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# SECTION 6

## Deceased Donor Liver and Intestine Donation

This section summarises liver and intestinal donation activity from deceased donors in 2023, compared with previous years. The rate of liver transplant procedures in 2023 was 10.2 pmp in Australia and 9.6 pmp in New Zealand.

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## EXECUTIVE SUMMARY

Every organ donor provides a precious opportunity for the chance of an improved quality of life and survival through transplantation. It is important to understand the donation and transplant outcomes including the specific organs consented for donation, the organs retrieved and whether they were transplanted or not (non-utilised). This section provides information about the outcomes for liver and intestinal donation and transplantation from deceased actual organ donors.

## SUGGESTED CITATION

H Opdam, C Davies, K Marshall, G Irish 28<sup>th</sup> Report, Section 6: Deceased Donor Liver and Intestine Donation. Australia and New Zealand Organ Donation Registry, Adelaide, Australia. 2024. [Available at https://www.anzdata.org.au/anzod/publications-2/annual-reports/](https://www.anzdata.org.au/anzod/publications-2/annual-reports/)

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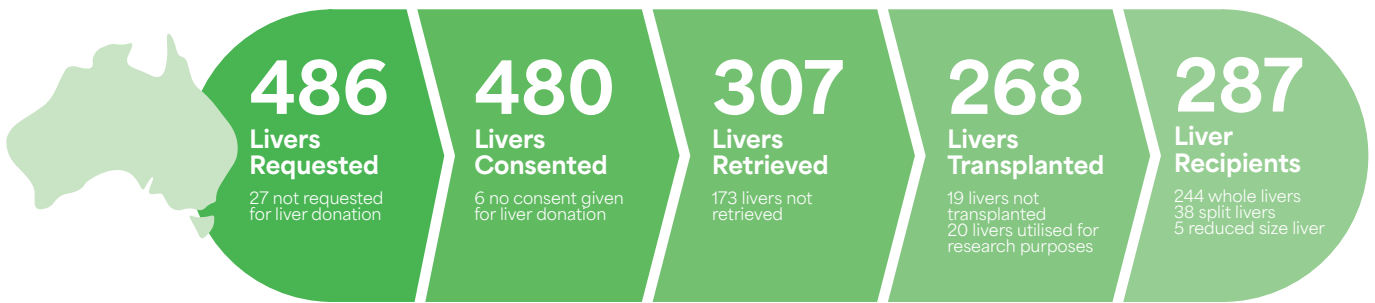
# LIVER DONATION

Of the 513 actual deceased organ donors in Australia in 2023, 307 (59.8%) had the liver retrieved. From these liver donors, there were 287 recipients in Australia. 7 recipients received a combined liver/single kidney transplant, 1 received a combined liver/double lung, 1 received a combined liver/double lung/pancreas, 1 received a combined liver/kidney/pancreas and 1 received a combined liver/pancreas/intestine.

38 partial liver transplants were performed in Australia using 19 livers and the 'split' liver technique (transplanting one liver into two recipients) and 5 recipients received a 'reduced size' liver.

The rate of liver transplants in Australia for 2023 was 10.8 per million population (pmp). Figure 6.1.1 shows the outcomes of requests for liver donation in Australia.

**Figure 6.1.1**  
**Outcomes of requests for liver donation in Australia - 2023**



In New Zealand there were 52 livers retrieved, and 52 utilised for transplantation into 55 liver recipients. Of these, there were 6 split liver transplants performed and 1 reduced size livers transplanted. 2 recipients received a combined liver/kidney transplant.

