

SUMMARY 1997

AUSTRALIA AND NEW ZEALAND

SUMMARY - AUSTRALIA

PATIENTS TREATED 31 DECEMBER 1997: 9845 patients (530 per million), 7% increase: 4671 (251 per million) functioning transplants, 5174 (279 per million) were dialysis dependent.

NEW PATIENTS 1997: 1468 patients (79 per million). State intake ranged from Tasmania (63 per million), South Australia (65 per million), Western Australia and Victoria (78 per million), Queensland and New South Wales (79 per million) and Northern Territory (299 per million). Caucasoid 80%, Aboriginal 10%, Asian 4%.

CO-MORBID FACTORS SURVEYED: coronary artery disease 37.2%, peripheral vascular disease 25.9%.

AGE OF NEW PATIENTS: 36% were 65 years or older. Main feature was slowing of the increase in the age group 65-74 years. Age range 9.6 months to 88.9 years. Median age 58.4 years, mean age 55.2 years (no gender difference).

PRIMARY RENAL DISEASE: glomerulonephritis 34% (368/496 were biopsy proven), diabetic nephropathy 21%. Analgesic nephropathy fell once again as a proportion of new patients to lowest in past 20 years (5%). Total number of analgesic nephropathy patients was lowest since 1988. Hypertension 12%. Diabetic nephropathy was classified as type 1 in only 18% of cases (24% in 1996).

AWAITING TRANSPLANTATION: of patients <65 years, 46% on waiting list, 12% awaiting assessment, 4% temporarily off the list. Range 76% patients (5-14 years) to 29% (55-64 years).

Only 17% in Northern Territory on list; awaiting assessment (28%) or temporarily off list (15%).

For patients <55 years on list, New South Wales/ACT 67%, Victoria 53%, Tasmania 52%, Western Australia 48%, South Australia 46%, Queensland 41%, Northern Territory 17%.

QUALITY OF LIFE ASSESSMENT (Karnovsky Scale): 56% of dialysis patients, 92% 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 15.7 and for those with a functioning transplant was 2.4.

CAUSE OF DEATH: 42% of 794 dialysis patient deaths were due to a cardiac cause (11% myocardial infarction), 15% due to infection, 17% withdrawal from treatment (66% in age group >65 years).

6% of dialysis dependent patients died from malignancy. 20 (39%) of those dialysis patients had malignancy at first dialysis and a further 18% within nine months. 4 cases were myeloma.

27% of 109 functioning transplant patient deaths were due to cardiac cause, 29% due to malignancy and 14% to infection.

Transplant patient deaths due to malignancy: 2 melanomas, 5 lymphomas.

DIALYSIS TREATMENT 1997: 6% increase, all States except South Australia. Hospital based haemodialysis patients increased 10%, satellite based haemodialysis 11% and continuous ambulatory peritoneal dialysis decreased by 1%. Home haemodialysis decreased 3%. CCPD increased 55%.

In relation to age; 77% used haemodialysis (patients 15-54 years old); 67% of patients >55 years old used haemodialysis: 70% of patients <15 years old used peritoneal dialysis.

The majority of patients were using at least 70L/week.

HAEMODIALYSIS: blood flow rate increased further: 49% 300 ml/min. Hours of treatment increased: 43% 4-4.25 hours, 16% 4.5 hours, 27% 5 hours, 32% >5 hours.

Most patients were using haemophan (34%), followed by polysulphone low flux 22%, cellulose acetate (17%) or cuprophan (17%).

TRANSPLANTATION 1997

There were 502 operations which represents a 6% increase over 1996. The transplant rate was 27 per million. 88% were for primary recipients. 7.7% of dialysing patients were transplanted.

29% of grafts were from living donors.

South Australia/ Northern Territory had the highest transplant rate at 38 per million. Western Australia had a rate of 18 per million.

For primary cadaveric grafts performed in 1996 the 12 month patient and graft survival was 95% and 89% respectively. The 5 year graft survival for transplants performed in primary recipients in 1991 was 72% with 85% patient survival.

For second and subsequent cadaver grafts, the 1 year survival for patients transplanted between 1995 to 1997 was 81% and patient survival was 97%.

FUNCTIONING TRANSPLANTS AT 31 DECEMBER 1997: there are 4656 functioning grafts at a rate of 251 patients per million. This represents a 6% increase over 1996. Patients with functioning grafts were in excess of those dependent on dialysis in only South Australia and Queensland.

The modal age for transplant dependent patients was 45-54 years with a mean of 47.1 and a median of 48.2 years. 24% of grafts have been functioning for more than 10 years and 5% more than 20 years.

18% of functioning grafts were from living donors and the modal age group for living donor recipients was 35-44 years.

LIVING DONOR TRANSPLANTS: 29% of all transplant operations were from living donors, the largest proportion this decade. There has been a 30% increase in the number of living related donor grafts with the number of unrelated donors being the same as in 1996. 52% of living donors in 1996 and 1997 were female. 19% of living donor transplants were performed without the recipient receiving dialysis therapy.

FACTORS AFFECTING GRAFT OUTCOME

RECIPIENT SENSITISATION: primary cadaveric graft recipients with high levels of peak or current panel reactive antibody have significantly inferior graft survival. Recipients with a high peak panel reactive antibody who develop a lower level prior to transplantation have a graft survival rate which is equivalent to those with a persistently high panel reactive antibody in both peak and current serum.

Primary cadaver grafts in recipients with peak panel reactive antibody $\geq 50\%$ performed in 1995 to 1997 have an improved graft survival compared to those performed in previous years. However, no improvement in survival has been seen for second or subsequent cadaveric grafts in sensitised recipients over the last 9 years.

IMMUNOSUPPRESSIVE THERAPY: from 1993 to 1996 the majority of primary cadaveric recipients received triple therapy with CyA/Pred/Aza. In 1997 the proportion of patients receiving triple therapy with CyA/Pred/MMF at the time of transplantation increased to 36%.

REJECTION EPISODES ACCORDING TO IMMUNOSUPPRESSION: for primary cadaveric grafts performed in Australia from the 1-Apr-97 to 31-Mar-98 there was no difference in the incidence of the diagnosis of rejection in the first month according to whether patients were receiving triple therapy with MMF or Aza. However, vascular rejection was more common in the Aza treated group and the requirement for antibody therapy for rejection was also greater in the Aza group.

GRAFT FUNCTION ACCORDING TO IMMUNOSUPPRESSION: at 3 months there is no difference in the se.creatinine between patients receiving Aza and MMF. However, at 6 months, the Aza/CyA/Pred group had a mean se.creatinine of 144 $\mu\text{mol/L}$ compared to 130 $\mu\text{mol/L}$ in the MMF/CyA/Pred group.

DONOR ORGAN REPORT: the number of donors remains at 10 per million. The median age of donors in 1997 was 43.1 years (range 2.5 -76.1 years) and again there was a predominance of male donors. 46% of donors died from cerebrovascular disease and 29% from road trauma.

