SUMMARY 1996

AUSTRALIA AND NEW ZEALAND

SUMMARY – AUSTRALIA

Patients Treated 31 December 1996: 9280 patients (507 per million), 7% increase: 4418 (242 per million) functioning transplants, 4862 (266 per million) were dialysis dependent.

New Patients 1996: 1405 patients (77 per million) similar to 1383 (77 per million) in 1995, 57% were males. State intake ranged from Western Australia (66 per million), Queensland (68 per million), South Australia (71 per million), Victoria (76 per million), New South Wales (82 per million) to Northern Territory (264 per million). Caucasoid 83%, Aboriginal 6.5%, Asian 5%.

Co morbid Factors Surveyed: coronary artery disease 36.9%, peripheral vascular disease 24.8%.

Age of New Patients: 37% were 65 years or older. Main feature was a 21% increase in the age group 65-74 years. Age range 4 months to 88.5 years. Median age 59.4 years, mean age 55.5 years (no gender difference).

Primary Renal Disease: glomerulonephritis 34% (362/475 were biopsy proven), diabetic nephropathy 18%. Analgesic nephropathy fell once again as a proportion of new patients to lowest in past 20 years (7%). Total number of analgesic nephropathy patients was lowest since 1988. Hypertension 12%. Diabetic nephropathy was classified as type 1 in only 25% of cases (29% in 1995).

Awaiting Transplantation: of patients <65 years, 47% on waiting list, 10% awaiting assessment, 4% temporarily off the list. Range 89% patients (5-14 years) to 29% (55-64 years).

Only 22% in Northern Territory on list awaiting assessment (23%) or temporarily (5%) off list.

For patients <55 years, New South Wales/ACT 70%, South Australia 51%, Tasmania 55%, Victoria 56%, Western Australia 51%, Queensland 41%, on list.

Quality of Life Assessment (Karnovsky Scale): 49% of dialysis patients, 86% of transplant dependent patients were reported to be capable of normal activity with little or no effort. Home haemodialysis patients had the highest rating in all age groups.

Death Rates (per 100 patient years): overall dialysis dependent patient death rate was 15.6 (diabetic 20.8%, non diabetic 14.7%) and for those with a functioning transplant was 2.5% of patients at risk during the year.

Cause of Death: 44% of 731 dialysis patient deaths were due to a cardiac cause (15% myocardial infarction), 14% due to infection, 17% withdrawal from treatment (65% in age group >65 years).

4% dialysis dependent patients died from malignancy. Fourteen (50%) of those dialysis patients had malignancy at first dialysis and a further 11% within nine months. Seven cases were myeloma (median survival seven months).

36% of 109 functioning transplant patient deaths were due to cardiac cause, 23% due to malignancy and 15% to infection.

Transplant patient deaths due to malignancy: two melanomas (one skin and one retina), two lymphomas. Median graft function 10 years 7 months.

Dialysis Treatment:

Dialysis Dependent Patients: 7% increase, all States except South Australia. Hospital based haemodialysis patients increased 6%, satellite based haemodialysis 17% and continuous ambulatory peritoneal dialysis increased by only 1.6%. Home haemodialysis 1% increase.

In relation to age; 72% used haemodialysis (patients 15-54 years old); 65% of patients >55 years old used haemodialysis: 63% of patients <15 years old used peritoneal dialysis.

Peritoneal Dialysis: 97.5% patients using disconnect systems.

Age Group: compared to 1993-94, when the median peritonitis free period increased from 15 to 18 months in the 35-54 year age group, and from 12 to 19 months in the 65-74 year age group, in 1995-96 it decreased from 15 to 12 months.

More patients were using at least 70 L/week (12% in 1995). 30% (45-64 years of age), 22% (65-74 years of age) and 14% (75-84 years of age.

HAEMODIALYSIS: blood flow rate increased further: 47% 300 ml/min. Hours of treatment increased: 15% 4.5 hours, 26% 5 hours, 4% >5 hours.

Most patients were using cellulose acetate (31%), haemophan (35%) or cuprophan (24%); the surface area was normally 1-1.4 squ.m (51%), but the use of larger dialysers was increasing (40%) from 20% (1996).

TRANSPLANTATION 1996

There were 475 operations at a rate of 26 per million, 88% were primary recipients. 7.8% of all dialysed patients and 12.6% of dialysed patients in the 15-59 year age group were transplanted.

24% of grafts were from living donors. The median age of transplanted recipients was 41 years. South Australiahad the highest transplant rate with 39 per million.

For primary cadaveric grafts performed in 1995 the 12 month patient and graft survival was 96% and 90% respectively. The five year graft survival for transplants performed in primary recipients in 1991 was 72% with a patient survival of 85%.

FUNCTIONING TRANSPLANTS AT 31 DECEMBER 1996: there are 4418 functioning grafts at a rate of 242 per million. Patients with functioning grafts were in excess of those dependent on dialysis in only South Australia and Queensland.

The mean age of recipients with functioning grafts was 47 years. The longest functioning graft had reached 30 years in 1996. 23% of grafts were functioning more than ten years. As a proportion of patients at risk, grafts lost during 1996 was 5.4% (5.8% in 1995).

LIVING DONOR TRANSPLANTS

24% of all transplant operations were from living donors. In 1996, 17% of all living donors were unrelated. There has also been a marked increase in the proportion of living donors in older recipients. In 1996, 18% of transplants performed in the 65-74 year age group were from living donors.The largest increase in living donation from 1994 to 1996 has been in Queensland and New South Wales/ACT.

There has been an improvement in outcome of living donor transplants in the years 1993-96 compared to 1989-92.

FACTORS AFFECTING GRAFT OUTCOME

CYCLOSPORIN SPARING AGENTS: patients receiving CyA sparing agents at 1 month have a superior patient and graft survival. Cadaveric graft recipients who receive CyA sparing agents throughout the first six months have a significantly lower use of antilymphocyte antibodies. The incidence of delayed graft function is also reduced by the use of CyA sparing agents at the time of transplantation.

For grafts surviving at 12 months with creatinine greater than 200, the use of CyA sparing agents is associated with a significant improvement in graft survival.

DOSE OF CYCLOSPORIN A: there is no difference in patient or graft survival between recipients receiving high (>5mg/kg/day) or/and low (<5 mgs/kg/day) doses of CyA at 12 months post transplant.

PREDNISOLONE USAGE: for primary cadaveric grafts functioning at 12 months, the avoidance of prednisolone is associated with a highly significant patient and graft survival advantage. This is also the case for re-grafts and living related donor grafts.

