



SECTION 6

Deceased Donor Liver and Intestine Donation

SUMMARY

This section summarises liver donation activity from deceased donors in 2021, compared with previous years. The rate of liver transplant procedures in 2021 was 9.8 pmp in Australia and 10.1 pmp in New Zealand.

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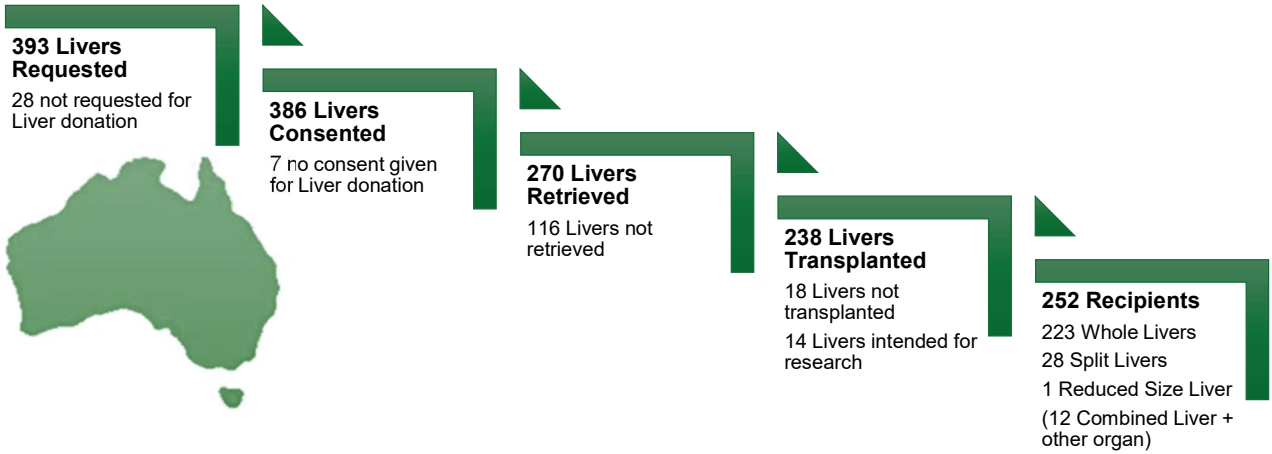
Liver Donation

Of the 421 deceased organ donors in Australia in 2021, 270 (64.1%) had liver retrieved. From these liver donors, there were 252 recipients in Australia. Seven recipients received a combined liver/kidney transplant, two received a combined liver/double lung, one received a combined liver/pancreas, one received a combined liver/kidney/pancreas and one received a combined liver/pancreas/intestine.

Twenty-eight partial liver transplants were performed in Australia using fourteen livers and the 'split' liver technique (transplanting one liver into two recipients) and one recipient received a reduced size liver.

The rate of liver transplants in Australia for 2021 was 9.8 per million population (pmp). Figures 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 2021



In New Zealand there were fifty-one livers retrieved, and forty-nine utilised for transplantation into fifty-two liver recipients. Of these, there were six split liver transplants performed and one reduced size liver transplanted. Three recipients received a combined liver/kidney transplant, and one recipient received a combined liver/pancreas transplant.

In 2021 in New Zealand, there was a rate of 10.1 liver transplant procedures per million population (pmp). Figures 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 2021

