

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 2004)

For more detail please refer to Website: www.anzdata.org.au

Figure 9.1

Number of Donors 1999 - 2003 **					
	1999	2000	2001	2002	2003
Queensland	20 (6)	37 (10)	48 (13)	44 (12)	40 (11)
New South Wales + *	48 (8+)(7*)	55 (9+)(8*)	47 (7+)(7*)	55 (8+)(8*)	46 (7+)(7*)
ACT + *	2 (4+)(6*)	5 (10+)(16*)	7 (14+)(22*)	6 (12+)(19*)	8 (15+)(25*)
Victoria	42 (9)	44 (9)	40 (8)	47 (10)	42 (9)
Tasmania	6 (13)	1 (2)	3 (6)	6 (13)	2 (4)
South Australia	30 (20)	30 (20)	25 (17)	31 (20)	22 (14)
Northern Territory	3 (16)	2 (10)	2 (10)	2 (10)	1 (5)
Western Australia	13 (7)	22 (12)	13 (7)	15 (8)	18 (9)
Australia	164 (9)	196 (10)	185 (10)	206 (10)	179 (9)
New Zealand	39 (10)	41 (11)	37 (10)	38 (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 2003 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 2003 include three donors who went to the operating theatre but organs were not retrieved.

One Queensland donor had a malignancy, one Victorian donor had disease of the kidneys and liver and one Western Australian donor had positive serology, with no suitable recipients.

In 2003 there was a range between the States of four donors per million population (dpmp) in Tasmania to 15 dpmp in the Australian Capital Territory (ACT); population adjusted to include the NSW Southern Area Health Region and 25 dpmp unadjusted.

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 data on deaths for 2003 are not available until August of 2004.

Figure 9.2

Donors per Thousand Deaths Aged less than 65 years 1997- 2002										
() represents % of total deaths aged less than 65 years										
Year	Qld	NSW	ACT	Vic.	Tas.	SA	NT	WA	Aust.	N.Z.
1997	6.7 (25%)	6.6 (22%)	10.8 (28%)	6.0 (21%)	6.3 (21%)	11.4 (19%)	7.0 (64%)	3.0 (25%)	6.6 (22%)	6.3 (24%)
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	8.7 (22%)	6.1 (20%)	20.9 (22%)	7.7 (19%)	7.8 (20%)	15.0 (18%)	3.8 (63%)	6.1 (22%)	7.9 (20%)	6.0 (22%)

NSW: Population adjusted to include the NSW Southern Area Health Region and 25 dpmp unadjusted

DONOR PROFILE

Age and Gender Distribution

In Australia in 2003 there were 9% (16 donors) 65 years or older. This was slightly more than in 2002 (14 donors), but similar in 2001. The oldest donor was 85.3 years.

The mean age for donors in Australia increased to 42.7 years in 2003 from 38.7 years in 2002. The mean age for Australian mainland States ranged from 38.3 years in Western Australia to 50.2 years in the ACT. The Northern Territory had one donor aged 56.9 years.

The median age for Australia increased from 40.8 in 2002 to 45.5 in 2003. The age range was between 11.5 months and 85.3 years.

In New Zealand in 2003 the mean age decreased to 38 years from 40.3 years in 2002 and the median age to 39.7 years from 42.6 years previously. Two donors (5%) were aged 65 years or older. The age range was 13 to 75.1 years.

