

CHAPTER 9

ORGAN DONOR PROCUREMENT

Karen Herbertt

and

Graeme R Russ



ORGAN DONORS IN AUSTRALIA AND NEW ZEALAND

(Summarised from the Australia and New Zealand Organ Donation Registry Report 2003)

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

Figure 9.1

Number of Donors 1998 - 2002 **					
	1998	1999	2000	2001	2002
Queensland	40 (12)	20 (6)	37 (10)	48 (13)	44 (12)
New South Wales +	63 (10)	48 (8)	55 (9)	47 (7)	55 (8)
ACT *	2 (4)	2 (4)	5 (10)	7 (14)	6 (12)
Victoria	40 (9)	42 (9)	44 (9)	40 (8)	47 (10)
Tasmania	0 (0)	6 (13)	1 (2)	3 (6)	6 (13)
South Australia	35 (24)	30 (20)	30 (20)	25 (17)	31 (20)
Northern Territory	3 (16)	3 (16)	2 (10)	2 (10)	2 (10)
Western Australia	13 (7)	13 (7)	22 (12)	13 (7)	15 (8)
Australia	196 (10)	164 (9)	196 (10)	185 (10)	206 (10)
New Zealand	46 (12)	39 (10)	41 (11)	37 (10)	38 (10)

() Donors Per Million of Population
 + NSW population excludes residents of the NSW Southern Area Health Service
 * ACT population includes residents of the NSW Southern Area Health Service
 Medical services in the ACT service the NSW Southern Area Health Region
 Population data - June 2002 - 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.

In 2002 donor figures include two donors from New South Wales who went to the operating room but organs were not retrieved because of a suspicious lung lesion in one and disease of the liver in the other (being the only suitable organ for transplantation for each donor).

In 2002, there was a range between mainland States of 8 donors per million population (dpmp) in New South Wales and Western Australia, to 20 dpmp in South Australia.

In New Zealand one donor was found to have a gastric tumour.

Historically the comparison of organ donation rates between states and countries has been based upon donors 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 2002 are not available until August of 2003. New Zealand data include 2002.

Figure 9.2

Donors per Thousand Deaths Aged less than 65 years 1997- 2001										
() 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%)

DONOR PROFILE

Age and Gender Distribution

The mean age for donors decreased to 38.7 years in 2002 from 40.0 years in 2001. In Australia in 2002 there were 7% (14) donors 65 years or older. This is a slight decrease from 9% (16) in 2001. The oldest donor was 78.8 years.

When comparing Australian mainland States, the mean age ranged from 44 years in Victoria to the lowest 26.5 years in Western Australia .

Figure 9.3

Australian States		Mean Age of Donors 1997 - 2002							
	Qld	NSW	ACT	Vic.	Tas.	SA	NT	WA	Aust.
1997	37.5	39.6	48.3	43.8	38.3	45.3	33.5	28.7	40.4
1998	35.7	42.7	42.1	43.4	0	40.3	44.7	33.9	40.4
1999	40.0	42.4	49.9	40.1	35.8	35.4	24.3	36.5	39.3
2000	40.3	40.5	30.3	45.1	63.1	39.0	44.3	39.7	41.1
2001	40.3	40.8	35.1	41.4	30.8	43.0	33.4	31.5	40.0
2002	34.8	40.8	32.1	44.0	42.7	38.3	49.8	26.5	38.7

Figure 9.4

Gender of Donors		1989 - 2002		
	Female	Male	Total	
Queensland	193 (34%)	371 (66%)	564	
New South Wales	369 (41%)	528 (59%)	897	
ACT	20 (34%)	39 (66%)	59	
Victoria	267 (43%)	350 (57%)	617	
Tasmania	13 (27%)	35 (73%)	48	
South Australia	142 (40%)	209 (60%)	351	
Northern Territory	4 (14%)	25 (86%)	29	
Western Australia	91 (43%)	122 (57%)	213	
Australia	1099 (40%)	1679 (60%)	2778	
New Zealand 1993-2002	169 (44%)	214 (56%)	383	