SUMMARY - NEW ZEALAND

PATIENTS TREATED 31 DECEMBER 1997: 1895 patients (506 per million). Functioning transplants 881 (235 per million), dialysis dependent 1014 (271 per million). Minority (46%) transplant dependent.

NEW PATIENTS 1997: 318 patients (85 per million). 51% Caucasoid, 34% Maori, 10% Pacific Islander. 60% of patients were male.

AGE OF NEW PATIENTS: 50% were 55 years or older. Median 55.2 years, mean 53 years, range 7.2 months - 87.1 years.

PRIMARY RENAL DISEASE: glomerulonephritis 25% and diabetic nephropathy 40% (51% of diabetic nephropathy type 2) were the most common conditions.

AWAITING TRANSPLANTATION: 32% waiting list, 16% awaiting assessment, 2% temporarily off the list. Patients <65 years, 39% on list, 16% awaiting assessment, 2% temporarily off list.

DEATH RATES: overall dialysis dependent death rate was 15.8 deaths per 100 patient years and for those with a functioning transplant 2.9 deaths per 100 patient years.

CAUSE OF DEATH: 45% of dialysis patients deaths were due to cardiac causes (15% myocardial infarction), 21% due to infection. 25 transplant dependent patients died: cardiac 8 cases, malignancy 6 cases.

DIALYSIS DEPENDENT PATIENTS: 1014 patients (271 per million) had increased 8.5% from the previous year. 75% home dialysis patients, 71% CAPD. Decrease in CAPD 57% to 54%. Home haemodialysis remained steady at 25%. Hospital haemodialysis increased from 19% to 24% of all dialysis patients.

TRANSPLANTATION 1997: there were 112 transplant operations at a rate of 30 per million. This is an increase of 17% from 1996. The percentage of living donors was 28%. 90% were to primary recipients. The median age of recipients in 1997 was 46 years (40 years in 1996). 8.8% of all dialysed patients were transplanted in 1997.

FUNCTIONING TRANSPLANTS: there were 881 grafts functioning (235 per million) at 31 December 1997. 75% of functioning transplants were in Caucasoids, 10% in Maoris, 5% in Pacific Islanders, 3% in Asians and 2% in Other.

SURVIVAL FOLLOWING PRIMARY CADAVERIC GRAFT TRANSPLANTATION 1996: patient survival was 92% and graft survival was 84% at 12 months.

Figure 1

Australia

Stock of Patients 1992 to 31-Dec-97

	1992	1993	1994	1995	1996	1997
No. Functioning Transplants #	3687 (210)	3853 (218)	4044 (227)	4204 (233)	4410 (241)	4656 (251)
No. Dialysis Patients	3390 (193)	3708 (210)	4103 (230)	4541 (252)	4899 (268)	5174 (287)
Proportion Home	48%	49%	47%	46%	45%	42%
Proportion Satellite	21%	20%	23%	24%	27%	28%
Proportion CAPD	31%	32%	31%	32%	30%	28%

Patient Flow Summary

	1992	1993	1994	1995	1996	1997
No. New Patients	1086 (62)	1160 (66)	1316 (74)	1387 (77)	1431 (78)	1468 (79)
No. New Transplants	476 (27)	457 (26)	440 (25)	441 (24)	475 (26)	502 (27)
Living Donor Transplants	69	64	103	93	115	144
Non Primary Transplants	73	74	56	71	59	58
No. Deaths	618	670	708	768	846	903
Dialysis Patients	514	553	597	649	732	794
Transplant Patients	104	117	111	119	114	109

() Number of patients per million population

Patients lost to follow up are not included

Figure 2

Australia

National and State Stock and Flow 1-Jan-97 to 31-Dec-97

State	New Patients	Transplant Operations (Caring State)	Dialysis Deaths	Transplant Deaths	Dialysis Dependent	Functioning Transplants # +	Total
Aust.	1468 (1431)	502 (475)	794 (732)	109 (114)	5174 (4899)	4671 (4422)	9845 (9321)
Qld	268 (232)	95 (80)	129 (128)	26 (23)	805 (734)	944 (894)	1749 (1628)
NSW/ACT	520 (548)	177 (170)	321 (261)	44 (49)	1986 (1938)	1596 (1508)	3582 (3446)
Vic.	357 (342)	120 (118)	160 (167)	14 (18)	1321 (1224)	1104 (1037)	2425 (2261)
Tas.	30 (30)	9 (16)	15 (14)	0 (0)	109 (98)	99 (94)	208 (192)
SA	96 (105)	50 (58)	63 (73)	11 (15)	316 (312)	492 (475)	808 (787)
NT	56 (48)	17 (3)	25 (27)	2 (0)	145 (129)	47 (38)	192 (167)
WA	141 (126)	34 (30)	81 (62)	12 (9)	492 (464)	389 (376)	881 (840)
N.Z.	318 (287)	112 (96)	156 (133)	25 (28)	1014 (934)	866 (810)	1880 (1744)

() 1996 December figures

Patients lost to follow up are not included

+ Functioning transplants by Caring State / Country

Figure 3

New Zealand

Stock of Patients 1992 to 31-Dec-97

	1992	1993	1994	1995	1996	1997
No. Functioning Transplants	673 (193)	704 (200)	730 (204)	782 (215)	822 (220)	881 (235)
No. Dialysis Patients	677 (194)	723 (205)	787 (220)	852 (234)	934 (250)	1014 (271)
Proportion Home	83%	81%	84%	81%	80%	75%
Proportion Satellite	<1%	<1%	<1%	<1%	<1%	1%
Proportion CAPD	56%	57%	62%	59%	57%	55%

Patient Flow Summary

	1992	1993	1994	1995	1996	1997
No. New Patients	246 (71)	232 (66)	248 (69)	287 (79)	287 (77)	318 (85)
No. New Transplants	115 (33)	84 (24)	83 (23)	94 (26)	96 (26)	112 (30)
Living Donor Transplants	17	20	20	24	26	31
Non Primary Transplants	10	15	13	10	8	11
No. Deaths	135	155	157	168	161	181
Dialysis Patients	122	138	136	154	133	156
Transplant Patients	13	17	21	14	28	25

() Number of patients per million population

Figure 4

New Zealand

Stock and Flow 1980 - 1997

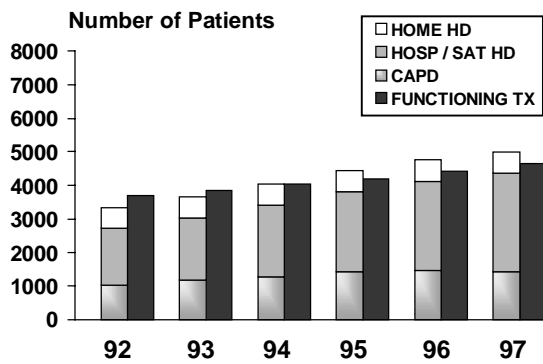
	New Patients	New Transplants	Dialysis Deaths	Transplant Deaths	Dialysis Dependent	Funct.Tx (Tx. in NZ)	Total
1980	95	74	35	10	242	224	466
1981	115	60	31	8	302	241	543
1982	103	65	34	9	342	260	602
1983	98	98	40	5	338	318	656
1984	117	74	42	10	370	348	718
1985	124	88	49	16	402	376	778
1986	124	105	62	10	402	425	827
1987	151	79	66	23	438	451	889
1988	152	78	57	18	482	483	965
1989	174	83	68	13	528	529	1057
1990	179	192	83	21	557	576	1133
1991	215	77	88	20	632	604	1236
1992	246	115	122	13	677	673	1350
1993	232	84	138	17	723	704	1427
1994	248	83	136	21	787	730	1517
1995	287	94	154	14	852	782	1634
1996	287	96	133	28	934	822	1756
1997	318	112	156	25	1014	881	1895

