

# Chapter 8

## *Lung Donation in Australia and New Zealand*



2016  
Annual Report  
*Data to 31-Dec-2015*

# LUNG DONATION

## LUNG DONATION

In 2015, there were 193 lung transplant recipients, including 182 double lung transplants and one heart/double lung transplant recipient. This was an increase of 72% for the number of lung transplants recipients since 2009.

New Zealand performed 25 lung transplants in 2014. This included 25 double lungs transplanted and 0 single lung transplants.

Figures 5.28 and 5.29 show the outcome of request for heart donation in Australia and New Zealand for 2015 respectively.

Figure 8.1

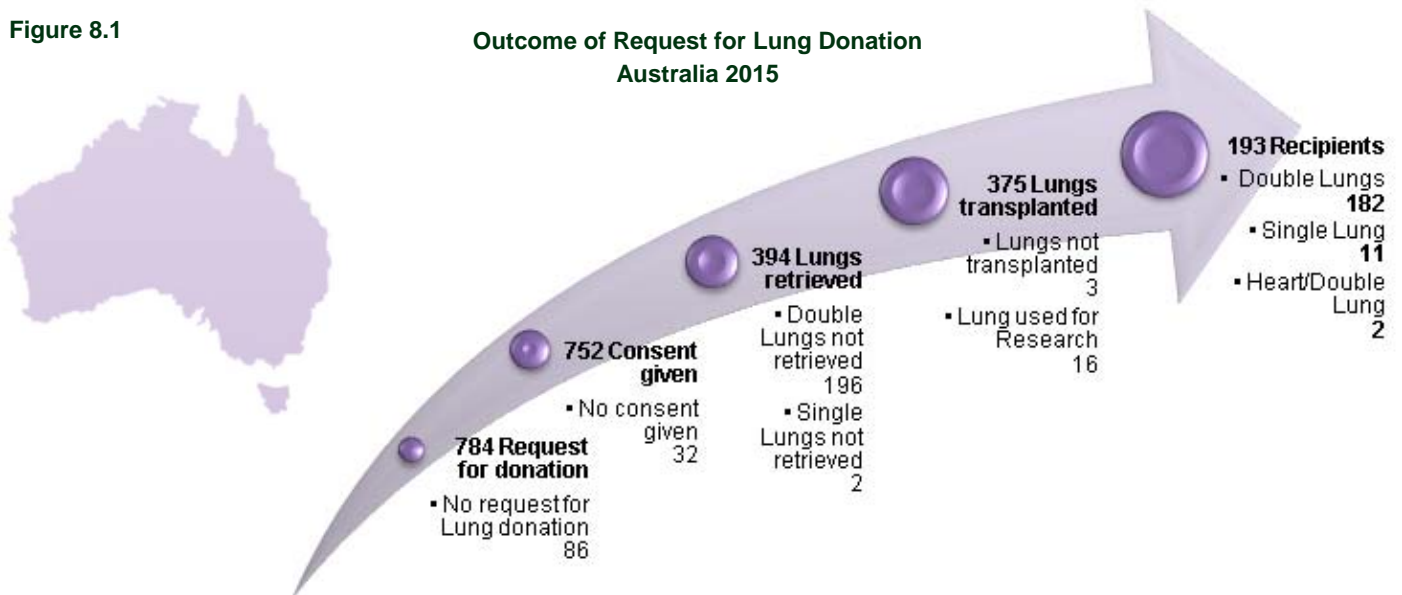
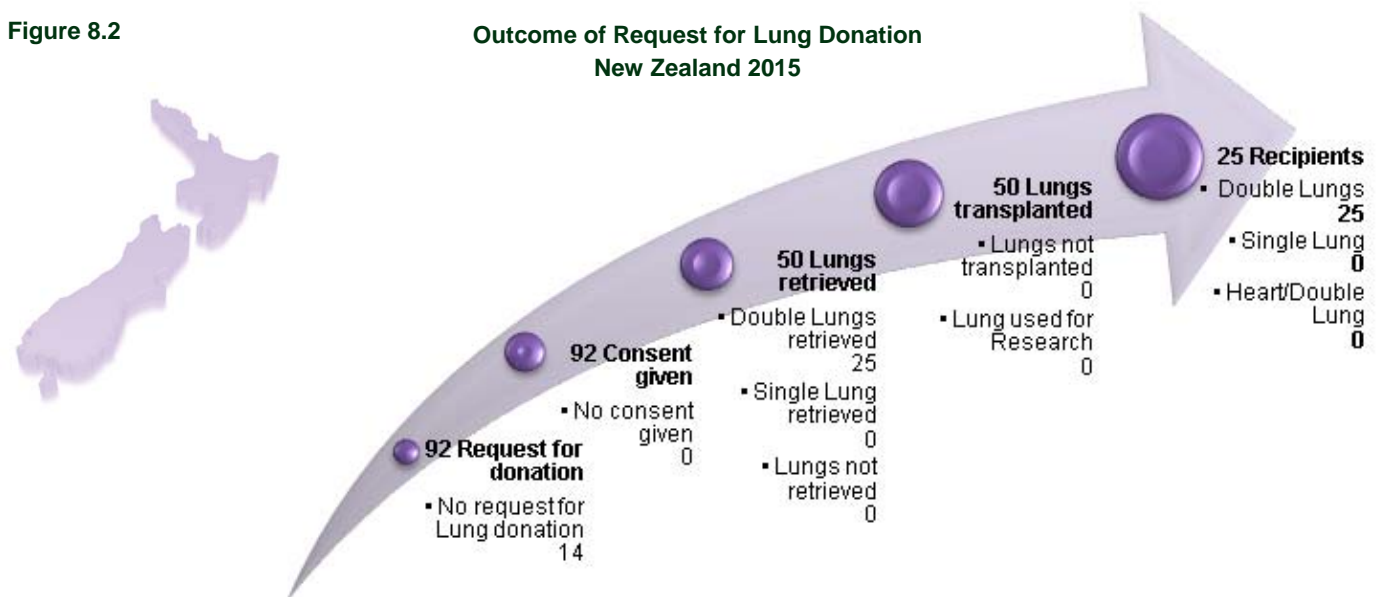


