



SECTION 6

Deceased Donor Liver Donation

SUMMARY

This section summarises liver donation activity from deceased donors in 2016, compared with previous years. Both countries reached their highest rate of livers transplanted in 2016, with 13 pmp in Australia and 11.3 pmp in New Zealand.

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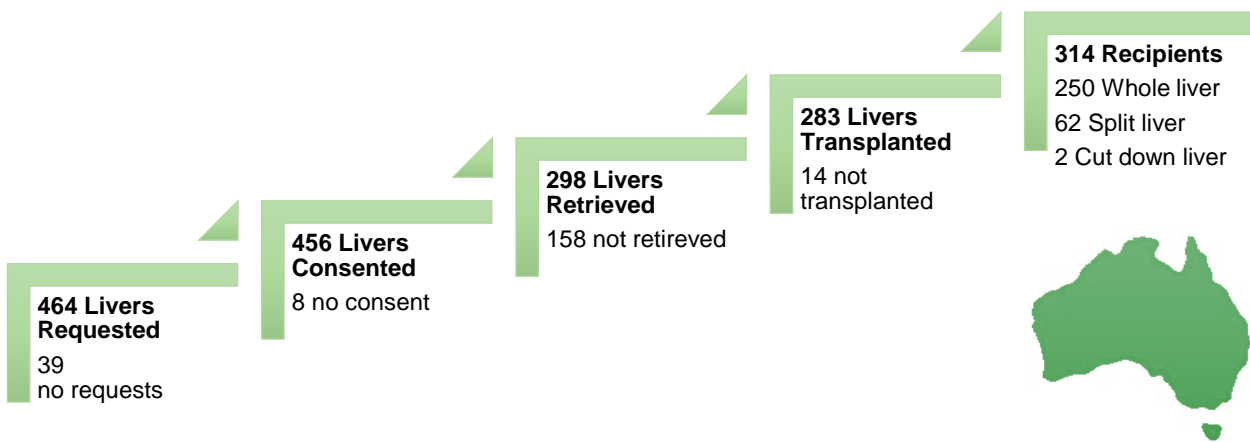
Liver Donation

Of the 503 deceased organ donors in 2016, 298 (59.2%) were liver donors. From these liver donors, there were 314 recipients in Australia. Five recipients received a combined liver/kidney transplant, one received a combined liver/pancreas and one a liver/intestine transplant.

Sixty-two partial liver transplants were performed in Australia using the “split” liver technique (transplanting one liver into two recipients) and two recipients received a ‘cut down’ liver.

There was an increase of 18.9% in the number of liver transplants in Australia compared to the previous year; a rate of 13 liver transplants per million of population (pmp). Figures 6.1 shows the outcomes of requests for liver donation in Australia.

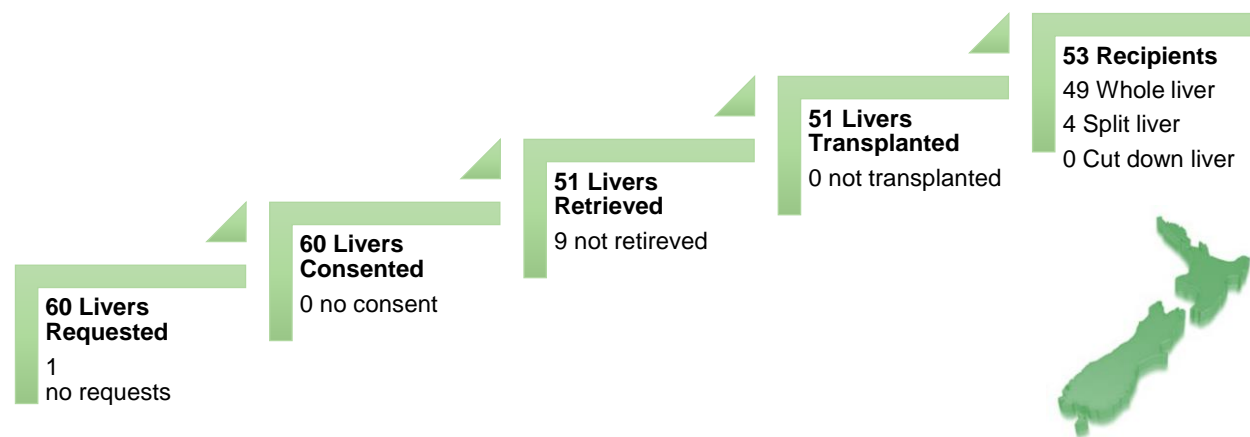
Figure 6.1 Outcomes of Request for Liver Donation in Australia 2016



