

## Organ Data





## KIDNEY DONATION

In 2012 there were 617 kidney transplant recipients in Australia which included eight recipients of double adult kidney transplants and two recipients of en bloc kidney transplants.

In New Zealand there were no double adult or

en bloc kidney donations.

There were 38 combined kidney/pancreas and seven liver/kidney transplant recipients, in 2012 in Australia. In New Zealand there were two combined kidney/pancreas procedures in 2012.

Figure 5.1

**Outcome of Request for Kidney Donation  
Australia 2012**

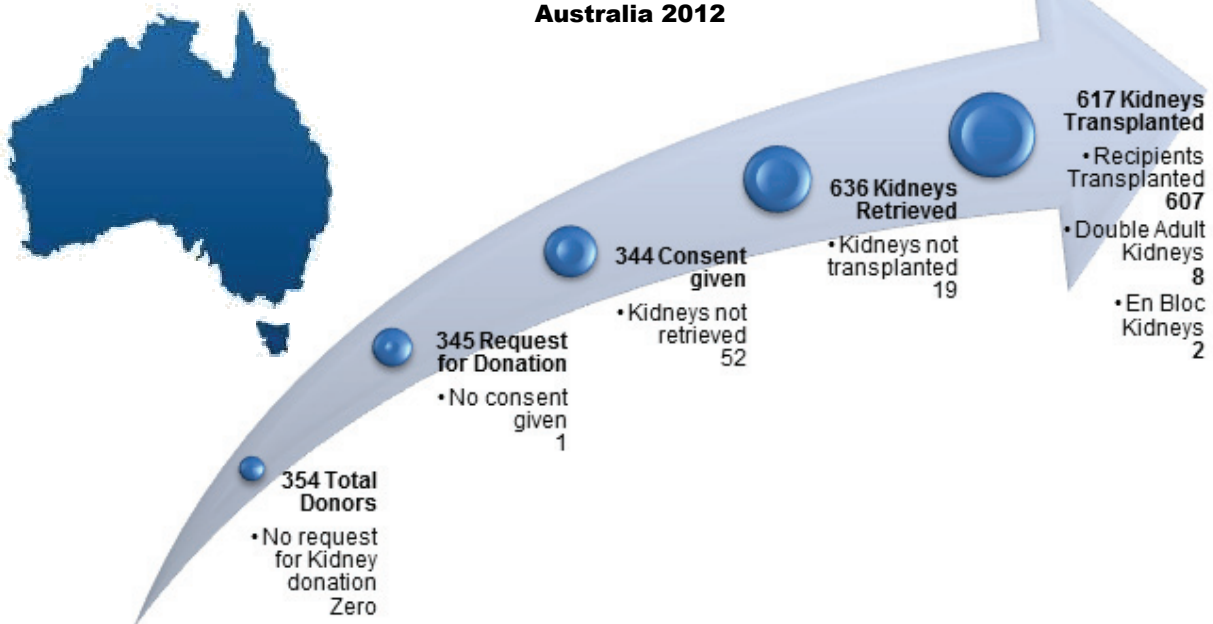
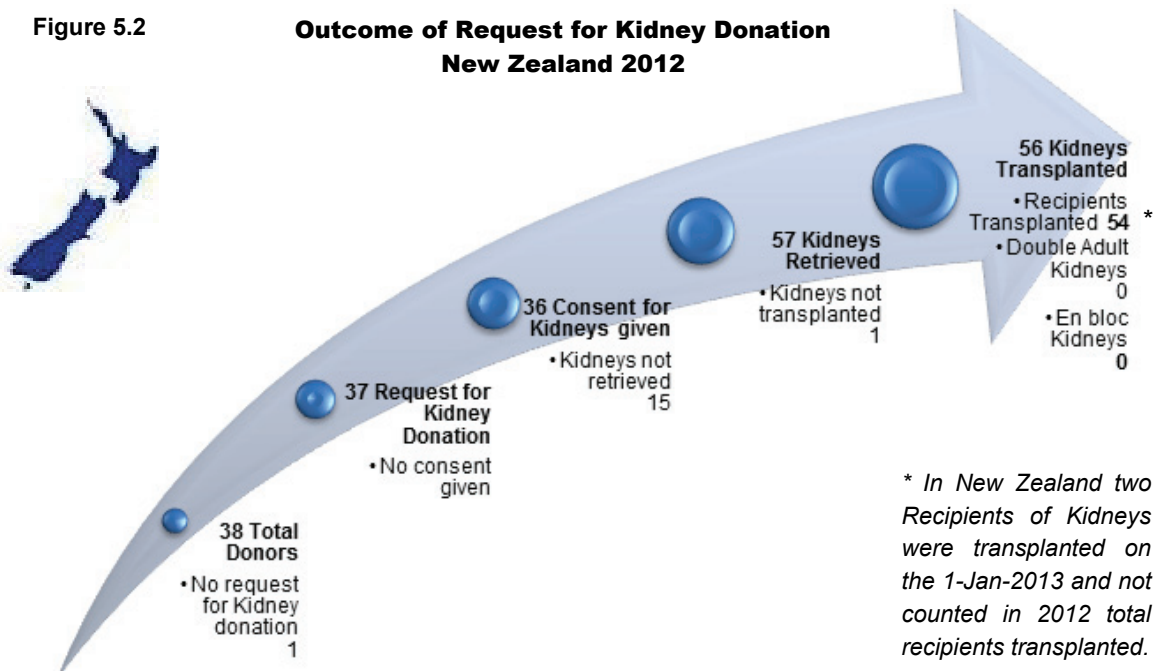


Figure 5.2

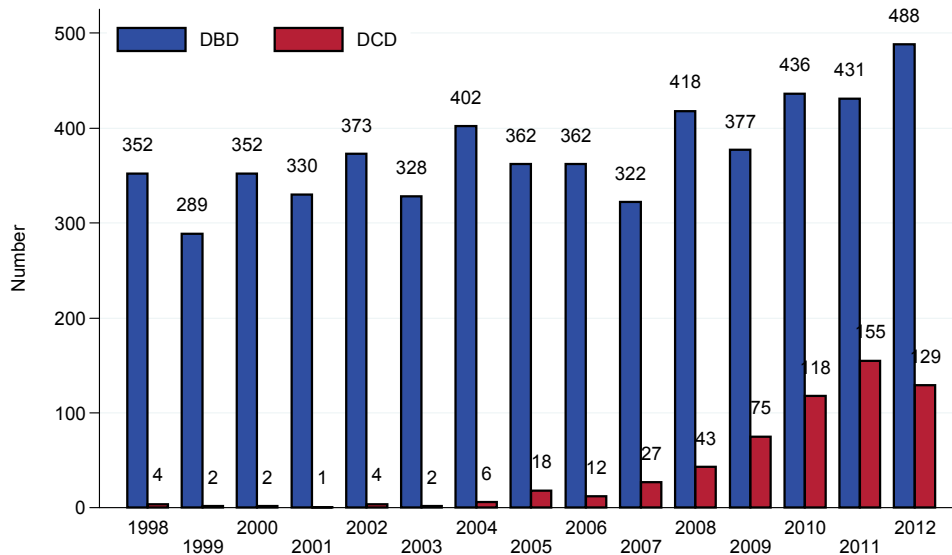
**Outcome of Request for Kidney Donation  
New Zealand 2012**



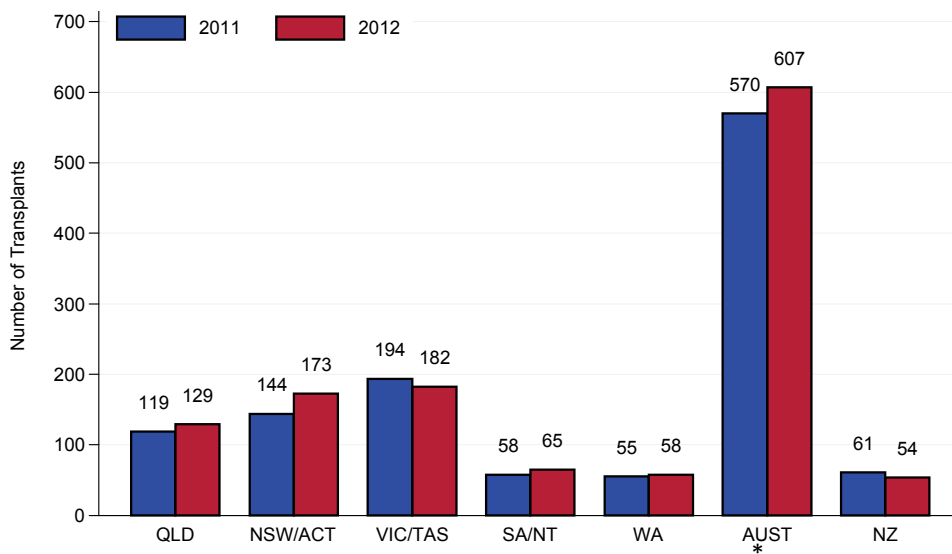
\* In New Zealand two Recipients of Kidneys were transplanted on the 1-Jan-2013 and not counted in 2012 total recipients transplanted.