Figure 9.3

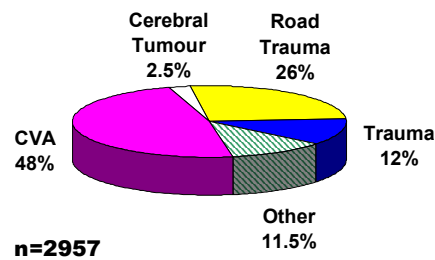
Australian States Mean Age of Donors 1998 - 2003								
	Qld	NSW	ACT	Vic.	Tas.	SA	NT	WA
1998	35.7	42.7	42.1	43.4	0	40.3	44.7	33.9
1999	40.0	42.4	49.9	40.1	35.8	35.4	24.3	36.5
2000	40.3	40.5	30.3	45.1	63.1	39.0	44.3	39.7
2001	40.3	40.8	35.1	41.4	30.8	43.0	33.4	31.5
2002	34.8	40.8	32.1	44.0	42.7	38.3	49.8	26.5
2003	40.7	42.7	50.2	46.0	14.1	43.1	56.9	38.3

Figure 9.4

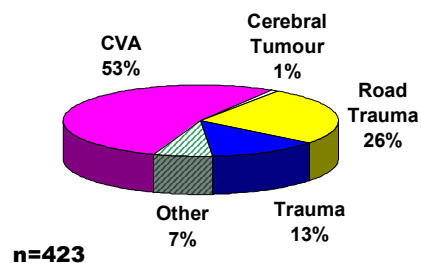
Gender of Donors 1989 - 2003			
	Female	Male	Total
Queensland	210 (35%)	394 (65%)	604
New South Wales	389 (41%)	554 (59%)	943
ACT	24 (36%)	43 (64%)	67
Victoria	283 (43%)	376 (57%)	659
Tasmania	14 (28%)	36 (72%)	50
South Australia	152 (41%)	221 (59%)	373
Northern Territory	4 (13%)	26 (87%)	30
Western Australia	97 (42%)	134 (58%)	231
Australia	1173 (40%)	1784 (60%)	2957
New Zealand 1993-2003	184 (43%)	239 (57%)	423

Figure 9.5

Cause of Donor Death Australia 1989 - 2003



Cause of Donor Death New Zealand 1989 - 2003



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 2003.

Figure 9.7 shows that CVA is the main cause of death in donors 55 years and older, 73% in Australia and 89% in New Zealand, whereas in the 15-34 year age group, trauma accounted for 67% of all deaths in Australia and 56% in New Zealand in 2003.



Figure 9.6

Cause of Donor Death 2003

Causes of Death		Australia			New Zealand		
		Male	Female	Total	Male	Female	Total
CVA	Cerebral Infarct	5	3	8	1	2	3
	Intracranial Haemorrhage	21	10	31	5	3	8
	Subarachnoid Haemorrhage	18	37	55	3	6	9
Road Trauma	Cyclist	1	0	1	0	0	0
	Motor Bike Accident	6	0	6	1	1	2
	Motor Vehicle Accident	15	5	20	4	1	5
	Pedestrian	4	1	5	2	0	2
Other Trauma	Other Road Accident	5	0	5	0	0	0
	Fall	11	3	14	4	0	4
	Felony / Crime - Assault	1	0	1	1	0	1
	Gunshot	6	0	6	2	0	2
Hypoxia Anoxia	Other Trauma	1	2	3	0	0	0
	Asthma	0	2	2	1	0	1
	Carbon Monoxide	1	0	1	0	1	1
	Cardiac Arrest	4	5	9	0	0	0
	Drowning	0	2	2	0	0	0
	Hanging	1	1	2	0	0	0
	Respiratory Arrest	1	1	2	0	0	0
Other	Seizure	0	1	1	0	0	0
	Strychnine Poisoning	1	0	1	0	0	0
	Cerebral Oedema	0	1	1	0	0	0
	Haemangioblastoma (benign)	0	0	0	1	0	1
Other	Meningioma (benign)	0	0	0	0	1	1
	Meningitis (meningococcal)	1	0	1	0	0	0
	Meningitis (pneumococcal)	2	0	2	0	0	0
Total		105	74	179	25	15	40

Figure 9.7

Cause of Donor Death Related to Age Group 2003

	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	6	51	36	94	1	5	6	8	20
Trauma (road)	4	26	3	4	37	1	6	2	0	9
Trauma (non-road)	3	6	11	4	24	0	3	3	1	7
Other	4	10	5	5	24	0	2	2	0	4
Total	12	48	70	49	179	2	16	13	9	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.

