

SECOND REPORT OF THE
AUSTRALIA AND NEW ZEALAND
COMBINED DIALYSIS AND TRANSPLANT REGISTRY

MAY 1979

SPONSORED BY THE AUSTRALIAN KIDNEY FOUNDATION

INTRODUCTION

This is the second report since the Dialysis and Transplant Registries were combined in 1977.

The Registry is run by a Sub-Committee of the Australian Kidney Foundation and the Australasian Society of Nephrology Joint Committee on Dialysis and Transplantation. Its membership is Dr. T.H. Mathew, (Chairman), Dr. A.P.S. Disney (Hon. Secretary), Prof. J. Lawrence, Prof. A.G.R. Sheil, and Dr. H. Bashir. The Executive Secretary (Mrs. L. Excell) and the Registry office are situated at The Queen Elizabeth Hospital, Adelaide.

An outstanding feature of Registry activities has been the spirit of co-operation from contributing Units which has resulted in all Units in Australia and New Zealand providing returns on 100% of patients on dialysis or transplantation. This achievement is unique and should be a source of pride for all those participating in the Registry.

The statistical analysis and evaluation have been performed by the C.S.I.R.O. Divisions of Computing Research and Mathematics and Statistics. The Registry Committee are most grateful to the enormous effort that has been put into the Registry by Mr. K. Cellier and Mr. R. Correll of that Division. This Report extensively utilises life-table survival analysis. Future reports it is hoped, will considerably extend the use of this technique of analysis.

It is hoped that annual reports will be supplemented by half yearly tabulation of activity and individual hospital reports: (made available to each contributing hospital).

The on-going success of the Registry is contingent on the support and goodwill of contributing units and on the generous financial support the Australian Kidney Foundation has provided. The Registry Committee believes that with additional support for computer programming, more detailed analysis of this unique data base will contribute significantly to our knowledge of dialysis and transplantation.

A.P.S. DISNEY,
Honorary Secretary,
Australia and New Zealand
Dialysis and Transplant Registry

HOSPITAL DIALYSIS AND TRANSPLANT DATA

1.

HOSP.	ALIVE ON DIALYSIS AT 31.10.78						1.11.77 - 31.10.78		AS AT 31.10.78		1.11.77-31.10.78 HOSPITAL AT DEATH	
	HOSP HD	HOSP PD	HOME HD	HOME PD	SAT CEN	TOTAL	NEW PTS.	TX	FUNCT TX PERFORMED BY HOSP.	FUNCT TX UNDER CARE	DX DEATHS	TX DEATHS
AUST.	478	42	474	61	37	1092	450	304	1124	1124	153	59
R.Brisb	26	1	1	-	-	28	13	-	-	-	7	-
Rock.	11	1	2	-	-	14	6	-	-	5	3	-
Towns.	7	-	7	-	-	14	3	-	-	8	5	-
P.Alex.	35	3	34	7	-	79	29	56	135	130	11	8
QLD.	79	5	44	7	-	135	51	56	135	143	26	8
St. Geo	2	2	8	2	-	14	3	-	-	-	1	-
Lidco.	4	-	1	-	-	5	6	-	-	-	1	-
RA.Chil	2	1	2	-	1	6	5	-	-	6	-	1
RP.Alf.	35	1	22	2	3	63	40	34	162	121	9	12
Conc.	5	-	52	1	-	58	32	8	6	15	24	2
St.V's	17	3	21	2	10	53	17	10	29	28	5	3
P.Hen.	29	4	32	-	9	74	32	19	112	107	14	6
Syd Hos	17	4	3	3	12	39	35	35	177	139	4	2
SydCen	4	-	50	-	2	56	3	-	-	-	5	-
Newc.	15	-	27	-	-	42	18	-	-	36	6	1
Mater	12	-	35	-	-	47	14	12	8	26	14	-
Canb.	16	-	9	3	-	28	13	-	-	17	1	1
N.S.W.	158	15	262	13	37	485	218	118	494	495	84	28
R.Melb	45	7	27	5	-	84	34	32	144	129	8	8
Alfred	6	2	-	-	-	8	6	3	24	19	-	-
R.Child	-	2	-	4	-	6	2	-	-	-	-	-
Heid.	15	1	9	4	-	29	4	-	-	-	1	-
Fairf.	14	-	-	-	-	14	5	1	5	11	1	1
St.V's	16	2	2	3	-	23	9	11	41	40	3	1
P.Hen.	16	2	20	13	-	51	23	25	52	52	10	3
Aust.	20	1	49	10	-	80	19	7	13	14	5	1
VIC.	132	17	107	39	-	295	102	79	279	265	28	14
R.Hob.	4	-	9	-	-	13	6	-	7	15	2	-
TASM.												
Q.Eliz	50	5	24	1	-	80	26	37	126	125	5	5
R.Adel.	9	-	-	-	-	9	17	-	-	-	-	-
S.Aust.	59	5	24	1	-	89	43	37	126	125	5	5
R.Perth	29	-	27	1	-	57	21	14	83	61	6	2
PerthM.	14	-	1	-	-	15	6	-	-	20	2	2
PM.Child	3	-	-	-	-	3	3	-	-	-	-	-
W.AUST.	46	-	28	1	-	75	30	14	83	81	8	4
N.ZEAL.	90	3	78	-	-	171	72	60	176	176	21	16
Dune.	4	-	11	-	-	15	6	-	-	8	3	-
Chris.	4	-	28	-	-	32	16	16	36	41	4	3
Waik.	23	1	1	-	-	25	6	6	10	12	6	-
Well.	20	2	20	-	-	42	20	11	33	28	6	6
Auck.	39	-	18	-	-	57	24	27	97	87	2	7

Data tabulation and survival curves for the period to 31st. October, 1978 were presented at the Dialysis and Transplant Workshop in Tanunda on March 18th, 1979. Brief comments on some of these results are included in this report. Further survival analyses, with particular emphasis on age group separation, and a comparison of data from the last three years with that from the whole period 1963-1978 will be published in the next report.

