



SECTION 5

Deceased Donor Kidney Donation

SUMMARY

This section summarises kidney donation activity from deceased donor in 2016, compared with previous years. Both countries reached their highest rate of kidneys transplanted in 2016, with 34 pmp in Australia and 19.2 pmp in New Zealand.

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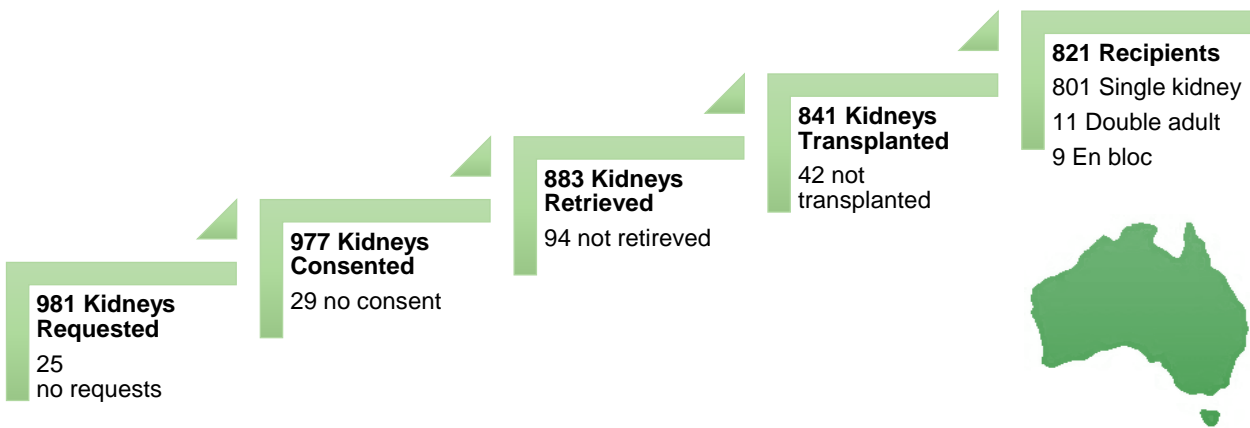
Kidney Donation

Of the 503 deceased organ donors in 2016 in Australia, 491 (97.6%) were kidney donors. From these kidney donors, 883 kidneys were retrieved resulting in 821 kidney recipients. Of the 821 kidney transplant recipients, there were 46 kidney/pancreas recipients, 11 double adult kidney recipients, nine en bloc kidney recipients, four combined kidney/liver recipients and one combine kidney heart transplant recipient.

There were 640 kidney transplant procedures from the brain death donation pathway and 201 kidneys following donation after circulatory death.

There was an overall increase of 16.8% in the total number of kidney transplants recipients (821) compared to the previous year (703); an increase to 34 per million population (pmp) from 29.6 (pmp).

Figure 5.1 Outcomes of Request for Kidney Donation from Actual Donors in Australia 2016



In New Zealand, there donors 60 donors (98.3%) who consented to kidney donation. From these kidney donors, 99 kidneys were retrieved resulting in 90 kidney recipients. There were 85 kidneys transplanted from the brain death donation pathway and ten kidneys transplanted following donation after circulatory death.

Of the 90 recipients, four received a combined kidney/pancreas, one received a combined kidney/liver transplant and one underwent a combine kidney/heart transplant procedure. There were 5 double adult kidney transplants and no en bloc kidney transplants in 2016.

There was an overall increase of 23.3% in the total number of kidney transplant recipients (90) in 2016 compared to the previous year (73). Figures 5.2 shows the outcomes of requests for kidney donation, in New Zealand.