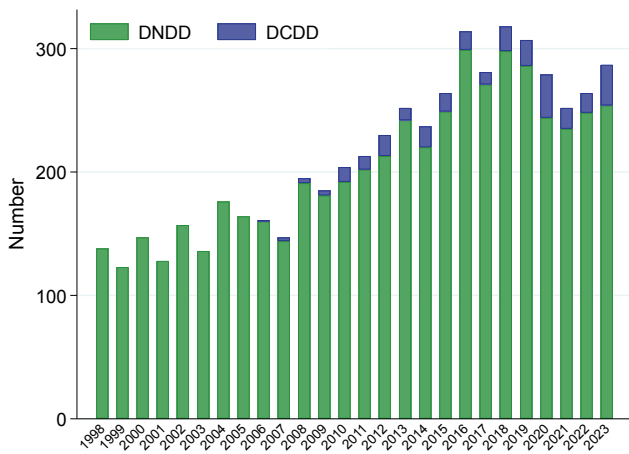
In 2023 in New Zealand, there was a rate of 10.5 liver transplant procedures per million population (pmp). Figure 6.1.2 shows the outcomes of requests for liver donation in New Zealand.

**Figure 6.1.2**  
**Outcomes of requests for liver donation in New Zealand - 2023**

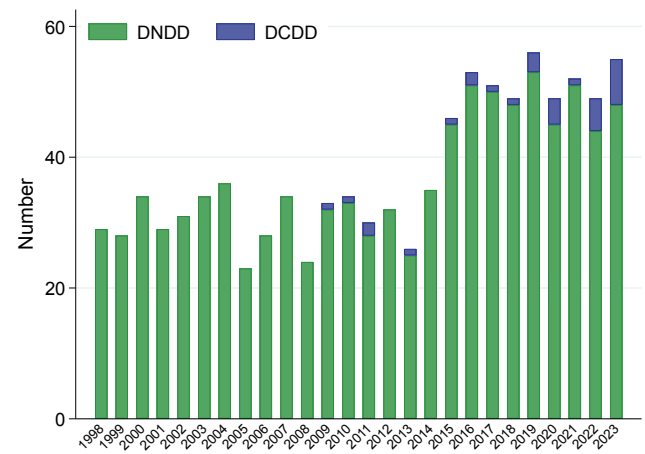


Figure 6.2 shows the number of recipients of liver transplants by donation pathway in Australia and New Zealand from 1998 to 2023. Figure 6.3 compares the number of deceased donor liver recipients by transplant region for 2022 and 2023.

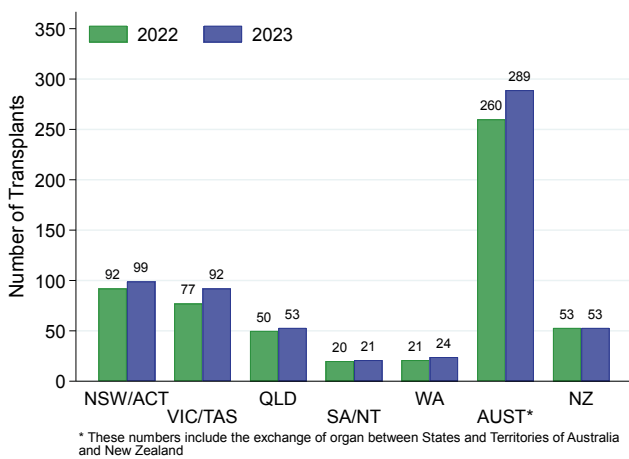
**Figure 6.2.1**  
**Recipients of Liver Transplantation by Donation Pathway Australia 1998-2023**



**Figure 6.2.2**  
**Recipients of Liver Transplantation by Donation Pathway New Zealand 1998-2023**



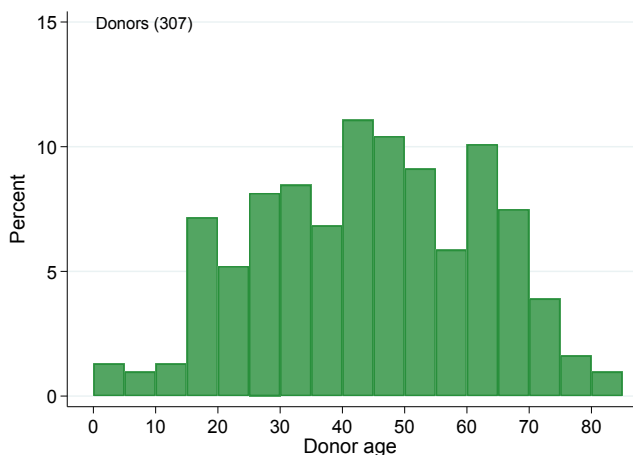
**Figure 6.3**  
**Deceased Donor Liver Transplant Recipients\* by Transplant Region, Australia and New Zealand, 2022-2023**



