7)</b>

\*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 the total number of transplant recipients as each organ is counted as a single organ transplant.



## ORGAN TRANSPLANTS

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

**Table 2.5**  
**Number of Organs Transplanted in 2023 by State & Country (pmp) in Australia and New Zealand**

Organs	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUS	NZ
Kidney	242	218	183	69	70	34	6	16	838 <sup>1</sup> (31.5)	102 <sup>2</sup> (19.5)
Liver	76	66	63	24	22	9	2	6	268 <sup>3</sup> (10.1)	52 <sup>4</sup> (9.9)
Heart	41	32	24	12	14	2	0	4	129 (4.8)	16 (3.1)
Lung	67	84	66	28	33	22	0	4	304 <sup>5</sup> (11.4)	40 <sup>6</sup> (7.6)
Pancreas	16	10	9	6	2	2	0	1	46 (1.7)	3 (0.6)
Intestine	0	1	0	0	0	0	0	0	1 (0.0)	0 (0.0)
<b>Total</b>	<b>442</b>	<b>411</b>	<b>345</b>	<b>139</b>	<b>141</b>	<b>69</b>	<b>8</b>	<b>31</b>	<b>1,586 (59.4)</b>	<b>213 (40.7)</b>

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

<sup>1</sup> Includes 820 single kidney, 5 double adult kidney and 4 en-bloc kidney transplant procedures in Australia.

<sup>2</sup> Includes 100 single kidney, 1 double adult kidney and 0 en-bloc kidney transplant procedures in New Zealand.

<sup>3</sup> Includes 244 whole liver, 38 split liver and 5 reduced size liver transplant procedures in Australia.

<sup>4</sup> Includes 48 whole liver, 6 split liver and 1 reduced size liver transplant procedures in New Zealand.

<sup>5</sup> Includes 140 double lung and 24 single lung transplant procedures in Australia.

<sup>6</sup> Includes 15 double lung and 10 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 2004-2023 in Australia and New Zealand is shown in Figure 2.6. The mean number of transplant organs per deceased donor across Australian states ranged from 2.7 in NT to 3.9 in ACT.

**Figure 2.6**  
**Number of Organs Transplanted per Donor 2004-2023**

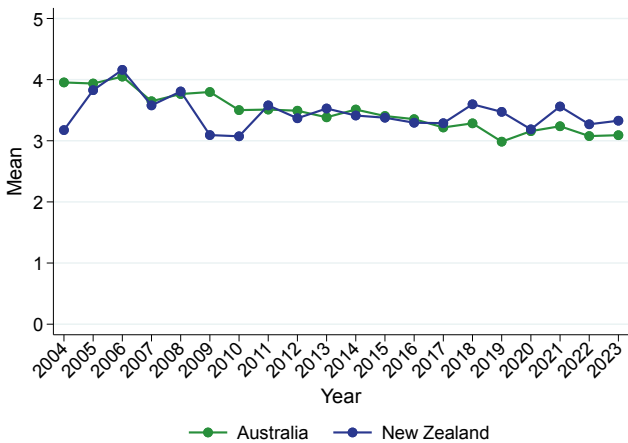
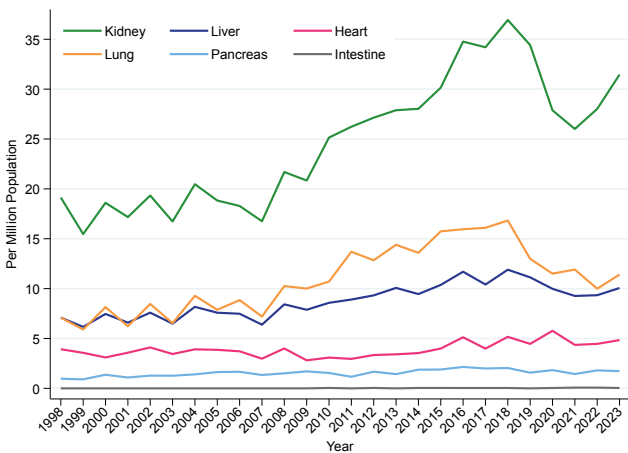


Figure 2.7 shows the organ-specific transplant rates for Australia and New Zealand over the period 1998-2023 (rates are of organ transplants pmp).