A table (Page 1) is attached summarising some key data for each hospital.

LIVING PATIENTS, DIALYSING OR FUNCTIONING GRAFT AT 31.10.78. (Table 1 and 2, Figure 1)

a) AUSTRALIA

The number of dialysing patients 1092 (76.9 per million population), an increase of 14% compared to a year ago, has for the first time almost equalled the number of functioning transplants, 1124 (79.1 per million).

The combined total of dialysis and transplant patients at 31st. December, 1977 was 139.3 per million, which was exceeded by only five European countries.

b) NEW ZEALAND

There were 171 dialysis patients (55 per million) an increase of 22% in the past year; while the number of functioning grafts has increased by 11% to 176 (56.6 per million). The 31st. December, 1977 combined total of dialysis and transplant patients, 98.7 per million, was exceeded by only eight European countries.

TABLE 1

LIVING PATIENTS AS AT 31.10.78

	AUSTRALIA			NEW ZEALAND	
		NUMBER	PER MILLION	NUMBER	PER MILLION
DIALYSIS	HOSPITAL	520	68.5	93	16.1
	SATELLITE	37	0.5		
	HOME	535	7.1	78	14.2
	TOTAL	1092	76.9	171	55.0
TRANSPLANT	CAD	1072	14.1	163	29.5
	LD	52	0.7	13	2.4
	TOTAL	1124	79.1	176	56.6
TOTAL		2216	156.0	347	111.6

FIGURE 1

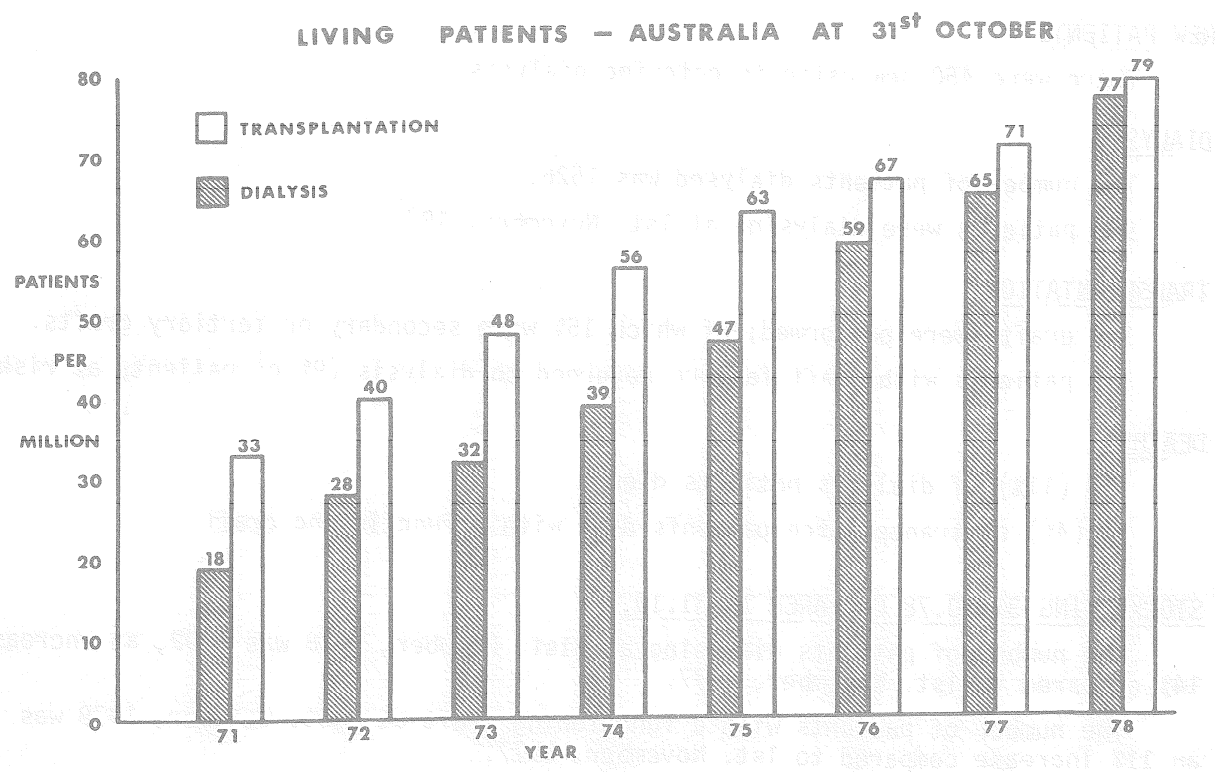


TABLE 2

LIVING PATIENTS TRANSPLANT AND DIALYSIS - AUSTRALIA

	DIALYSIS	PER MILLION	TRANSPLANT	PER MILLION	TOTAL	
OCTOBER						
1971	231	18	432	33	663	51
1972	367	28	524	40	891	68
1973	423	32	631	48	1054	80
1974	515	39	743	56	1258	95
1975	629	47	854	63	1483	110
1976	792	59	908	67	1700	126
1977	915	64	1009	71	1924	135
1978	1092	77	1124	79	2216	156

PATIENT 'FLOW' DIAGRAM AUSTRALIA 1.11.77 - 31.10.78. (Figure 2)

A 'flow' diagram for the twelve months 1st. November, 1977 to 31st. October, 1978 shows the number of patients entering and leaving dialysis and transplantation.