Figure 5

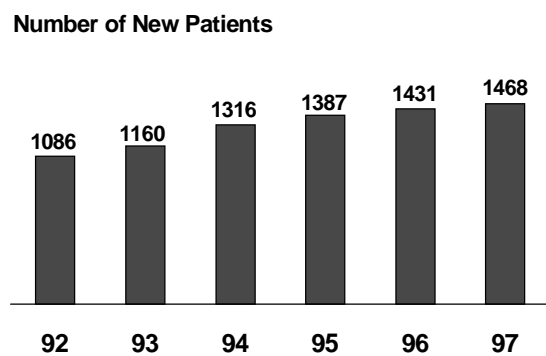
Australia

Stock and Flow 1992 - 1997

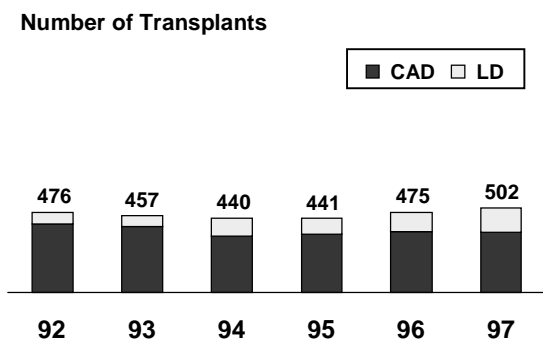
Living Dialysis and Transplants



New Patients



Transplants Performed



Deaths

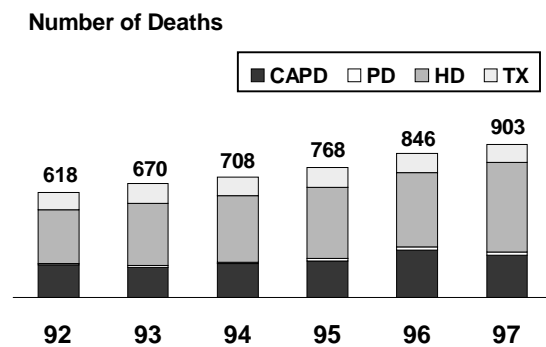
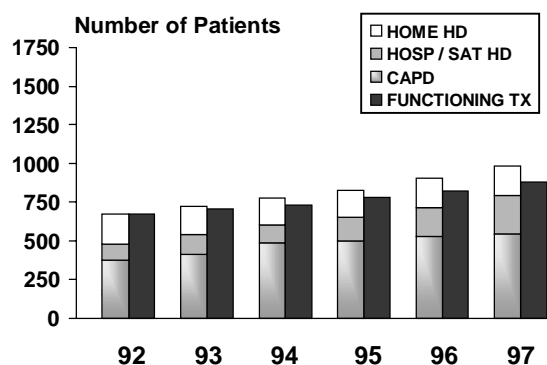


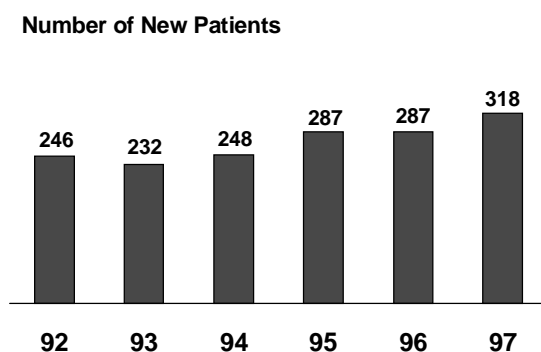
Figure 6

New Zealand Stock and Flow 1992 - 1997

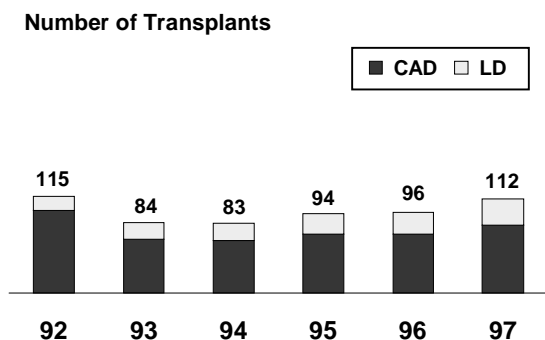
Living Dialysis and Transplants



New Patients



Transplants Performed



Deaths

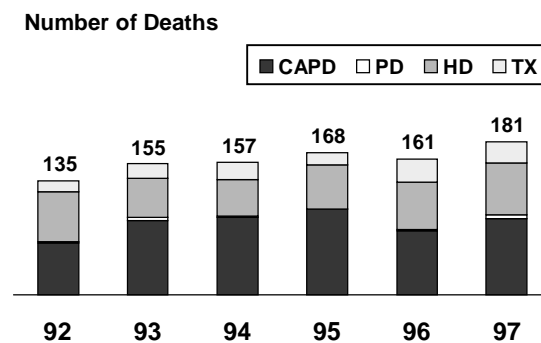


Figure 7

Patients Alive: Functioning Transplant or Dialysis 1987 - 1997

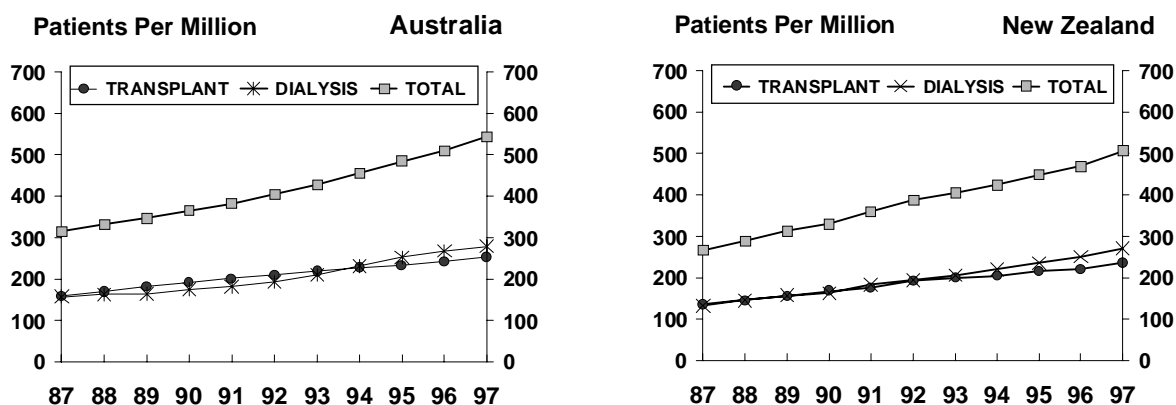


Figure 8

Australia

Transplant and Dialysis Patients 1987 - 1997

	Transplant #	Per Million	Dialysis	Per Million	Total	Per Million
1987	2570	158	2531	156	5101	314
1988	2793	169	2683	162	5476	331
1989	3049	181	2752	164	5801	345
1990	3261	191	2959	173	6220	364
1991	3484	201	3141	181	6625	382
1992	3687	210	3390	193	7077	404
1993	3853	218	3708	210	7561	428
1994	4044	227	4103	230	8147	456
1995	4204	233	4541	252	8745	484
1996	4410	241	4899	268	9309	509
1997	4656	251	5174	279	9830	530