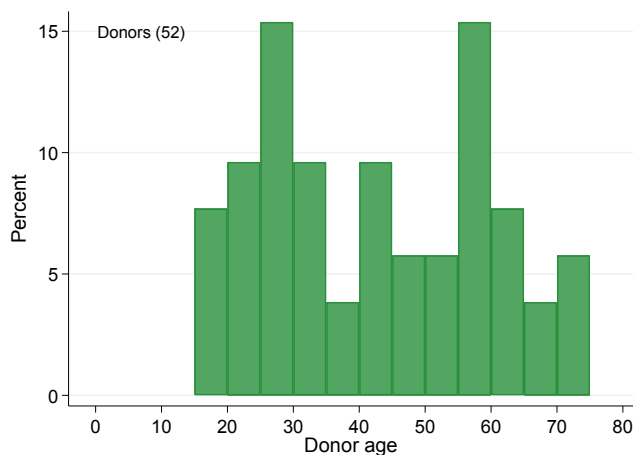
# AGE OF LIVER DONORS

The age distribution of donors providing retrieved livers for Australia and New Zealand is shown in Figure 6.4.

**Figure 6.4.1**  
*Age of Donors Providing Retrieved Livers Australia 2023*



**Figure 6.4.2**  
*Age of Donors Providing Retrieved Livers New Zealand 2023*



## DONOR LIVER FUNCTION

Table 6.1 shows the number of donors whose liver function was above the normal range prior to donation.

**Table 6.1**  
**Number of Donors with Liver Function Tests Above Normal 2023**

Liver Function Tests	Australia		New Zealand	
	Donors with value recorded*	Above Normal	Donors with value recorded*	Above Normal
Alanine Transaminase ALT > 40 µ/L	295	150	52	26
Aspartate Transaminase AST > µ/L	277	170	49	28
Gamma Glutamyl Transferase GGT > 60 µ/L	295	117	52	16
Alkaline Phosphatase > 116 µ/L	295	66	51	6
Total Bilirubin > 20 µmol/L	295	30	52	5
All 5 tests completed	277	.	48	.
At least 1 test completed	295	.	52	.

\*Not all donors have all tests reported

## LIVERS NOT RETRIEVED

Table 6.2 provides a breakdown of the reasons why livers were not retrieved.

**Table 6.2**  
**Reasons for Liver Not Retrieved 2023**

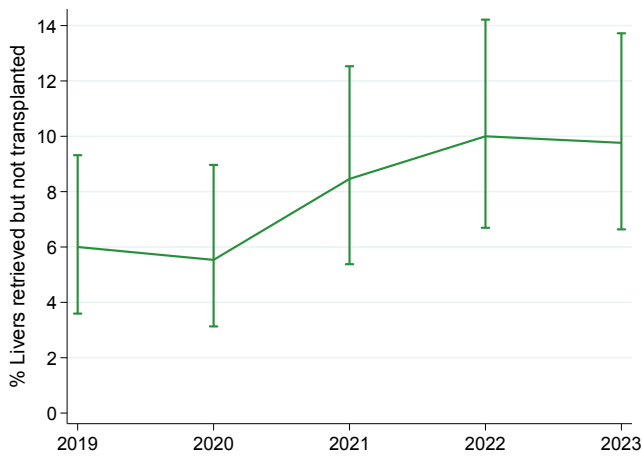
Reason	Australia	New Zealand
Intraoperative assessment	29	3
Post WCRS* did not die in timeframe	8	0
Cardiac arrest prior to WCRS*/X- Clamp	0	0
Surgical retrieval injury	0	0
Declined in offer process	99	6
Organ not offered - pathway	3	0
Organ not offered - age of donor	6	0
Organ not offered - not medically suitable	26	0
No consent from Coroner	2	0
Family withdrew consent	0	0
<b>Total</b>	<b>173</b>	<b>9</b>

\*WCRS - Withdrawal of cardio-respiratory support

# LIVERS RETRIEVED AND NOT UTILISED FOR TRANSPLANTATION

Figure 6.5 shows the non-utilisation rate of retrieved livers – the proportion of livers that were retrieved for the purpose of organ transplantation, but not ultimately transplanted into a recipient (either due to an absence of suitable recipients, or the liver being found to be medically or surgically unsuitable after retrieval). Organ donation for the purpose of research is excluded when calculating a specific organ’s non-utilisation rate for transplantation.