NEW PATIENTS

There were 450 new patients entering dialysis.

DIALYSIS

The number of patients dialysed was 1526.

960 patients were dialysing at 1st. November, 1977.

TRANSPLANTATION

304 grafts were performed; of which 15% were secondary or tertiary grafts.

116 patients with graft failure returned to dialysis (9% of patients at risk).

DEATHS

153 (11%) of dialysis patients died.

54 (4%) of transplanted patients died with a functioning graft.

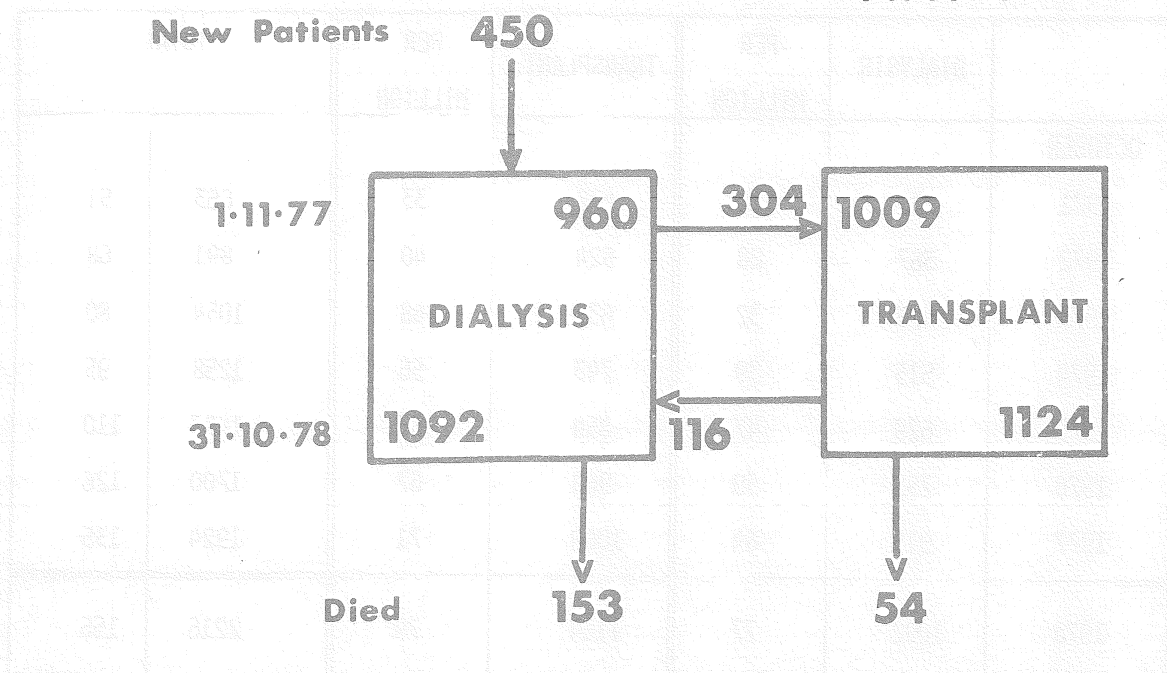
STOCKTAKING 31.10.78 COMPARED TO 31.10.77.

The number of patients dialysing at 31st. October, 1978 was 1092, an increase of 14% compared to 1st. November, 1977.

The number of patients with a functioning graft at 31st. October, 1978 was 1124, an 11% increase compared to 1st. November, 1977.

This diagram will be produced for each State, as well as Australia and New Zealand as a framework for health care planning both for nephrologists and administrators.

FIGURE 2 **PATIENT FLOW DIAGRAM - AUSTRALIA**
1-11-77-31-10-78



NEW PATIENTS (Table 3)AUSTRALIA

The 450 new patients during the twelve months to 31st. October, 1978 (31.7 per million) represented the highest rate recorded; the mean age was 44.5 years. 55% of new patients were males.

NEW ZEALAND

There were 72 new patients (23.1 per million) compared to 66 (21.0 per million) in the previous twelve months to 31st. October, 1977; the mean age was 39 years. 68% of new patients were males.

TABLE 3.NEW DIALYSIS PATIENTS PER YEAR

12 MONTH PERIOD	AUSTRALIA		NEW ZEALAND	
	NUMBER	PER MILLION	NUMBER	PER MILLION
1 NOV 77 - 31 OCT 78	450	31.7	72	23.2
76 - 77	398	28.0	66	21.0
75 - 76	443	31.0	52	17.0
74 - 75	393	29.0	NOT AVAILABLE	
73 - 74	350	26.2		
72 - 73	318	24.0		
71 - 72	353	27.0		

AUSTRALIA (Figure 3 and 4)

There has been a continuing trend to treatment of 'older' patients, reflected by the 49.5% of new patients over 49 years of age in the past twelve months, compared to 31.5% of new patients in the same age group in 1973. In the past year 37% of new patients (166 patients) were 50-59 years. 45% of all dialysis patients were more than 49 years of age at 31st. October, 1978 with the majority dialysing in hospital rather than at home.

