

CHAPTER 9

ORGAN PROCUREMENT

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ORGAN DONORS IN AUSTRALIA AND NEW ZEALAND

(Summarised from the Australia and New Zealand Organ Donation Registry Report 2005)
 For more detail please refer to Website: www.anzdata.org.au/anzod/anzodwelcome.htm.

Figure 9.1

Number of Donors 2000 - 2004 **					
	2000	2001	2002	2003	2004
Queensland	37 (10)	48 (13)	44 (12)	40 (11)	39 (10)
New South Wales + *	55 (9+) (8*)	47 (7+) (7*)	55 (9+) (8*)	46 (7+) (7*)	63 (10+) (9*)
ACT + *	5 (10+) (16*)	7 (14+) (22*)	6 (12+) (19*)	8 (15+) (25*)	6 (12+) (19*)
Victoria	44 (9)	40 (8)	47 (10)	42 (9)	45 (9)
Tasmania	1 (2)	3 (6)	6 (13)	2 (4)	2 (4)
South Australia	30 (20)	25 (17)	31 (20)	22 (14)	39 (25)
Northern Territory	2 (10)	2 (10)	2 (10)	1 (5)	1 (5)
Western Australia	22 (12)	13 (7)	15 (8)	18 (9)	23 (12)
Australia	196 (10)	185 (10)	206 (10)	179 (9)	218 (11)
New Zealand	41 (11)	37 (10)	38 (10)	40 (10)	40 (10)

() Donors Per Million of Population
 + NSW population excludes residents of the NSW Southern Area Health Service (included in ACT population)
 * NSW population includes residents of the NSW Southern Area Health Service (excluded from ACT population)
 Medical services in the ACT service the NSW Southern Area Health Region
 Population data - June 2004 ABS 3101.0
 Refer to Appendix for the number of donors by State and Hospital and population

** This figure relates to the number of donors for whom the retrieval operation commenced for the purpose of transplantation. This includes donors who may have been deemed medically unsuitable at the time of surgery or after removal of organs.

Donor figures for 2004 include three donors who went to the operating theatre but organs were not retrieved.

One New South Wales donor had positive serology and the liver was found to be diseased, one South Australian donor had an intra-abdominal infection and one Western Australian donor's organs were medically unsuitable on biopsy.

In 2004 there was a range between the States of four donors per million population (dpmp) in Tasmania to 25 dpmp in South Australia.

Historically the comparison of organ donation rates between states and countries has been based upon donors per million population (dpmp).

However, using the number of deaths and therefore the ability of a deceased person to be a donor as the denominator may be a more reasonable way of comparing donation rates (fig.9.2).

Australian and New Zealand data on deaths for 2004 were not available at the time of going to print.

Figure 9.2

Donors per Thousand Deaths Aged less than 65 years 1998 - 2003										
() represents % of total deaths aged less than 65 years										
Year	QLD	NSW	ACT	VIC	TAS	SA	NT	WA	AUST	NZ
1998	7.3 (25%)	6.5 (22%)	5.5 (22%)	6.1 (21%)	0.0 (21%)	15.2 (20%)	5.2 (67%)	4.9 (25%)	6.9 (22%)	7.2 (24%)
1999	3.7 (24%)	4.9 (22%)	5.5 (27%)	5.7 (22%)	7.6 (21%)	13.9 (19%)	5.8 (62%)	4.9 (25%)	5.7 (23%)	6.0 (23%)
2000	7.1 (23%)	5.6 (21%)	15.1 (26%)	6.8 (20%)	1.3 (21%)	13.1 (19%)	3.4 (65%)	8.4 (25%)	7.1 (22%)	6.6 (22%)
2001	8.7 (24%)	5.1 (21%)	17.2 (29%)	6.3 (20%)	3.8 (21%)	11.4 (19%)	3.7 (62%)	5.0 (24%)	6.7 (22%)	5.9 (22%)
2002	8.3 (22%)	5.5 (20%)	20.9 (22%)	7.2 (19%)	7.8 (20%)	14.1 (18%)	3.8 (63%)	5.7 (22%)	7.4 (20%)	6.0 (22%)
2003	6.7 (23%)	4.5 (20%)	14.5 (25%)	5.6 (19%)	2.4 (20%)	7.6 (19%)	1.7 (63%)	6.9 (23%)	5.7 (21%)	5.9 (23%)

DONOR PROFILE

Age and Gender Distribution

In Australia in 2004, 10% (22 donors) were 65 years or older and 3% (six donors) were aged 75 years or older. The oldest donor was 80.5 years.

The mean age for donors in Australia increased to 43.2 years in 2004 from 42.7 years in 2003. The mean age for Australian mainland States ranged from 34.6 years in Tasmania to 47.8 years in New South Wales. The Northern Territory had one donor aged 59.5 years.

The median age for Australia increased from 45.5 years in 2003 to 46.6 years in 2004. The age range was between 13.5 months and 80.5 years.

In New Zealand in 2004 the mean age increased to 43 years from 38 years in 2003 and the median age to 46.1 years from 39.7 years previously.