**Figure 2.7.1**  
**Organs Transplanted 1998-2023 Per Million Population, Australia**



**Figure 2.7.2**  
**Organs Transplanted 1998-2023 Per Million Population, New Zealand**

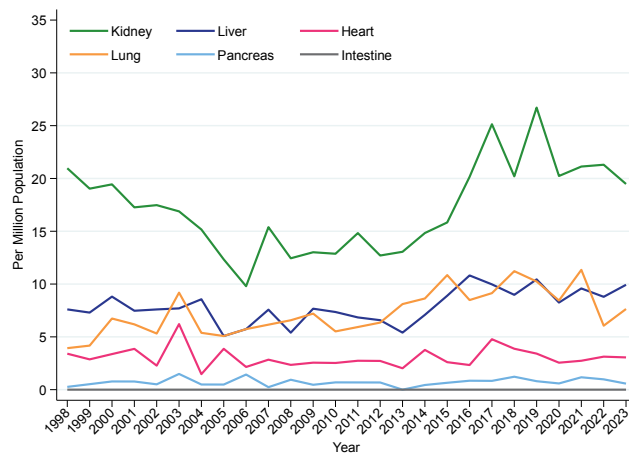
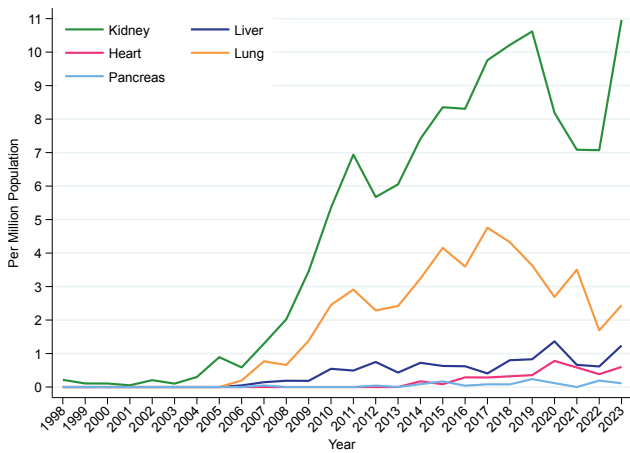


Figure 2.8 shows the rates for DCDD donors in Australia and New Zealand. Transplantation of DCDD organs has contributed to a significant increase in the rate of kidney transplantation and, in Australia, lung transplantation.