DONOR ORGAN REPORT: the number of donors remains at 10-11 per million. The median age of donors in 1996 was 38.5 years (range 1.45 - 74.2 years) and again there was a predominance of male donors. 45% of donors died from cerebrovascular disease and 30% road trauma.

HEPATITIS C: there was 4% prevalence of HCV antibody in those patients dependent on dialysis (185 or 4784 patients). 5% prevalence in transplant patients (155 of 3267 patients). There was no report for 2% of dialysis patients or 27% of transplant patients.

SUMMARY - NEW ZEALAND

Patients Treated 31 December 1996: 1757 patients (482 per million). Functioning transplants 825 (226 per million), 932 (256 per million) were dialysis dependent. Minority (48%) transplant dependent.

New Patients 1996: 285 patients (78 per million). 49% Caucasoid, 33% Maori, 11% Pacific Islander. 55% of patients were male.

Age of New Patients: 46% were 55 years or older. Median 52.4 years, mean 50.4 years, range 8 months – 79.4 years.

Primary Renal Disease: glomerulonephritis 25% and diabetic nephropathy 36% (94% of diabetic nephropathy type 2) were the most common conditions.

Awaiting Transplantation: 31% waiting list, 12% awaiting assessment, 4% temporarily off the list. Patients <65 years, 36% on list, 14% awaiting assessment, 4% temporarily off list.

Death Rates: overall dialysis dependent death rate was 14.8 deaths per 100 patient years and for those with a functioning transplant 3.1 deaths per 100 patient years.

Cause of Death: 44% of dialysis patient deaths were due to cardiac causes (14% myocardial infarction), 14% due to infection. 26 transplant dependent patients died: cardiac nine cases, malignancy seven cases.

Dialysis Dependent Patients: 932 patients (256 per million) had increased 9% from the previous year. 80% home haemodialysis patients, 71% CAPD. Decrease in CAPD 59% to 57% in 1996 and home haemodialysis remained steady at 20%. Hospital haemodialysis increased from 18% to 19% of all dialysis patients.

Transplantation 1996: there were 96 transplant operations at a rate of 26 per million. 27% were from living donors. The median age of recipients in 1996 was 40 years (39 years in 1995). The transplantation incidence of patients aged 15-59 years being dialysed was 9.2% (Caucasoid 16.8%, Maori 2.6%, Pacific Islanders 5.4%).

Functioning Transplants: there were 825 functioning grafts (226 per million). The longest surviving graft reached 30 years in February 1997. For the third consecutive year the number of transplant patients was less than those dependent on dialysis.

Survival Following Primary Cadaver Graft Transplantation 1995: patient survival was 94% at 12 months and the graft survival 84%.

Table 1 **Australia**

Stock of Patients 1991 to 31-Dec-96

	1991	1992	1993	1994	1995	1996
No. Functioning Transplants #	3482 (201)	3684 (210)	3848 (218)	4040 (226)	4200 (233)	4418 (242)
No. Dialysis Patients	3141 (181)	3390 (193)	3707 (210)	4100 (230)	4533 (251)	4862 (266)
Proportion Home	48%	48%	49%	47%	46%	44%
Proportion Satellite	19%	21%	21%	23%	25%	27%
Proportion C.A.P.D.	29%	31%	32%	31%	32%	30%

Patient Flow Summary

	1991	1992	1993	1994	1995	1996
No. New Patients	981 (57)	1086 (62)	1159 (66)	1314 (74)	1383 (77)	1405 (77)
No. New Transplants	469 (27)	476 (27)	457 (26)	440 (25)	441 (24)	475 (26)
Living Donor Transplants	77	69	64	103	93	115
Non Primary Transplants	84	73	74	56	71	59
No. Deaths	562	617	670	708	767	840
Dialysis Patients	467	514	553	597	649	731
Transplant Patients	95	103	117	111	118	109

( ) Number of patients per million population
Patients lost to follow up are not included

Table 2 **Australia**

National and State Stock and Flow 1-Jan-96 to 31-Dec-96

State	New Patients	Transplant Operations	Dialysis Deaths	Transplant Deaths	Dialysis Dependent	Functioning # Transplants+	Total
Aust.	**1405 (1383)**	**475 (441)**	**731 (649)**	**109 (118)**	**4862 (4533)**	**4430 (4213)**	**9292 (8746)**
Qld	227 (239)	80 (69)	128 (112)	22 (22)	729 (683)	889 (855)	**1618 (1538)**
NSW/ACT	535 (500)	171 (160)	261 (232)	46 (54)	1915 (1758)	1512 (1444)	**3427 (3202)**
Vic.	344 (329)	118 (108)	167 (169)	17 (24)	1226 (1138)	1046 (993)	**2272 (2131)**
Tas.	30 (41)	16 (9)	14 (14)	0 (1)	97 (92)	93 (83)	**190 (175)**
SA	105 (94)	57 (55)	73 (52)	15 (11)	312 (329)	476 (438)	**788 (767)**
NT *	47 (39)	3 (3)	27 (20)	0 (0)	127 (112)	37 (31)	**164 (143)**
WA	117 (141)	30 (37)	61 (50)	9 (6)	456 (421)	377 (369)	**833 (790)**
N.Z.	**285 (287)**	**96 (94)**	**133 (154)**	**26 (14)**	**932 (852)**	**813 (769)**	**1745 (1621)**

( ) 1995 December figures
Patients lost to follow up are not included
+ Functioning transplants by Caring State
* (1) Northern Territory Resident received initial treatment in South Australia in 1995

Table 3 **New Zealand**

Stock of Patients 1991 to 31-Dec-96

	1991	1992	1993	1994	1995	1996
No. Functioning Transplants	605 (175)	674 (193)	705 (200)	730 (204)	782 (215)	825 (226)
No. Dialysis Patients	632 (183)	677 (194)	723 (205)	788 (220)	852 (234)	932 (256)
Proportion Dialysing Home	84%	83%	81%	84%	81%	80%
Proportion Satellite	<1%	<1%	<1%	<1%	<1%	<1%
Proportion C.A.P.D.	53%	56%	57%	62%	59%	57%

Patient Flow Summary

	1991	1992	1993	1994	1995	1996
No. New Patients	215 (62)	246 (71)	232 (66)	249 (70)	287 (79)	285 (78)
No. New Transplants	77 (22)	115 (33)	84 (24)	83 (23)	04 (26)	96 (26)
Living Donor Transplants	13	17	20	20	24	26
Non Primary Transplants	15	10	15	13	10	8
No. Deaths	108	135	155	157	168	159
Dialysis Patients	88	122	138	136	154	133
Transplant Patients	20	13	17	21	14	26