Patients lost to follow up are not included

Figure 9

New Zealand

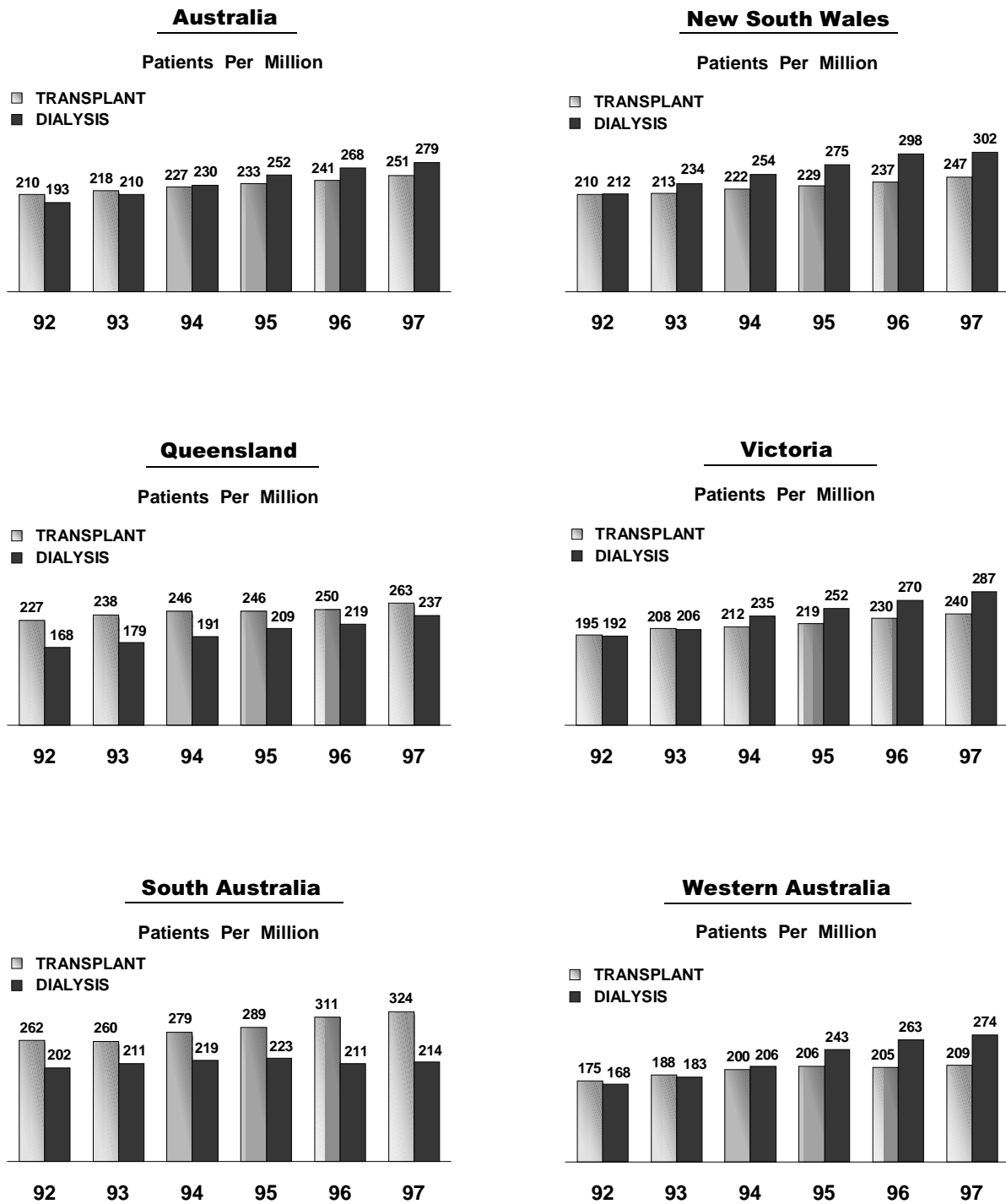
Transplant and Dialysis Patients 1987 - 1997

	Transplant #	Per Million	Dialysis	Per Million	Total	Per Million
1987	451	135	438	131	889	266
1988	483	144	482	144	965	288
1989	529	156	528	156	1057	312
1990	576	168	557	162	1133	330
1991	604	175	632	183	1236	358
1992	673	193	677	194	1350	387
1993	704	200	723	205	1427	405
1994	730	204	787	220	1517	424
1995	782	215	852	234	1634	448
1996	822	220	934	250	1756	469
1997	881	235	1014	271	1895	506