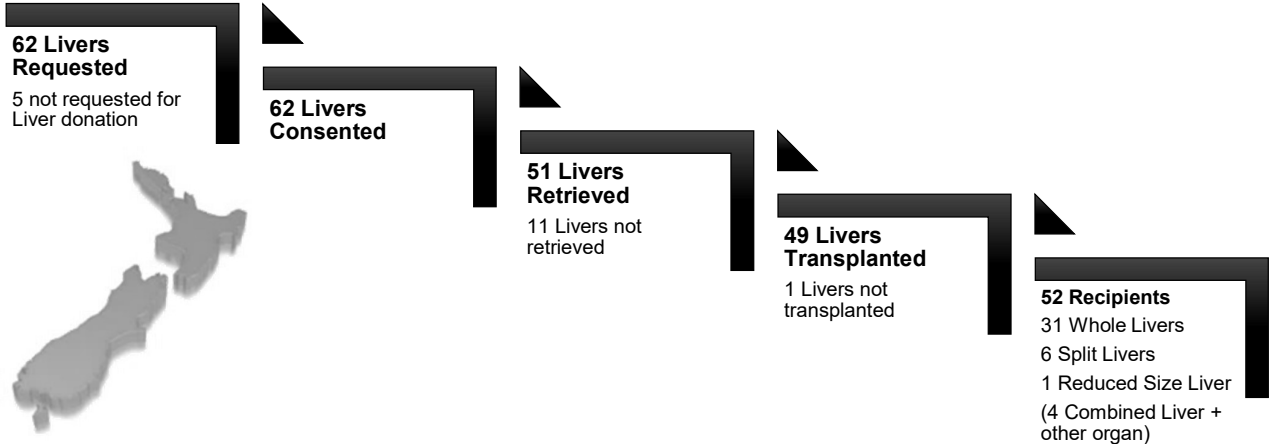


Figure 6.2 shows the number of recipients of liver transplants by donation pathway in Australia and New Zealand from 1998 to 2021. Figure 6.3 compares the number of deceased donor liver recipients by transplant region for 2020 and 2021.

Figure 6.2.1 - Recipients of Liver Transplantation by Donation Pathway Australia 1998–2021

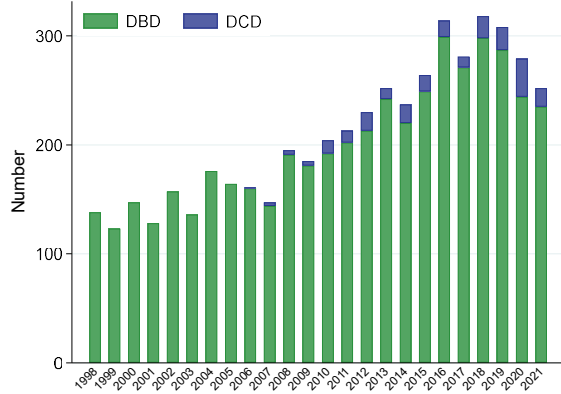


Figure 6.2.2 - Recipients of Liver Transplantation by Donation Pathway New Zealand 1998–2021

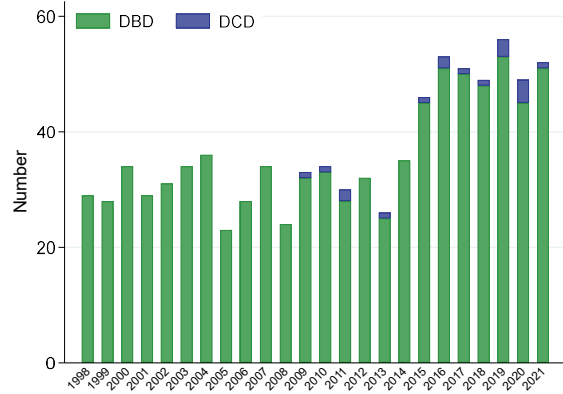
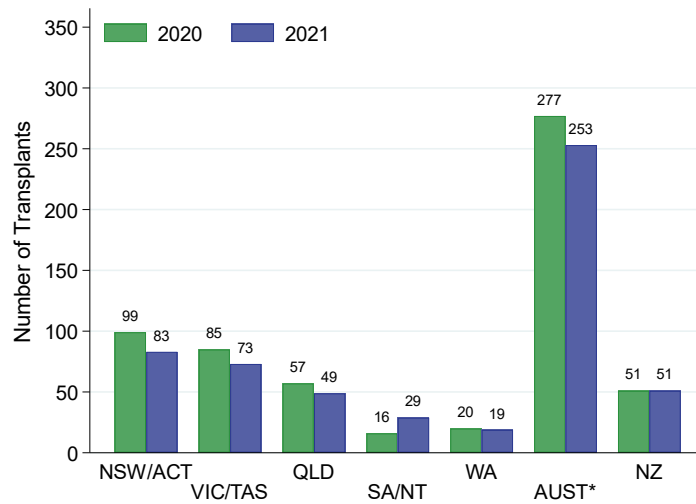


Figure 6.3 - Deceased Donor Liver Transplant Recipients* by Transplant Region, Australia and New Zealand, 2020–2021