Figure 5.2 Outcomes of Request for Kidney Donation from Actual Donors in New Zealand 2016

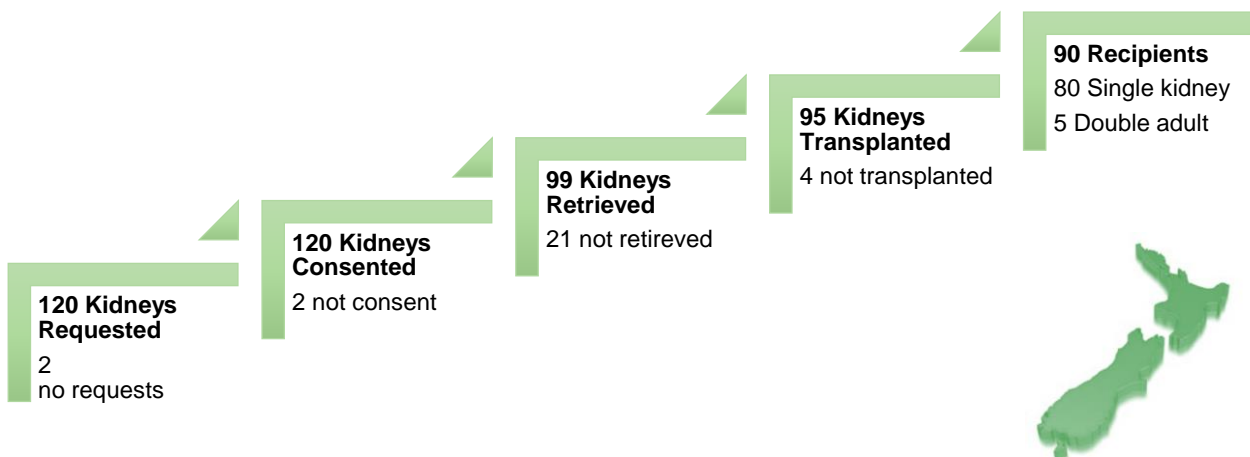


Figure 5.3 to 5.5 show the number of kidney transplants by donation pathway and the number of kidney recipients by jurisdiction. Figure 5.3 particularly shows an increase in DCD kidneys from 2006 to 2016, and DBD kidneys from 2010 to 2016 in Australia.