Patients lost to follow up are not included

Figure 10

Comparison of Transplant and Dialysis Dependent Patients 1992 - 1997



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 11

**Treatment of Aboriginal Patients
Australia 1990 - 1997**

Number of Patients at 31st December

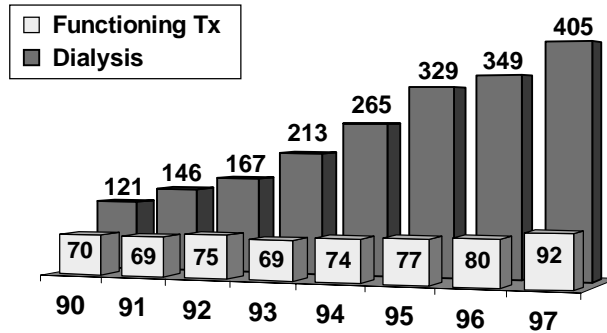


Figure 12

**Treatment of Maori Patients
New Zealand 1990 - 1997**

Number of Patients at 31st December

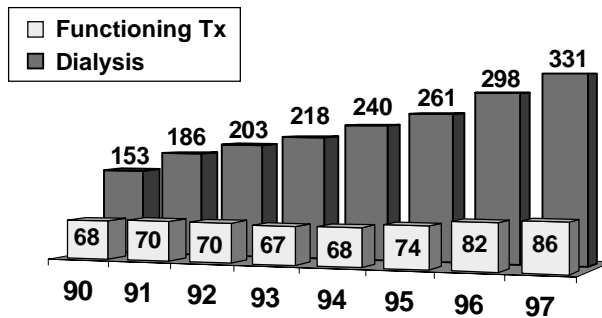


Figure 13

**Treatment of Pacific Islander Patients
New Zealand 1990 - 1997**

Number of Patients at 31st December

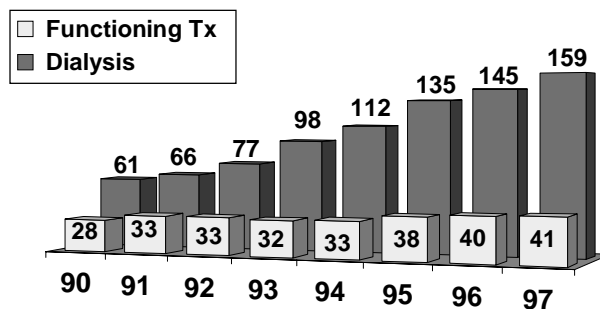


Figure 14

Method and Location of Dialysis 1990 - 1997

