



SECTION 8

Deceased Donor Lung Donation

This section summarises lung donation activity from deceased donors in 2024, compared with previous years. The rate of lung transplant procedures in 2024 was 5.0 per million population (pmp) in Australia and 5.2 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 lung donation and transplantation from deceased actual organ donors.

SUGGESTED CITATION

H Opdam, C Davies, K Marshall, G Irish, 29th Report, Section 8: Deceased Donor Lung Donation. Australia and New Zealand Organ Donation Registry, Adelaide, Australia. 2025. Available at: <https://www.anzdata.org.au/anzod/publications-2/annual-reports/>

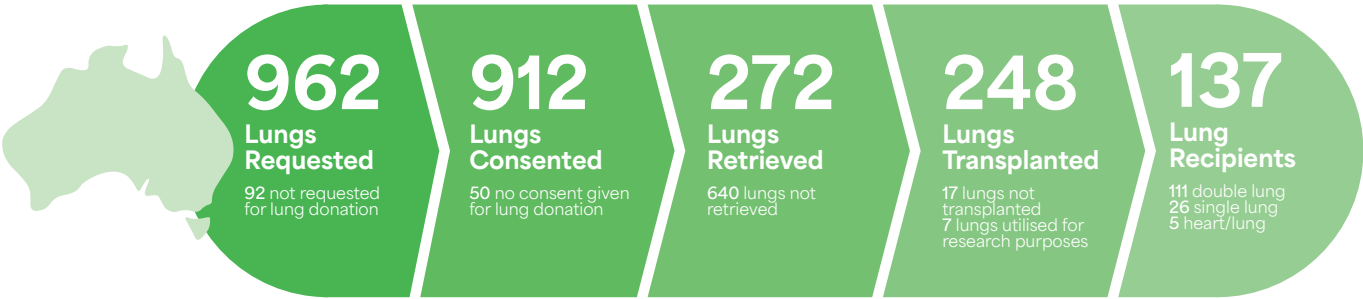
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LUNG DONATION

Of the 527 deceased actual organ donors in 2024 in Australia, in 456 donors there was consent for lung donation. From these donors, 272 lungs were retrieved with 248 lungs transplanted. There were 137 lung transplant recipients (5.0 pmp), a decrease of 16.5% from the previous year. Of these 137 lung transplant recipients, 5 received heart/double lung transplants

Figure 8.1.1 shows the outcomes of requests for lung donation in Australia for 2024.

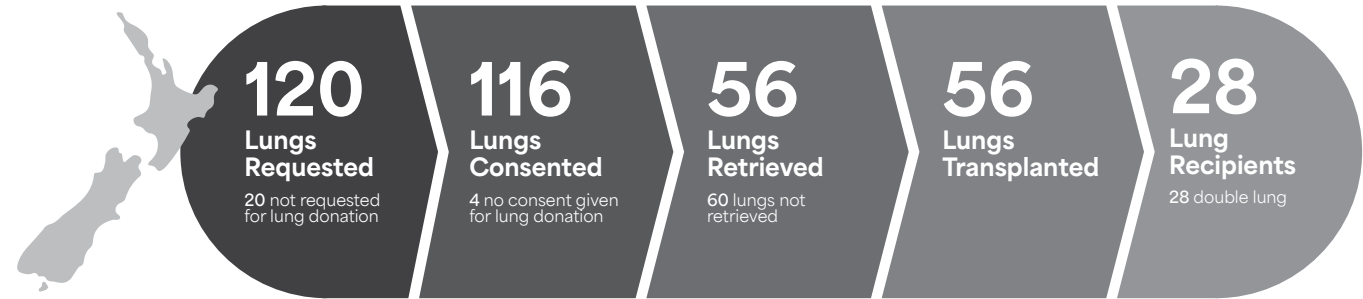
Figure 8.1.1
Outcomes of requests for lung donation in Australia - 2024



Of the 70 deceased actual organ donors in New Zealand in 2024, in 58 donors there was consent for lung donation. From these donors, 56 lungs were retrieved and 56 were transplanted. There were 28 lung transplant recipients (5.2 pmp), an increase of 12.0% from the previous year.

Figure 8.1.2 shows the outcomes of requests for lung donation in New Zealand for 2024.

Figure 8.1.2
Outcomes of requests for lung donation in New Zealand - 2024



Figures 8.2 and 8.3 show the number of lung recipients by donation pathway and transplant region.