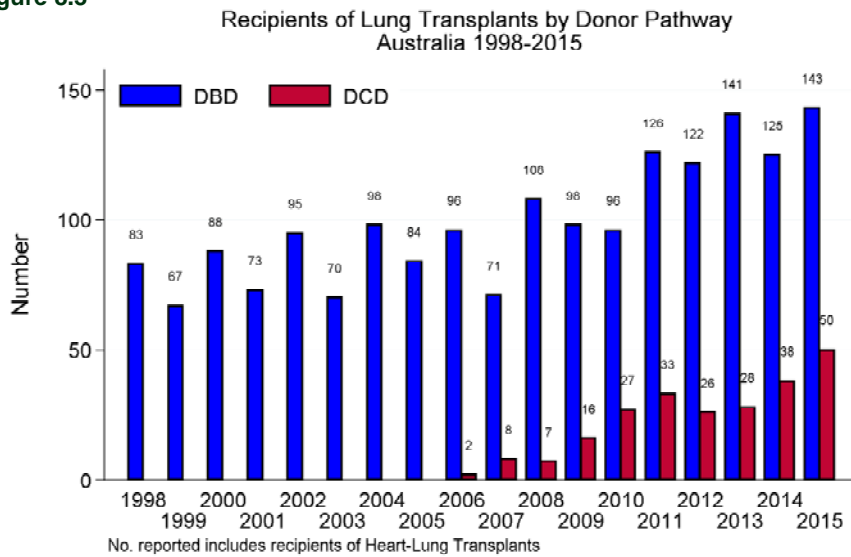
Figure 8.2



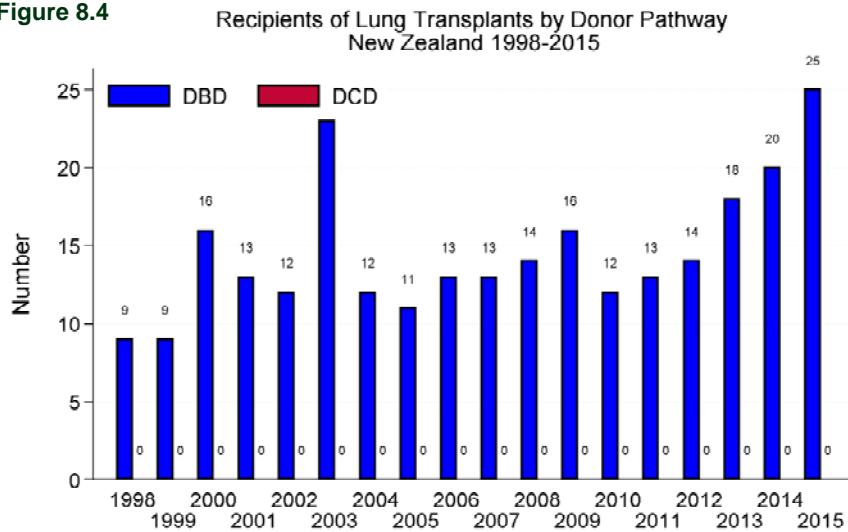
# LUNG DONATION

Figures 8.3 and 8.4 show the number of recipients of lung transplants in Australia and New Zealand respectively from 1998 to 2015. Figure 8.5 shows the number of recipients for lung transplants by state in Australia and New Zealand increased donors from 2014 to 2015, except for Victoria/Tasmania which decreased by 1.

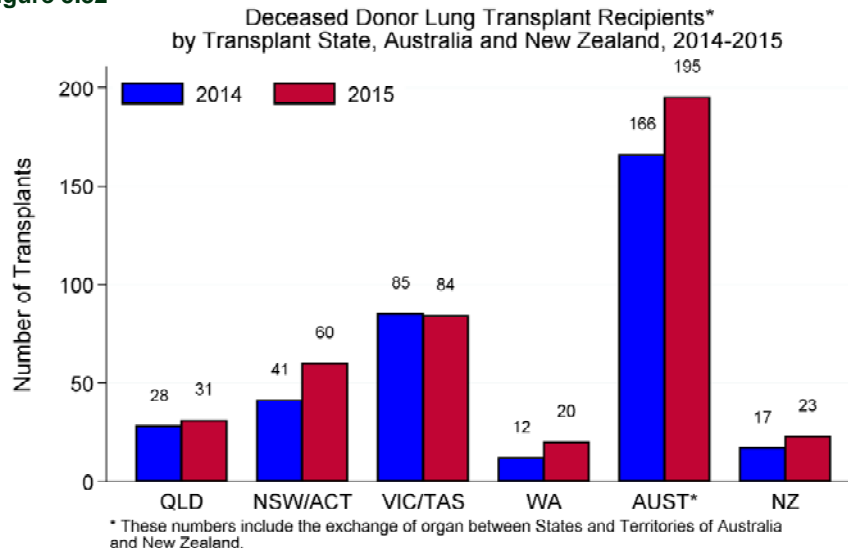
**Figure 8.3**



**Figure 8.4**



**Figure 5.32**



# LUNG DONATION

## LUNG DONORS

The age distribution of donors providing transplanted lungs for Australia and New Zealand is shown in Figures 8.6 and 8.7 respectively.