**Figure 5.3 Kidneys Transplanted by Type of Organ Donor  
Australia 1998 - 2012**



**Figure 5.4 Deceased Donor Kidney Transplant Recipients \*  
by Transplant State Australia and New Zealand, 2011 - 2012**



\* These numbers include the exchange of organ between States and Territories of Australia and New Zealand



# Organ Data

The age distribution of donors providing transplanted kidneys for Australia and New Zealand is shown in Figures 5.5 and 5.6 respectively. The reasons that kidneys were not used are shown in Figure 5.7 for Australia and Figure 5.8 for New Zealand.

There were 33 donors (10%) who had a biopsy of the kidneys taken at retrieval in 2012 in Australia and ten donors (26%) in New Zealand.

Since 2000, there have been 358 (13%) biopsies from 2901 kidney donors in Australia and 147 (34%) from 429 kidney donors in New Zealand.

Figure 5.5

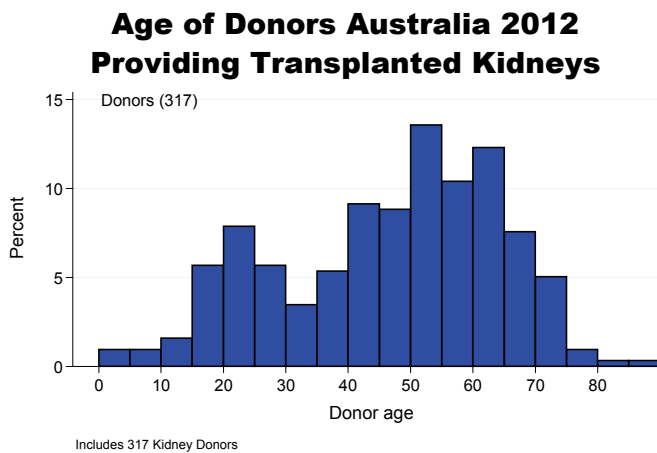


Figure 5.6

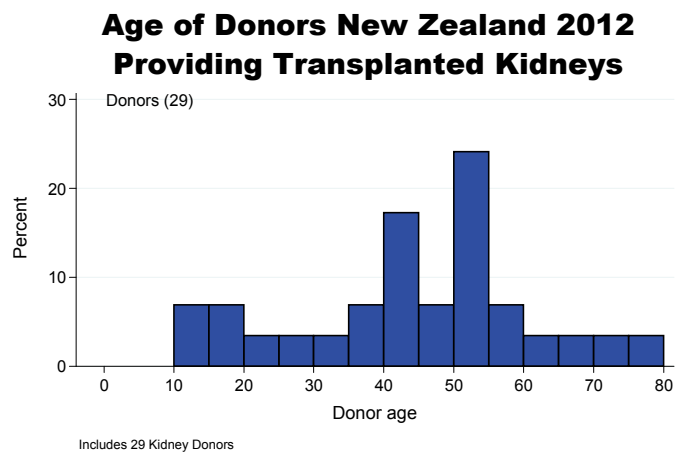


Figure 5.7

Reason Kidneys Not Used from Australian Donors 1998 - 2012						
Year	Logistics	Medically Unsuitable	Surgically Unsuitable	Trauma	Other	Total
1998	1	7	1	0	0	9
1999	2	5	2	0	0	9
2000	4	12	0	0	0	16
2001	2	9	2	0	0	13
2002	1	1	1	0	0	3
2003	0	5	4	0	1	10
2004	1	2	3	0	0	6
2005	0	9	2	0	0	11
2006	2	7	0	0	2	11
2007	2	7	0	0	0	9
2008	4	11	1	0	0	16
2009	1	3	1	0	0	5
2010	5	9	2	0	0	16
2011	4	9	6	0	0	19
2012	4	7	8	0	0	19

Figure 5.8

Reason Kidneys Not Used from New Zealand Donors 1998 - 2012						
Year	Logistics	Medically Unsuitable	Surgically Unsuitable	Trauma	Other	Total
1998	0	7	0	0	0	7
1999	1	4	0	0	0	5
2000	0	4	0	3	0	7
2001	0	1	0	0	0	1
2002	0	1	0	0	0	1
2003	1	5	0	0	0	6
2004	0	3	0	0	0	3
2005	0	3	0	1	0	4
2006	0	1	0	0	0	1
2007	0	3	0	0	0	3
2008	0	6	0	0	0	6
2009	0	14	0	3	0	17
2010	0	4	0	2	0	6
2011	0	1	0	0	0	1
2012	0	1	0	0	0	1

## DONOR KIDNEY FUNCTION

### AUSTRALIA

In 2012 in Australia, 49 donors (14%) had a terminal serum creatinine concentration of  $\geq 125 \mu\text{mol/L}$  and 68 donors (19%) had a terminal serum urea concentration of  $\geq 9 \text{ mmol/L}$ , shown in Figure 5.9.

### NEW ZEALAND

There was one donor (<1%) in New Zealand with a terminal serum creatinine concentration of  $\geq 125 \mu\text{mol/L}$  and 2% (two donors) with a terminal serum urea concentration of  $\geq 9 \text{ mmol/L}$  in 2012.

Figure 5.9

Terminal Serum Creatinine Levels 2008 - 2012										
Creatinine ( $\mu\text{mol/L}$ )	Australia					New Zealand				
	2008	2009	2010	2011	2012	2008	2009	2010	2011	2012
00-99	73%	77%	79%	77%	76%	89%	90%	89%	81%	90%
100-124	12%	9%	6%	11%	9%	7%	3%	4%	9%	7%
125-149	4%	5%	4%	5%	5%	4%	3%	4%	6%	3%
150-174	4%	2%	4%	3%	2%	-	3%	4%	-	-
175-199	2%	1%	2%	1%	3%	-	-	-	3%	-
200-224	1%	1%	1%	1%	1%	-	-	-	-	-
225-249	1%	1%	1%	1%	1%	-	-	-	-	-
>250	3%	4%	3%	2%	3%	-	-	-	-	-



## LIVER DONATION

There were 262 liver transplant recipients in 2012; 230 in Australia and 32 in New Zealand.

Seven whole livers and one split liver were donated from Australia and transplanted into New Zealand recipients whilst two whole liver and three split liver from New Zealand donors were transplanted into Australian recipients.

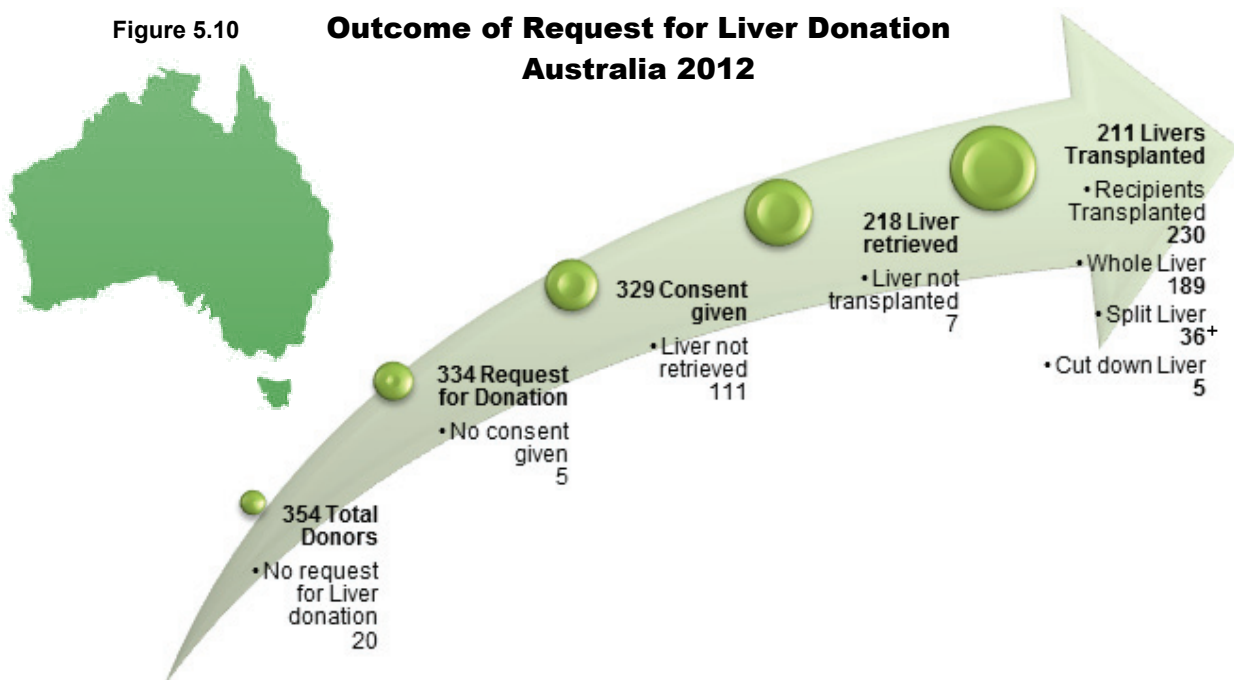
There were 218 liver retrievals, that provided 230 recipients with transplanted livers and 30 New Zealand donors provided livers for 32 recipients as shown in Figure 5.11.

There were seven whole liver/kidney transplants and one liver/pancreas/intestine transplant and one heart/lung and liver transplant in Australia, in 2012.