In New Zealand there 51 livers retrieved providing for 53 liver recipients. Of these, there were four split liver transplants performed.

There was an increase of 15.2% in the number of liver transplants in New Zealand compared to the previous year; a rate of 11.3 liver transplants per million of population (pmp). Figures 6.2 shows the outcomes of requests for liver donation in New Zealand.

Figure 6.2 Outcomes of Request for Liver Donation in New Zealand 2016



Figures 6.3 and 6.4 show the number of recipients of liver transplants by donation pathway in Australia and New Zealand respectively from 1998 to 2016. Figure 6.5 compares the number of deceased donor liver recipients by state and country for 2014 and 2015.

Figure 6.3 Recipients of Liver Transplantation by Donation Pathway, Australia 1998 - 2016

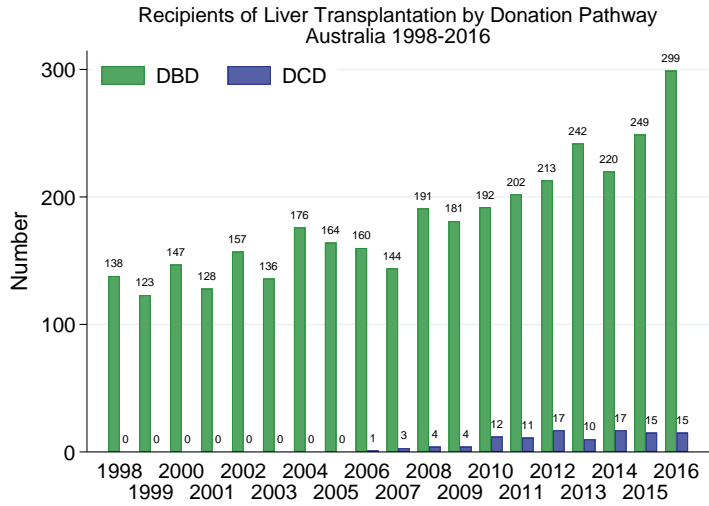


Figure 6.4 Recipients of Liver Transplantation by Donation Pathway, New Zealand 1998 - 2016