Figure 8.6

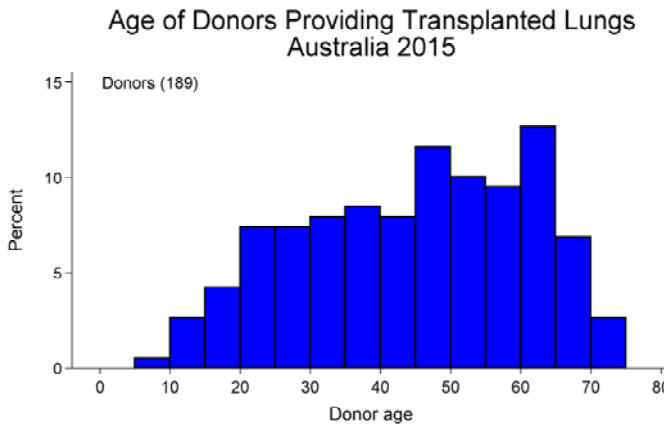
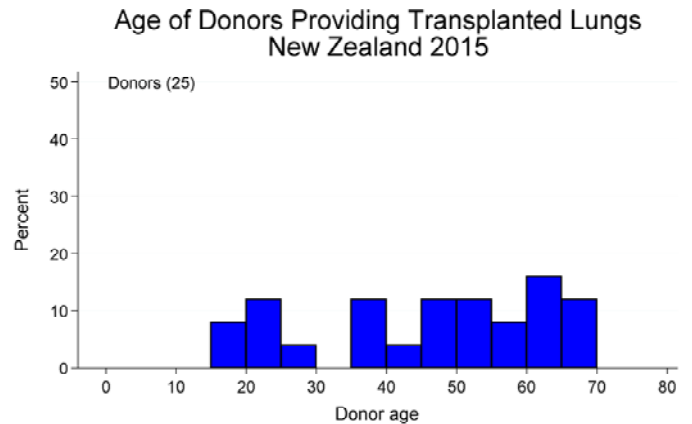


Figure 8.7



## DONOR LUNG FUNCTION

In Australia, there were 175 lung donors (88.4%) who had a bronchoscopy in 2015. Four donors had chest trauma; these included one with a lung contusion, one with thoracic fractures and two with rib fractures. The arterial blood gases were taken on 100% FiO<sub>2</sub> and PEEP of 5 cm. Two hundred and fourteen had a PEEP > 5 cm (52%). The results from 175 lung donors in 2015 show 21.8% (91) to be acidaemic (pH < 7.35) and 18% (75) to be alkalaemic (pH > 7.45). Oxygenation measured as PaO<sub>2</sub> ranged from 25 - 602 mmHg with a median of 339 mmHg. PaCO<sub>2</sub> ranged from 21 - 68 mmHg with a median of 39 mmHg.

In New Zealand, there were five (20%) lung donors who had a bronchoscopy in 2015. One donor had a contusion from CPR. All 25 lung donors had 100% FiO<sub>2</sub>; eight had a PEEP greater than 5cm. The arterial blood gas results from twenty five lung donors in 2015 show 20% (5) to be acidotic (pH < 7.35) and three donors (12%) to be alkalotic (pH > 7.45). Oxygenation measured as PaO<sub>2</sub> ranged from 0 - 528 mmHg with a median of 399 mmHg. PaCO<sub>2</sub> ranged from 0 - 435 mmHg with a median of 37 mmHg.

# LUNG DONATION

## LUNGS NOT RETRIEVED

In 2015, there were 358 lungs not retrieved from Australian donors and 42 lungs not retrieved from New Zealand donors. For Australia, 240 lungs (67%) were not medically suitable, and in New Zealand, twenty six lungs (53%) were not medically suitable for transplantation.

**Table 8.1**

Reasons Lungs Not Retrieved, 2015		
Reason	Australia	New Zealand
Logistics	16	0
Not Medically Suitable	240	26
Surgically Unsuitable	2	0
Trauma to Organ	10	4
No Suitable Recipients	70	8
Age of Donor	12	4
DCD Donor	2	0
Consent Withdrawn	6	0
Others	0	0
<b>Total</b>	<b>358</b>	<b>42</b>

## NON UTILISED LUNGS

Figure 8.2 shows the reasons lungs were not used from Australian deceased donors since 2011. In New Zealand, only three lungs in 2015 were not transplanted, due to the lungs not being medically suitable.