**Figure 6.5.1**  
**Non-utilisation Rate of Retrieved Livers - Australia 2019-2023**



**Figure 6.5.2**  
**Non-utilisation Rate of Retrieved Livers - New Zealand 2019-2023**

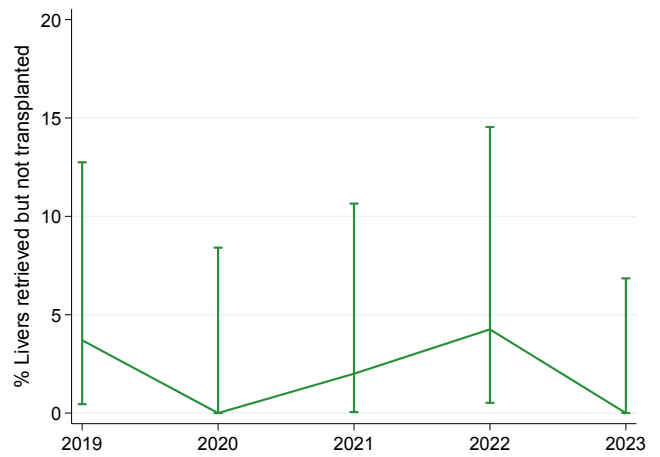


Table 6.3 tabulates the reasons livers were not used after retrieval for the purpose of transplantation since 2021.

Of the reduced size liver transplants since 2021, 6 were orphaned split liver procedures due to the recipient of the other split liver being unwell (2), the other split liver having no suitable recipients (1), not being suitable in intraoperative assessment (2) or not being suitable at transplant unit assessment (1).

**Table 6.3**  
**Reasons Liver Retrieved & Not Utilised for Transplantation, 2021 - 2023**

Country	Reason	2021	2022	2023
Australia	Intraoperative assessment	5	6	8
	Assessment at transplant unit	11	13	10
	Surgical retrieval injury	0	0	0
	Other	2	2	1
	<b>Total</b>	<b>18</b>	<b>21</b>	<b>19</b>
New Zealand	Intraoperative assessment	0	0	0
	Assessment at transplant unit	1	0	0
	Surgical retrieval injury	0	0	0
	Other	0	1	0
	<b>Total</b>	<b>1</b>	<b>1</b>	<b>0</b>



# OUTCOME OF LIVER DONATION

The outcome of liver donation activity in Australia and New Zealand through the donation process is shown in table 6.4.

**Table 6.4.1**  
**Outcome of Request for Liver Donation in Australia, 2019-2023**

Outcome of Request	2019	2020	2021	2022	2023
<b>Total Donors</b>	<b>548</b>	<b>463</b>	<b>421</b>	<b>454</b>	<b>513</b>
Liver Requested for Donation	499	432	393	428	486
Liver Not Requested for Donation	49	31	28	26	27
Liver Consent Given	491	427	386	418	480
Liver Consent Not Given	8	5	7	10	6
<b>Liver Retrieved</b>	<b>304</b>	<b>280</b>	<b>270</b>	<b>275</b>	<b>307</b>
Liver Not Retrieved	187	147	116	143	173
<b>Total Livers Transplanted</b>	<b>282</b>	<b>256</b>	<b>238</b>	<b>243</b>	<b>268</b>
Whole Liver Not Used	18	15	18	21	19
Intended Split Liver (L) Not Used	0	0	0	0	0
Intended Split Liver (R) Not Used	1	0	1	3	3
Liver Used for Research*	4	8	0	0	0
Liver Retrieved for Research**	0	1	10	5	10
Liver Retrieved for Transplantation and Used for Research***	0	0	4	6	10
<b>Recipients Transplanted</b>	<b>307</b>	<b>279</b>	<b>252</b>	<b>264</b>	<b>287</b>
Whole Liver Transplants	252	233	223	219	244
Split Liver Transplants	50	46	28	42	38
Reduced Size Liver Transplants	5	0	1	3	5
<b>Liver Non-Utilisation Rate</b>	<b>6.0%</b>	<b>5.5%</b>	<b>8.5%</b>	<b>10.0%</b>	<b>9.8%</b>
<b>Liver Utilisation Rate</b>	<b>94.0%</b>	<b>94.5%</b>	<b>91.5%</b>	<b>90.0%</b>	<b>90.2%</b>