FIGURE 3 AUSTRALIA - AGE NEW PATIENTS (1.11.77 - 31.10.78)

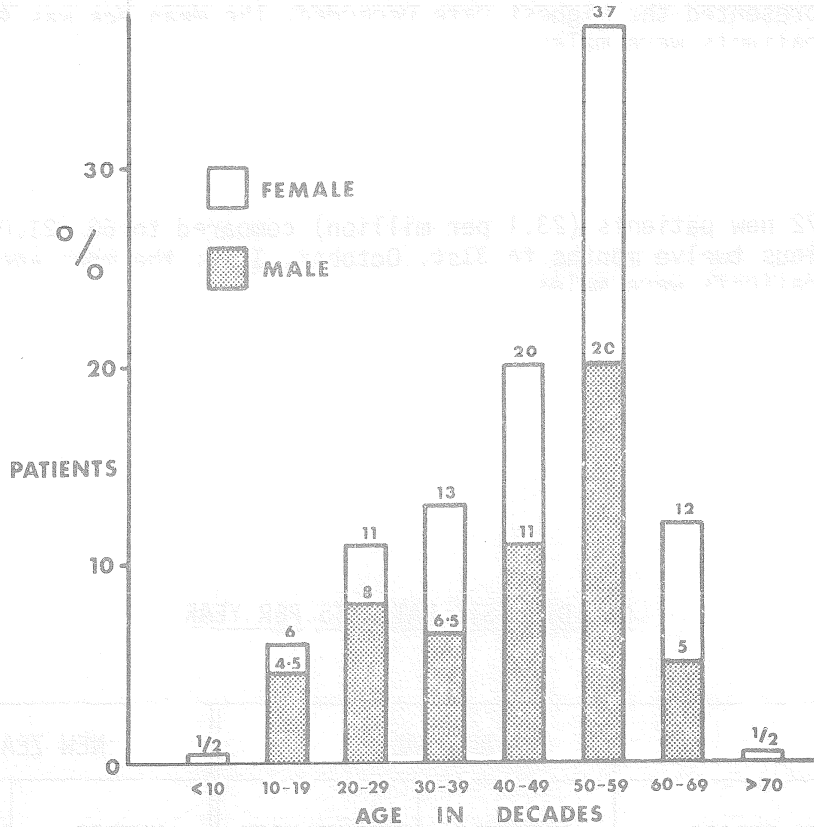
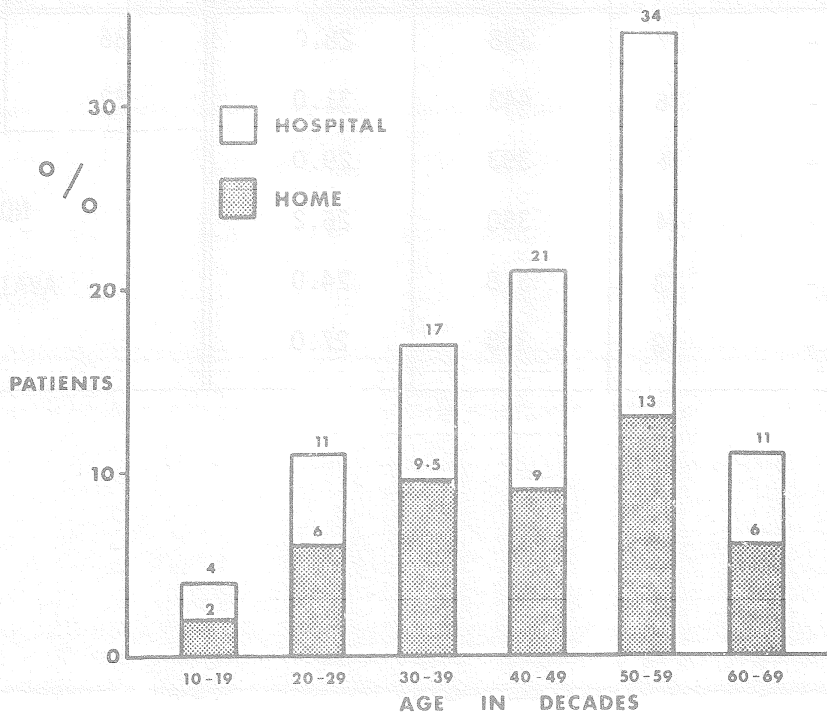


FIGURE 4 AUSTRALIA - HOME AND HOSPITAL DIALYSIS AGE DISTRIBUTION AT 31.10.78.



AGE OF NEW PATIENTS

NEW ZEALAND (Figure 5 and 6)

An interesting contrast to the Australian age and sex distribution is shown in the New Zealand figures. The largest group of new patients was males 20-29 years, (34%, 25 patients) and there were equal numbers in the 4, 5 and 6th. decades.

The sex distribution may represent the low incidence of analgesic nephropathy; males accounted for all patients 50-59 years old, while no males over 59 years commenced dialysis

Only 29% of dialysing patients at 31st. October, 1978 were aged more than 49 years, and most were treated in hospital rather than at home.