( ) Number of patients per million population

Table 4 **New Zealand**

Stock and Flow 1980 - 1996

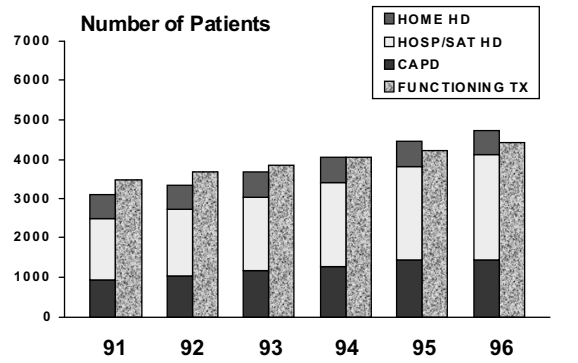
	New Patients	New Transplants	Dialysis Deaths	Transplant Deaths	On Dialysis	Funct.Tx. (Tx. in NZ)	Total (Dx.Tx.Pts)
1980	95	74	35	10	242	225	467
1981	115	60	31	8	302	242	544
1982	103	65	34	9	342	261	603
1983	98	98	40	5	338	319	657
1984	117	74	42	10	370	349	719
1985	124	88	49	16	402	377	779
1986	124	105	62	10	402	426	828
1987	151	79	66	23	438	452	890
1988	152	78	57	18	482	484	966
1989	174	83	68	13	528	530	1058
1990	179	102	83	21	557	577	1134
1991	215	77	88	20	632	605	1237
1992	246	115	122	13	677	674	1351
1993	232	84	138	17	723	705	1428
1994	249	83	136	21	788	730	1518
1995	287	94	154	14	852	782	1634
1996	285	96	133	26	932	825	1757

Figure 1

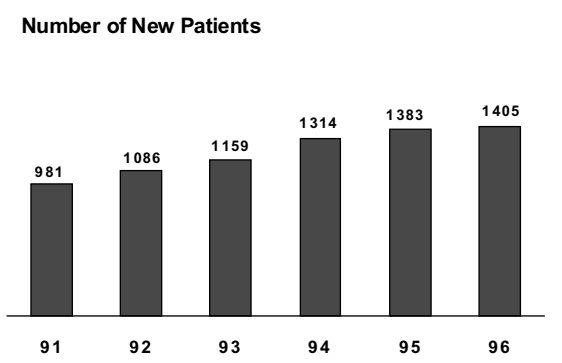
Australia

Stock and Flow 1991 - 1996

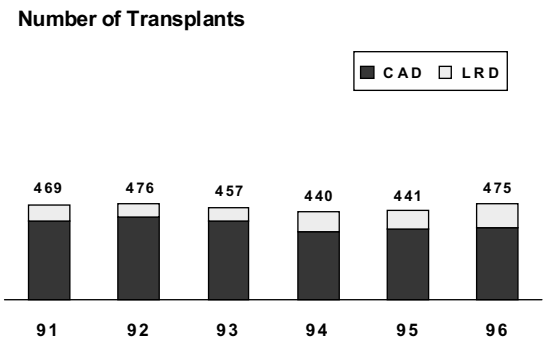
Living Dialysis and Transplants



New Patients



Transplants Performed



Deaths

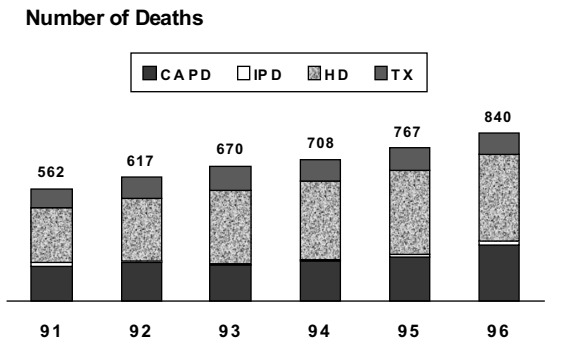
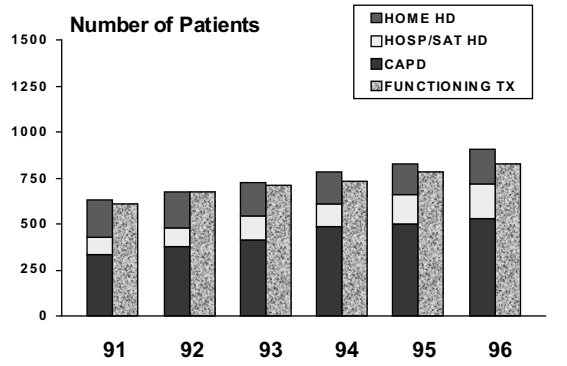