CAUSE OF DONOR DEATH

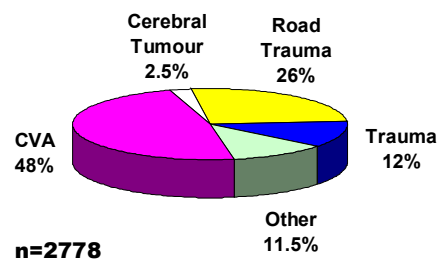
Figure 9.5 shows the cause of death for all organ donors in Australia since 1989 and for New Zealand since 1993. The primary cause of death was cerebrovascular accident (CVA) (48% of all Australian donors and 53% of all New Zealand donors).

Figure 9.6 shows detailed cause of death by each gender for 2002.

Figure 9.7 shows that CVA is responsible for 85% of all deaths in donors 55 years and older, whereas in the 15-34 year age group, trauma accounted for 56% of all deaths, compared to 61% in 2001.

Figure 9.5

Cause of Donor Death Australia 1989 - 2002



Cause of Donor Death New Zealand 1989 - 2002

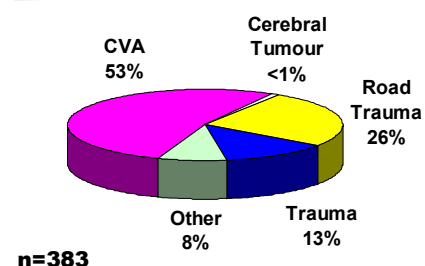




Figure 9.6

Cause of Donor Death 2002

Causes of Death		Australia			New Zealand		
		Male	Female	Total	Male	Female	Total
CVA	Cerebral Infarct	8	3	11	2	1	3
	Intracranial Haemorrhage	30	15	45	3	3	6
	Subarachnoid Haemorrhage	26	25	51	4	8	12
Road Trauma	Cyclist	3	0	3	1	0	1
	Motor Bike Accident	6	0	6	1	0	1
	Motor Vehicle Accident	17	7	24	1	3	4
	Pedestrian	6	4	10	2	0	2
	Other Road Accident	2	1	3	0	0	0
Other Trauma	Fall	7	1	8	2	1	3
	Felony / Crime - Assault	3	0	3	1	0	1
	Gunshot	3	0	3	0	0	0
	Other Trauma	3	2	5	0	1	1
Hypoxia Anoxia	Anaphylaxis	0	1	1	0	0	0
	Asphyxiation	1	0	1	0	0	0
	Asthma	1	5	6	0	0	0
	Carbon Monoxide	1	0	1	1	0	1
	Cardiac Arrest	5	2	7	0	0	0
	Choking	1	0	1	0	0	0
	Drowning	2	0	2	0	1	1
	Epilepsy	1	0	1	0	0	0
	Hanging	1	1	2	0	0	0
	Ischaemic Brain Damage	0	1	1	0	0	0
	Ischaemic Encephalopathy	1	0	1	0	0	0
	Overdose	0	1	1	1	0	1
	Poisoning	0	0	0	0	1	1
	Revision of VP shunt	1	0	1	0	0	0
Other	Cerebral Oedema	0	1	1	0	0	0
	Glioma (malignant)	0	1	1	0	0	0
	Sting	1	0	1	0	0	0
	Meningioma (benign)	0	2	2	0	0	0
	Meningitis (meningococcal)	1	1	2	0	0	0
	Meningitis (organism unknown)	1	0	1	0	0	0
Total		132	74	206	19	19	38

Figure 9.7

Cause of Donor Death Related to Age Group 2002

	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	2	13	53	39	107	1	1	14	5	21
Trauma (road)	8	27	9	2	46	2	3	3	0	8
Trauma (non-road)	4	8	4	3	19	0	2	3	0	5
Other	6	15	11	2	34	0	1	3	0	4
Total	20	63	77	46	206	3	7	23	5	38