In 2003, retrieval of four or more organs per donor increased in both Australia and New Zealand. New Zealand

displayed a statistically significant increase from 13.5% (from 38 donors) in 2002, to 35% (from 40 donors) in 2003 (fig.9.8).

Queensland, Victoria, Tasmania, Western Australia and South Australia had more multiple organ retrievals than single organ retrievals. This was also replicated in New Zealand. New South Wales, the Australian Capital Territory and the Northern Territory had more single organ retrievals than multiple organ retrievals. However it is important to note that by virtue of the small sample size in some Australian states and territories, the data in Figure 9.9 be interpreted cautiously.

Figure 9.8										
Trend to Multiple Organ Retrieval 1999 - 2003										
No. of Organs	Australia					New Zealand				
	1999	2000	2001	2002	2003	1999	2000	2001	2002	2003
Single	17%	21%	19%	19%	18%	21%	7%	19%	13.5%	7%
Two	30%	29%	32%	24%	27%	44%	42%	31%	43%	28%
Three	27%	24%	21%	25%	20%	23%	34%	22%	30%	25%
Four	23%	20%	19%	24%	26%	10%	15%	25%	13.5%	35%
Five	3%	6%	9%	8%	9%	2%	2%	3%	0%	5%

Figure 9.9										
State by State Comparison of Multiple Organ Retrieval 2003										
No. of Organs	Qld	NSW	ACT	Vic.	Tas.	SA	NT	WA	Aust.	N.Z.
Single	1 (3%)	13 (28%)	4 (50%)	7 (17%)	0 (0%)	4 (18%)	1 (100%)	1 (6%)	31 (18%)	3 (7%)
Two	11 (28%)	8 (17%)	2 (25%)	14 (34%)	0 (0%)	10 (45%)	0 (0%)	3 (18%)	48 (27%)	11 (28%)
Three	12 (31%)	10 (22%)	0 (0%)	4 (10%)	1 (50%)	5 (23%)	0 (0%)	4 (23%)	36 (20%)	10 (25%)
Four	13 (33%)	8 (17%)	0 (0%)	15 (37%)	0 (0%)	3 (14%)	0 (0%)	7 (41%)	46 (26%)	14 (35%)
Five	2 (5%)	7 (15%)	2 (25%)	1 (2%)	1 (50%)	0 (0%)	0 (0%)	2 (12%)	15 (9%)	2 (5%)
Total	39	46	8	41	2	22	1	17	176	40

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 3.5 and New Zealand 3.8 organ recipients per donor used for transplantation in 2003. The number of recipients transplanted is used for this calculation, rather than the number of organs. Tasmania had the highest number of organs transplanted, 4.5 per donor, followed by Queensland 4.0, Western Australia 3.7, New South Wales 3.6, Victoria and the ACT 3.2, South Australia 2.9 and the Northern Territory 2.0. These figures exclude tissue transplantation (such as bone, corneas).

Figure 9.10

Organ Recipients Transplanted per Donor 2003										
	Qld	NSW	ACT	Vic.	Tas.	SA	NT	WA	Aust.	N.Z.
No. Organs Transplanted	160	167	26	135	9	64	2	67	630	155
No. of Donors	40	46	8	42	2	22	1	18	179	40
Average per Donor	4.0	3.6	3.2	3.2	4.5	2.9	2	3.7	3.5	3.8

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

KIDNEY DONATION

Figure 9.11

Age of Donors Providing Transplanted Kidneys 1999 - 2003												
	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	1999	4 (3)	11 (2)	24	22	17	32	29	9 (1x)	2 (1x)	0	150
	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
New Zealand	1999	0	3 (1)	3	4	4	14	5	4	0	0	37
	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

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

Figure 9.12 Outcome of Request for Kidney Donation 2003