FIGURE 5 NEW ZEALAND - AGE NEW PATIENTS (1.11.77 - 31.10.78)

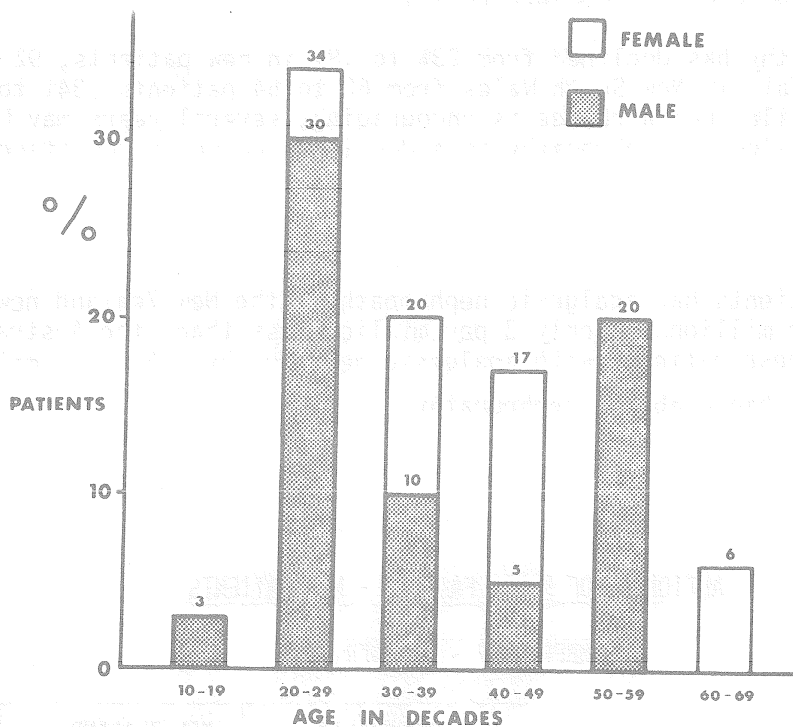
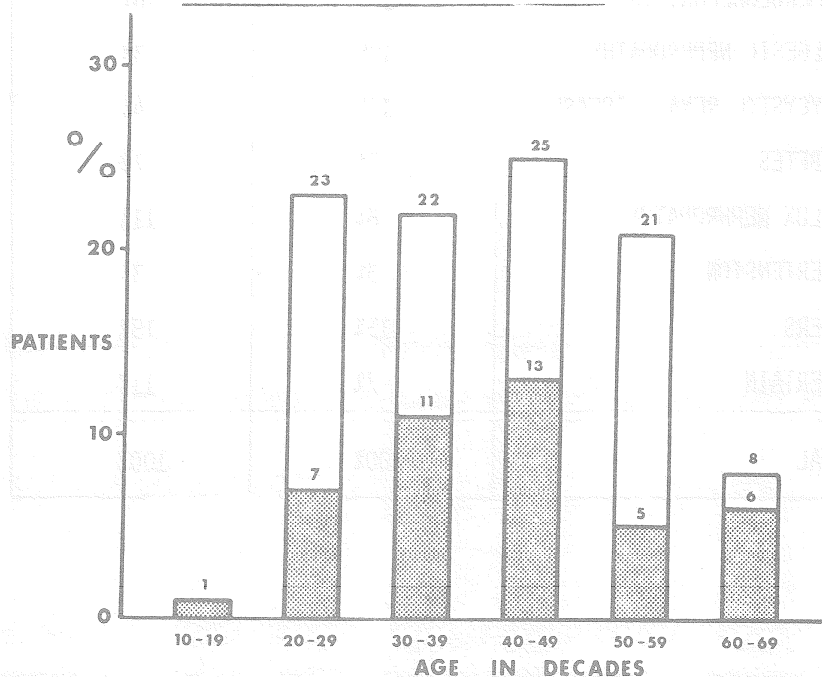


FIGURE 6

NEW ZEALAND - HOME AND HOSPITAL DIALYSIS

AGE DISTRIBUTION AT 31.10.78.



AETIOLOGY OF RENAL FAILURE (Table 4, 5 and 6)

AUSTRALIA

The notable changes in aetiology are;

- 1) the increasing number of diabetics.
- 2) an apparent decline in analgesic nephropathy.

Diabetes comprises 7% of new patients, (25 patients) compared to only 2% several years earlier. The majority of patients were males; only a few patients were treated with a serum creatinine $< 1000 \mu\text{mol/l}$.

Analgesic nephropathy has declined from 23% to 18% in new patients, 92 to 81 patients, with a fall in New South Wales from 62 to 54 patients (34% to 26% of new patients). While such a change is encouraging, several years may be necessary to confirm that analgesic nephropathy is a declining cause of end-stage renal failure.

NEW ZEALAND

Only 3% of new patients had analgesic nephropathy: the New Zealand new patient intake of 23.1 per million was only 3 per million less than the Australian intake after excluding those patients with analgesic nephropathy (25.9 per million).

7% of new patients had diabetic nephropathy.

TABLE 4

AETIOLOGY OF RENAL FAILURE - NEW PATIENTS

NOVEMBER 1977 - OCTOBER 1978

	AUSTRALIA 450 PTS.	NEW ZEALAND 72 PTS.
GLOMERULONEPHRITIS	35%	46%
ANALGESIC NEPHROPATHY	19%	3%
POLYCYSTIC RENAL DISEASE	10%	4%
DIABETES	7%	7%
REFLUX NEPHROPATHY	6%	11%
HYPERTENSION	3%	3%
OTHERS	13%	15%
UNCERTAIN	7%	11%
TOTAL	100%	100%

TABLE 5.