Four donors (10%) were aged 65 years or older. The age range was 13.8 months to 78.2 years.

The gender distribution by Australian States and New Zealand is shown in Figure 9.4.

Figure 9.3

	Australian States Mean Age of Donors 1998 - 2004							
	QLD	NSW	ACT	VIC	TAS	SA	NT	WA
1998	35.7	42.7	42.1	43.4	0	40.3	44.7	33.9
1999	40.0	42.4	49.9	40.1	35.8	35.4	24.3	36.5
2000	40.3	40.5	30.3	45.1	63.1	39.0	44.3	39.7
2001	40.3	40.8	35.1	41.4	30.8	43.0	33.4	31.5
2002	34.8	40.8	32.1	44.0	42.7	38.3	49.8	26.5
2003	40.7	42.7	50.2	46.0	14.1	43.1	56.9	38.3
2004	38.2	47.8	46.3	43.2	34.6	41.5	59.5	42.0

Figure 9.4

	Gender of Donors 1989 - 2004		
	Male	Female	Total
Queensland	417 (65%)	226 (35%)	643
New South Wales	596 (59%)	410 (41%)	1006
ACT	49 (67%)	24 (33%)	73
Victoria	402 (57%)	302 (43%)	704
Tasmania	37 (71%)	15 (29%)	52
South Australia	243 (59%)	169 (41%)	412
Northern Territory	26 (84%)	5 (16%)	31
Western Australia	147 (58%)	107 (42%)	254
Australia	1917 (60%)	1258 (40%)	3175
New Zealand 1993-2004	260 (56%)	203 (44%)	463

Figure 9.5

CAUSE OF DONOR DEATH

Figure 9.5 shows the cause of death for all organ donors in Australia since 1989 and for New Zealand since 1993.

The primary cause of death was cerebrovascular accident (CVA), (48% of all Australian donors and 53% of all New Zealand donors).

Figure 9.6 shows detailed cause of death by gender for 2004.

Figure 9.7 shows that CVA is the main cause of death in donors 55 years and older, 85% in Australia and 87% in New Zealand, whereas in the 15-34 year age group, trauma accounted for 51% of all deaths in Australia and 62% in New Zealand in 2004.

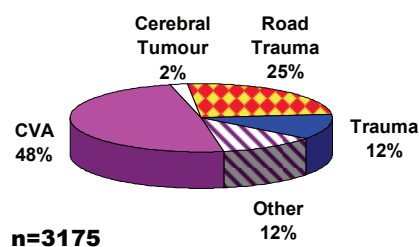
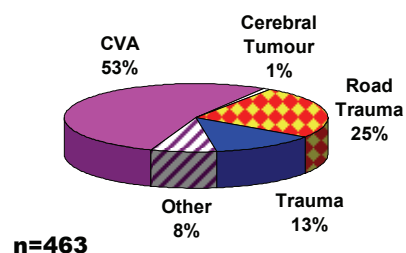
**Cause of Donor Death
Australia 1989 - 2004**

**Cause of Donor Death
New Zealand 1993 - 2004**




Figure 9.6

Cause of Donor Death 2004

Causes of Death		Australia			New Zealand		
		Male	Female	Total	Male	Female	Total
CVA	Cerebral Infarct	6	5	11	1	0	1
	Intracranial Haemorrhage	36	22	58	3	2	5
	Subarachnoid Haemorrhage	23	23	46	5	9	14
Road Trauma	Cyclist	1	1	2	1	0	1
	Motor Bike Accident	8	2	10	1	0	1
	Motor Vehicle Accident	9	5	14	2	2	4
	Pedestrian	5	1	6	0	1	1
Other Trauma	Fall	7	5	12	5	0	5
	Felony / Crime - Assault	5	0	5	0	0	0
	Gunshot	5	0	5	1	0	1
	Other Trauma	3	0	3	1	0	1
Hypoxia Anoxia	Asthma	0	3	3	0	0	0
	Brain Injury	0	1	1	0	0	0
	Carbon Monoxide	1	0	1	1	1	2
	Cardiac Arrest	10	6	16	0	2	2
	Drowning	2	1	3	0	1	1
	Epilepsy	1	0	1	0	0	0
	Hanging	6	1	7	0	0	0
	Hypovolaemia	0	1	1	0	0	0
	Overdose	0	2	2	0	0	0
	Respiratory Arrest	0	1	1	0	0	0
	Seizure	0	1	1	0	0	0
Smoke Inhalation	0	1	1	0	0	0	
Other	Astrocytoma (Malignant)	0	1	1	0	0	0
	Cerebral Oedema	4	0	4	0	0	0
	Gioblastoma (Malignant)	1	0	1	0	0	0
	Meningitis (diplococci)	0	1	1	0	0	0
	Meningitis (pneumococcal)	0	0	0	0	1	1
Oligodendroglioma (Malignant)	0	1	1	0	0	0	
Total		133	85	218	21	19	40

Figure 9.7

Cause of Donor Death Related to Age Group 2004

	Australia					New Zealand				
	Age Groups				Total	Age Groups				Total
	0-14	15-34	35-54	55 on		0-14	15-34	35-54	55 on	
CVA	1	12	50	52	115	0	2	5	13	20
Trauma (road)	2	24	5	1	32	0	7	0	0	7
Trauma (non-road)	1	13	7	4	25	0	1	4	2	7
Other	2	24	16	4	46	1	3	2	0	6
Total	6	73	78	61	218	1	13	11	15	40

SUMMARY - ORGANS REQUESTED, CONSENT GIVEN, RETRIEVED AND TRANSPLANTED

The information relating to the request for organ donation refers only to those patients who become organ donors. If consent was sought and refused, the Registry has no record of these potential donors.