Figure 5.3 Kidneys Transplanted by Donation Pathway - Australia, 1998 - 2016

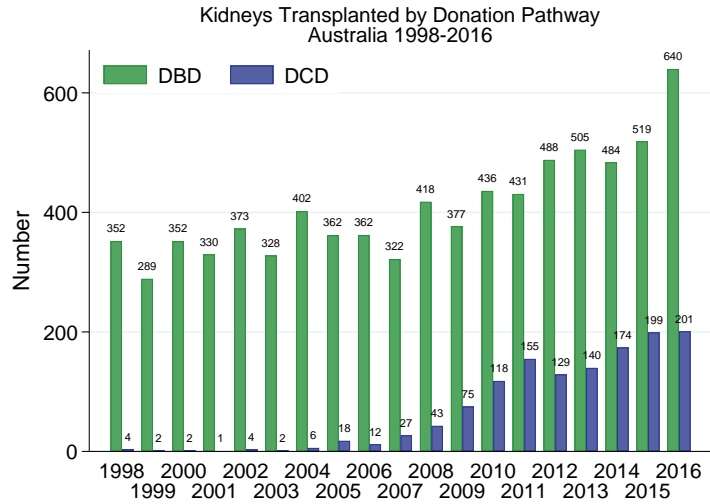


Figure 5.4 Kidneys Transplanted by Donation Pathway - New Zealand, 1998 - 2016

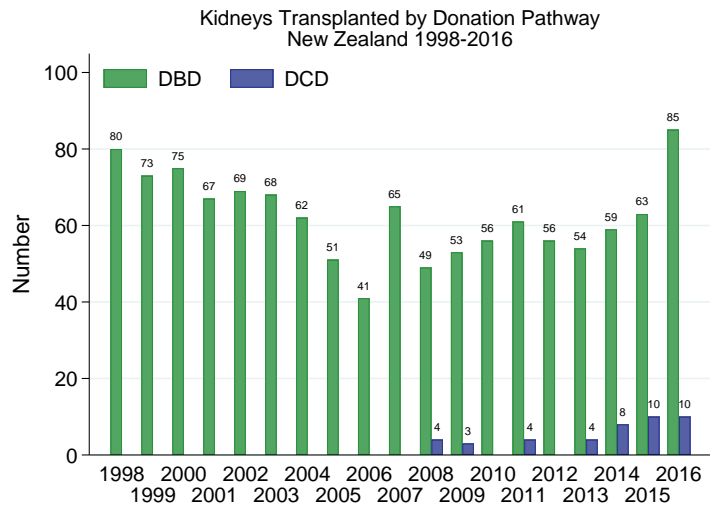
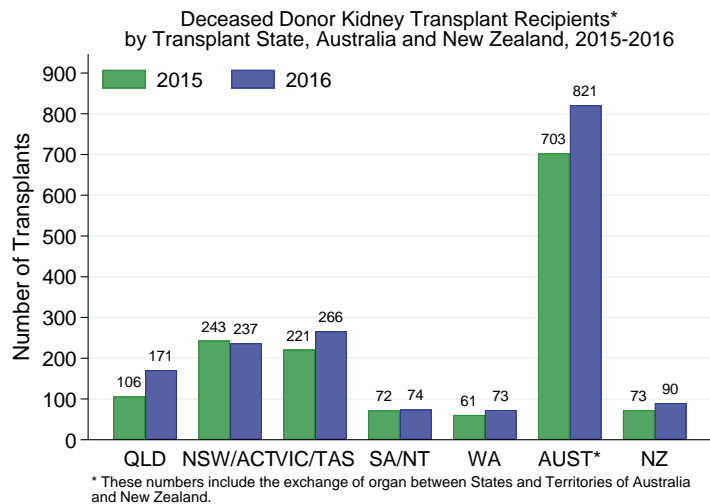


Figure 5.5 Deceased Donor Kidney Transplant Recipients by State, Australia & New Zealand, 2015 vs 2016



Age of Kidney Donors

The age distribution of donors providing transplanted kidneys for Australia and New Zealand is shown in Figures 5.6 and 5.7 respectively.

Figure 5.6 Age of Donors Providing Transplant Kidneys, Australia, 2016

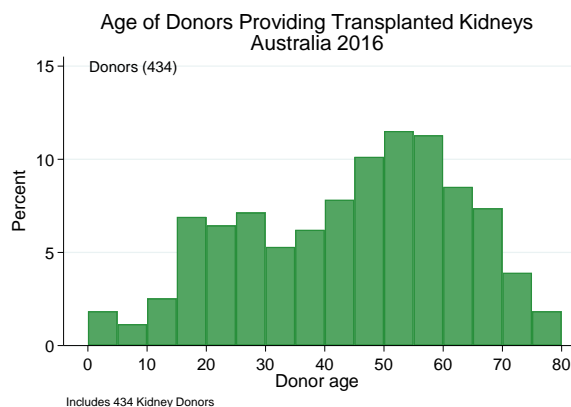
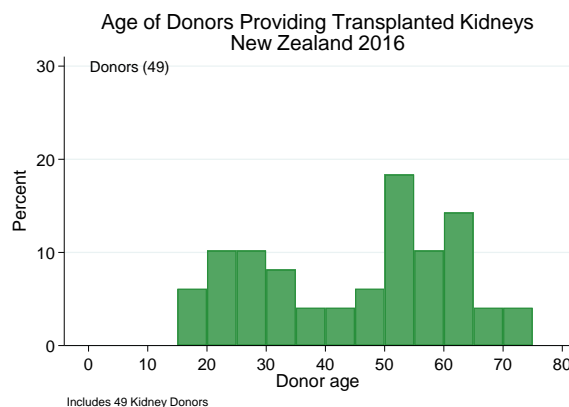