DIABETIC NEPHROPATHY - NOV 1977 - OCT 1978

	AUSTRALIA	NEW ZEALAND
NEW PATIENTS	25	5
AVERAGE AGE	40	32
MALES	20	3
CR < 1000	6	2
DIALYSIS ONLY	21	3
LIVING	19	2
TRANSPLANT	4	2 (1)*
LIVING	3 (1) [•]	1 [•]

* LD

• GRAFT FUNCTIONING

TABLE 6.

ANALGESIC NEPHROPATHY AS PERCENTAGE OF NEW PATIENTS

	1975	1976	1977	1978
AUSTRALIA	18	20	23	18
NEW SOUTH WALES	23	32	34	26
QUEENSLAND	26	24	21	20
SOUTH AUSTRALIA	14	11	14	7
VICTORIA	7	5	9	6
WESTERN AUSTRALIA	12	11	0	10
TASMANIA	0	0	0	17
NEW ZEALAND	N/A	0	0	3

DIALYSIS PATIENTS (Figure 7 and 8, Table 7)

AUSTRALIA

There has not been a significant change in the proportion of patients on home dialysis. 49% (535 patients) were dialysing at home at 31st. October, 1978, and a further 3% (37 patients) dialysing in a limited care facility.

In two States, Queensland and South Australia, while a larger proportion of patients, compared to a year earlier, are dialysing at home, the ratio is still well short of 50%. Both States have a very active transplant program which may contribute to their lower home dialysis ratio.

Only the U.K. has more than half of their patient population dialysing at home. The U.S.A. has had a declining home dialysis ratio for some years.

NEW ZEALAND

46% (78 patients) were dialysing at home compared to 47.5% last year.

FIGURE 7. AUSTRALIAN STATES DIALYSIS POPULATION PER MILLION AT 31st OCTOBER (1971-1978)

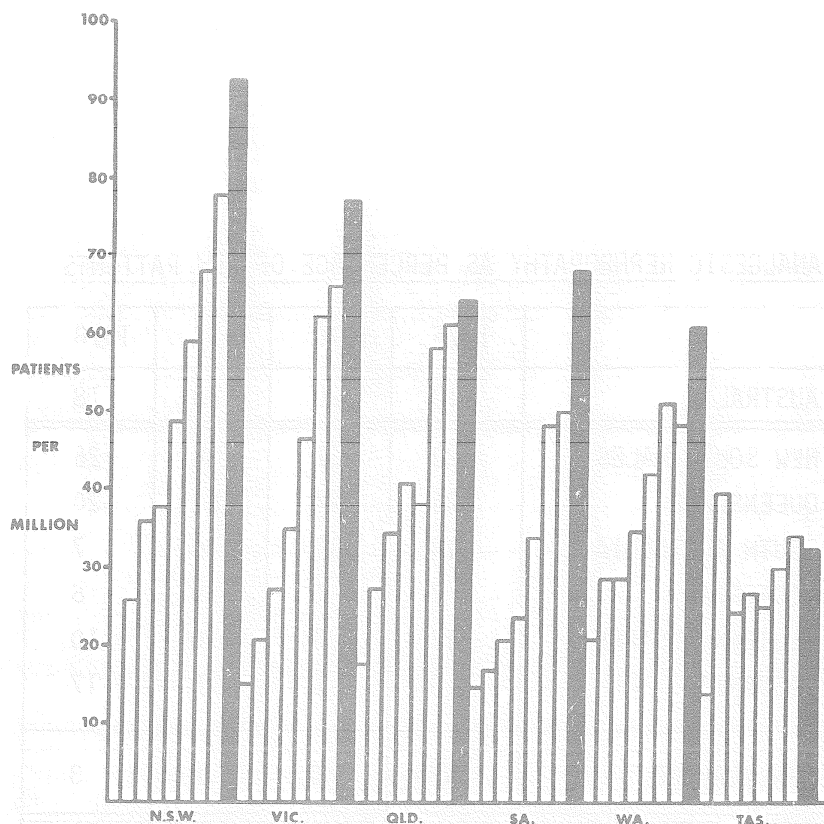


FIGURE 8. HOSPITAL AND HOME DIALYSIS PATIENTS PER MILLION.