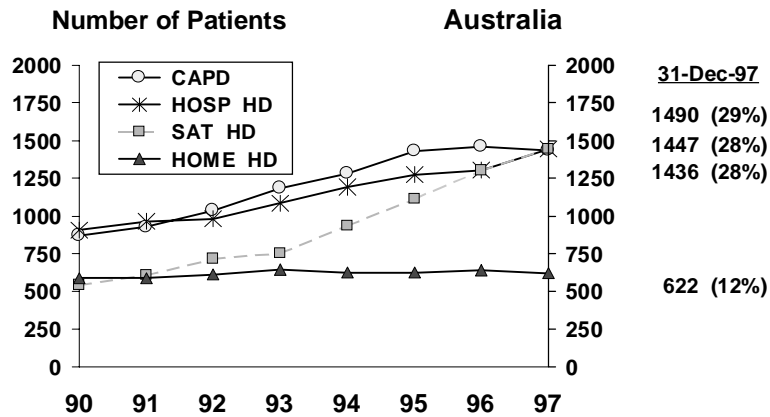


Figure 15

Method and Location of Dialysis 1990 - 1997

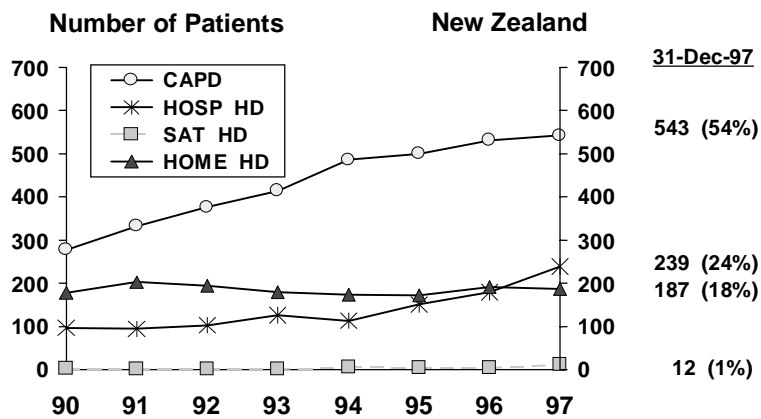


Figure 16

Dialysis Population Per Million 1992 - 1997
States: Australia and New Zealand

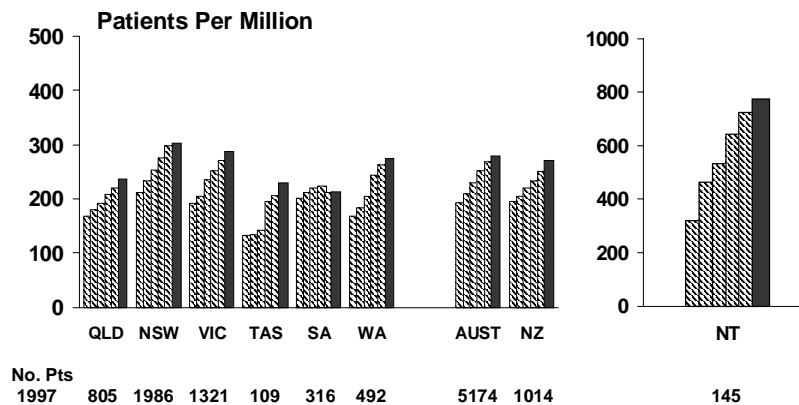


Figure 17

New Patients - Australia

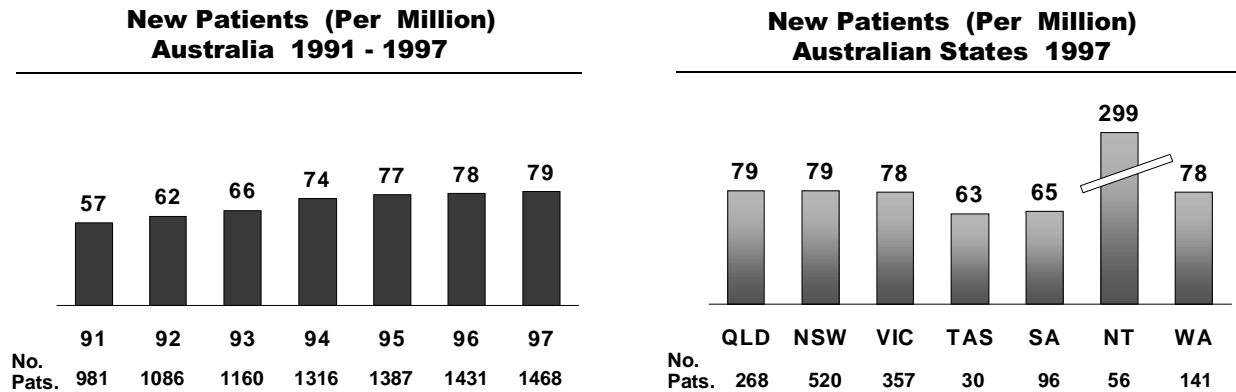


Figure 18

Age of New Patients - Australia 1997

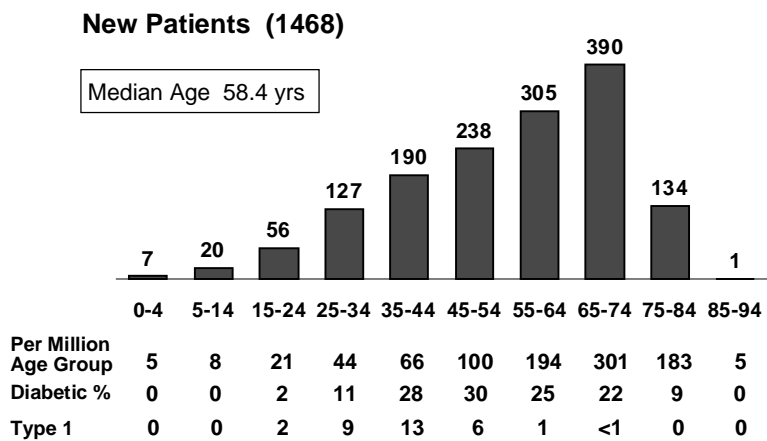


Figure 19

Acceptance of New Patients 1990 - 1997
Age Specific Rates - Australia

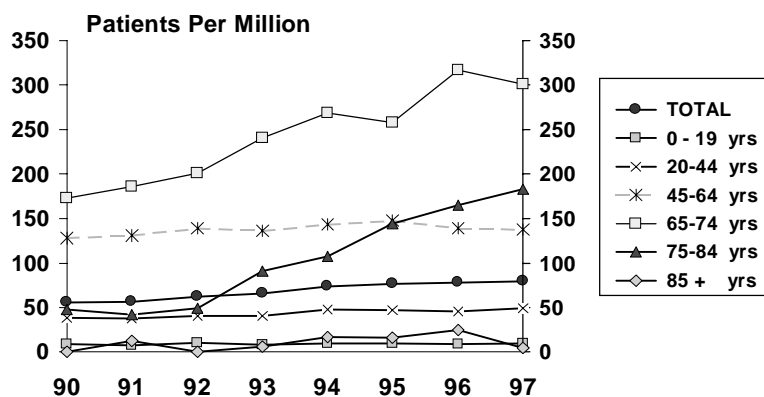


Figure 20

**Annual Death Rate Per 100 Dialysis Patient Years
Australia 1993 - 1997**