**Figure 2.8.1**  
**Organs Transplanted from DCDD Donors, 1998-2023**  
**Per Million Population, Australia**



**Figure 2.8.2**  
**Organs Transplanted from DCDD Donors, 1998-2023**  
**Per Million Population, New Zealand**

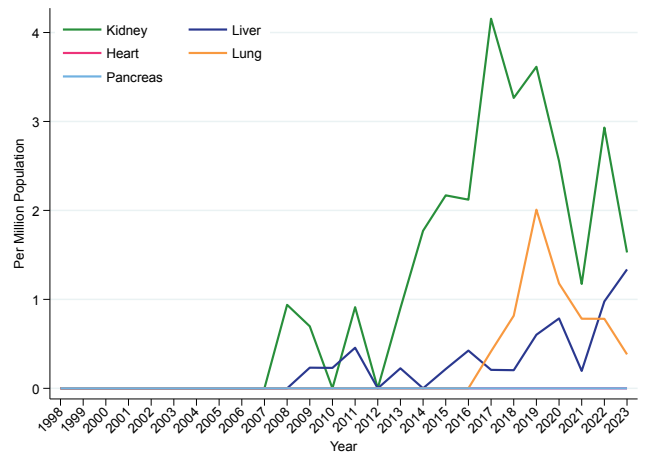
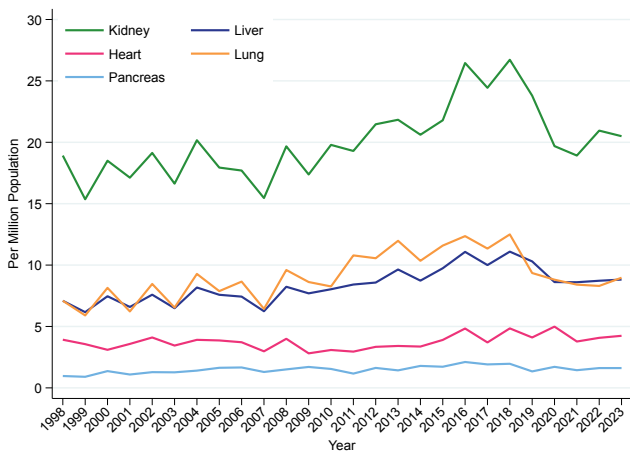
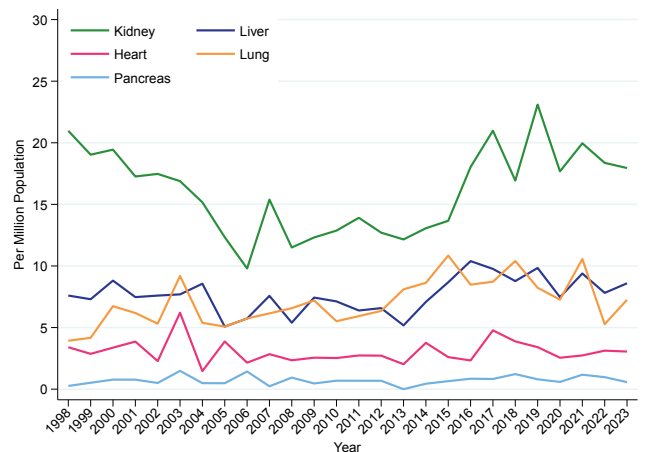


Figure 2.9 shows the corresponding rates for DNDD donors in Australia and New Zealand.

**Figure 2.9.1**  
**Organs Transplanted from DNDD Donors, 1998-2023**  
**Per Million Population, Australia**



**Figure 2.9.2**  
**Organs Transplanted from DNDD Donors, 1998-2023**  
**Per Million Population, New Zealand**



## DECEASED ORGAN DONATION LOCATION

The number of deceased donors reported is 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 2019–2023 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 2023, there were 4 deceased donors in Australia who were considered overseas visitors.

**Table 2.6**  
**Location of Postcodes in Australia of Deceased Donors 2019–2023**

Remoteness Area of Postcode	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUS
Major Cities	460 (73%)	463 (68%)	253 (55%)	165 (71%)	183 (80%)	1 (1%)	0 (0%)	35 (71%)	<b>1,560 (66%)</b>
Inner Regional	140 (22%)	174 (26%)	121 (26%)	38 (16%)	18 (8%)	51 (67%)	1 (8%)	10 (20%)	<b>553 (23%)</b>
Outer Regional	29 (5%)	35 (5%)	75 (16%)	23 (10%)	13 (6%)	20 (26%)	11 (85%)	3 (6%)	<b>209 (9%)</b>
Remote	3 (<1%)	1 (<1%)	5 (1%)	6 (3%)	6 (3%)	3 (4%)	0 (0%)	1 (2%)	<b>25 (1%)</b>
Very Remote	0 (0%)	0 (0%)	4 (1%)	1 (<1%)	5 (2%)	1 (1%)	1 (8%)	0 (0%)	<b>12 (1%)</b>
Overseas	2 (<1%)	9 (1%)	4 (1%)	1 (<1%)	3 (1%)	0 (0%)	0 (0%)	0 (0%)	<b>19 (1%)</b>
<b>Total</b>	<b>634</b>	<b>682</b>	<b>462</b>	<b>234</b>	<b>228</b>	<b>76</b>	<b>13</b>	<b>49</b>	<b>2,378</b>



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Overview of Organ Donation Activity  
in Australia and New Zealand