



SECTION 6

Deceased Donor Liver and Intestine Donation

SUMMARY

This section summarises liver donation activity from deceased donors in 2022, compared with previous years. The rate of liver transplant procedures in 2022 was 10.2 pmp in Australia and 9.6 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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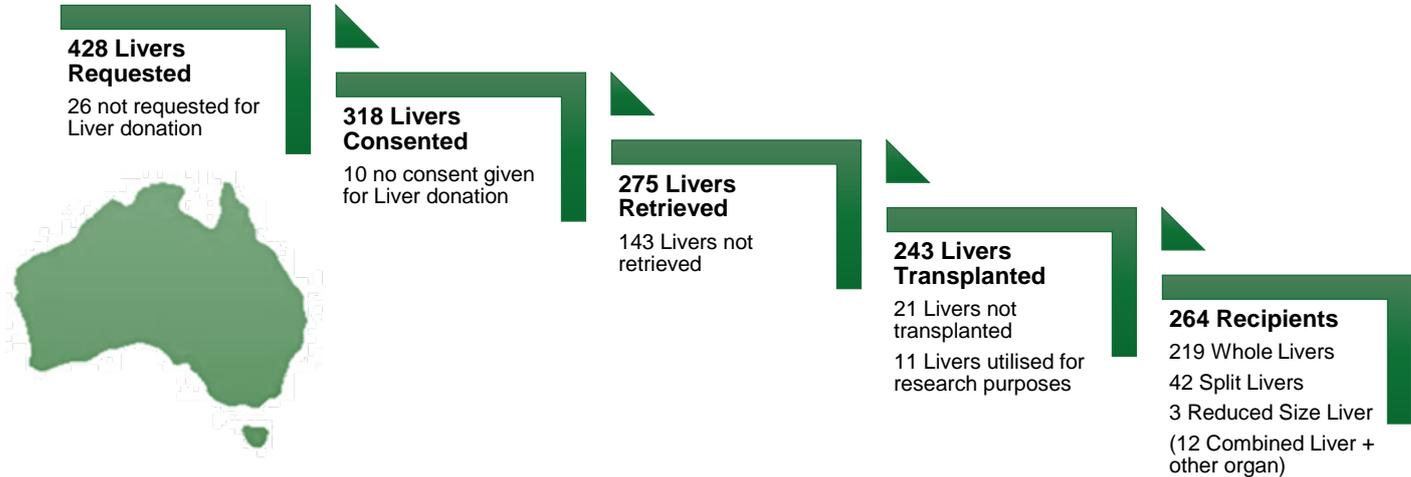
Liver Donation

Of the 454 deceased organ donors in Australia in 2022, 275 (60.6%) had the liver retrieved. From these liver donors, there were 264 recipients in Australia. 9 recipients received a combined liver/single kidney transplant, 1 received a combined liver/double/en-bloc kidney transplant and 2 received a combined liver/pancreas/intestine.

42 partial liver transplants were performed in Australia using 21 livers and the 'split' liver technique (transplanting one liver into two recipients) and 3 recipients received a 'reduced size' liver.

The rate of liver transplants in Australia for 2022 was 10.2 per million population (pmp). Figure 6.1.1 shows the outcomes of requests for liver donation in Australia.

6.1.1 Outcomes of Request for Liver Donation from Actual Donors in Australia 2022



In New Zealand there were 47 livers retrieved, and 45 utilised for transplantation into 49 liver recipients. Of these, there were 8 split liver transplants performed. 1 recipient received a combined liver/kidney transplant and 1 recipient received a combined liver/pancreas transplant.

In 2022 in New Zealand, there was a rate of 9.6 liver transplant procedures per million population (pmp). Figure 6.1.2 shows the outcomes of requests for liver donation in New Zealand.