Figure 2

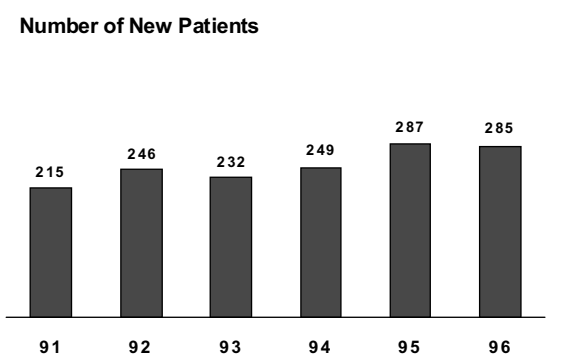
New Zealand

Stock and Flow 1991 - 1996

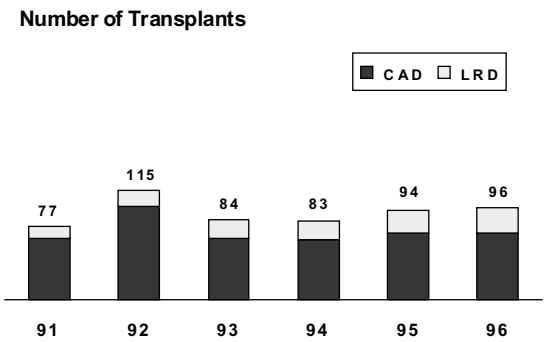
Living Dialysis and Transplants



New Patients



Transplants Performed



Deaths

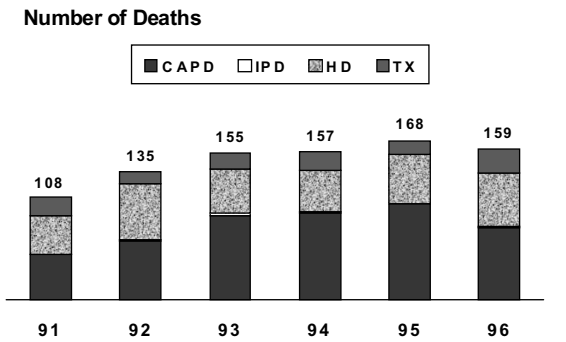


Figure 3

Patients Alive: Functioning Transplant or Dialysis 1986 - 1996

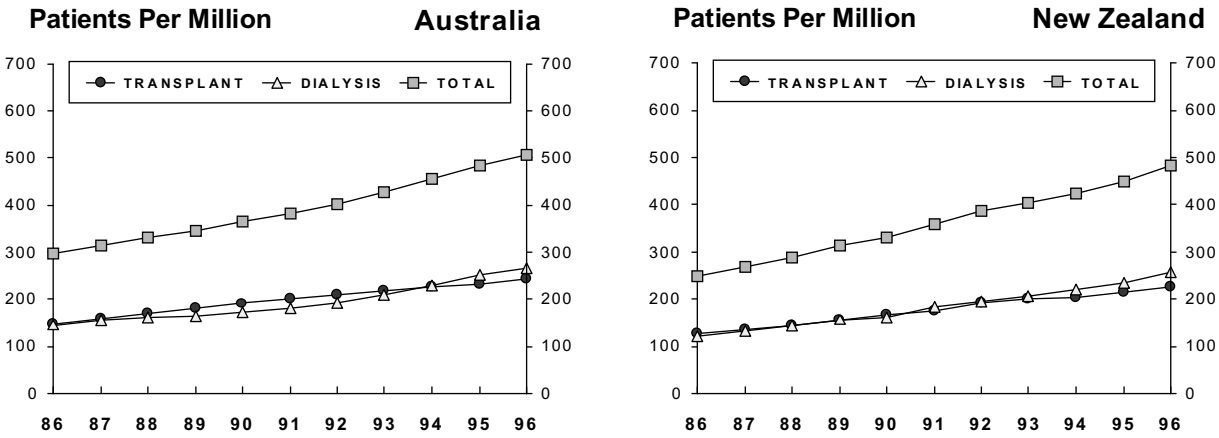


Table 5 — Australia

Transplant and Dialysis Patients 1986 - 1996

	Transplant#	Per Million	Dialysis	Per Million	Total	Per Million
1986	2389	149	2339	146	4728	296
1987	2570	158	2531	156	5101	314
1988	2792	169	2683	162	5475	331
1989	3048	181	2752	164	5800	345
1990	3259	191	2929	173	6218	364
1991	3482	201	3141	181	6623	382
1992	3684	210	3390	193	7074	404
1993	3848	218	3707	210	7555	428
1994	4040	226	4100	230	8140	456
1995	4200	233	4533	251	8733	484
1996	4418	242	4862	266	9280	507

Patients lost to follow up are not included

Table 6 — New Zealand

Transplant and Dialysis Patients 1986 - 1996

	Transplant#	Per Million	Dialysis	Per Million	Total	Per Million
1986	426	128	402	121	828	250
1987	452	135	438	131	890	267
1988	484	144	482	144	966	288
1989	530	157	528	156	1058	313
1990	577	168	557	162	1134	331
1991	605	175	632	183	1237	359
1992	674	193	677	194	1351	388
1993	705	200	723	205	1428	405
1994	730	204	788	220	1518	424
1995	782	215	852	234	1634	449
1996	825	226	932	256	1757	482

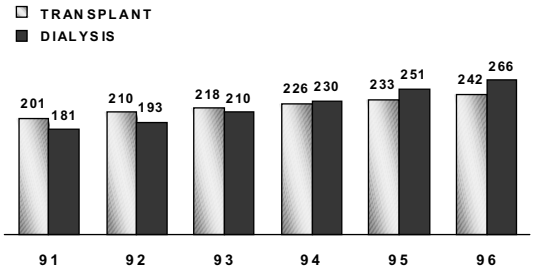
Patients lost to follow up are not included

Figure 4

Comparison of Transplant and Dialysis Dependent Patients 1991 - 1996

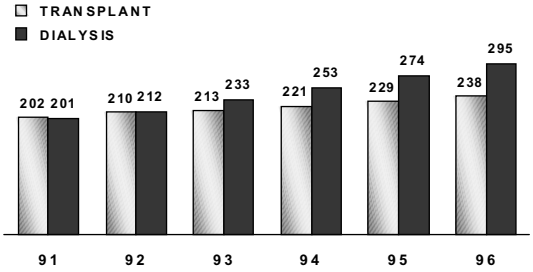
Australia

Patients Per Million



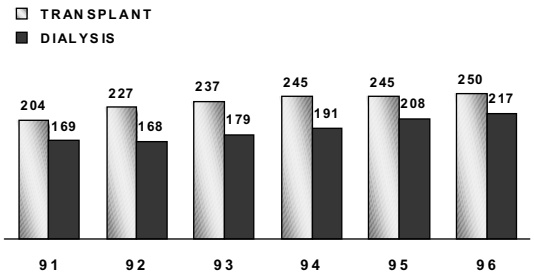
New South Wales

Patients Per Million



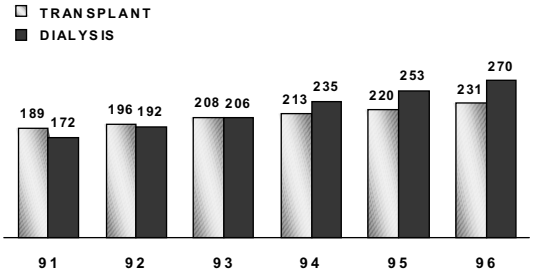
Queensland

Patients Per Million



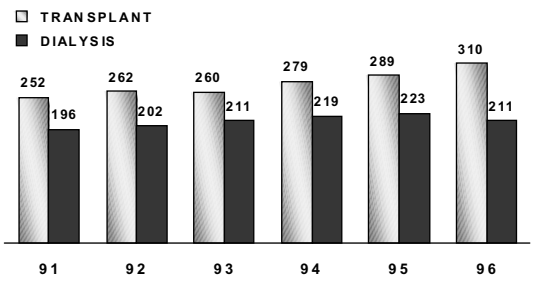
Victoria

Patients Per Million



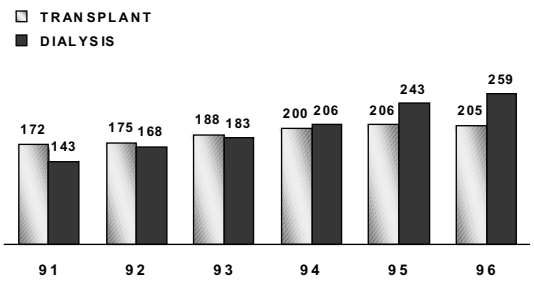
South Australia

Patients Per Million



Western Australia

Patients Per Million



Transplanted patients "Lost to follow up" have been excluded from the totals in each State