Twenty three transplants were performed in Australia using the "split" liver technique (transplanting one liver into two recipients) and there were five reduced size livers transplanted into paediatric recipients.

Figure 5.10

### Outcome of Request for Liver Donation Australia 2012

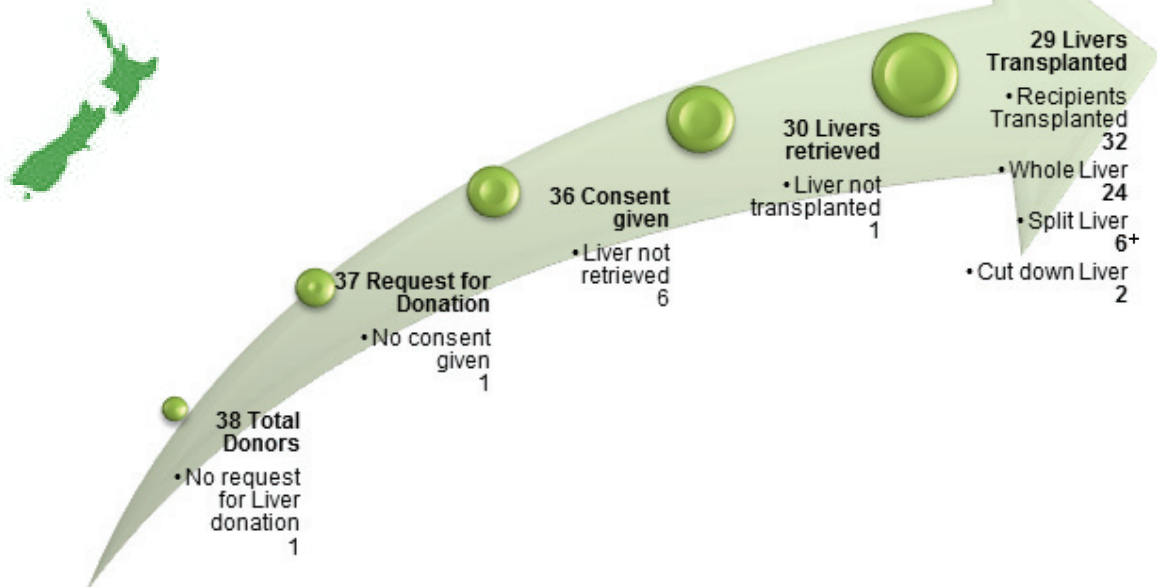


+ Each half of a split liver is counted once.



Figure 5.11

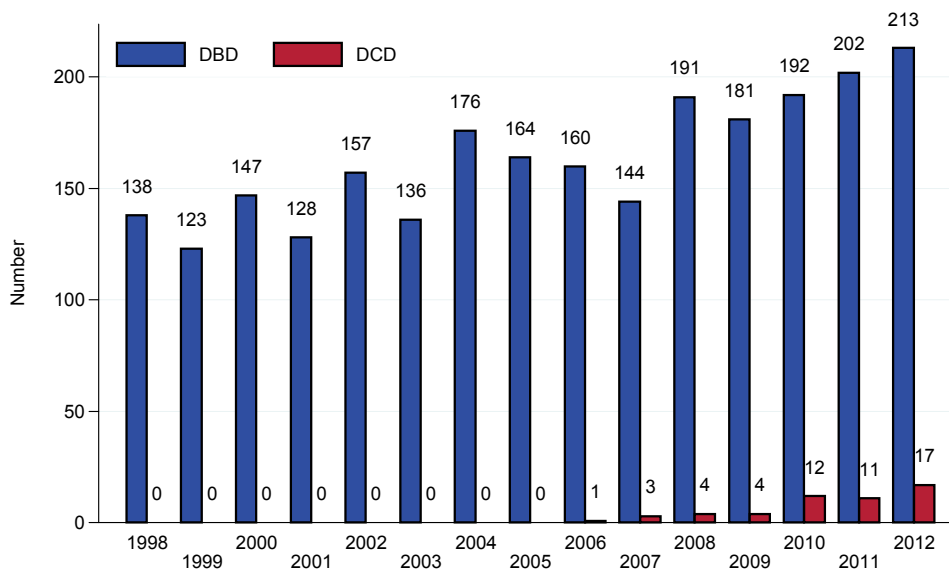
## Outcome of Request for Liver Donation New Zealand 2012



+ Each half of a split liver is counted once.

Figure 5.12

## Livers Transplanted by Type of Organ Donor Australia 1998 - 2012





The age of Donors providing transplanted livers for Australia and New Zealand are shown in Figures 5.13 and 5.14 respectively.

The regional outcome of donors providing liver transplants for Australian states and territory and New Zealand is shown in Figure 5.15.

The reasons for livers that were not used are shown in Figure 5.16.

Figure 5.17 shows the number of donors whose liver function was above normal range.

Figure 5.13

### Age of Donors Australia 2012 Providing Transplanted Livers

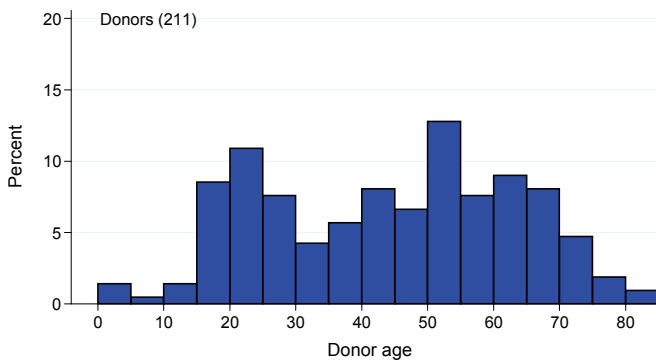


Figure 5.14

### Age of Donors New Zealand 2012 Providing Transplanted Livers

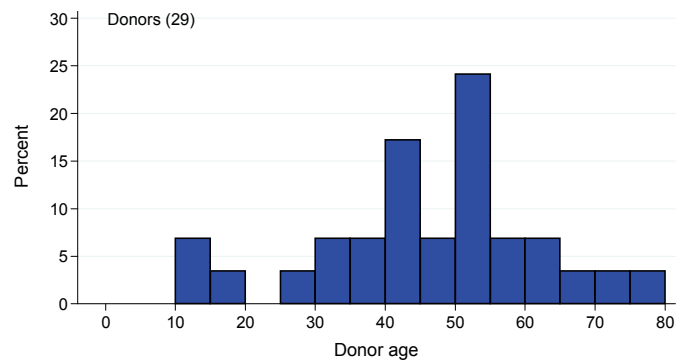
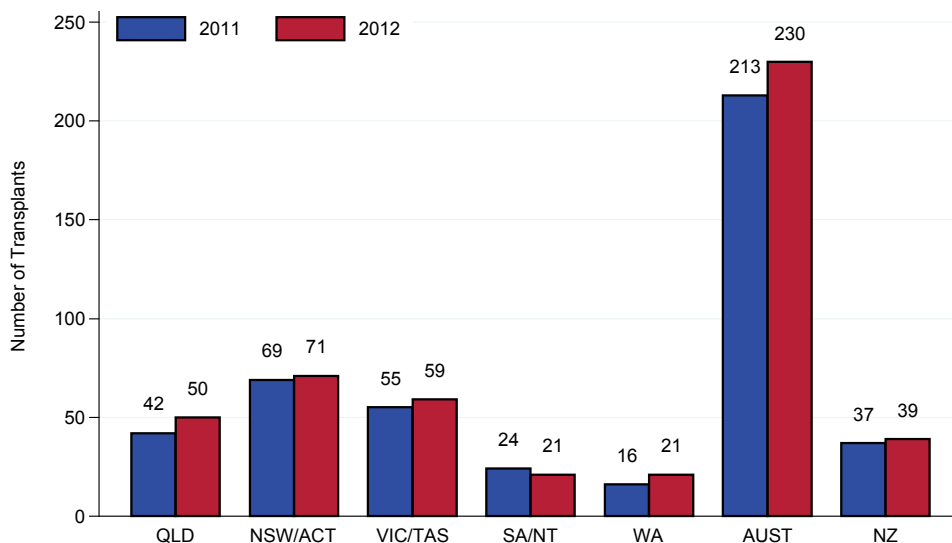


Figure 5.15

### Deceased Donor Liver Transplant Recipients \* by Transplant State Australia and New Zealand 2011 - 2012



\* These numbers include the exchange of organ between States and Territories of Australia and New Zealand



# Organ Data



The liver is only retrieved when a compatible recipient has been identified. Figure 80 shows reasons the liver was not able to be transplanted into the identified recipient. The use of the liver (and other organs) for research purposes requires specific permission from the available next of kin.