6.1.2 Outcomes of Request for Liver Donation from Actual Donors in New Zealand 2022

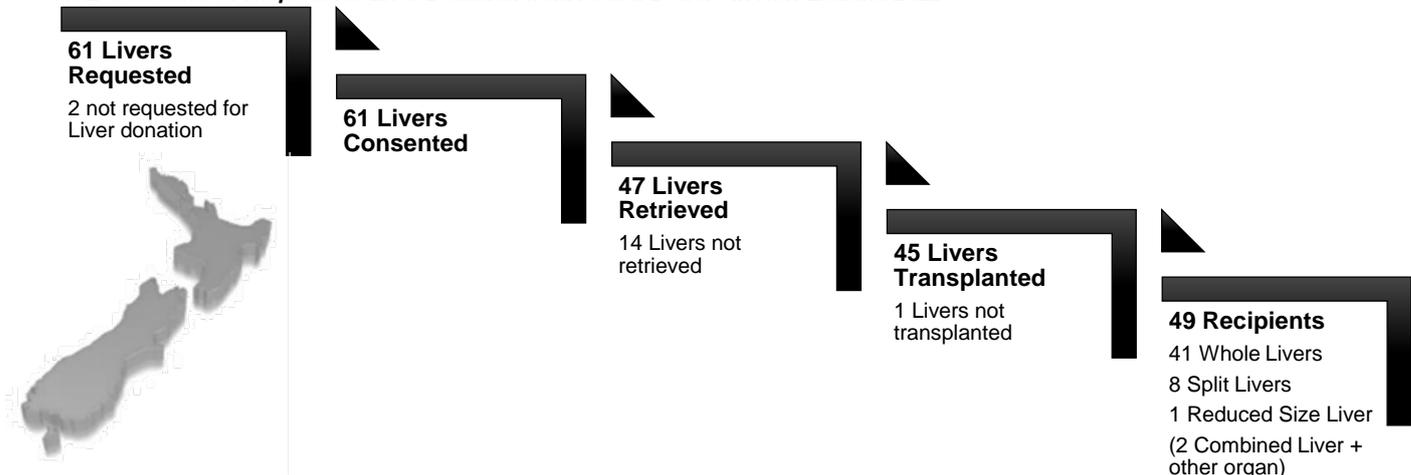


Figure 6.2 shows the number of recipients of liver transplants by donation pathway in Australia and New Zealand from 1998 to 2022. Figure 6.3 compares the number of deceased donor liver recipients by transplant region for 2021 and 2022.

Figure 6.2.1 - Recipients of Liver Transplantation by Donation Pathway Australia 1998–2022

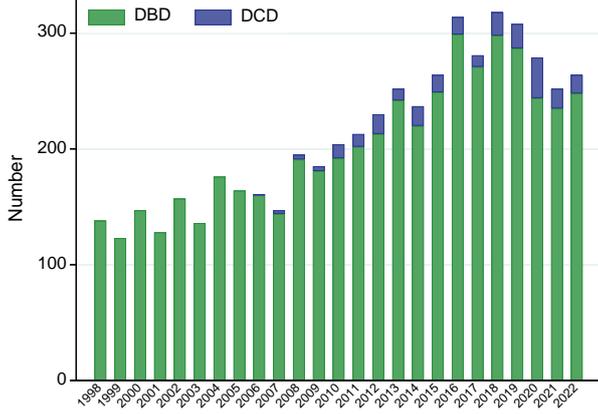


Figure 6.2.2 - Recipients of Liver Transplantation by Donation Pathway New Zealand 1998–2022

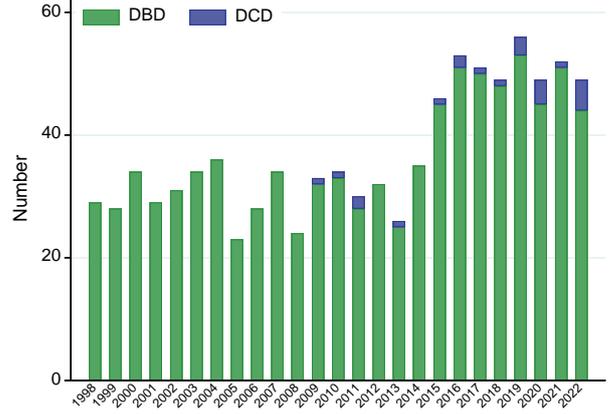
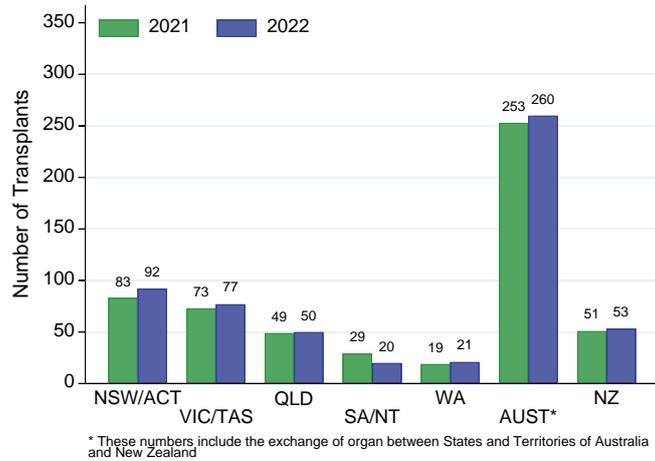