Patients from Tasmania were transplanted in Victoria
and from the Northern Territory in South Australia

For calculation of population related totals for functioning transplant patients
the populations of these States were amalgamated

Figure 5

Treatment of Aboriginal Patients
Australia 1988 - 1996

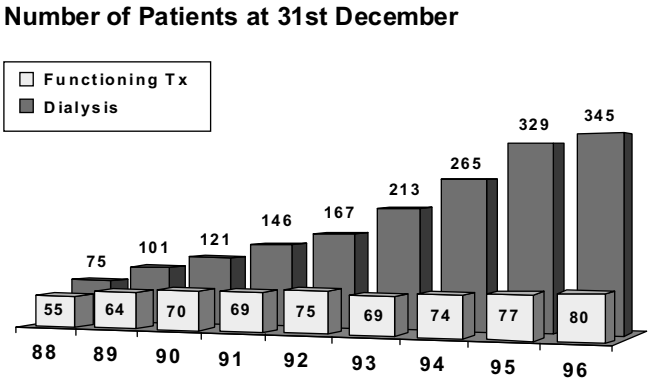


Figure 6

Treatment of Maori Patients
New Zealand 1988 - 1996

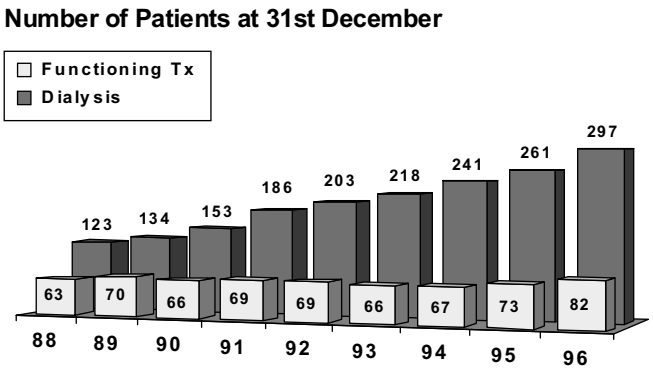


Figure 7

Treatment of Pacific Islander Patients
New Zealand 1988 - 1996

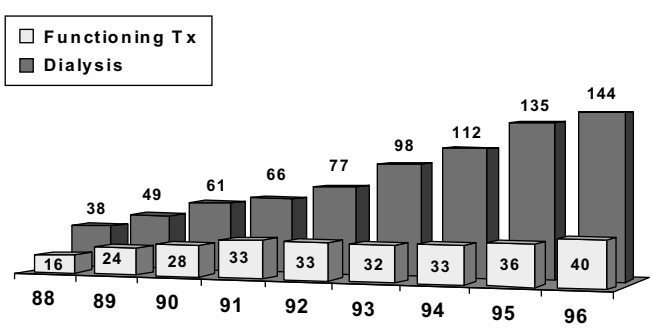


Figure 8

Method and Location of Dialysis 1987 - 1996

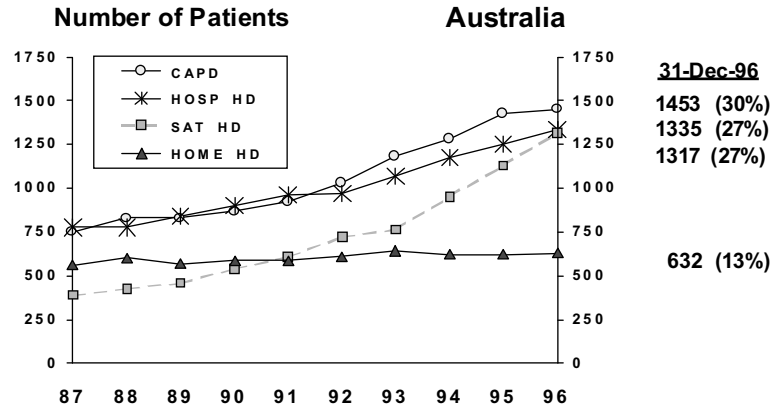


Figure 9

Method and Location of Dialysis 1987 - 1996

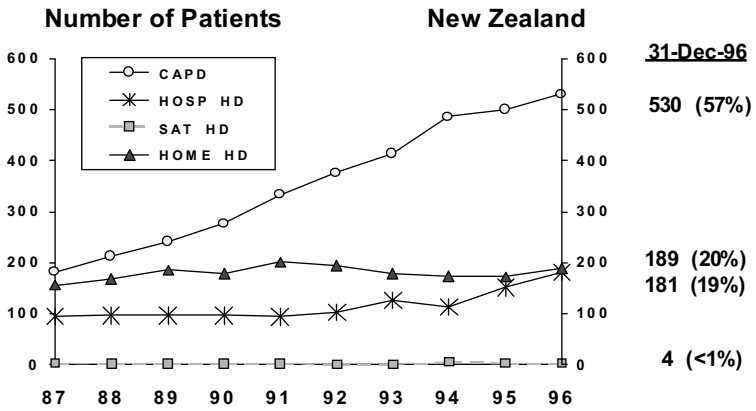


Figure 10

Dialysis Population Per Million 1990 - 1996
States: Australia and New Zealand

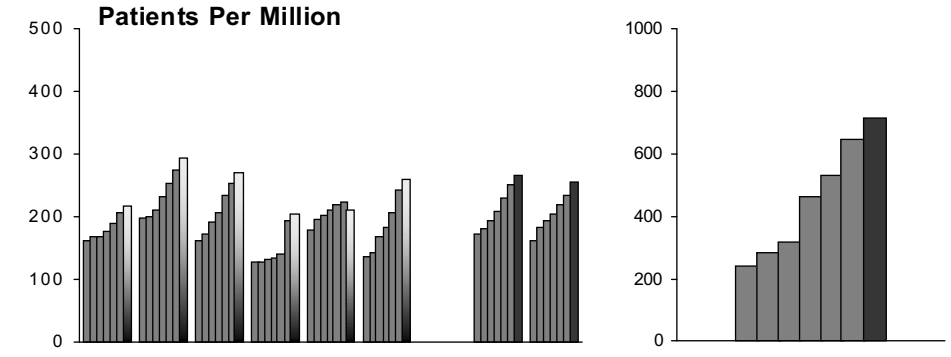
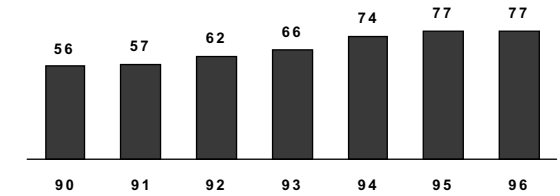