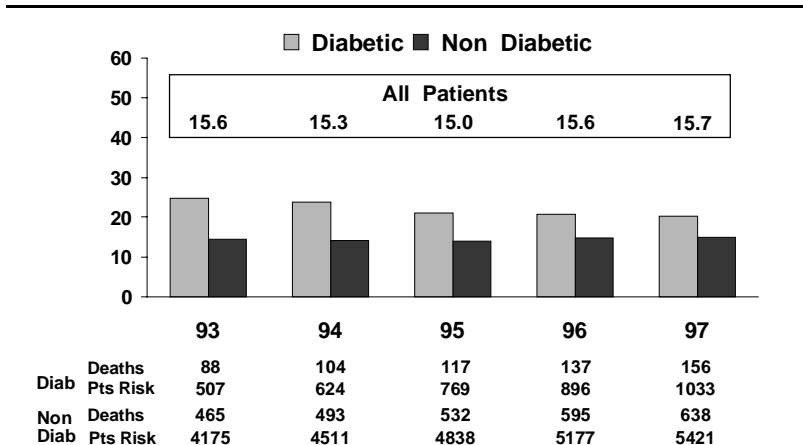


Figure 21

**Annual Death Rate Per 100 Patient Years
Mode of Dialysis Australia 1993 - 1997**

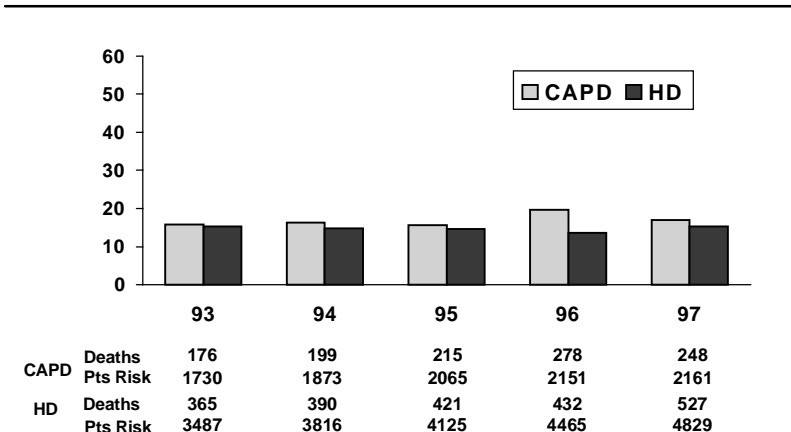


Figure 22

**Graft Loss in Relation to Grafts at Risk
Australia 1990 - 1997**

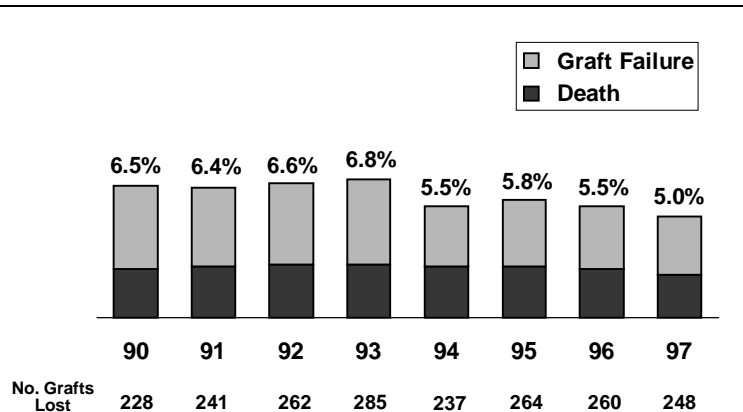


Figure 23

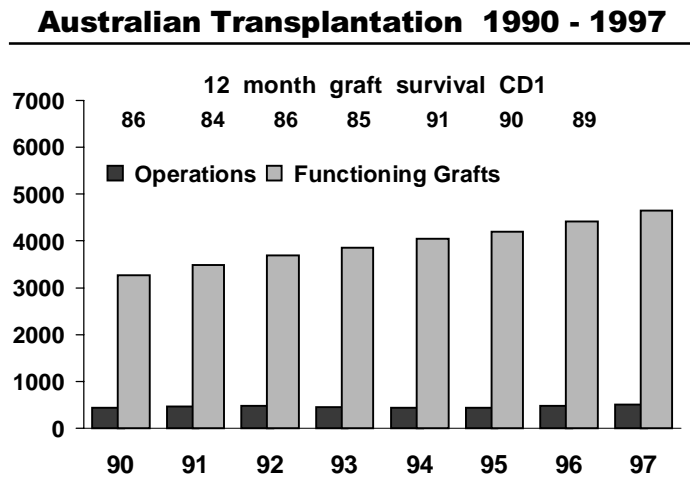


Figure 24

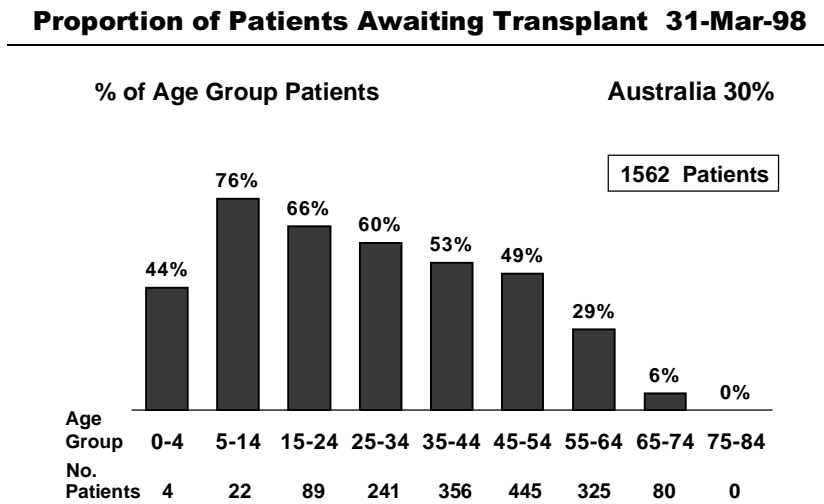


Figure 25

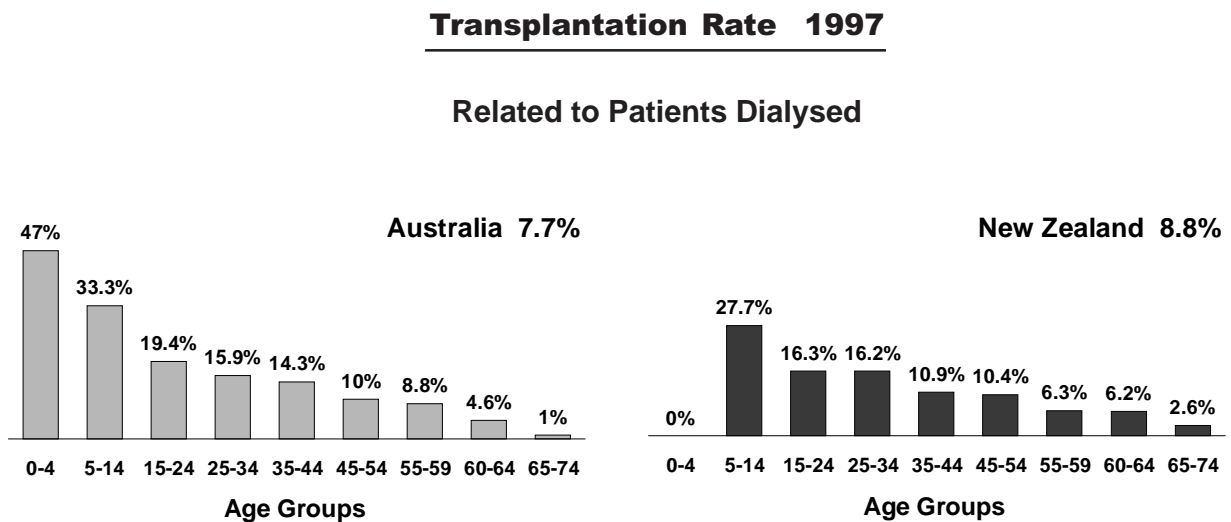
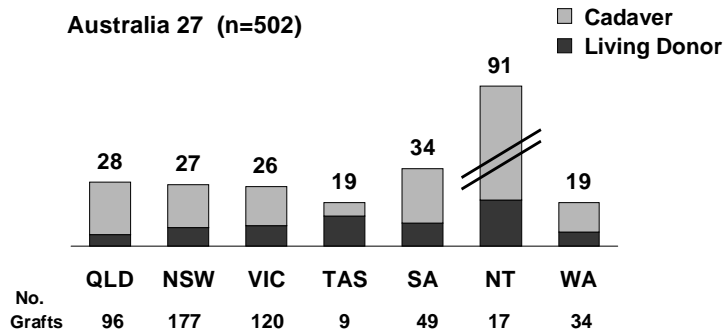


Figure 26

**Transplant Operations (Per Million)
Australian States 1997**



Eight Tasmanian residents transplanted in Vic, one in NSW
Fifteen NT residents transplanted in SA, two in QLD