Figure 5.7 Age of Donors Providing Transplant Kidneys, New Zealand, 2016



Donor Kidney Function

Table 5.1 Terminal Serum Creatinine Levels 2012-2016

Creatinine ($\mu\text{mol/L}$)	Australia					New Zealand				
	2012	2013	2014	2015	2016	2012	2013	2014	2015	2016
00 - 99	75%	79%	77%	71%	74%	87%	81%	83%	88%	69%
100 - 124	9%	7%	7%	7%	8%	10%	6%	15%	10%	19%
125 - 149	5%	4%	4%	5%	4%	3%	6%	-	2%	4%
150 - 174	2%	3%	2%	3%	3%	-	3%	-	-	4%
175 - 199	2%	2%	1%	3%	2%	-	-	2%	-	-
200 - 224	1%	1%	2%	1%	1%	-	-	-	-	2%
225 - 249	1%	0%	0%	1%	1%	-	3%	-	-	-
≥ 250	4%	4%	5%	9%	7%	-	-	-	-	4%

In 2016 in Australia, 91 donors (18%) had a terminal serum creatinine concentration of $\geq 125 \mu\text{mol/L}$

In 2016 in New Zealand, 7 donors (12%) had a terminal serum creatinine concentration of $\geq 125 \mu\text{mol/L}$

In Australia, 68 donors (14%) had a terminal serum urea concentration of $\geq 9 \text{ mmol/L}$ and creatinine concentration of $\geq 125 \mu\text{mol/L}$

In New Zealand, 4 donors (7%) had a terminal serum urea concentration of $\geq 9 \text{ mmol/L}$ and creatinine concentration of $\geq 125 \mu\text{mol/L}$

Kidneys Not Retrieved

In 2016, there were 94 kidneys not retrieved from Australian donors and 21 not retrieved from New Zealand donors.

For Australia, the main reason was due to the kidney not being medically suitable (60), followed by no suitable recipient for the kidney (20). In New Zealand, there were 19 non-retrieved kidneys due to not being medically suitable and 2 due to trauma to the organ.

Table 5.2 Reasons for Kidney Not Retrieved in 2016

Reason	Australia	New Zealand
Logistics	2	0
Not Medically Suitable	60	19
Surgically Unsuitable	0	0
Trauma to Organ	4	2
No Suitable Recipients	20	0
Age of Donor	2	0
DCD Donor	2	0
Consent Withdrawn	0	0
Others	4	0
Total	94	21

Kidneys Retrieved and Not utilised

The reasons why kidneys were not utilised for organ transplantation is presented in Table 5.2.

Table 5.3 Reasons Kidneys Retrieved & Not Utilised for Transplantation, Australia (New Zealand) 2012 - 2016

Year	Logistics	Not Medically Suitable	Not Surgically Suitable	No Suitable Recipients	Other	Total
2012	0 (0)	9 (1)	7 (0)	2 (0)	1 (0)	19 (1)
2013	3 (0)	32 (3)	7 (0)	3 (0)	1 (0)	46 (3)
2014	0 (0)	32 (6)	3 (1)	5 (0)	2 (0)	42 (7)
2015	0 (0)	38 (4)	3 (1)	2 (0)	2 (0)	45 (5)
2016	0 (0)	35 (3)	2 (0)	5 (1)	0 (0)	42 (4)

Figures 5.8 and 5.9 show the non-utilisation rate of retrieved kidneys – the proportion of kidneys 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 kidney being found to be medically or surgically unsuitable after retrieval).