Figure 11

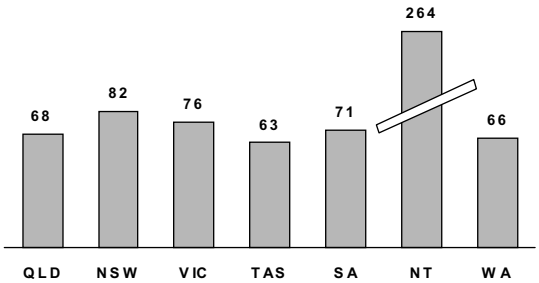
New Patients - Australia

New Patients (Per Million)
Australia 1990 - 1996



No. Pats.	90	91	92	93	94	95	96
	951	981	1086	1159	1314	1383	1405

New Patients (Per Million)
Australian States 1996



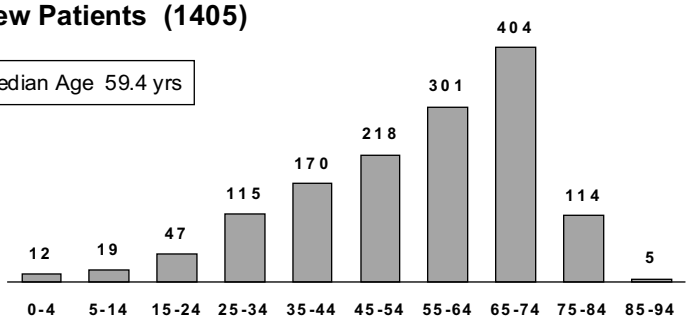
No. Pats.	QLD	NSW	VIC	TAS	SA	NT	WA
	227	535	344	30	105	47	117

Figure 12

Age of New Patients - Australia 1996

New Patients (1405)

Median Age 59.4 yrs



	0-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85-94
Per Million Age Group	9	7	17	40	61	94	196	312	161	25
Diabetic %	0	0	2	24	24	25	23	15	6	0
Type 1	0	0	2	18	15	5	2	1	0	0

Figure 13

Acceptance of New Patients 1987 - 1996
Age Specific Rates - Australia

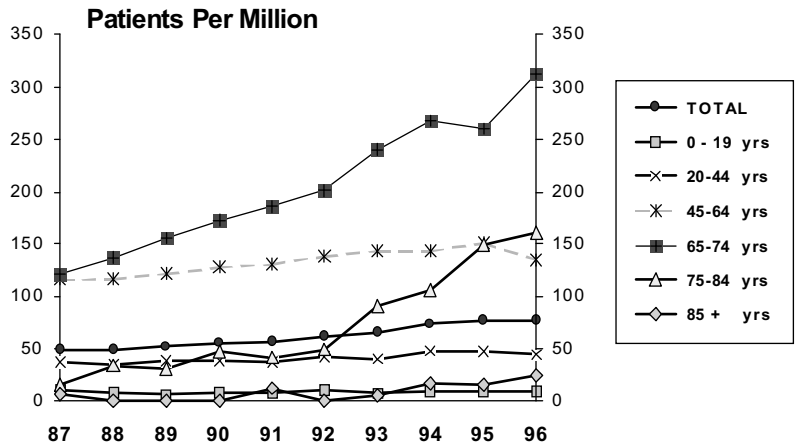
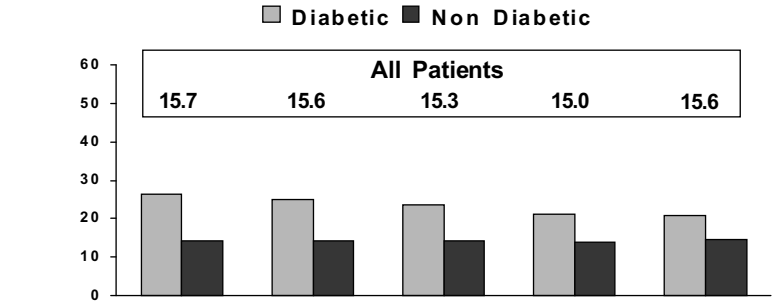


Figure 14

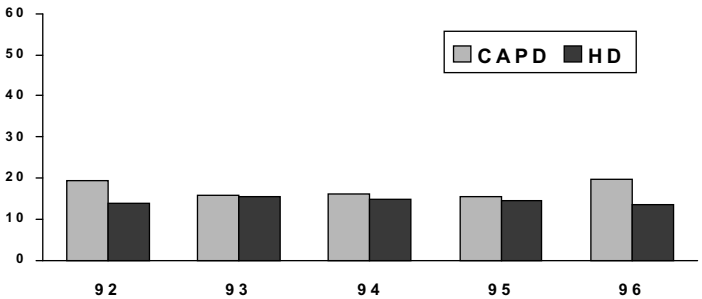
Annual Death Rate Per 100 Dialysis Patient Years
Australia 1992 - 1996



		92	93	94	95	96
Diab	Deaths	82	88	104	117	137
	Pts at risk	442	505	620	765	877
Non Diab	Deaths	432	465	493	532	594
	Pts at risk	3907	4177	4514	4837	5161

Figure 15

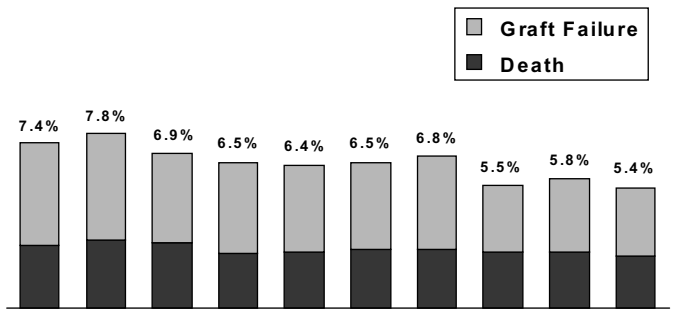
Annual Death Rate Per 100 Patient Years
Mode of Dialysis Australia 1992 - 1996



		92	93	94	95	96
CAPD	Deaths	190	176	199	215	278
	Pts Risk	1534	1729	1872	2065	2134
HD	Deaths	313	365	390	421	431
	Pts Risk	3227	3487	3815	4119	4442

Figure 16

Graft Loss in Relation to Grafts at Risk
Australia 1987 - 1996



	87	88	89	90	91	92	93	94	95	96
No. Grafts Lost	208	239	228	228	241	261	285	237	263	255