Figure 6.3 - Deceased Donor Liver Transplant Recipients* by Transplant Region, Australia and New Zealand, 2021–2022



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 2022

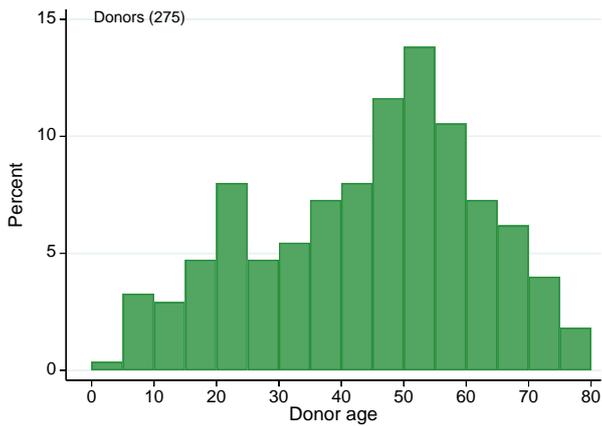
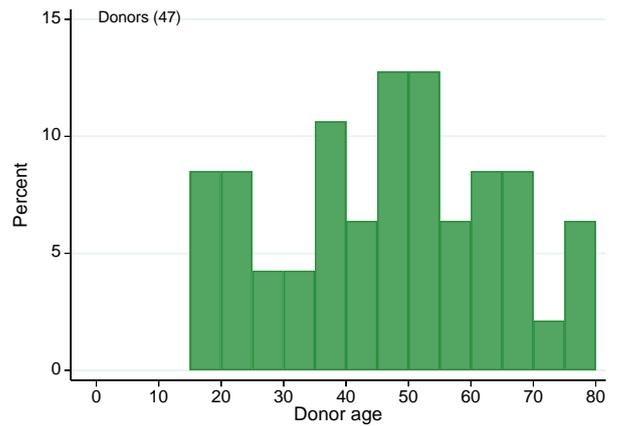


Figure 6.4.2 - Age of Donors Providing Retrieved Livers New Zealand 2022



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 2022

Liver Function Tests	Australia		New Zealand	
	Donors with value recorded*	Above Normal	Donors with value recorded*	Above Normal
Alanine Transaminase ALT > 40 µ/L	267	135	46	18
Aspartate Transaminase AST > µ/L	244	149	45	23
Gamma Glutamyl Transferase GGT > 60 µ/L	267	98	47	12
Alkaline Phosphatase > 116 µ/L	267	51	47	2
Total Bilirubin > 20 µmol/L	266	38	46	6
All 5 tests completed	244	.	44	.
At least 1 test completed	267	.	47	.

*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 2022

Reason	Australia	New Zealand
Intraoperative assessment	26	5
Post WCRS did not die in timeframe	4	2
Cardiac arrest prior to WCRS/X- Clamp	0	0
Surgical retrieval injury	0	1
Declined in offer process	81	6
Organ not offered - pathway	7	0
Organ not offered - age of donor	11	0
Organ not offered - not medically suitable	13	0
No consent from Coroner	1	0
Family withdrew consent	0	0
Total	143	14

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 solid 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 2018–2022