Figure 5.16

<b>Reasons Livers Not Used in Australia 2007 - 2012</b>		2007	2008	2009	2010	2011	2012
<b>Australia</b>	Biopsy / Fatty	3	4	1	1	1	5
	Disease of Organ	3	2	1	0	0	1
	Surgical	0	0	0	0	0	0
	Cancer in Donor	0	1	0	0	0	0
	Packaging Problem	0	1	1	0	0	0
	Recipient Issue	0	0	0	1	0	1
	Perfusion Abnormality	1	0	0	0	0	0
	Incorrect Blood Group	0	0	0	1	0	0
<b>Total</b>	<b>7</b>	<b>8</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>7</b>	

## DONOR LIVER FUNCTION

The results of the serum tests for liver function for 218 Australian and 30 New Zealand donors in 2012 who had livers retrieved, are shown below. There were 75% (162 donors) in Australia and 60% (21 donors) in New Zealand who had all five tests performed. Figure 5.17 shows the number of donors whose liver function was above the normal range.

Figure 5.17

<b>Liver Function Tests</b>	<b>Australia</b>		<b>New Zealand</b>	
	<b>Donors with value recorded *</b>	<b>Above Normal</b>	<b>Donors with value recorded *</b>	<b>Above Normal</b>
Alanine Transaminase ALT > 40 u/L	218	80 (37%)	30	15 (50%)
Aspartate Transaminase AST > 40 u/L	162	90 (59%)	21	16 (76%)
Gamma Glutamyl Transferase GGT > 60 u/L	218	40 (18%)	24	10 (42%)
Alkaline Phosphatase > 116 u/L	218	17 (7%)	30	7 (23%)
Total Bilirubin > 20 umol/L	218	29 (13%)	30	3 (10%)

\* Not all donors have all tests



## CARDIOTHORACIC DONATION

### AUSTRALIA

In 2012 there were 72 heart transplant recipients, four heart/lung transplant recipients, 140 double lung transplant recipients and four single lung transplant recipients. These numbers include two double lung organ transplants from New Zealand donors.

The first perfusion fluid of choice for heart retrieval was crystalloid cardioplegia (56%) followed by celsior (27%).

Perfadex (74%) was the first perfusion fluid for lung retrieval followed by celsior (12%).

### ECG AND ECHOCARDIOGRAM

Sixty one donors (79%) had a normal ECG and 67 of the 77 heart donors (87%), had a normal echocardiogram.

### NEW ZEALAND

New Zealand performed twelve heart and thirteen double lung transplants in 2012.

One double lung and no hearts were sent for transplantation in Australia.

The first perfusion fluid for heart retrieval was crystalloid cardioplegia for all twelve donors.

Perfadex was the first perfusion fluid used for 85% of lung donors, followed by celsior (12%).

### ECG AND ECHOCARDIOGRAM

Ten (83%) of the twelve heart donors had a normal ECG and eleven heart donors (93%) had a normal echocardiogram.

Figure 5.18

### Outcome of Request for Heart Donation Australia 2012

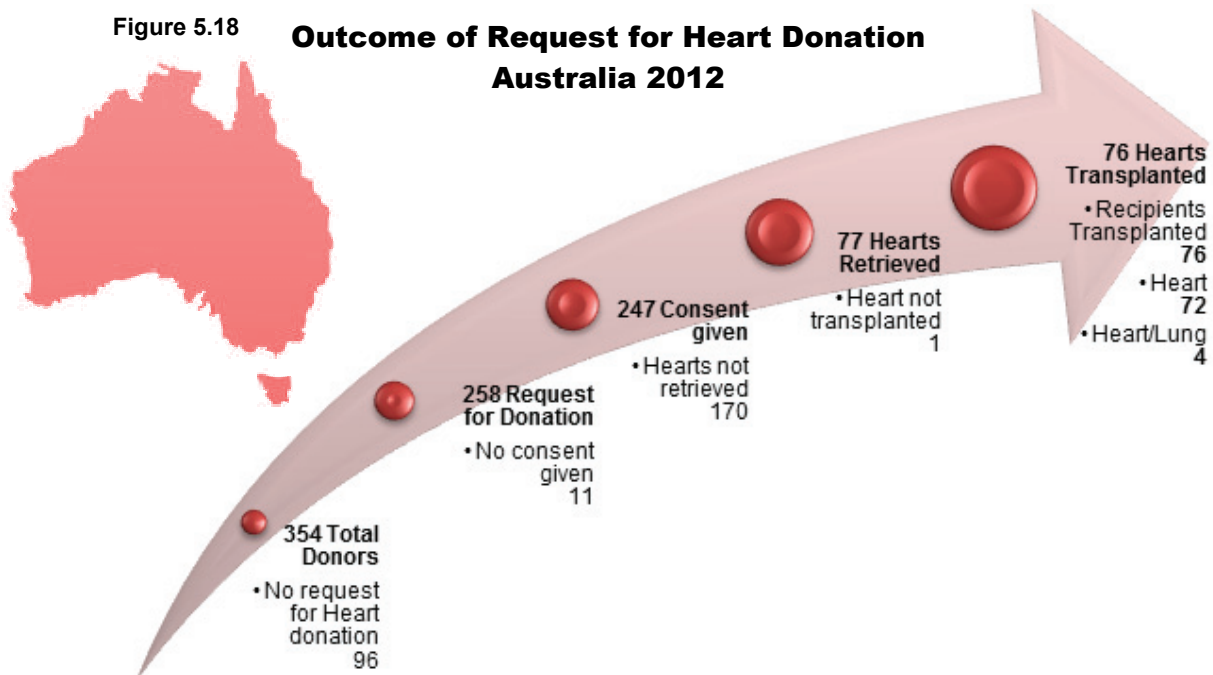


Figure 5.19

## Outcome of Request for Heart Donation New Zealand 2012

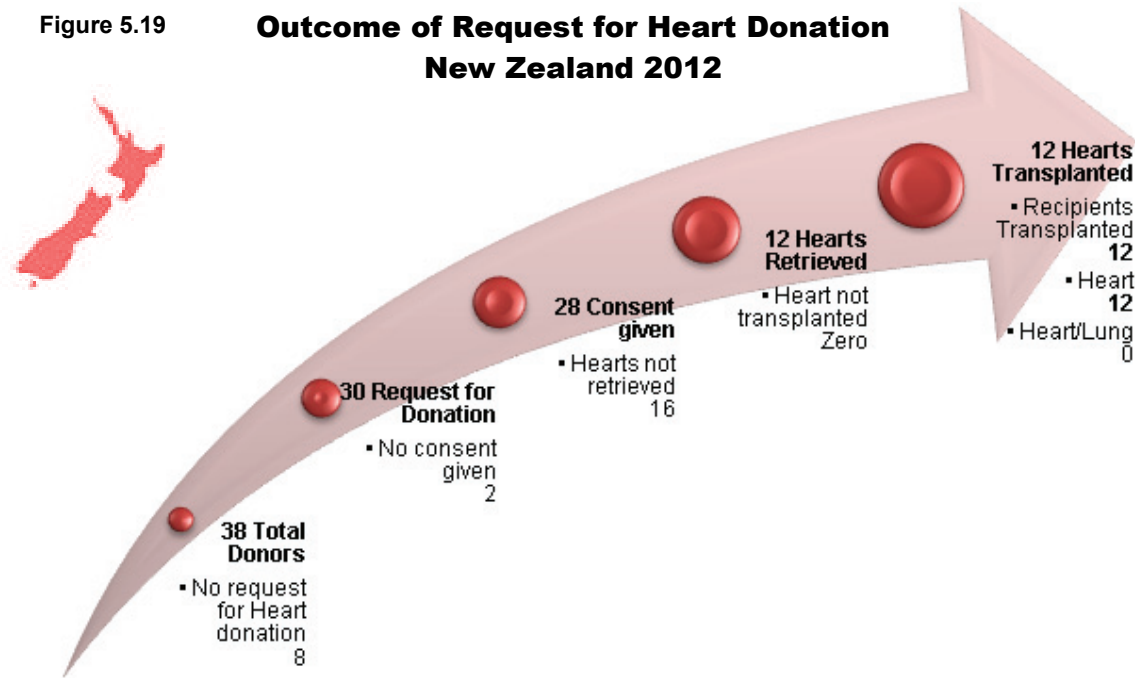
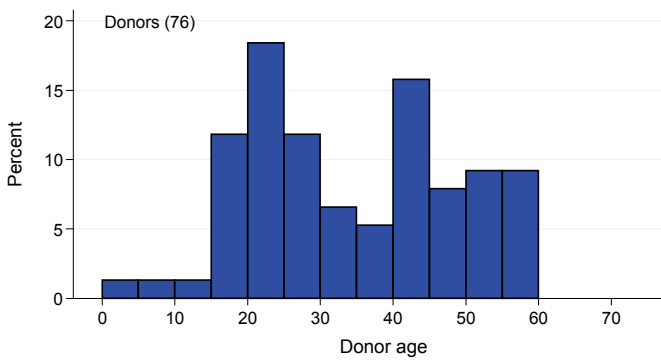


Figure 5.20

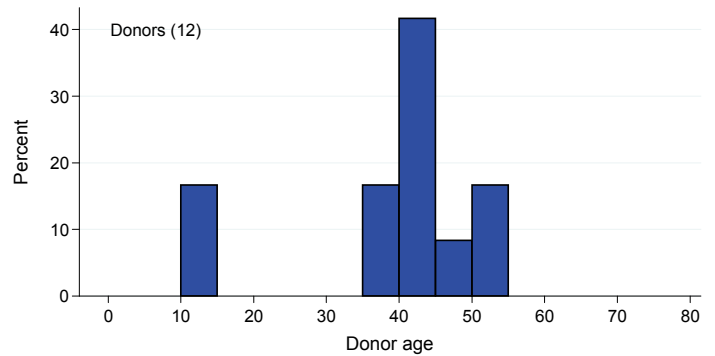
## Age of Donors Australia 2012 Providing Transplanted Hearts