Figure 27

**Transplant Operations Performed
Australia 1990 - 1997**

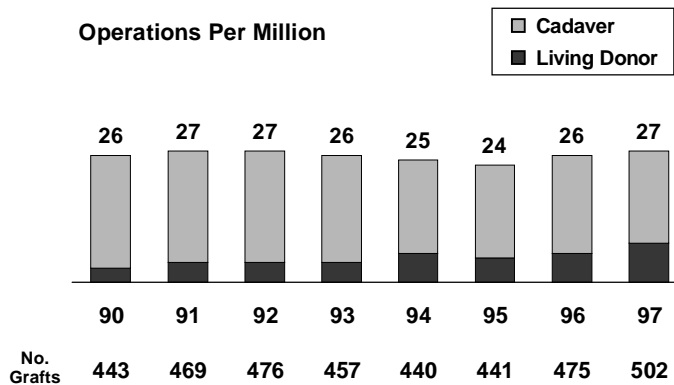


Figure 28

Age Group Dependence on Functioning Transplants

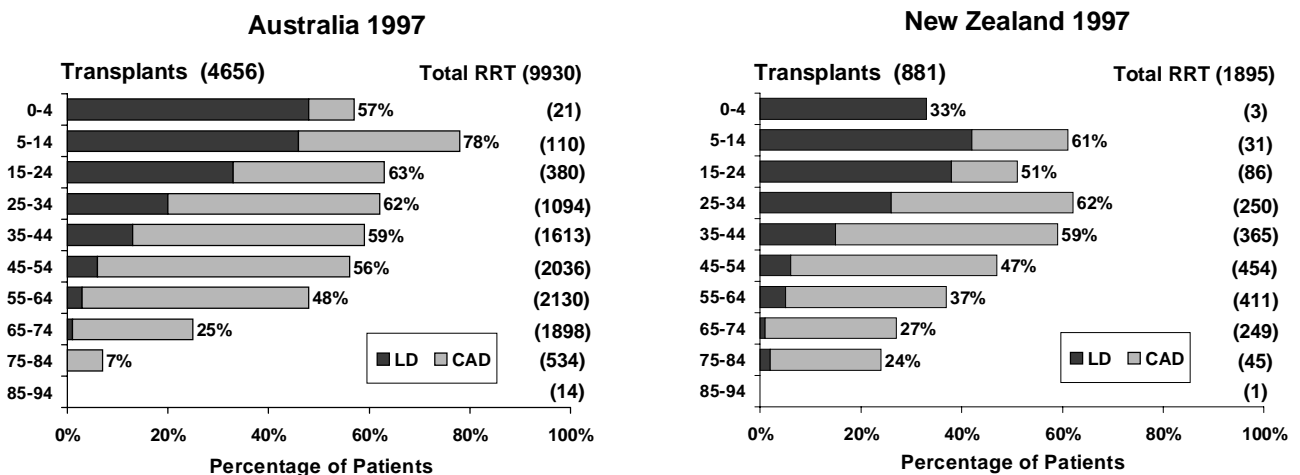


Figure 29

**Functioning Transplants 1990 - 1997
Transplanting States: Australia and NZ**

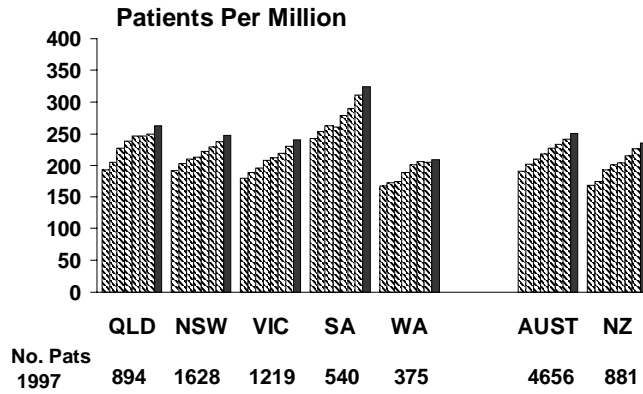


Figure 30

**Functioning Transplants (Per Million)
Australia and New Zealand 1992 - 1997**

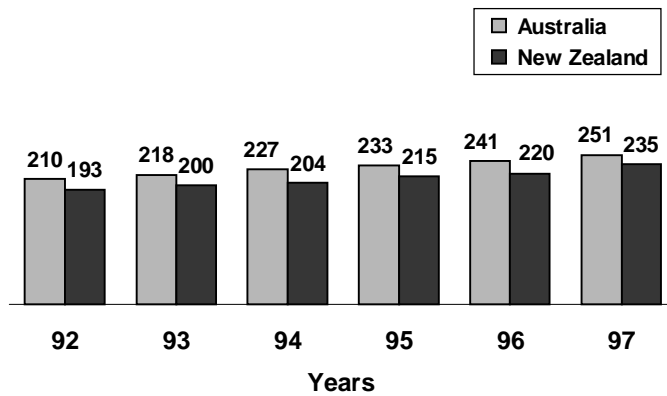


Figure 31

**Functioning Transplants (Per Million)
Caring Australian States 1997**

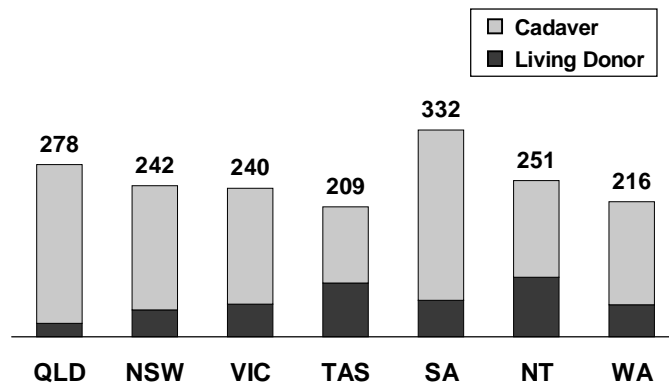


Figure 32

**Primary Cadaver Patient Survival 1990 - 1996
Related to Year of Transplant**

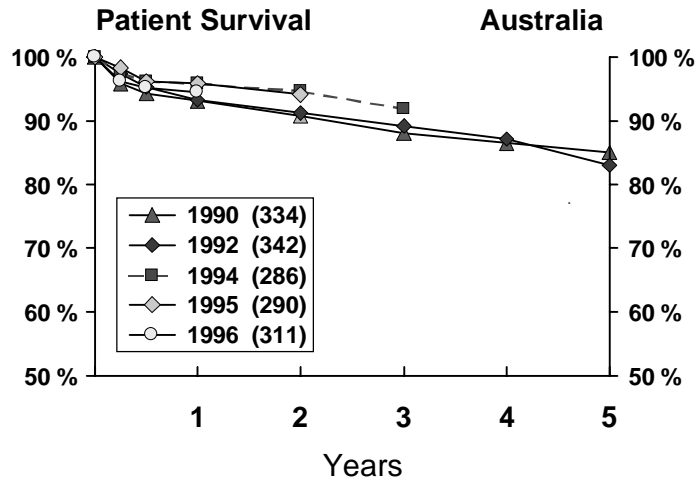


Figure 33

**Primary Cadaver Graft Survival 1990 - 1996
Related to Year of Transplant**

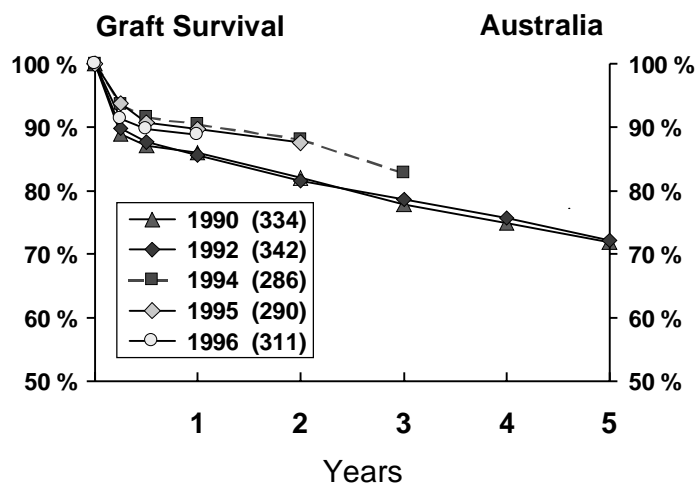


Figure 34

**Prevalence and Incidence 1990 - 1997
Aboriginals - Australia**

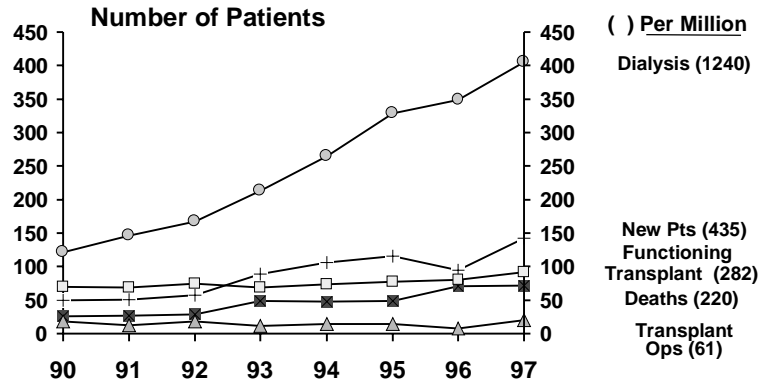


Figure 35

**Prevalence and Incidence 1990 - 1997
Maoris - New Zealand**

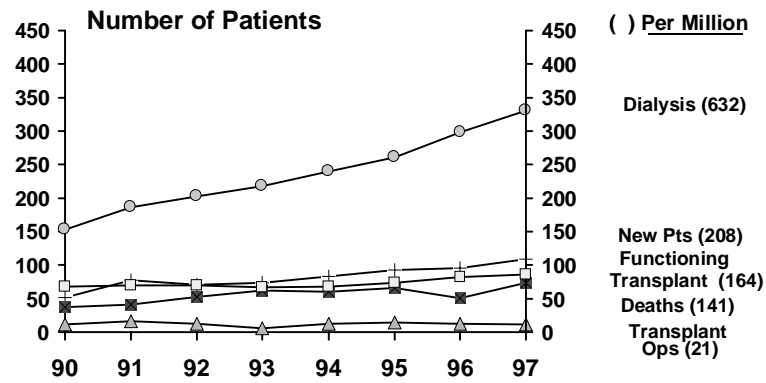


Figure 36

**Prevalence and Incidence 1990 - 1997
Pacific Islanders - New Zealand**