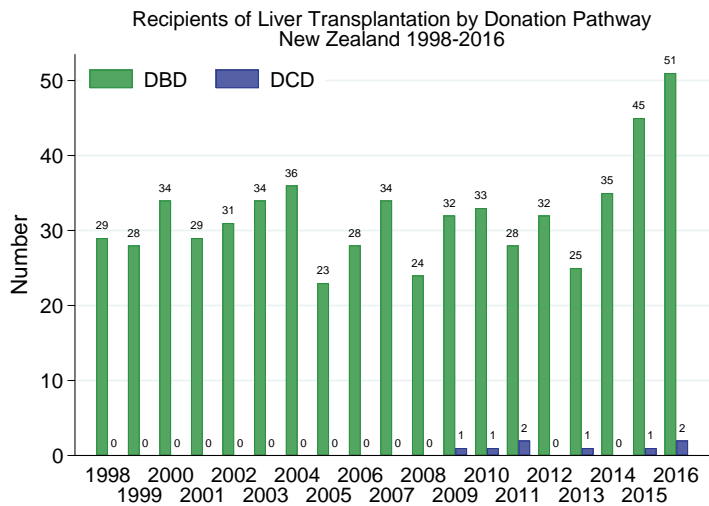
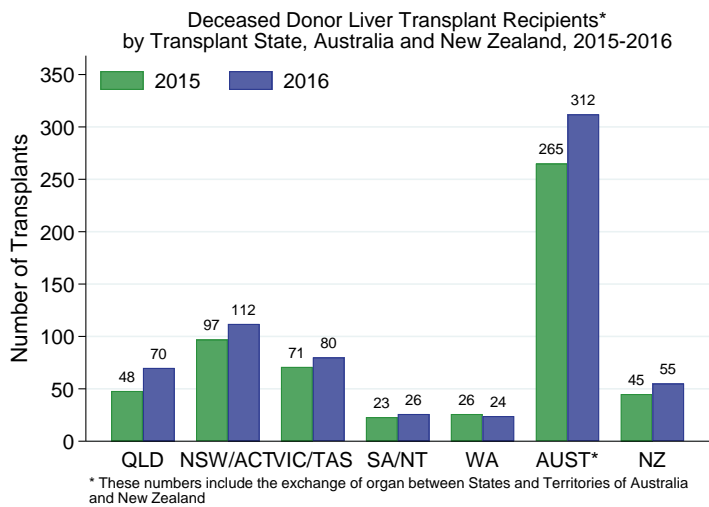


Figure 6.5 Deceased Donor Liver Transplant Recipients by Transplant State, Australia & New Zealand, 2015 - 2016



Age of Liver Donors

The age distribution of donors providing transplanted livers for Australia and New Zealand is shown in Figures 6.6 and 6.7 respectively.

Figure 6.6 Age of Donors Providing Transplant Livers, Australia, 2016

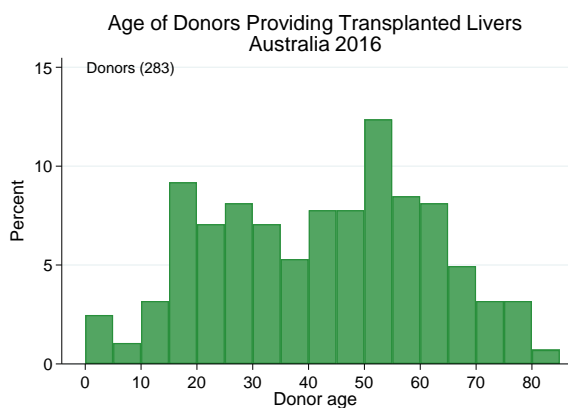
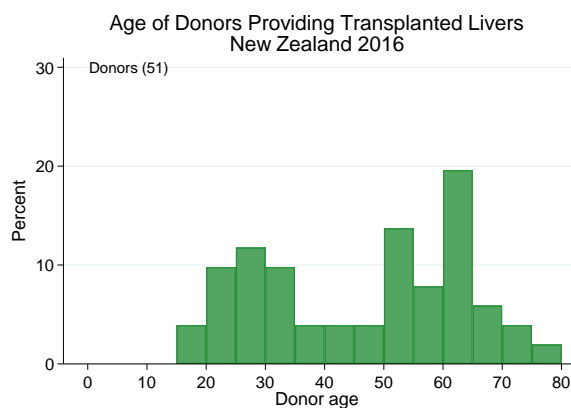


Figure 6.7 Age of Donors Providing Transplant Livers, New Zealand, 2016



Donor Liver Function

The results of the serum tests for liver function for 298 Australian and 51 New Zealand donors in 2016 who had livers retrieved, are shown below. There were 91.6% of donors in Australia (273) and 50.9% of donors in New Zealand (26) who had all five tests performed. Table 6.1 shows the number of donors whose liver function was above the normal range.