Figure 8.2.1
Recipients of Lung Transplants by Donor Pathway Australia 1998-2024

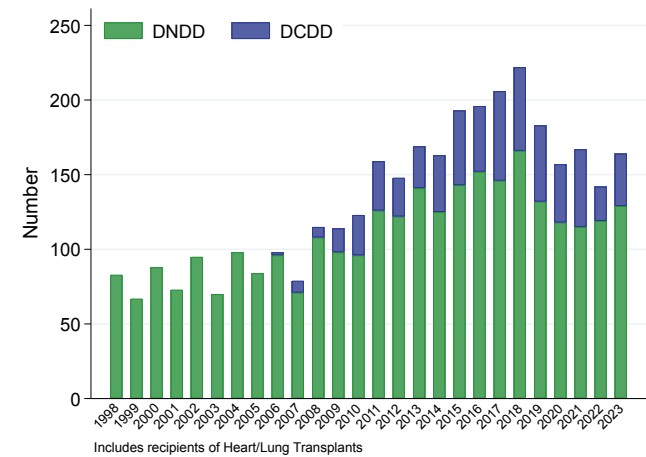


Figure 8.2.2
Recipients of Lung Transplants by Donor Pathway New Zealand 1998-2024

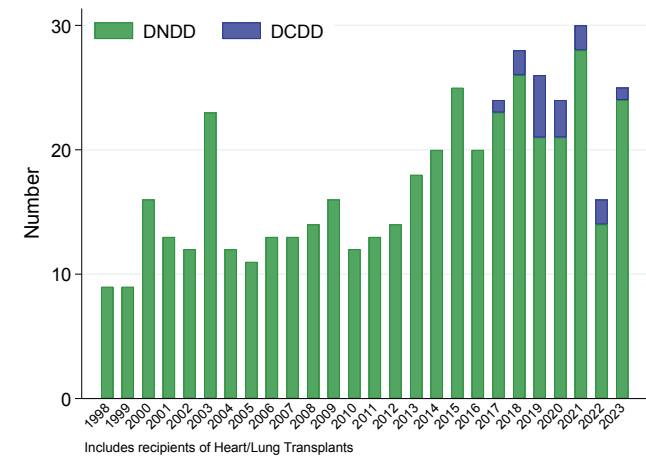
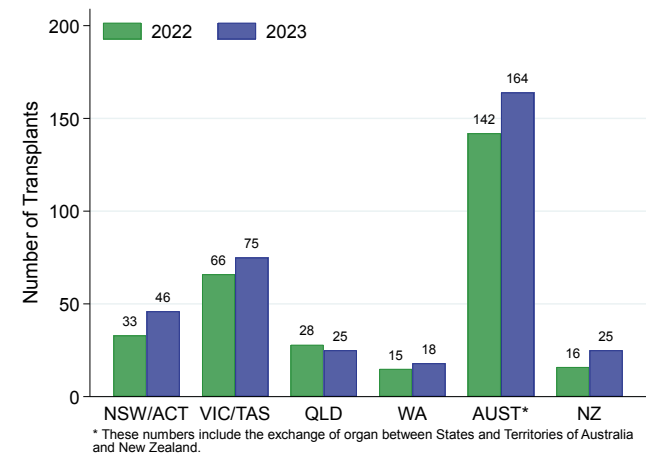


Figure 8.3
Deceased Donor Lung Transplant Recipients by Transplant Region, Australia and New Zealand, 2023-2024^*



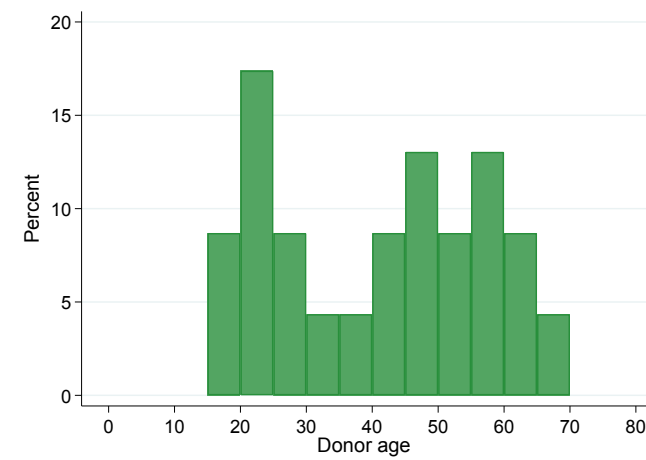
AGE OF LUNG DONORS

The age distribution of donors providing retrieved lungs for Australia and New Zealand is presented in Figure 8.4.