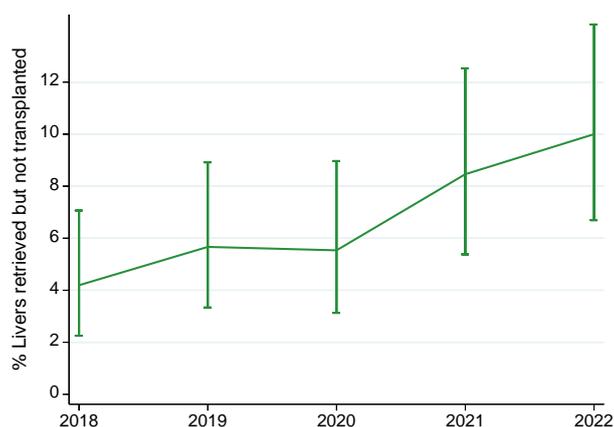


Figure 6.5.2 - Non-utilisation Rate of Retrieved Livers - New Zealand 2018–2022

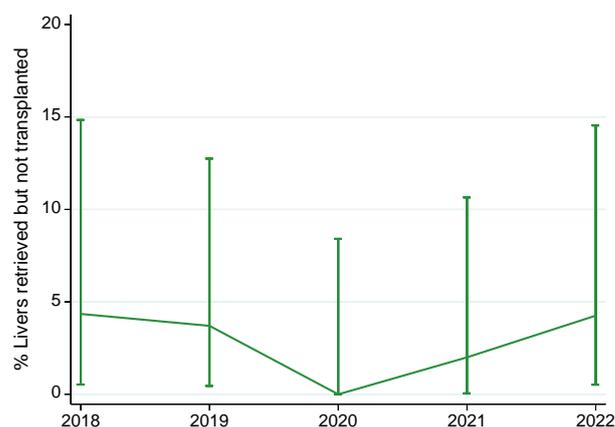


Table 6.3 tabulates the reasons livers were not used after retrieval for the purpose of transplantation since 2021.

Of the reduced size liver transplants since 2021, 4 were orphaned split liver procedures due to 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 – 2022

Country	Reason	2021	2022
Australia	Intraoperative assessment	5	6
	Assessment at transplant unit	11	13
	Surgical retrieval injury	0	0
	Other	2	2
	Total	18	21
New Zealand	Intraoperative assessment	0	0
	Assessment at transplant unit	1	0
	Surgical retrieval injury	0	0
	Other	0	1
	Total	1	1

Outcome of Liver Donation

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

Table 6.4.1 Outcome of Request for Liver Donation in Australia, 2018–2022

Outcome of Request	2018	2019	2020	2021	2022
Total Donors	554	548	463	421	454
Liver Requested for Donation	497	499	432	393	428
Liver Not Requested for Donation	57	49	31	28	26
Liver Consent Given	493	491	427	386	418
Liver Consent Not Given	4	8	5	7	10
Liver Retrieved	312	304	280	270	275
Liver Not Retrieved	181	187	147	116	143
Total Livers Transplanted	297	283	256	238	243

Whole Liver Not Used	13	17	15	18	21
Intended Split Liver (L) Not Used	2	0	0	0	0
Intended Split Liver (R) Not Used	1	1	0	1	3
Liver Used for Research*	2	4	8	0	0
Liver Retrieved for Research**	0	0	1	10	5
Liver Retrieved for Transplantation and Used for Research***	0	0	0	4	6
Recipients Transplanted	318	308	279	252	264
Whole Liver Transplants	270	253	233	223	219
Split Liver Transplants	42	50	46	28	42
Reduced Size Liver Transplants	6	5	0	1	3
Liver Non-Utilisation Rate	4.2%	5.7%	5.5%	8.5%	10.0%
Liver Utilisation Rate	95.8%	94.3%	94.5%	91.5%	90.0%

*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, 2018–2022

Outcome of Request	2018	2019	2020	2021	2022
Total Donors	62	74	64	66	63
Liver Requested for Donation	61	72	59	61	61
Liver Not Requested for Donation	1	2	5	5	2
Liver Consent Given	61	72	59	61	61
Liver Consent Not Given	0	0	0	0	0
Liver Retrieved	46	54	42	50	47
Liver Not Retrieved	15	18	17	11	14
Total Livers Transplanted	44	52	42	49	45
Whole Liver Not Used	2	2	0	1	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	0	1
Recipients Transplanted	49	56	49	52	49
Whole Liver Transplants	39	47	35	46	41
Split Liver Transplants	10	8	14	6	8
Reduced Size Liver Transplants	0	1	0	0	0
Liver Non-Utilisation Rate	4.3%	3.7%	0.0%	2.0%	4.3%
Liver Utilisation Rate	95.7%	96.3%	100.0%	98.0%	95.7%

*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 2018. There have been no intestines retrieved and not utilised for the purpose of transplantation.

Figure 6.6 - Intestine Transplants Australia 2018–2022