Includes 4 Heart-Lung Donors

Figure 5.21

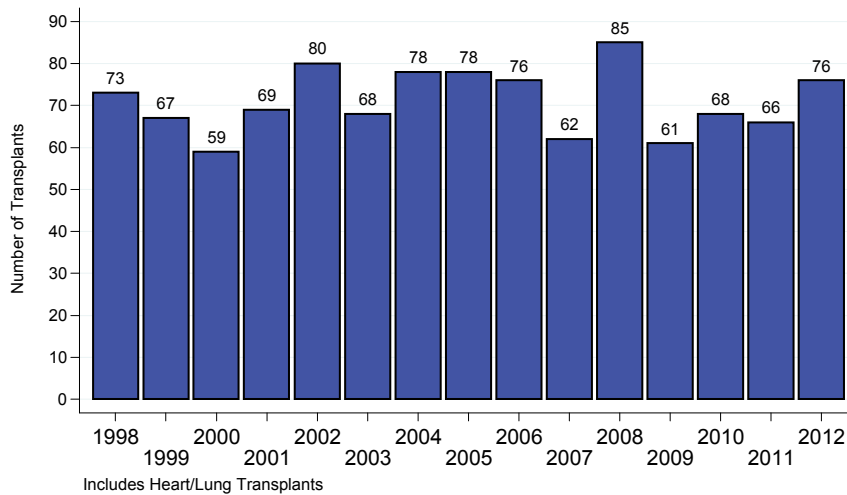
## Age of Donors New Zealand 2012 Providing Transplanted Hearts



Includes 0 Heart-Lung Donors

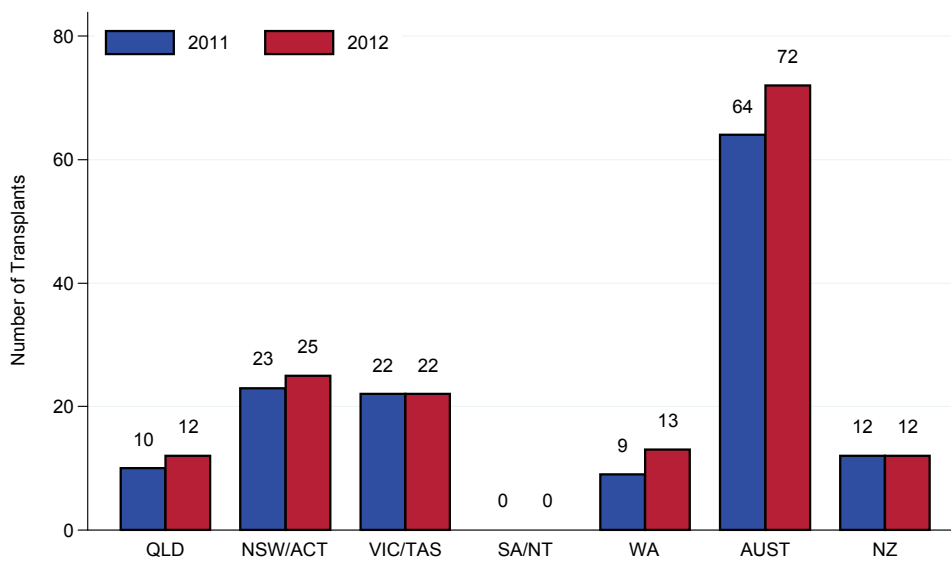


**Figure 5.22** **Hearts Transplanted by Year**  
**Australia 1998 - 2012**



**Figure 5.23**

**Deceased Donor Heart Transplant Recipients \***  
**by Transplant State Australia and New Zealand 2011 - 2012**

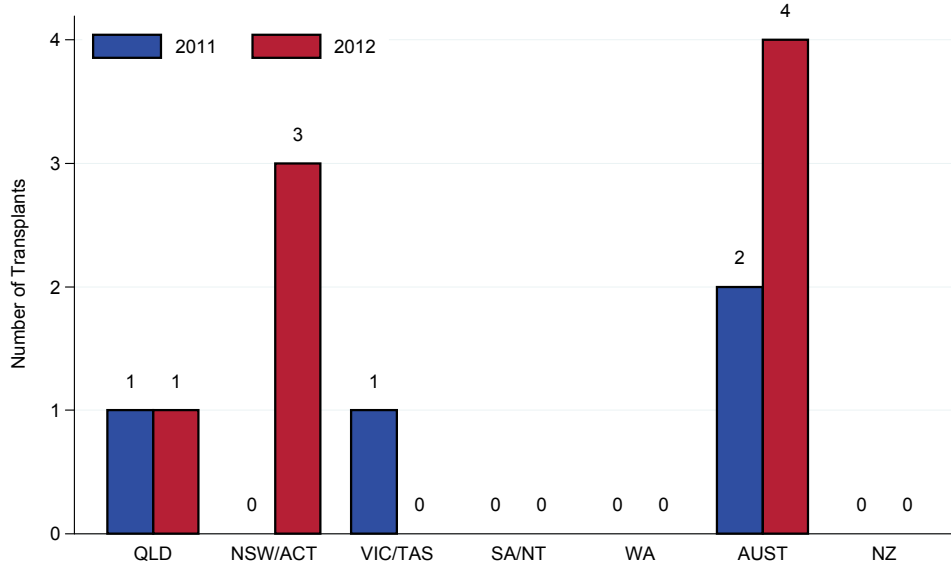


\* These numbers include the exchange of organ between States and Territories of Australia and New Zealand



Figure 5.24

## Deceased Donor Heart/Lung Transplant Recipients \* by Transplant State Australia and New Zealand 2011 - 2012



\* These numbers include the exchange of organ between States and Territories of Australia and New Zealand

Figure 5.25

Reasons Hearts Not Retrieved in Australia 2007 - 2012		2008	2009	2010	2011	2012
Australia	Age of Donor	12	18	15	16	25
	Coronial/Pathologist Refusal	5	0	1	3	3
	DCD Donor	11	25	43	45	42
	Disease in Organ	23	30	23	29	34
	Family Request	0	1	0	1	0
	Infection/Malignancy	2	1	3	2	6
	Logistics	1	1	3	4	1
	Medically Unsuitable	25	29	50	27	32
	No suitable recipient	19	13	18	25	22
	Trauma to Organ	7	2	4	1	5
	<b>113</b>	<b>120</b>	<b>160</b>	<b>161</b>	<b>170</b>	