Table 6.1 Number of Donors with Liver Function Tests Above Normal, 2016

Liver Function Tests	Australia		New Zealand	
	Donors with value recorded*	Above Normal	Donors with value recorded*	Above Normal
Alanine Transaminase ALT > 40 μ /L	298	135	42	13
Aspartate Transaminase AST > μ /L	273	145	35	13
Gamma Glutamol Tranferase GGT > 60 μ /L	298	71	42	7
Alkaline Phosphatase > 116 μ /L	298	49	50	3
Total Bilirubin > 20 μ mol/L	298	31	50	7
All 5 tests completed	273		26	
At least 1 test completed	298		50	

*Not all donors have all tests

Livers Not Retrieved

There were 158 livers not retrieved from Australian donors in 2016 and 9 livers from New Zealand donors.

For Australia, the main reasons were the liver was not medically suitable for transplantation (116), followed by age of donor (19). In New Zealand, mostly non-retrieved livers were due to being not medically suitable (4). Figure 6.2 provides a breakdown of the reason why livers were not retrieved.

Table 6.2 Reasons for Lung Not Retrieved, 2016		
Reason	Australia	New Zealand
Logistics	8	0
Not Medically Suitable	116	4
Surgically Unsuitable	0	0
Trauma to Organ	1	1
No Suitable Recipients	10	3
Age of Donor	19	0
DCD Donor	3	1
Consent Withdrawn	1	0
Others	0	0
Total	158	9

Livers Retrieved and Not utilised

Table 6.3 tabulates the reasons livers were not used after retrieval for the purpose of transplantation since 2012.

Table 6.3 Reasons Liver Retrieved and Not Utilised for Transplantation in Australia (New Zealand), 2012 - 2016						
Year	Logistics	Not Medically Suitable	Not Surgically Suitable	No Suitable Recipients	Other	Total
2012	0 (0)	5 (1)	0 (0)	0 (0)	1 (0)	6 (1)
2013	0 (0)	6 (1)	0 (0)	0 (0)	0 (0)	6 (1)
2014	0 (0)	6 (1)	0 (0)	0 (0)	1 (0)	7 (1)
2015	0 (0)	13 (0)	0 (0)	0 (0)	0 (0)	13 (0)
2016	0 (0)	12 (0)	0 (0)	0 (0)	2 (0)	14 (0)

Figures 6.8 and 6.9 show 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 absence of suitable recipients, or the liver being found to be medically or surgically unsuitable after retrieval).

In Australia, the non-utilisation rate of livers has increased from 0.5% in 2011 to 7.9% in 2014. In 2015, this fell to just under 6.5%.

Figure 6.8 Non-Utilisation Rate of Retrieved Liver Australia, 2012 - 2016

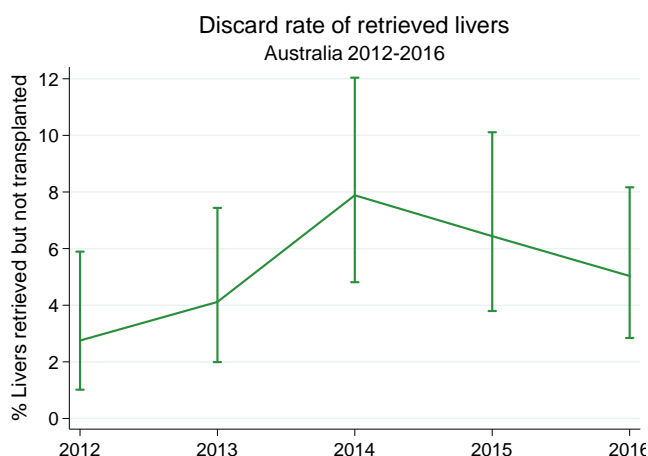
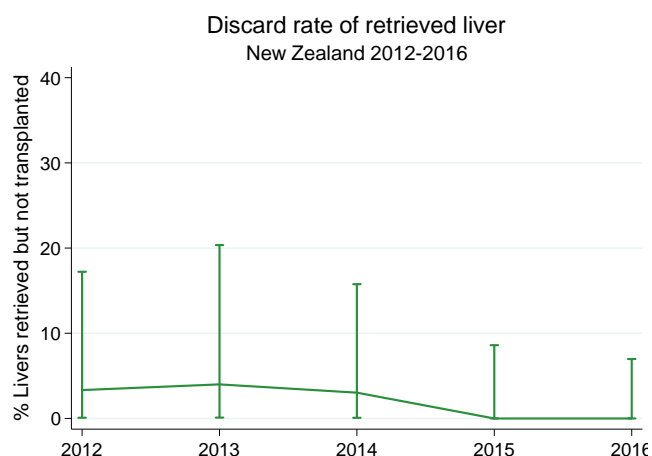