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 1998 - 2002										
No. of Organs	Australia					New Zealand				
	1998	1999	2000	2001	2002	1998	1999	2000	2001	2002
Single	23%	17%	21%	19%	19%	20%	21%	7%	19%	13.5%
Two	32%	30%	29%	32%	24%	50%	44%	42%	31%	43%
Three	19%	27%	24%	21%	25%	16%	23%	34%	22%	30%
Four	20%	23%	20%	19%	24%	12%	10%	15%	25%	13.5%
Five	6%	3%	6%	9%	8%	2%	2%	2%	3%	0%

Figure 9.9										
State by State Comparison of Multiple Organ Retrieval 2002										
No. of Organs	Qld	NSW	ACT	Vic.	Tas.	SA	NT	WA	Aust.	N.Z.
Single	8 (18%)	12 (23%)	12 (17%)	8 (17%)	0 (0%)	8 (26%)	1 (50%)	1 (7%)	39 (19%)	5 (13.5%)
Two	12 (27%)	9 (17%)	0 (0%)	14 (30%)	2 (33%)	7 (23%)	1 (50%)	3 (20%)	48 (24%)	16 (43%)
Three	10 (23%)	13 (25%)	3 (50%)	12 (25%)	1 (17%)	10 (32%)	0 (0%)	3 (20%)	52 (25%)	11 (30%)
Four	12 (27%)	16 (30%)	2 (33%)	7 (15%)	2 (33%)	5 (16%)	0 (0%)	6 (40%)	48 (24%)	5 (13.5%)
Five	2 (5%)	3 (5%)	0 (0%)	6 (13%)	1 (17%)	1 (3%)	0 (0%)	2 (13%)	17 (8%)	0 (0%)
Total	44	53	6	47	6	31	2	15	204	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 3.5 and New Zealand 3.2 organ recipients per donor used for transplantation in 2002.

For the purpose of this calculation, the number of recipients transplanted is used, rather than the number of organs.

Tasmania had the highest number of organs transplanted, 4.3 per donor, followed by the ACT 4.0, Queensland 3.7, Victoria and Western Australia 3.6, New South Wales and South Australia 3.4 and the Northern Territory 2.5. These figures exclude tissue transplantation.

Figure 9.10										
Organ Recipients Transplanted per Donor 2002										
	Qld	NSW	ACT	Vic.	Tas.	SA	NT	WA	Aust.	N.Z.
No. Organs Transplanted	163	186	24	168	26	104	5	54	730	123
No. of Donors	44	55	6	47	6	31	2	15	206	38
Average per Donor	3.7	3.4	4.0	3.6	4.3	3.4	2.5	3.6	3.5	3.2

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



KIDNEY DONATION

Figure 9.11

Age of Donors Providing Transplanted Kidneys 1998 - 2002

	Year	Age Groups									Total
		00-04	05-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	
Australia	1998	1 (1)	10	37	22	32	33	34 (1*)	14 (1x)	0	183
	1999	4 (3)	11 (2)	24	22	17	32	29	9 (1x)	2 (1x)	150
	2000	2 (3)	10	30	24	28	42	34 (1x)	11	1	182
	2001	0 (0)	16	32	25	22	44	19	11	1 (x)	170
	2002	3 (2)	14 (2)	44	17	31	42	30	11 (1x)	1	193
New Zealand	1998	1 (1)	4	8	6	8	7	6	1	0	41
	1999	0	3 (1)	3	4	4	14	5	4	0	37
	2000	0	2	9	4	6	12	6	1	0	40
	2001	0	0	9	2	7	7	8	1	0	34
	2002	0	3	5	2	11	10	3	1	0	35

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

Figure 9.12

Outcome of Request for Kidney Donation 2002