Figure 8.4.1
*Age of Donors Providing Retrieved Lungs
Australia 2024*



Figure 8.4.2
*Age of Donors Providing Retrieved Lungs
New Zealand 2024*



DONOR LUNG FUNCTION

AUSTRALIA

In Australia, 78 (56.1%) donors with lungs retrieved had a bronchoscopy in 2024. 18 donors had chest trauma; these included chest drains and pneumothoraces.

The arterial blood gases were taken on 100% Fraction of Inspired Oxygen (FiO₂) and Positive End Expiratory Pressure (PEEP) of 5cmH₂O for 468 actual donors. 76.7% (359) had a PEEP greater than 5cmH₂O. Of those donors with lungs retrieved, 78.7% (107) had a PEEP greater than 5cmH₂O.

The results from the 485 actual donors with a pH measurement show 15.5% to be acidaemic (pH <7.35) and 19.0% to be alkalaemic (pH >7.45). Of those donors with lungs retrieved, 10.9% were acidaemic and 25.5% were alkalaemic.

For the 485 actual donors with measurements, oxygenation measured as Partial Pressure of Oxygen (PaO₂) ranged from 58 to 586 mmHg with a median of 350 mmHg. The Partial Pressure of Carbon Dioxide (PaCO₂) ranged from 24 to 383 with a median of 40 mmHg. For the 137 donors with lungs retrieved and measurements reported, oxygenation measured as PaO₂ ranged from 78 to 576 mmHg with a median of 420 mmHg. PaCO₂ ranged from 24 to 54 with a median of 39.9 mmHg.

NEW ZEALAND

In New Zealand, there were 11 (39.3%) lung donors who had a bronchoscopy in 2024. 4 donors had chest trauma.

Among the 28 donors with lungs retrieved, the arterial blood gases were taken on 100% Fraction of Inspired Oxygen (FiO₂); 17 had a PEEP greater than 5cmH₂O.

For the 27 donors with lungs retrieved and arterial blood gas results reported, 11.1% (3 donors) were acidaemic (pH < 7.35) and 6 (22.2%) were alkalaemic (pH > 7.45).

For these donors with lungs retrieved and arterial blood gas results reported, oxygenation measured as PaO₂ ranged from 225 to 525 mmHg with a median of 401 mmHg. PaCO₂ ranged from 27.5 to 49.5 mmHg with a median of 39.0 mmHg.

LUNGS NOT RETRIEVED

In 2024, there were 640 lungs not retrieved from Australian donors and 60 not retrieved from New Zealand donors. The reasons why lungs were not retrieved for organ transplantation are presented in Table 8.1.

Table 8.1
Reasons for Lungs Not Retrieved in 2024

Reason	Australia	New Zealand
Intraoperative assessment	21	2
Declined in offer process	458	54
Organ not offered - age of donor	8	0
Organ not offered - not medically suitable	129	0
No consent from Coroner	16	0
Organ not offered - no suitable recipients	8	4
Total	632	56

*WCRS = Withdrawal of cardio-respiratory support

LUNGS RETRIEVED AND NOT UTILISED FOR TRANSPLANTATION

Figure 8.5 shows the non-utilisation rate of retrieved lungs - the proportion of lungs 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 lung 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 8.5.1
Non-utilisation Rate of Retrieved Lungs - Australia 2020-2024