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 2021

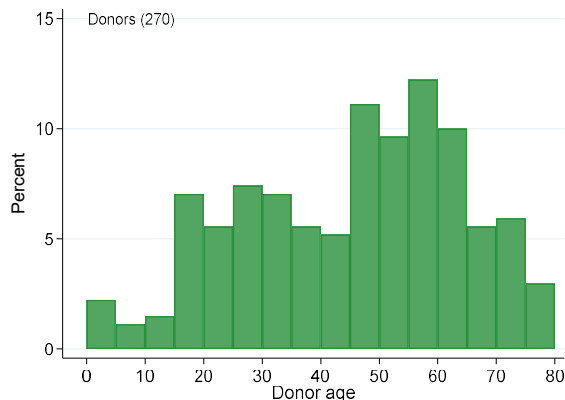
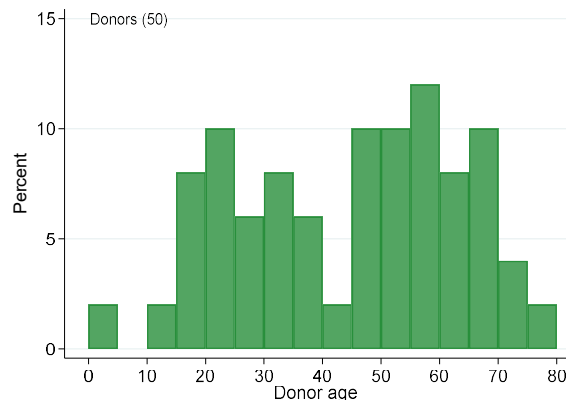


Figure 6.4.2 - Age of Donors Providing Retrieved Livers New Zealand 2021



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 2021

| 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 | 47 | 13 |
| Aspartate Transaminase AST > µ/L | 247 | 143 | 42 | 19 |
| Gamma Glutamyl Transferase GGT > 60 µ/L | 267 | 72 | 43 | 8 |
| Alkaline Phosphatase > 116 µ/L | 267 | 36 | 50 | 10 |
| Total Bilirubin > 20 µmol/L | 265 | 31 | 50 | 5 |
| All 5 tests completed | 246 | . | 34 | . |
| At least 1 test completed | 267 | . | 50 | . |

*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 2021

| Reason | Australia | New Zealand |
|------------------------|------------|-------------|
| Logistics | 0 | 0 |
| Not Medically Suitable | 35 | 7 |
| Surgically Unsuitable | 0 | 0 |
| Trauma to Organ | 0 | 0 |
| No Suitable Recipients | 53 | 2 |
| Age of Donor | 10 | 0 |
| DCD Donor | 17 | 1 |
| Consent Withdrawn | 1 | 1 |
| Others | 0 | 0 |
| Total | 116 | 11 |

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 2017–2021

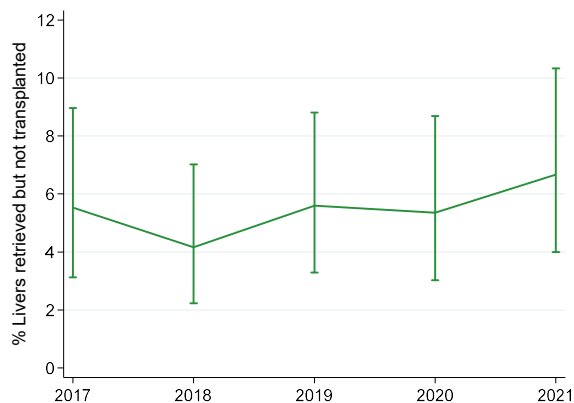


Figure 6.5.2 - Non-utilisation Rate of Retrieved Livers - New Zealand 2017–2021

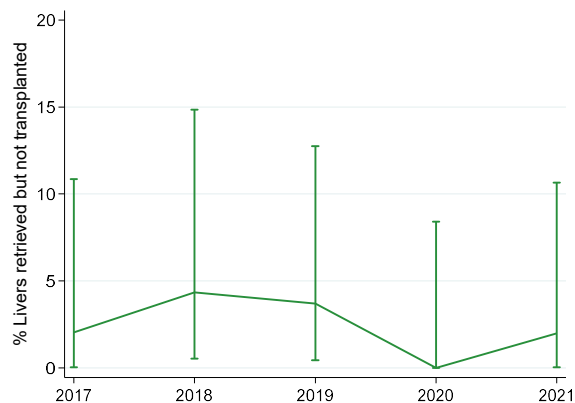


Table 6.3 tabulates the reasons livers were not used after retrieval for the purpose of transplantation since 2017.

Of the reduced size liver transplants since 2017, 9 were orphaned split liver procedures due to the other split liver having no suitable recipients (5), not being medically suitable (3) or not being surgically suitable (1).