## LUNG DONATION

Figure 5.26

### Outcome of Request for Lung Donation Australia 2012

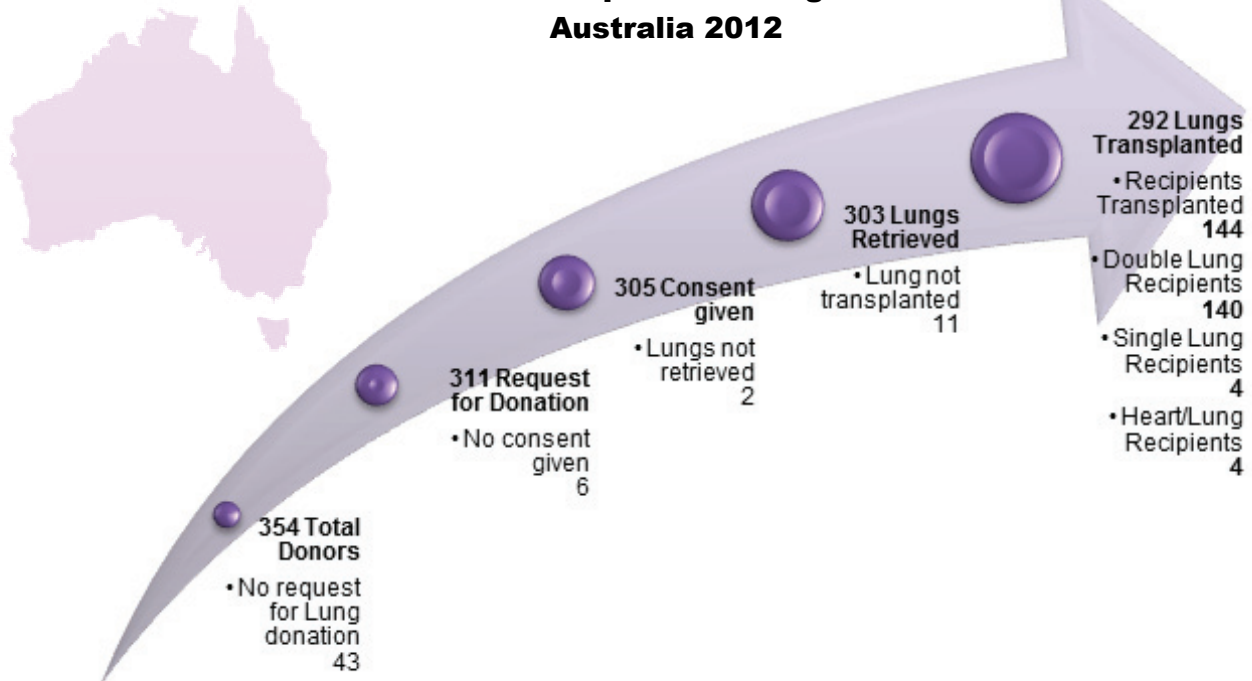
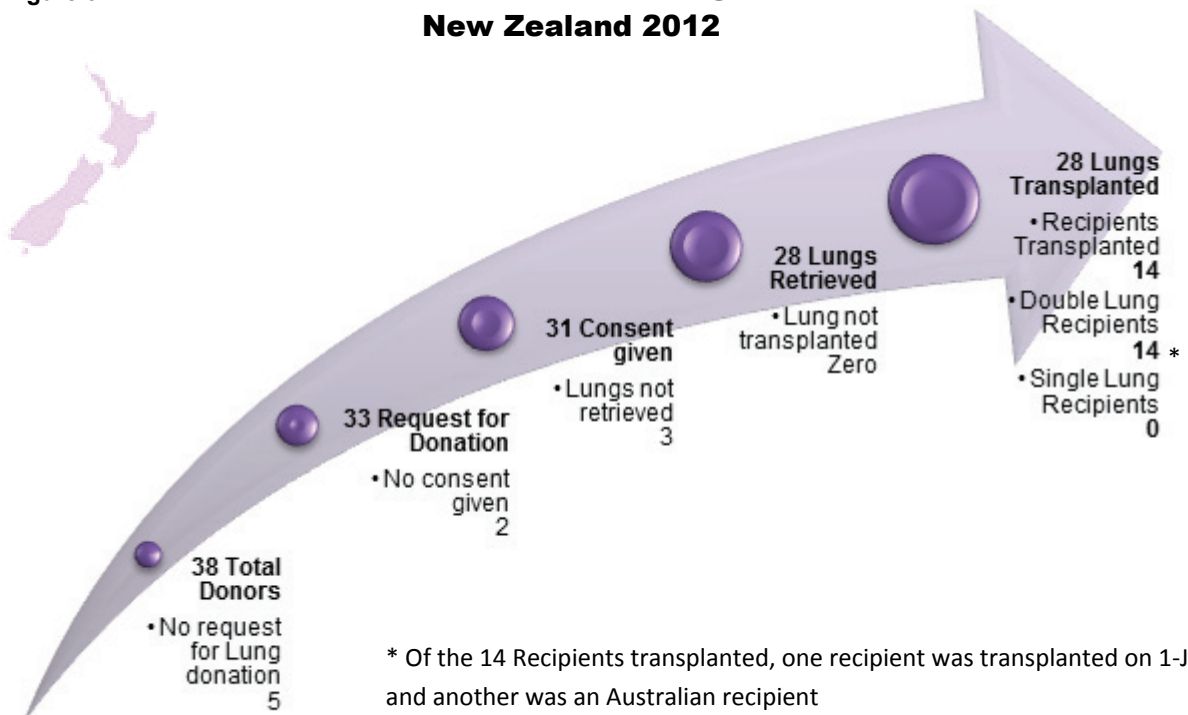


Figure 5.27

### Outcome of Request for Lung Donation New Zealand 2012



\* Of the 14 Recipients transplanted, one recipient was transplanted on 1-Jan-2013 and another was an Australian recipient

Figure 5.28

**Lungs Transplanted by Type of Organ Donor  
Australia 1998 - 2012**

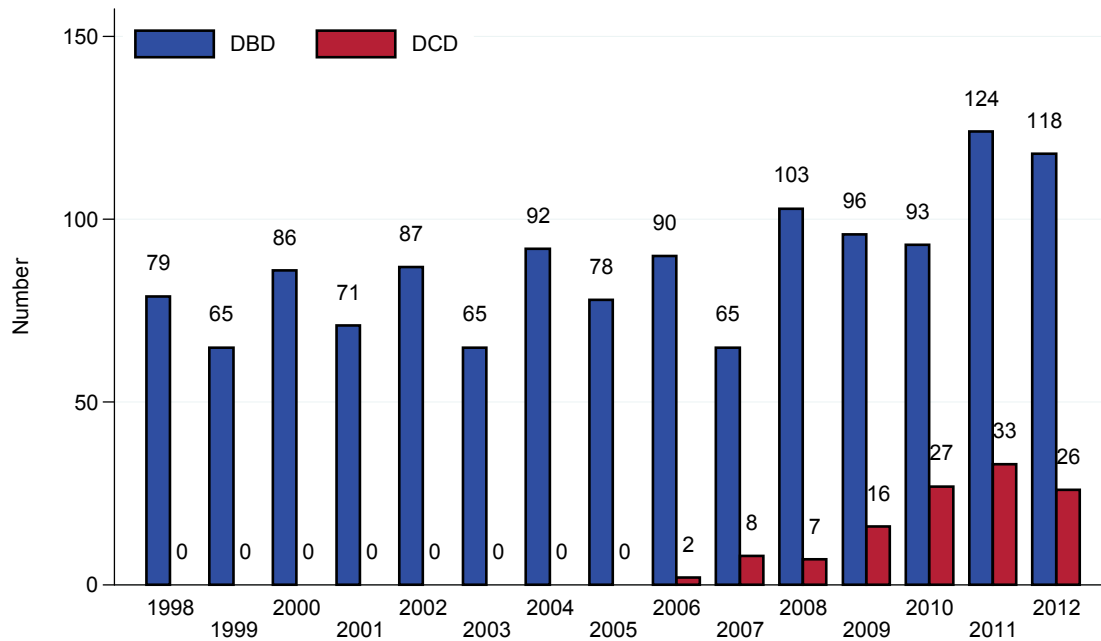
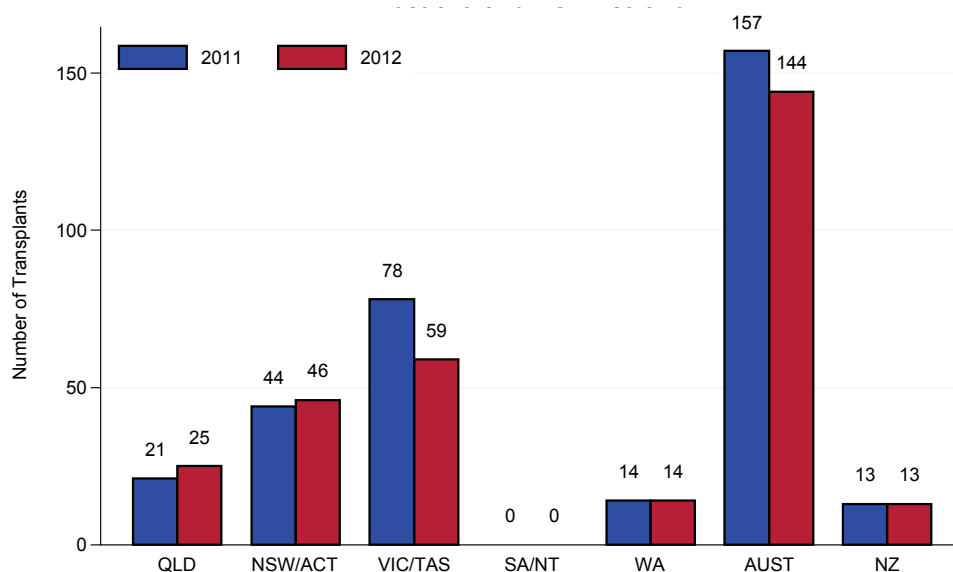


Figure 5.29

**Deceased Donor Lung Transplant Recipients \*  
by Transplant State Australia and New Zealand 2011 - 2012**



\* These numbers include the exchange of organ between States and Territories of Australia and New Zealand



Figure 5.30

## Age of Donors Australia 2012 Providing Transplanted Lungs

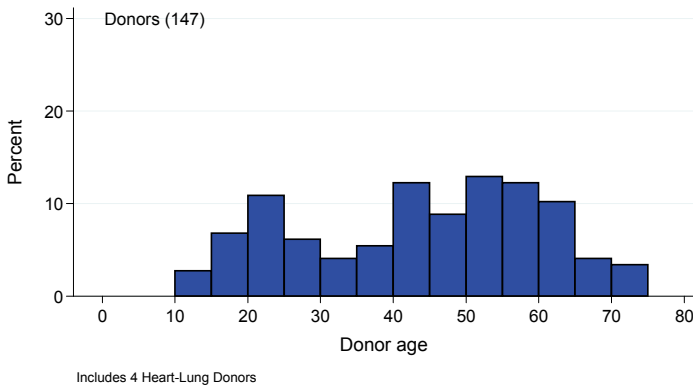
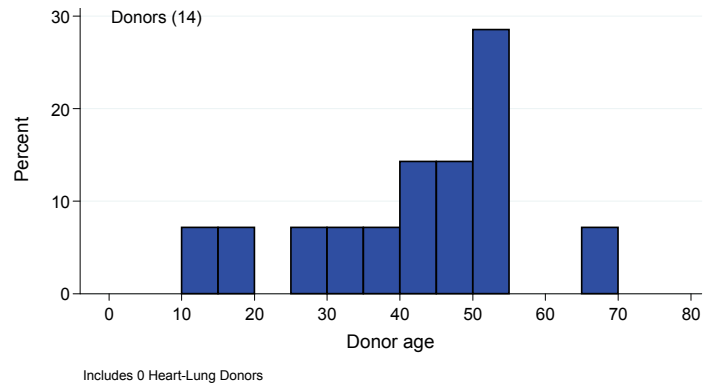


Figure 5.31

## Age of Donors New Zealand 2012 Providing Transplanted Lungs



## DONOR LUNG FUNCTION

### AUSTRALIA

There were 89 Australian lung donors (56%) who had a bronchoscopy in 2012. Nineteen donors had chest trauma; these included nine pneumothorax, one with a chest drain and seven with contusions

The arterial blood gases were taken on 100% FiO<sub>2</sub> and PEEP of 5 cm. Sixty four donors had a PEEP > 5 cm.