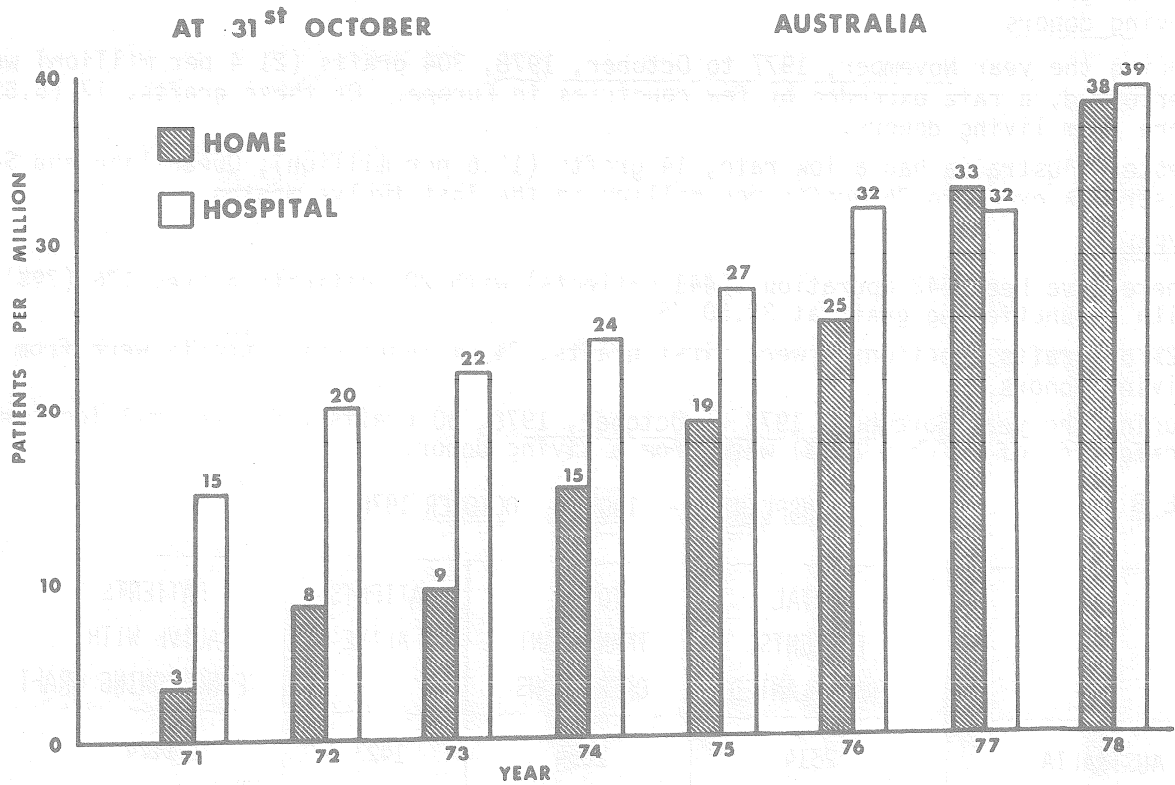


TABLE 7. DIALYSIS POPULATION AT 31.10.78

	AUST	QLD	NSW	VIC	S.A.	W.A.	TAS.	N.Z.
NUMBER OF PATIENTS	1092	135	485	295	89	75	13	171
PATIENTS PER MILLION	76.9	62.2	92.4	77.0	68.5	61.0	32.6	55.0
% HOME DIALYSIS	49%	38%	57%	49%	29%	39%	70%	46%

TRANSPLANTS (Table 8, 9, 10, 11)AUSTRALIA

Since 1963 there have been 2634 operations, (2314 patients), with 1423 patients alive, 1124 (79%) with a functioning graft at 31.10.78.

88% of grafts functioning were first grafts. 4.5% of grafts functioning were from living donors.

During the year November, 1977 to October, 1978, 304 grafts (21.4 per million) were performed, a rate exceeded by few countries in Europe. Of these grafts, 17 (5.5%) were from living donors.

Western Australia had a low rate, 14 grafts (11.6 per million); Queensland and South Australia exceeded 25 grafts per million in the last twelve months.

NEW ZEALAND

There have been 542 operations (441 patients) with 222 patients alive, 176 (79%) with a functioning graft at 31.10.78.

82% of grafts functioning were first grafts; 7% of functioning grafts were from living donors.

During the year November, 1977 to October, 1978, 60 grafts (19.3 per million) were performed, of which 9 (15%) were from a living donor.

TABLE 8

TRANSPLANTS - 1963 - OCTOBER 1978

	TOTAL PATIENTS TRANSPLANTED	TOTAL TRANSPLANT OPERATIONS	PATIENTS ALIVE	PATIENTS ALIVE WITH FUNCTIONING GRAFT
AUSTRALIA	2314	2634	1423	1124
NEW ZEALAND	441	542	222	176
TOTAL	2755	3176	1645	1300

TABLE 9

FUNCTIONING TRANSPLANTS (LD AND CAD) AT OCTOBER 1978

	AUSTRALIA		NEW ZEALAND	
	NUMBER	% OF ALL GRAFTS	NUMBER	% OF ALL GRAFTS
PRIMARY GRAFTS	995 (46)*	88.4	144 (13)*	81.8
SECONDARY GRAFTS	121 (6)	10.9	30 (0)	17.0
THIRD GRAFTS	7 (0)	0.6	2 (0)	1.2
FOURTH GRAFTS	1 (0)	0.1	0 (0)	0
TOTAL	1124 (52)*	100%	176 (13)*	100%

() * LD

TABLE 10

FUNCTIONING GRAFTS AT 31.10.78

TRANSPLANTING STATE

	CAD	LD	TOTAL	PER MILLION
AUST.	1072	52	1124	79.1
N.S.W.	473	21	494	94.1
VIC.	250	29	279	73.0
QLD.	135	0	135	62.2
S.A.	125	1	126	96.9
W.A.	83	0	83	67.5
TAS.	6	1	7	17.5
N.Z.	163	13	176	56.6

TABLE 11

TRANSPLANTS - NOVEMBER 1977 - OCTOBER 1978

	NUMBER	PER MILLION
AUSTRALIA	304	21.4
NEW SOUTH WALES	118	22.5
VICTORIA	79	20.6
QUEENSLAND	56	26.0
SOUTH AUSTRALIA	37	28.5
WESTERN AUSTRALIA	14	11.6
TASMANIA	-	-
NEW ZEALAND	60	19.3

TRANSPLANTATION RATE (Table 11 and 12)

The Australian annual transplantation rate was 21.4 grafts per million population for the period 1st. November, 1977 to 31st. October, 1978, which is similar to the figure for each of the past four years; as new patient intake and graft failure numbers increase, so this failure to achieve a comparable rise in the transplantation rate will be a major contributing factor to the rapidly increasing dialysis population.