Figure 6.9 Non-Utilisation Rate of Retrieved Liver, New Zealand, 2012 - 2016



Outcome of Liver Donation

The outcome of liver donation activity in Australia and New Zealand throughout the donation pathway is shown in tables 6.4 and 6.5 respectively.

Table 6.4 Outcome of Request for Liver Donation in Australia, 2012-2016

	2012	2013	2014	2015	2016
Total Donors	354	391	378	435	503
No Request for Liver Donation	20	31	24	46	39
Request for Liver Donation	334	360	354	389	464
Consent Not Given	5	3	7	12	8
Consent Given	329	357	347	377	456
Liver Not Retrieved	111	112	106	113	158
Liver Retrieved	218	243	241	264	298
Whole Liver not used	6	6	7	13	14
(Split Liver (L) not used)	1	0	0	0	0
(Split Liver (R) not used)	3	7	0	1	2
Liver used for Research	1	4	12	4	1
Total Livers Transplanted	212	233	222	247	283
Recipients Transplanted	230	252	237	264	314
Whole Liver Transplanted	189	207	207	229	250
(Left Liver or Cutdown Transplant Procedures)	22	26	15	18	33
(Right Liver Transplant Procedures)	19	19	15	17	31
Split Liver Procedures	36	38	30	34	62
Cut down Liver	5	7	0	1	2
Liver Discard Rate	3.21%	4.12%	7.88%	6.44%	5.03%
Liver Utilised Rate	97.25%	95.88%	92.12%	93.56%	94.97%

Table 6.5 Outcome of Request for Liver Donation in New Zealand, 2012-2016

	2012	2013	2014	2015	2016
Total Donors	38	36	46	53	61
No Request for Liver Donation	1	1	5	3	1
Request for Liver Donation	37	35	41	50	60
Consent Not Given	1	0	0	0	0
Consent Given	36	35	41	50	60
Liver Not Retrieved	6	10	8	9	9
Liver Retrieved	30	25	33	41	51
Whole Liver not used	1	1	1	0	0
(Split Liver (L) not used)	0	0	0	0	0
(Split Liver (R) not used)	2	1	0	0	0
Total Livers Transplanted	29	24	32	41	51
Recipients Transplanted	32	26	35	46	53
Whole Liver Transplanted	24	21	29	36	49
(Left Liver or Cutdown Transplant Procedures)	5	3	3	5	2
(Right Liver Transplant Procedures)	3	2	3	5	2
Split Liver Procedures	6	4	6	10	4
Cut down Liver	2	1	0	0	0
Liver Discard Rate	3.33%	4%	3.03%	0%	0%
Liver Utilised Rate	96.67%	96%	96.97%	100%	100%

Suggested Citation:

ANZOD Registry, 2017 Annual Report, Section 6: Deceased Donor Liver Donation. Australia and New Zealand Dialysis and Transplant Registry, Adelaide, Australia. 2017. Available at www.anzdata.org.au