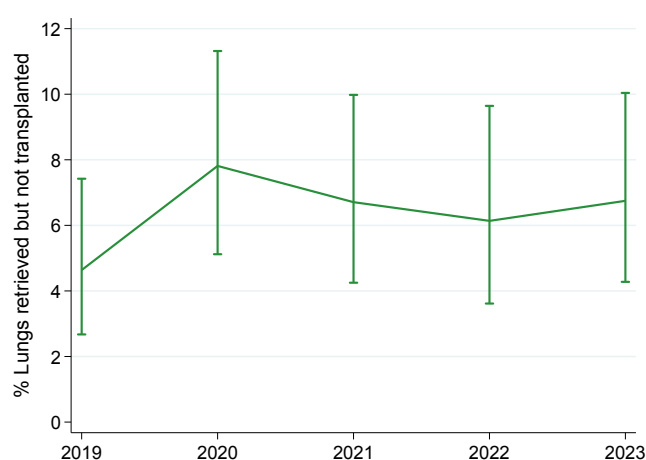


Figure 8.5.2
Non-utilisation Rate of Retrieved Lungs - New Zealand 2020-2024

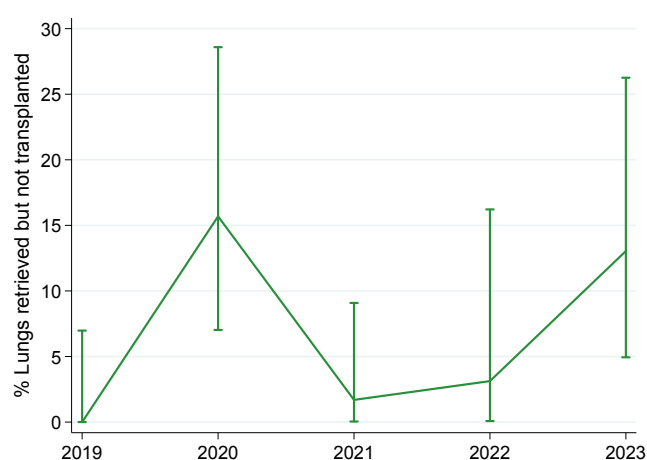


Table 8.2 tabulates the reasons lungs were not used for transplantation after retrieval for that purpose since 2021.

Table 8.2
Reasons Lung Retrieved & Not Utilised for Transplantation, 2021 - 2024

Country	Reason	2021	2022	2023	2024
Australia	Intraoperative assessment	6	2	7	4
	Assessment at transplant unit	6	2	4	6
	Other	3	1	2	2
	Total	15	5	13	12
New Zealand	Intraoperative assessment	0	0	0	0
	Assessment at transplant unit	0	0	0	0
	Other	1	1	6	0
	Total	1	1	6	0

OUTCOME OF LUNG DONATION

The outcome of lung donation activity in Australia and New Zealand throughout the donation process is presented in table 8.3.

Table 8.3.1
Outcome of Request for Lung Donation in Australia, 2020-2024

Outcome of Request	2020	2021	2022	2023	2024
Total Donors	463	421	454	513	527
Lungs Requested for Donation	852	768	834	936	962
Lungs Not Requested for Donation	74	74	74	90	92
Lungs with Consent Given	826	748	796	908	912
Lungs with Consent Not Given	26	20	38	28	50
Lungs Retrieved	322	335	290	332	272
Single Lung Retrieved	2	5	10	8	12
Double Lung Retrieved	160	165	140	162	130
Lungs Not Retrieved	504	413	506	576	640
Lungs Transplanted	295	306	260	304	248
Total Lungs Not Used	25	21	8	21	17
Lungs Used for Research*	2	0	0	0	0
Lungs Retrieved for Research**	0	7	13	6	7
Lungs Retrieved for Transplantation and Used for Research***	0	1	9	1	0
Recipient Transplanted	157	167	142	164	137
Double Lung Recipient	138	139	118	140	111
Single Lung (L) Recipients	7	11	10	9	12
Single Lung (R) Recipients	12	17	14	15	14
Heart/Lung Recipients	6	4	6	3	5
Lung Non-Utilisation Rate	7.8%	6.7%	6.1%	6.7%	6.4%
Lung Utilisation Rate	92.2%	93.3%	93.9%	93.3%	93.6%

*Primary/Secondary Intention not recorded prior to Nov 2020

**Use for research primary intention of retrieval

***Use for research secondary intention of retrieval

Table 8.3.2

Outcome of Request for Lung Donation in New Zealand, 2020-2024

Outcome of Request	2020	2021	2022	2023	2024
Total Donors	64	66	63	64	70
Lungs Requested for Donation	104	112	112	118	120
Lungs Not Requested for Donation	24	20	14	10	20
Lungs with Consent Given	104	112	112	118	116
Lungs with Consent Not Given	0	0	0	0	4
Lungs Retrieved	51	59	32	46	56
Single Lung Retrieved	1	1	0	0	0
Double Lung Retrieved	25	29	16	23	28
Lungs Not Retrieved	53	53	80	72	60
Lungs Transplanted	43	58	31	40	56
Total Lungs Not Used	8	1	1	6	0
Lungs Used for Research*	0	0	0	0	0
Lungs Retrieved for Research**	0	0	0	0	0
Lungs Retrieved for Transplantation and Used for Research***	0	0	0	0	0
Recipient Transplanted	24	30	16	25	28
Double Lung Recipient	19	28	15	15	28
Single Lung (L) Recipients	1	0	1	4	0
Single Lung (R) Recipients	4	2	0	6	0
Lung Non-Utilisation Rate	15.7%	1.7%	3.1%	13.0%	0.0%
Lung Utilisation Rate	84.3%	98.3%	96.9%	87.0%	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



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