Table 6.3 Reasons Liver Retrieved & Not Utilised for Transplantation, Australia (New Zealand) 2017 – 2021

| Reason | 2017 | 2018 | 2019 | 2020 | 2021 |
|--------------------------------|---------------|---------------|---------------|---------------|---------------|
| Logistics | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) |
| Not Medically Suitable | 13 (1) | 11 (1) | 14 (2) | 14 (0) | 17 (0) |
| Not Surgically Suitable | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) |
| Trauma to Organ | 0 (0) | 0 (0) | 0 (0) | 1 (0) | 0 (0) |
| No Suitable Recipients | 0 (0) | 1 (0) | 0 (0) | 0 (0) | 0 (0) |
| Recipient Issue | 2 (0) | 1 (1) | 3 (0) | 0 (0) | 0 (1) |
| Other | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) |
| Total | 15 (1) | 13 (2) | 17 (2) | 15 (0) | 17 (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, 2017–2021

| Outcome of Request | 2017 | 2018 | 2019 | 2020 | 2021 |
|--|-------------|-------------|-------------|-------------|-------------|
| Total Donors | 510 | 554 | 548 | 463 | 421 |
| Liver Requested for Donation | 459 | 497 | 499 | 432 | 393 |
| Liver Not Requested for Donation | 51 | 57 | 49 | 31 | 28 |
| Liver Consent Given | 453 | 493 | 491 | 427 | 386 |
| Liver Consent Not Given | 6 | 4 | 8 | 5 | 7 |
| Liver Retrieved | 271 | 312 | 304 | 280 | 270 |
| Liver Not Retrieved | 182 | 181 | 187 | 147 | 116 |
| Total Livers Transplanted | 256 | 297 | 283 | 256 | 238 |
| Whole Liver Not Used | 15 | 13 | 17 | 15 | 18 |
| Intended Split Liver (L) Not Used | 1 | 2 | 0 | 0 | 0 |
| Intended Split Liver (R) Not Used | 2 | 1 | 1 | 0 | 1 |
| Liver Retrieved for Research and Not for Transplantation | 0 | 2 | 4 | 9 | 14 |
| Recipients Transplanted | 281 | 318 | 308 | 279 | 252 |
| Whole Liver Transplants | 227 | 270 | 253 | 233 | 223 |
| Split Liver Transplants | 50 | 42 | 50 | 46 | 28 |
| Reduced Size Liver Transplants | 4 | 6 | 5 | 0 | 1 |
| Liver Non-Utilisation Rate | 5.5% | 4.2% | 5.6% | 5.4% | 6.7% |
| Liver Utilisation Rate | 94.5% | 95.2% | 93.1% | 91.4% | 88.1% |

Table 6.4.2 Outcome of Request for Liver Donation in New Zealand, 2017–2021

| Outcome of Request | 2017 | 2018 | 2019 | 2020 | 2021 |
|-----------------------------------|-------------|-------------|-------------|-------------|-------------|
| Total Donors | 73 | 62 | 74 | 64 | 66 |
| Liver Requested for Donation | 69 | 61 | 72 | 59 | 62 |
| Liver Not Requested for Donation | 4 | 1 | 2 | 5 | 5 |
| Liver Consent Given | 69 | 61 | 72 | 59 | 62 |
| Liver Consent Not Given | 0 | 0 | 0 | 0 | 0 |
| Liver Retrieved | 49 | 46 | 54 | 42 | 51 |
| Liver Not Retrieved | 20 | 15 | 18 | 17 | 11 |
| Total Livers Transplanted | 48 | 44 | 52 | 42 | 49 |
| Whole Liver Not Used | 1 | 2 | 2 | 0 | 1 |
| Intended Split Liver (L) Not Used | 0 | 0 | 0 | 0 | 0 |
| Intended Split Liver (R) Not Used | 1 | 0 | 0 | 0 | 0 |
| Recipients Transplanted | 51 | 49 | 56 | 49 | 52 |
| Whole Liver Transplants | 42 | 39 | 47 | 35 | 46 |
| Split Liver Transplants | 6 | 10 | 8 | 14 | 6 |
| Reduced Size Liver Transplants | 3 | 0 | 1 | 0 | 0 |
| Liver Non-Utilisation Rate | 2.0% | 4.3% | 3.7% | 0.0% | 2.0% |
| Liver Utilisation Rate | 98.0% | 95.7% | 96.3% | 100.0% | 96.1% |

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 2017. There have been no intestines retrieved and not utilised for the purpose of transplantation.

Figure 6.6 - Intestine Transplants Australia 2017–2021