\*Primary/Secondary Intention not recorded prior to Nov 2020

\*\*Use for research primary intention of retrieval

\*\*\*Use for research secondary intention of retrieval

**Table 6.4.2**  
**Outcome of Request for Liver Donation in New Zealand, 2019-2023**

Outcome of Request	2019	2020	2021	2022	2023
Total Donors	74	64	66	63	64
Liver Requested for Donation	72	59	61	61	62
Liver Not Requested for Donation	2	5	5	2	2
Liver Consent Given	72	59	61	61	61
Liver Consent Not Given	0	0	0	0	1
Liver Retrieved	54	42	50	47	52
Liver Not Retrieved	18	17	11	14	9
Total Livers Transplanted	52	42	49	45	52
Whole Liver Not Used	2	0	1	1	0
Intended Split Liver (L) Not Used	0	0	0	0	0
Intended Split Liver (R) Not Used	0	0	0	0	1
Liver Used for Research*	0	0	0	0	0
Liver Retrieved for Research**	0	0	0	0	0
Liver Retrieved for Transplantation and Used for Research***	0	0	0	1	0
Recipients Transplanted	56	49	52	49	55
Whole Liver Transplants	47	35	46	41	48
Split Liver Transplants	8	14	6	8	6
Reduced Size Liver Transplants	1	0	0	0	1
Liver Non-Utilisation Rate	3.7%	0.0%	2.0%	4.3%	0.0%
Liver Utilisation Rate	96.3%	100.0%	98.0%	95.7%	100.0%

\*Primary/Secondary Intention not recorded prior to Nov 2020

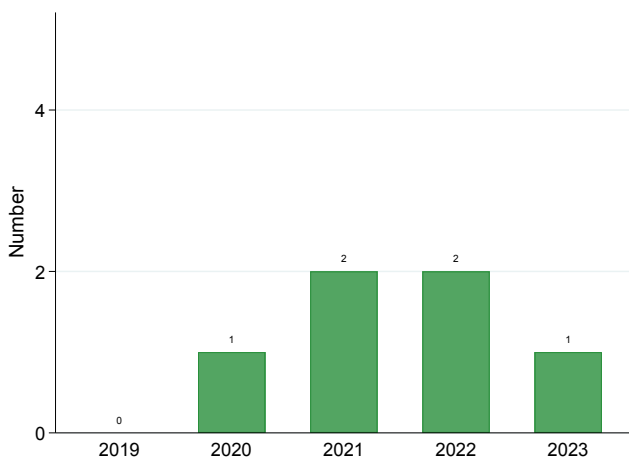
\*\*Use for research primary intention of retrieval

\*\*\*Use for research secondary intention of retrieval

# INTESTINE DONATION

Patients with irreversible intestinal failure and who are developing severe complications from parenteral nutrition can benefit from intestinal transplantation. Intestinal transplants are infrequent in Australia. Only 8 intestinal transplants have been performed in Australia since 2010. Figure 6.6 shows intestinal transplants since 2019. There have been no intestines retrieved and not utilised for the purpose of transplantation.

**Figure 6.6**  
**Intestine Transplants - Australia 2019-2023**





# SECTION 6

Deceased Donor Liver and  
Intestine Donation