The results from 144 lung donors in 2012 show 14% (21) to be acidotic (pH < 7.35) and 16% (24) to be alkalotic (pH > 7.45).

Oxygenation measured as PaO<sub>2</sub> ranged from 31-612 mmHg with a median of 413 mmHg.

PaCO<sub>2</sub> ranged from 5.20-62.0 mmHg with a median of 39.6 mmHg.

### NEW ZEALAND

There were three (22%) New Zealand lung donors who had a bronchoscopy in 2012. No donors had chest trauma.

All fourteen lung donors had 100% FiO<sub>2</sub>; five had a PEEP greater than 5cm.

The arterial blood gas results from fourteen lung donors in 2012 show 43% (6) to be acidotic (pH < 7.35) and no donors to be alkalotic (pH > 7.45).

Oxygenation measured as PaO<sub>2</sub> ranged from 307-613 mmHg with a median of 435.5 mmHg.

PaCO<sub>2</sub> ranged from 30.0 - 61.00 mmHg with a median of 43.0 mmHg.





## PANCREAS DONATION

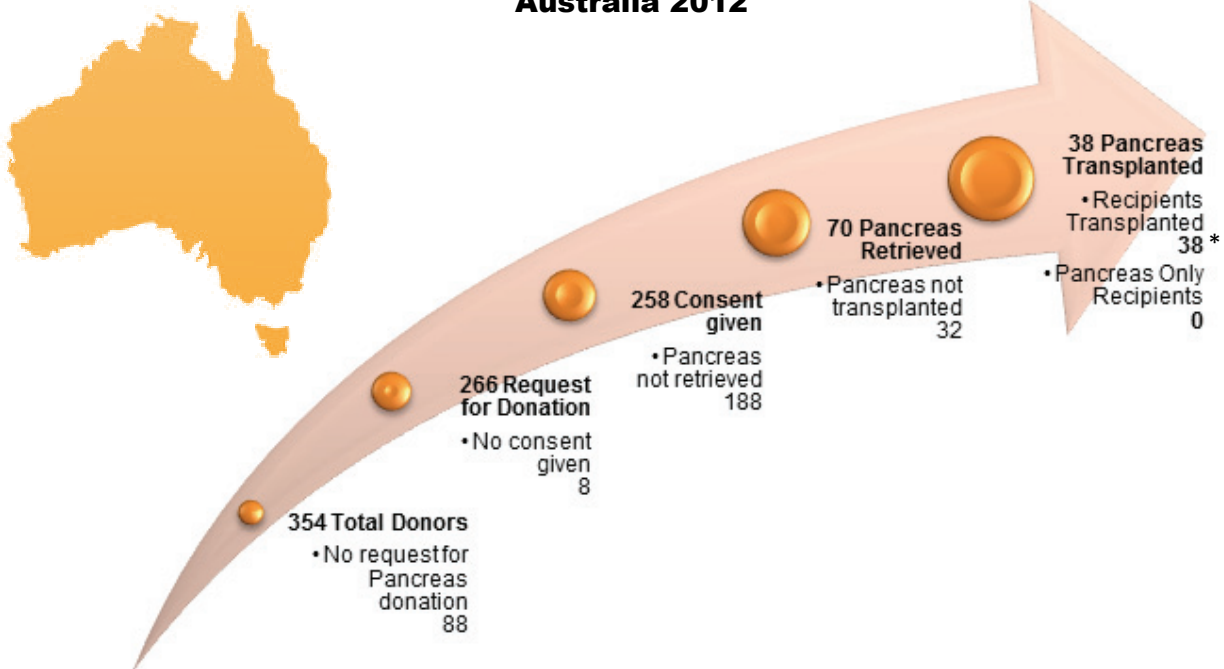
There were 37 recipients of combined kidney/pancreas transplants performed in 2012; 28 in New South Wales and ten in Victoria. Including combined Pancreas/liver/intestines transplant.

Three pancreas islets transplants were performed in 2012; one each in New South Wales, Victoria and South Australia.

In New Zealand in 2012, there were three combined kidney/pancreas transplants performed in Auckland.

The first perfusion fluid used in Australia for pancreas retrieved was Ross solution (47%), Hartmans (34%), saline (13%) and UW (5%). UW was used for all New Zealand pancreas retrieved.

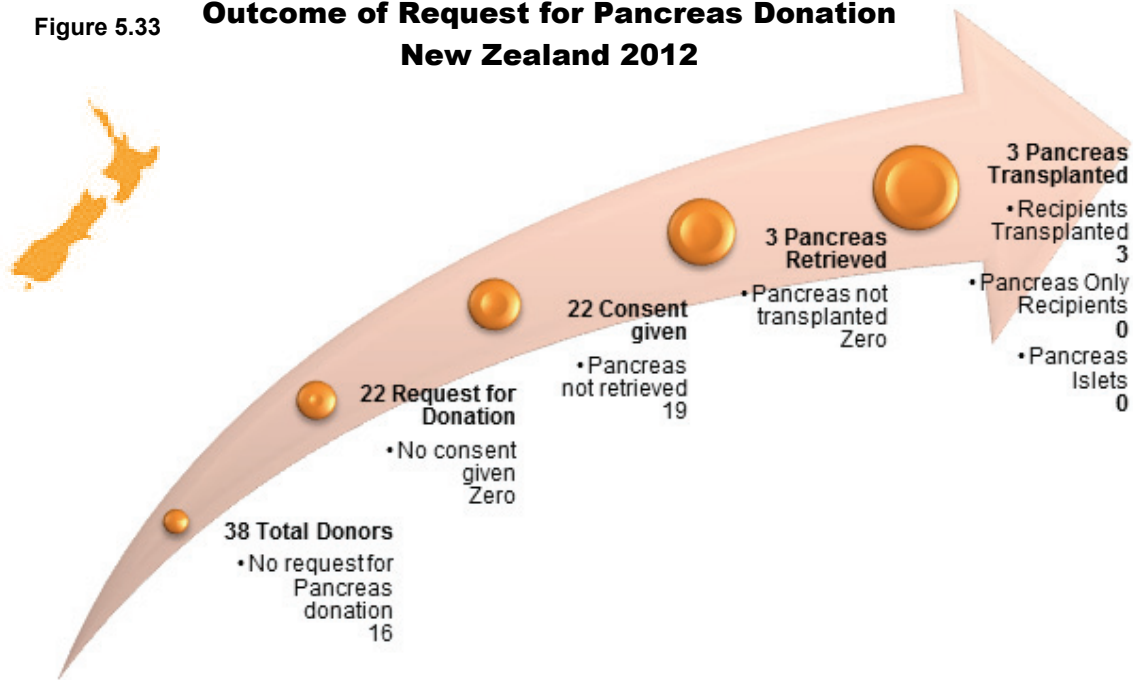
**Figure 5.32 Outcome of Request for Pancreas Donation Australia 2012**



\* All 38 Pancreas transplants resulted in 38 combined Kidney/Pancreas recipient transplants.