The difference between a request and a consent is a known objection by the donor or family refusal for the specific organ.

Reasons for not requesting organs, not retrieving and not transplanting are documented for all of the specific organs.

Figure 9.8

Trend to Multiple Organ Retrieval 2000 - 2004										
No. of Organs	Australia					New Zealand				
	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004
Single	21%	19%	19%	18%	15%	7%	19%	13.5%	7%	13%
Two	29%	32%	24%	27%	27%	42%	31%	43%	28%	46%
Three	24%	21%	25%	20%	22%	34%	22%	30%	25%	30%
Four	20%	19%	24%	26%	23%	15%	25%	13.5%	35%	11%
Five	6%	9%	8%	9%	12%	2%	3%	0%	5%	0%

Figure 9.9

State by State Comparison of Multiple Organ Retrieval 2004										
No. of Organs	QLD	NSW	ACT	VIC	TAS	SA	NT	WA	AUST	NZ
Single	4 (10%)	8 (13%)	0 (0%)	5 (11%)	0 (0%)	10 (26%)	0 (%)	5 (23%)	32 (15%)	5 (13%)
Two	11 (28%)	19 (31%)	3 (50%)	8 (18%)	0 (0%)	13 (34%)	1 (100%)	4 (18%)	59 (27%)	17 (46%)
Three	12 (31%)	10 (16%)	1 (17%)	11 (24%)	1 (50%)	6 (16%)	0 (%)	7 (32%)	48 (22%)	11 (30%)
Four	10 (26%)	14 (22%)	1 (17%)	13 (29%)	1 (50%)	5 (13%)	0 (%)	6 (27%)	50 (23%)	4 (11%)
Five	2 (5%)	11 (18%)	1 (17%)	8 (18%)	0 (0%)	4 (11%)	0 (%)	0 (0%)	26 (12%)	0 (0%)
Total	39	62	6	45	2	38	1	22	215	37

NB: 2 kidneys = 1 organ, 2 lungs = 1 organ
On occasions when only one kidney is retrieved, this is also defined as one organ.



ORGAN RECIPIENTS TRANSPLANTED

Australia had 3.6 and New Zealand 2.8 organ recipients per donor used for transplantation in 2004. The number of recipients transplanted is used for this calculation, rather than the number of organs. The Australian Capital Territory (ACT) had the highest

number of organs transplanted, 4.0 per donor, followed by New South Wales 3.8, Queensland and Victoria 3.6, Tasmania 3.5, South Australia 3.3, the Northern Territory 3.0 and Western Australia 3.1. These figures exclude tissue transplantation.

Figure 9.10

Organ Recipients Transplanted per Donor 2004

	QLD	NSW	ACT	VIC	TAS	SA	NT	WA	AUST	NZ
No. Organs Transplanted	142	243	24	162	7	129	3	73	783	114
No. of Donors	39	63	6	45	2	39	1	23	218	40
Average per Donor	3.6	3.8	4.0	3.6	3.5	3.3	3.0	3.1	3.6	2.8

Double lungs = 1 organ (1 recipient)
Two kidneys = 2 organs

KIDNEY DONATION

Figure 9.11

Age of Donors Providing Transplanted Kidneys 2000 - 2004

Year	Age Groups										Total	
	00-04	05-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85-94		
Australia	2000	2 (3)	10	30	24	28	42	34 (1x)	11	1	0	182
	2001	0 (0)	16	32	25	22	44	19	11	1 (x)	0	170
	2002	3 (2)	14 (2)	44	17	31	42	30	11 (1x)	1	0	193
	2003	2 (2)	10	32 (1*)	15	26	39	28	9 (2x)	5	1	167
	2004	0	5 (1)	40	30	23	50	39	15 (2x)	4	0	206
New Zealand	2000	0	2	9	4	6	12	6	1	0	0	40
	2001	0	0	9	2	7	7	8	1	0	0	34
	2002	0	3	5	2	11	10	3	1	0	0	35
	2003	0	2	11	4	8	3	6	0	1 (1x)	0	35
	2004	0	0	8	4	3	6	9 (2x)	1 (1x)	1 (1x)	0	32

() En-Bloc Kidneys * Horseshoe Kidney (Adult) x Double Adult

Figure 9.12

Outcome of Request for Kidney Donation 2004