Figure 17

Australian Transplantation 1986 - 1996

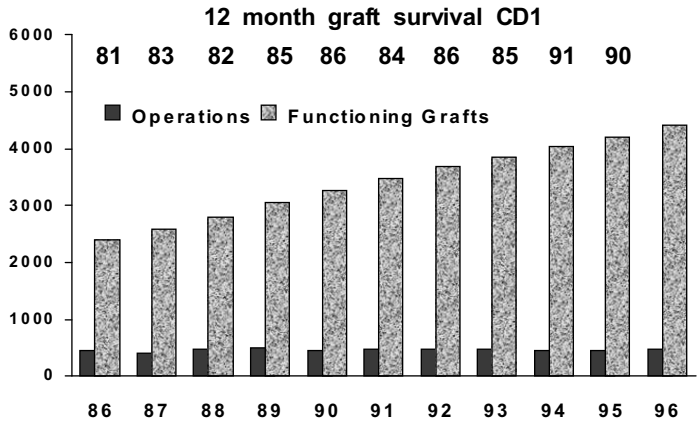


Figure 18

Proportion of Patients Awaiting Transplant 31-Mar-97

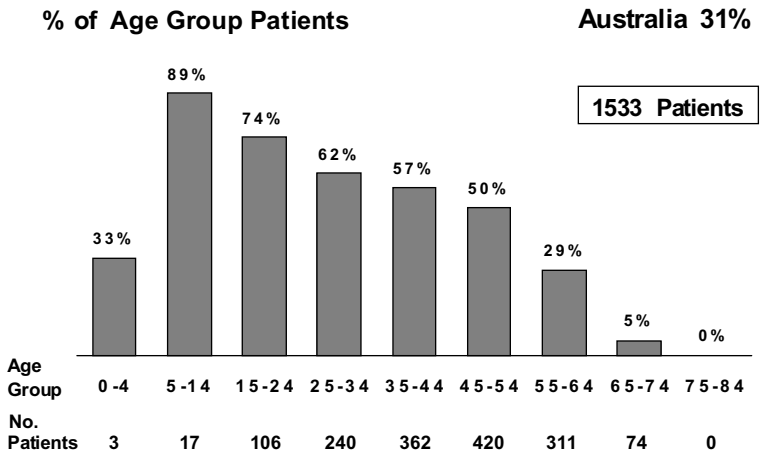


Figure 19

Transplantation Rate 1996

Related to Patients Dialysed

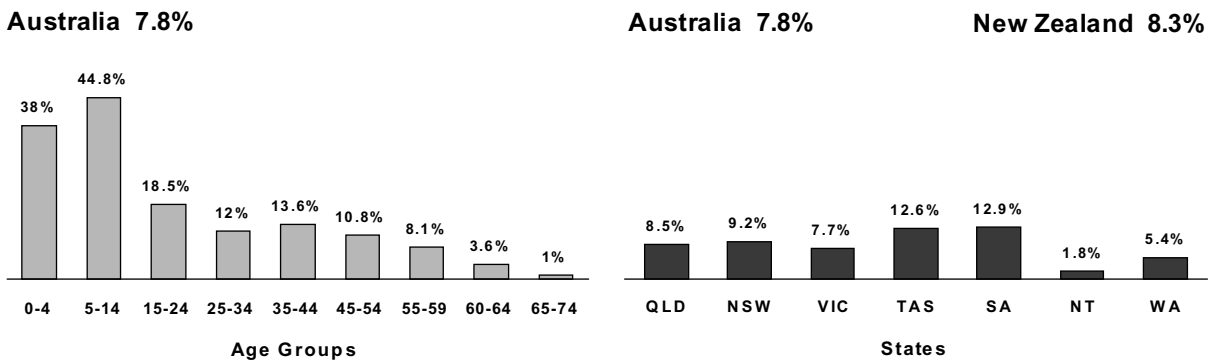
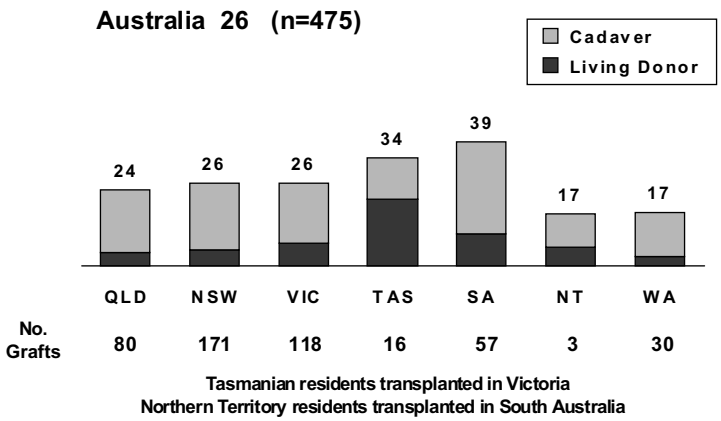


Figure 20

Transplant Operations (Per Million)
Australian States 1996



Tasmanian residents transplanted in Victoria
Northern Territory residents transplanted in South Australia