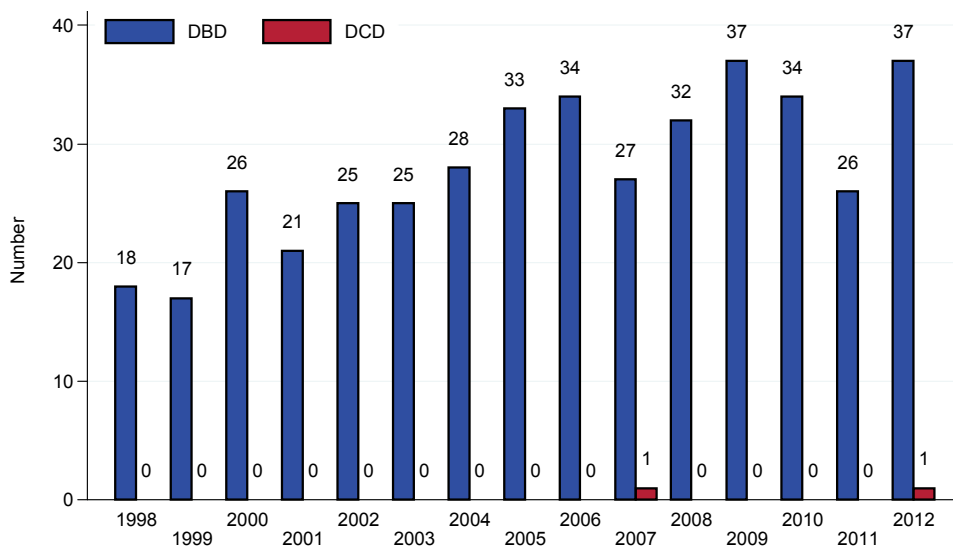


**Figure 5.33 Outcome of Request for Pancreas Donation New Zealand 2012**



**Figure 5.34**

## Pancreas Transplants by Type of Organ Donor Australia 1998 - 2012





# Organ Data

Figure 5.35

## Age of Donors Australia 2012 Providing Transplanted Pancreas

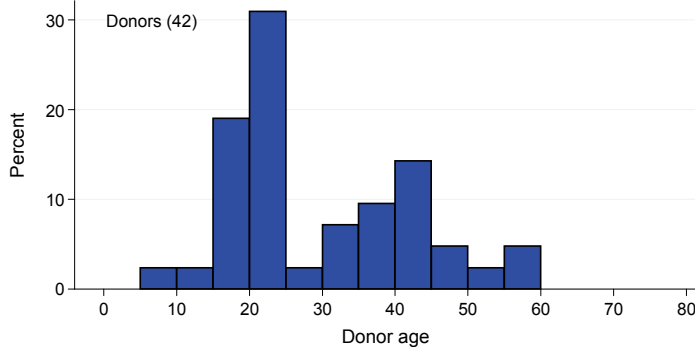


Figure 5.36

## Age of Donors New Zealand 2012 Providing Transplanted Pancreas

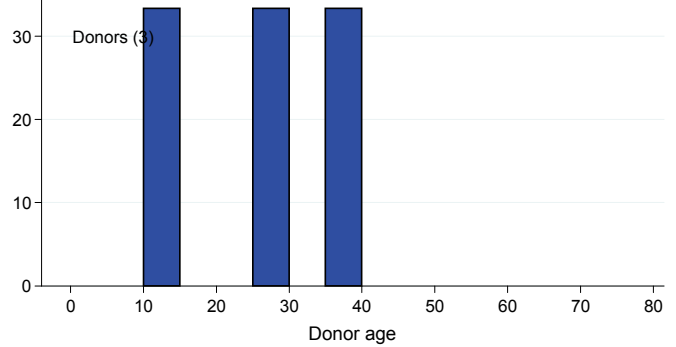
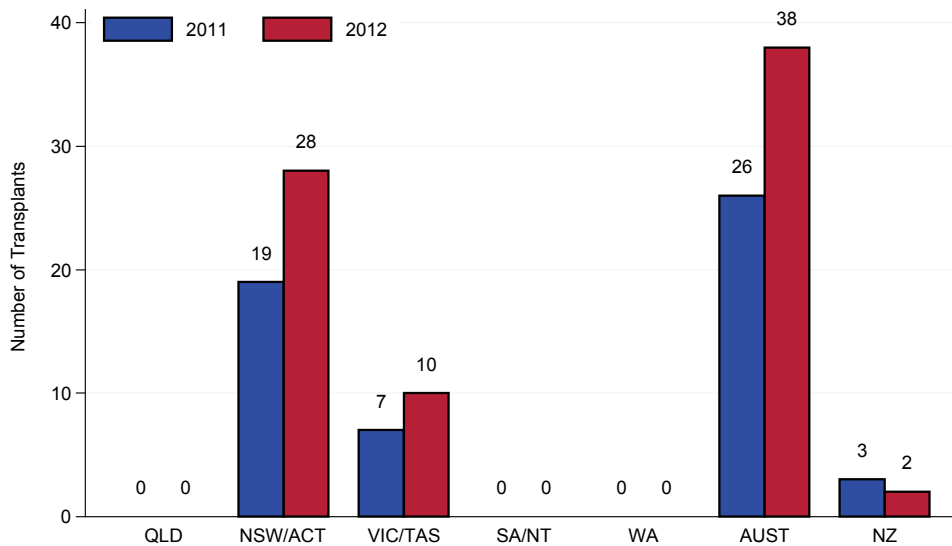


Figure 5.37

## Deceased Donor Pancreas Transplant Recipients \* by Transplant State Australia and New Zealand 2011 - 2012



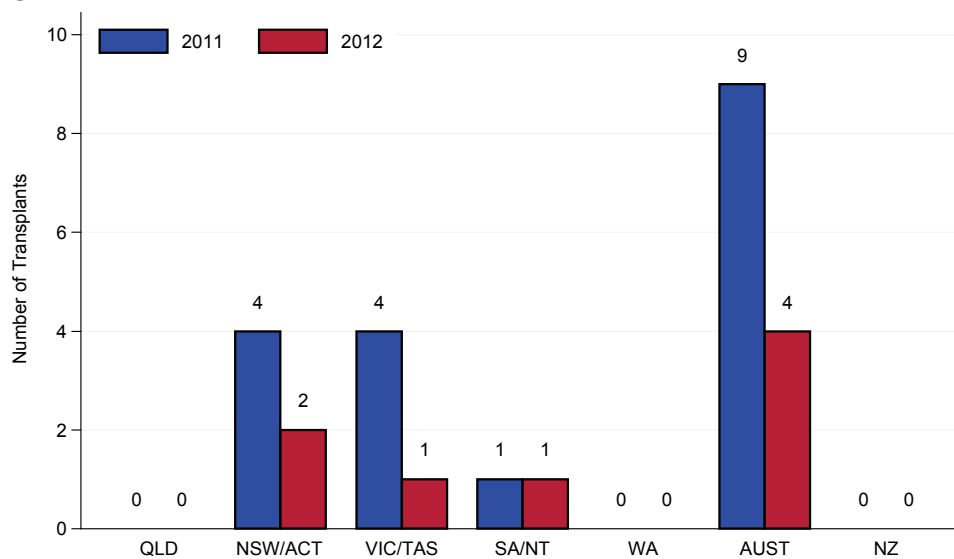
\* These numbers include the exchange of organ between States and Territories of Australia and New Zealand



## PANCREAS ISLETS DONATION

Figure 5.38

### Deceased Donor Pancreas Islets Transplant Recipients \* by Transplant State Australia and New Zealand 2011 - 2012



\* These numbers include the exchange of organ between States and Territories of Australia and New Zealand

Pancreas islet transplantation is a procedure in which islets from the pancreas of the deceased organ donor are purified, processed and transplanted into a recipient. This procedure is performed only in Type 1 Diabetics where blood glucose levels are difficult to control.

In Australia and New Zealand, the total number of pancreas islet transplants performed, since this experimental procedure began in 2002 is 68. In 2012, one patient received 2 pancreas islet transplants.

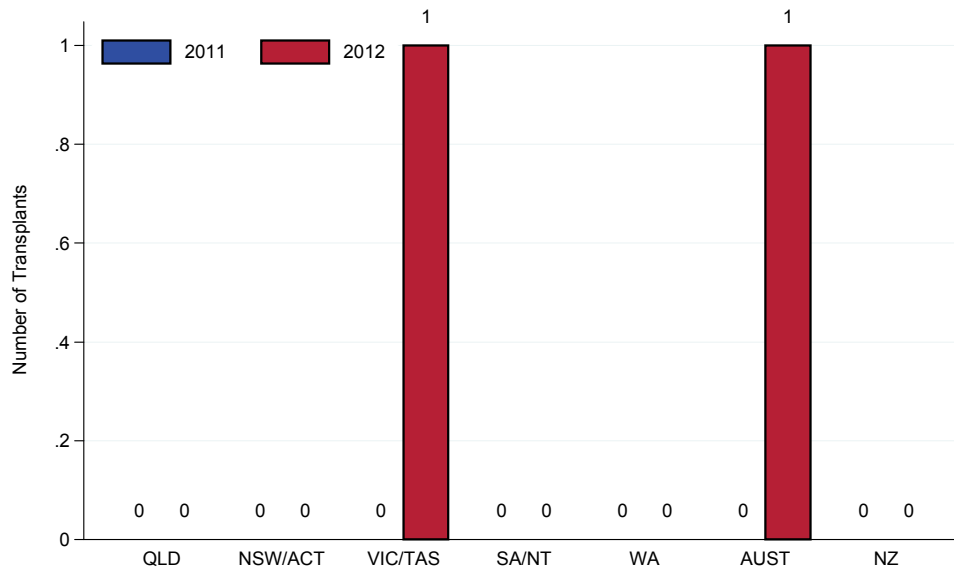
Of all Pancreas retrieved in 2012, 7 pancreas islets were not used for transplantation due to insufficient islets and a further 18 pancreas retrieved were used for pancreas islets research.



## INTESTINE DONATION

Figure 5.39

**Deceased Donor Intestine Transplant Recipients  
by Transplant State Australia and New Zealand 2011 - 2012**



Adult and paediatric patients with irreversible intestinal failure and developing severe complications from parenteral nutrition can benefit from intestinal transplantation. With only two intestinal transplants have been performed in Australia, this is not yet a standard treatment for irreversible intestinal failure.

The first successful intestinal transplant was performed at the Austin Hospital in Victorian, Australia in 2010.



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