**Table 8.2**

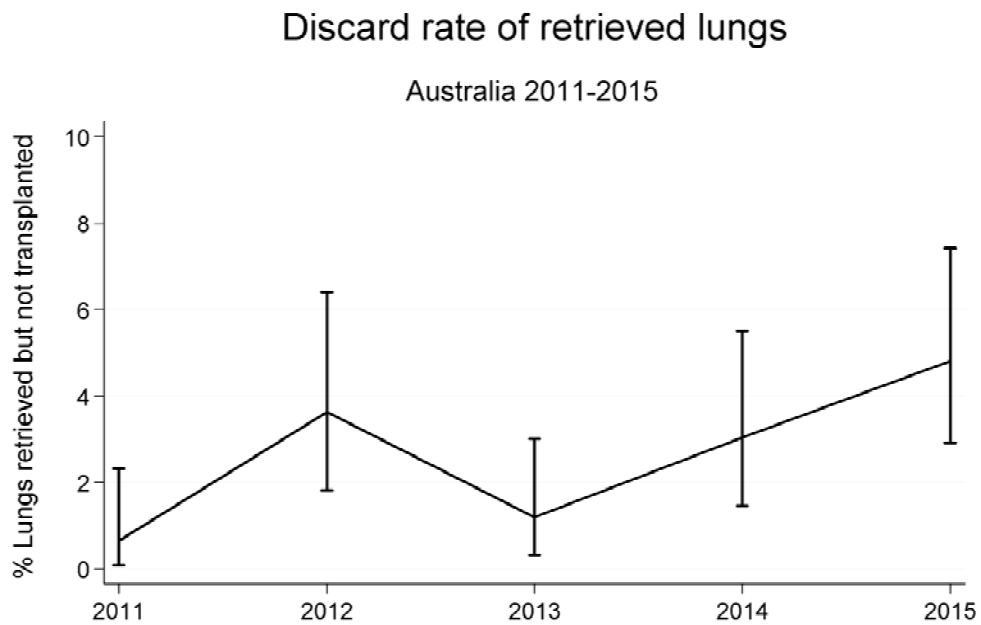
Reasons Lungs Retrieved and Not Utilised for Organ Transplantation in Australia (New Zealand) 2010 - 2014						
Year	Logistics	Not Medically Suitable	Not Surgically Suitable	No Suitable Recipients	Other	Total
2011	1 (0)	1 (0)	0 (0)	0 (0)	0 (0)	2 (0)
2012	0 (0)	0 (0)	0 (0)	0 (0)	3 (0)	3 (0)
2013	0 (0)	4 (0)	0 (0)	0 (0)	0 (0)	4 (0)
2014	0 (0)	10 (1)	0 (0)	2 (0)	0 (0)	12 (1)
2015	0 (0)	3 (0)	0 (0)	0 (0)	0 (0)	3 (0)

# LUNG DONATION

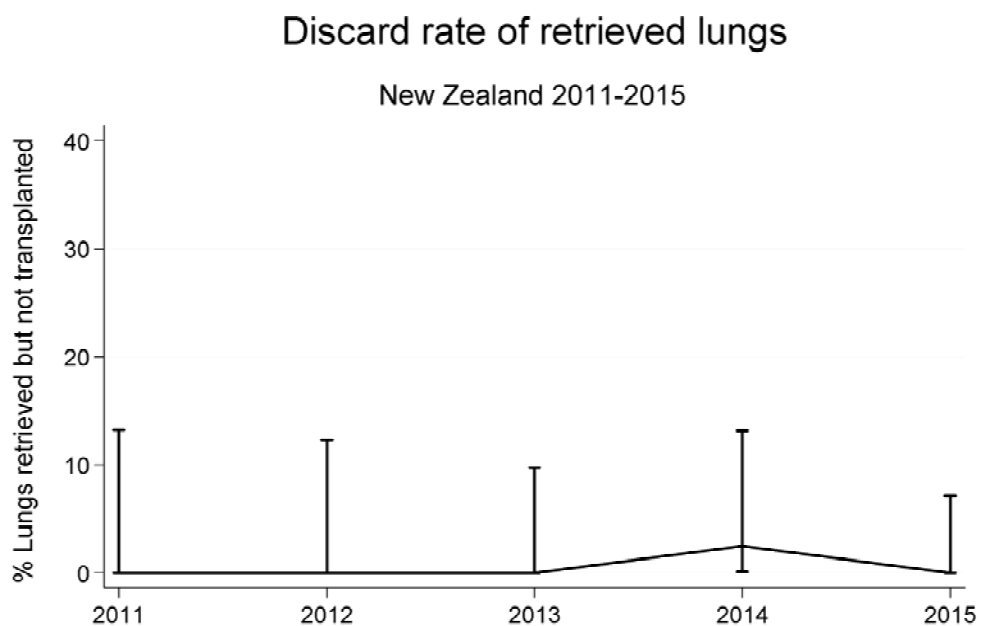
Figures 8.8 and 5.9 show the non-utilisation rate of retrieved lungs – the proportion of lungs that were retrieved for the purpose of solid organ transplantation, but not ultimately transplanted into a recipient (either due to an absence of suitable recipients, or the lung(s) being found to be medically or surgically unsuitable after retrieval).