Figure 21

Transplants Operations Performed
Australia 1987 - 1996

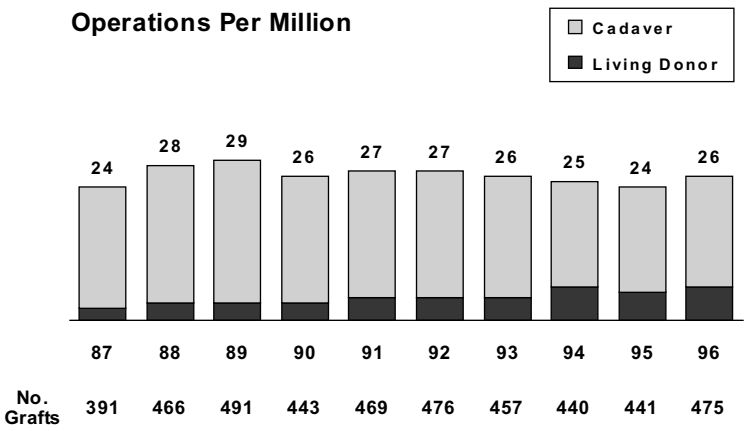


Figure 22

Age Group Dependence on Functioning Transplants

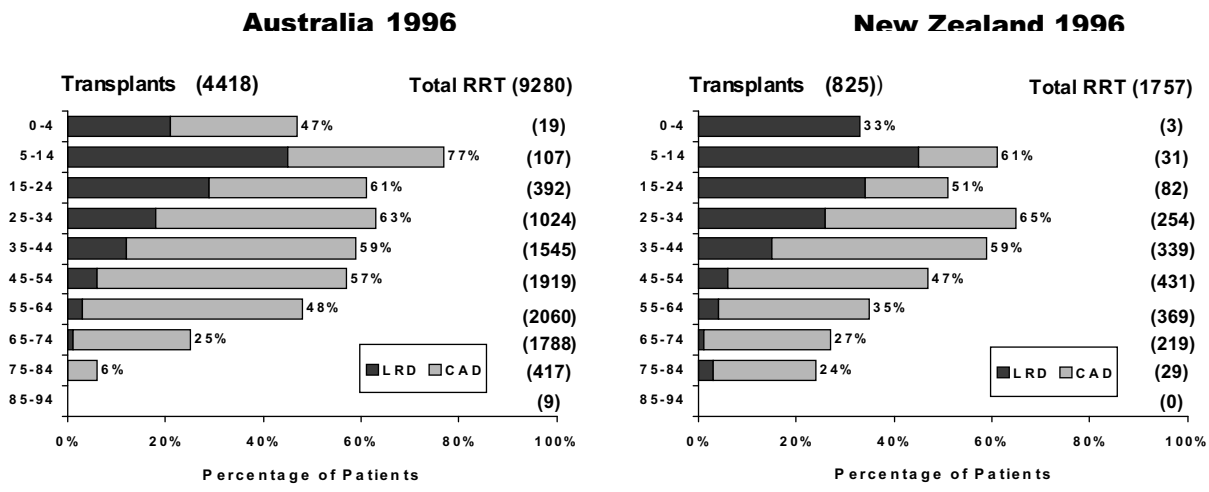
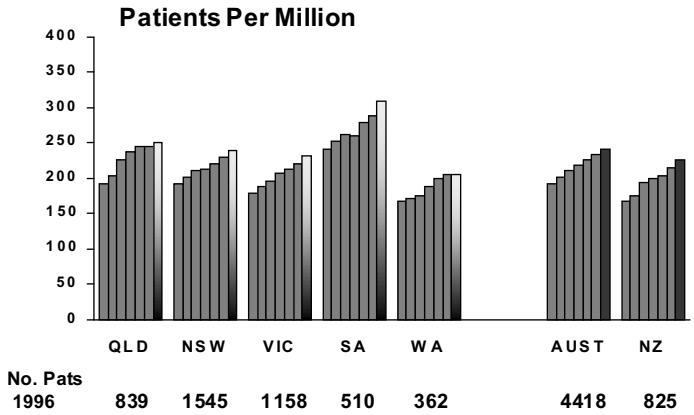


Figure 23

Functioning Transplants Per Million 1990 - 1996
Transplanting States: Australia and New Zealand



No. Pats 1996	QLD	NSW	VIC	SA	WA	AUST	NZ
	839	1545	1158	510	362	4418	825

Figure 24

Functioning Transplants (Per Million)
Australia and New Zealand 1991 - 1996

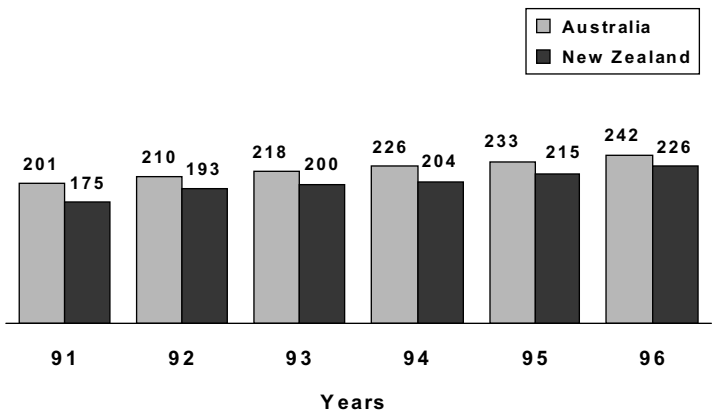


Figure 25

Functioning Transplants (Per Million)
Caring Australian States 1996

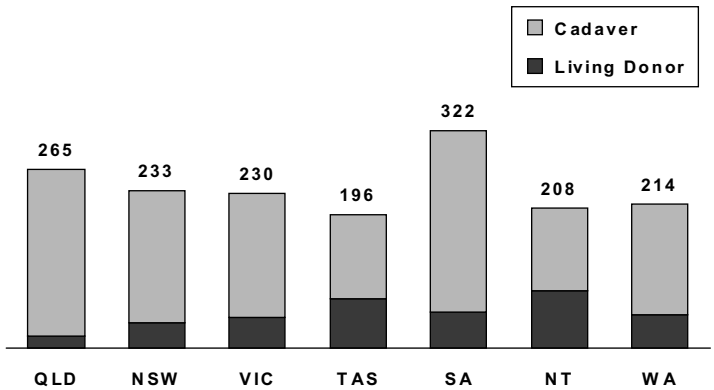


Figure 26

Primary Cadaver Patient Survival 1989 - 1995
Related to Year of Transplant

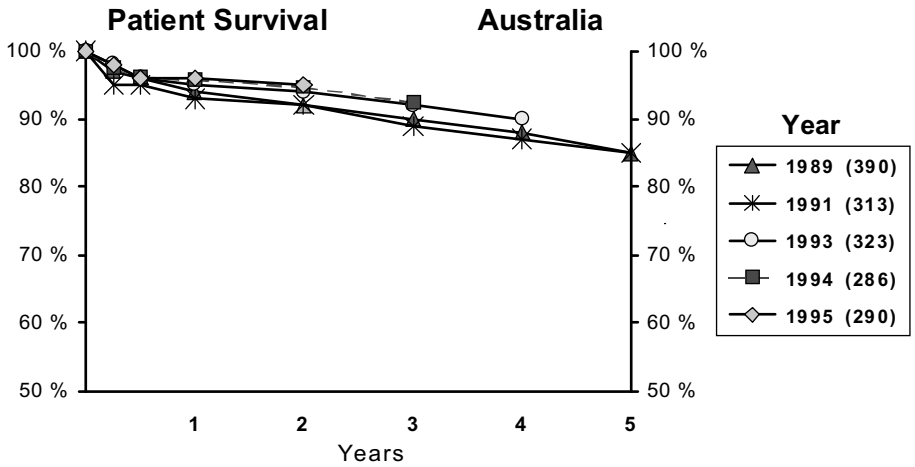


Figure 27

Primary Cadaver Graft Survival 1989 - 1995
Related to Year of Transplant