Figure 5.8 Non-Utilisation Rate of Retrieved Kidneys, Australia, 2012-2016

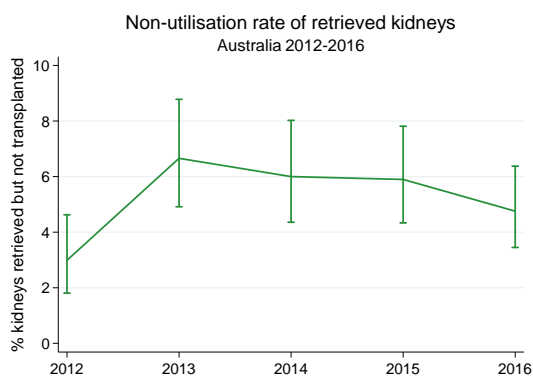
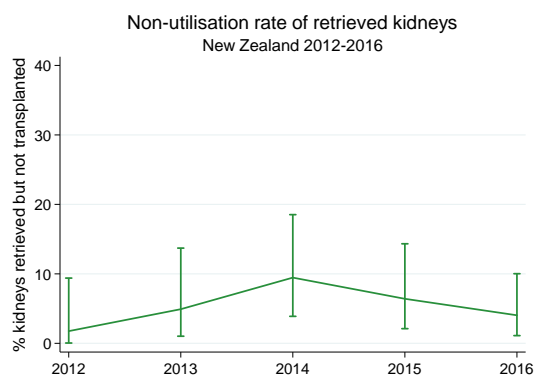


Figure 5.9 Non-Utilisation Rate of Retrieved Kidneys, New Zealand, 2012-2016



Outcome of Kidney Donation

The outcome of kidney donation activity in Australia and New Zealand throughout the donation pathway is shown in tables 5.4 and 5.5 respectively.

Table 5.4 Outcome of Request for Kidney Donation in Australia 2012 - 2016

Country	Outcome of Request	2012	2013	2014	2015	2016
AUSTRALIA	Total Donors	354	391	378	435	503
	Kidneys Requested for Donation	690	760	738	828	981
	Kidneys Not Requested for Donation	18	22	18	42	25
	Kidneys with Consent Given	688	758	738	824	977
	Kidneys with Consent Not Given	20	24	18	46	29
	Kidneys Retrieved	636	691	700	763	883
	Kidneys Not Retrieved	52	67	38	61	94
	Total Kidneys Not Used	18	45	42	45	42
	Kidney used for Research	1	1	0	0	0
	Kidneys Transplanted	617	645	658	718	841
	Double/Enbloc Kidney Transplanted	20	30	44	30	40
	Recipient Transplanted	607	630	636	703	821
	Double Adult Kidney Procedures	8	9	17	9	11
	En Bloc Kidney Procedures	2	6	5	6	9
	Kidney Discard Rate	2.99%	6.66%	6%	5.90%	4.76%
	Kidney Utilised Rate	97.01%	93.34%	94%	94.10%	95.24%

Table 5.5 Outcome of Request for Kidney Donation in New Zealand 2012 - 2016						
Country	Outcome of Request	2012	2013	2014	2015	2016
NEW ZEALAND	Total Donors	38	36	46	53	61
	Kidneys Requested for Donation	74	68	88	100	120
	Kidneys Not Requested for Donation	2	4	4	6	2
	Kidneys with Consent Given	72	68	88	100	120
	Kidneys with Consent Not Given	4	4	4	6	2
	Kidneys Retrieved	57	61	74	78	99
	Kidneys Not Retrieved	15	7	14	22	21
	Total Kidneys Not Used	1	3	7	5	4
	Kidney used for Research	0	0	0	0	0
	Kidneys Transplanted	56	58	67	73	95
	Double/Enbloc Kidney Transplanted	0	6	2	0	10
	Recipient Transplanted	56	55	66	73	90
	Double Adult Kidney Procedures	0	2	0	0	5
	En Bloc Kidney Procedures	0	1	1	0	0
	Kidney Discard Rate	1.75%	4.92%	9.46%	6.41%	4.04%
	Kidney Utilised Rate	98.25%	95.08%	90.54%	93.59%	95.96%

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