In Australia, the non-utilisation rate has steadily increased from 0.7% in 2011 to 4.9% in 2015, with the exception of 2013 when it fell to 1.2%. In New Zealand these rates have historically been generally lower than in Australia (note the different y-axis scales).

**Figure 8.8**



**Figure 8.9**



# LUNG DONATION

Table 5.12.1

Outcome of Request for Lung Donation Australia, 2011 - 2015					
Outcome	2011	2012	2013	2014	2015
<b>Total Donors</b>	<b>337</b>	<b>354</b>	<b>391</b>	<b>378</b>	<b>435</b>
Lungs with No Request for Donation	80	86	92	72	86
Lungs with Request for Donation	594	622	690	684	784
Lungs with Consent Not Given for Donation	8	12	30	24	32
Lungs with Consent Given for Donation	586	610	660	660	752
Lung Not Retrieved	278	307	323	331	358
Lung Retrieved	308	303	337	329	394
(Single Lung Retrieved)	4	1	1	3	2
(Double Lung Retrieved)	152	151	168	163	196
Total Lungs Not Used	2	3	4	10	3
Lungs used for Research	0	8	0	0	16
Lungs Transplanted	306	292	333	319	375
Recipient Transplanted	159	148	169	163	193
Double Lung Recipient	147	144	164	156	182
Single Lung(L) Recipients	7	2	3	4	6
Single Lung(R) Recipients	5	2	2	3	5
(Heart/Lung Recipients)	2	4	2	4	2
<b>Lung Discard Rate</b>	<b>0.65%</b>	<b>3.63%</b>	<b>1.19%</b>	<b>3.04%</b>	<b>4.82%</b>
<b>Lung Utilised Rate</b>	<b>99.35%</b>	<b>96.37%</b>	<b>98.81%</b>	<b>96.96%</b>	<b>95.18%</b>

# LUNG DONATION

Table 5.12.2

Outcome of Request for Lung Donation New Zealand, 2011 - 2015					
Outcome	2011	2012	2013	2014	2015
<b>Total Donors</b>	<b>38</b>	<b>38</b>	<b>36</b>	<b>46</b>	<b>53</b>
Lungs with No Request for Donation	18	10	18	26	14
Lungs with Request for Donation	58	66	54	66	92
Lungs with Consent Not Given for Donation	0	4	0	0	0
Lungs with Consent Given for Donation	58	62	54	66	92
Lung Not Retrieved	32	34	18	26	42
Lung Retrieved	26	28	36	40	50
(Single Lung Retrieved)	0	0	0	0	0
(Double Lung Retrieved)	13	14	18	20	25
Total Lungs Not Used	0	0	0	1	0
Lungs used for Research	0	0	0	0	0
Lungs Transplanted	26	28	36	39	50
Recipient Transplanted	13	14	18	20	25
Double Lung Recipient	13	14	18	19	25
Single Lung(L) Recipients	0	0	0	1	0
Single Lung(R) Recipients	0	0	0	0	0
(Heart/Lung Recipients)	0	0	0	1	0
<b>Lung Discard Rate</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>2.50%</b>	<b>0%</b>
<b>Lung Utilised Rate</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>97.50%</b>	<b>100%</b>





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