To prevent any increase in the pool of dialysis patients over the next twelve months, the transplant rate must increase by 50%, assuming death rates, graft failures and new patient intake rates are unchanged. In terms of the number of grafts performed this projection would require 450 operations, compared to 304 in the past twelve months.

The New Zealand annual transplantation rate was 19.3 per million population.

Estimated transplantation rates of Australia and New Zealand for the calendar year 1977, when compared to those from Europe, show only three countries exceeding Australia (21.6 per million) and a further two exceeding New Zealand (19.2 per million). Denmark reported an annual rate of 27.5 per million.

TABLE 12

TRANSPLANTATION RATE PER MILLION POP. 1977

COUNTRY	TRANSPLANTATION RATE PER MILLION POP.	
	POPULATION	TOTAL
DENMARK	5.1	27.5
SWEDEN	8.2	24.6
FINLAND	4.7	24.1
<u>AUSTRALIA</u>	<u>14.2</u>	<u>21.6</u>
NORWAY	4.0	21.3
SWITZERLAND	6.4	19.8
<u>NEW ZEALAND</u>	<u>3.11</u>	<u>19.2</u>
NETHERLANDS	13.9	14.8
UNITED KINGDOM	55.9	12.4
FRANCE	52.9	7.1
WEST GERMANY	61.4	4.5

The cumulative survival figures have been calculated from data from the Transplant Registry (1963-1978) and the Dialysis Registry (Australia 1971-1978, New Zealand 1976-1978).

Australia and New Zealand results have been combined for analysis except in a few specified instances.

1) ALL PATIENTS (Treated by dialysis and/or transplantation) Figure 9 and Table 13.

Australia and New Zealand survival curves are similar, with 81% of patients alive at twelve months, and 57% at five years; after the first two years, there is an annual decrease of less than 5%.

The ten year survival was Australia 46%, New Zealand 40%.

No other registry has published comparative figures for all patients, (transplanted and/or dialysed)

FIGURE 9 PATIENT SURVIVAL DIALYSIS OR TRANSPLANTATION (1978)

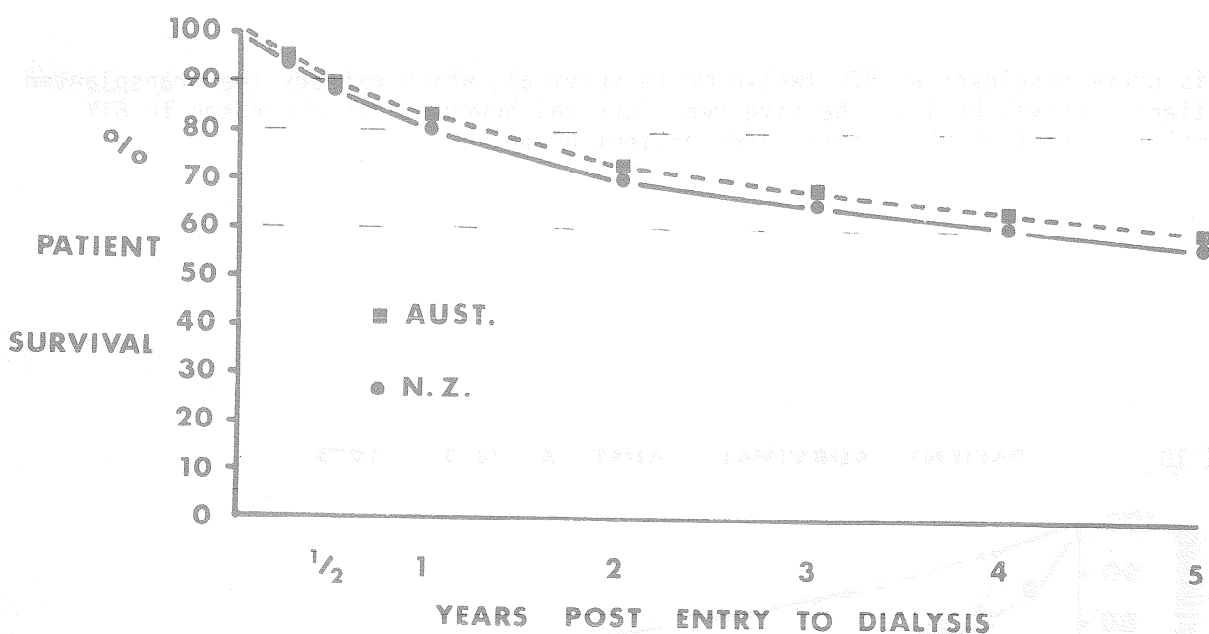


TABLE 13 PATIENT SURVIVAL - AUSTRALIA AND NEW ZEALAND 1978.

MODE OF THERAPY	SURVIVAL PERCENTAGE		
	3 MONTHS	12 MONTHS	5 YEARS
DIALYSIS ONLY (Patients never transplanted)	87	70	40
DIALYSIS - (Including pre transplant dialysis of those transplanted)	95	87	61
TRANSPLANTED (Including graft failures)	86	77	60
ALL PATIENTS	94	81	57

2) DIALYSIS PATIENT SURVIVAL - AUSTRALIA AND NEW ZEALAND

a) NON-TRANSPLANTED PATIENTS (Figure 10, Table 13)

The twelve month survival of 70% decreased to 40% at five years, 20% below the survival for transplanted patients. These results must be interpreted in the knowledge that most non-transplanted patients in Australia and New Zealand, have medical contraindications for transplantation. Only a small group of eligible patients have elected not to be transplanted.

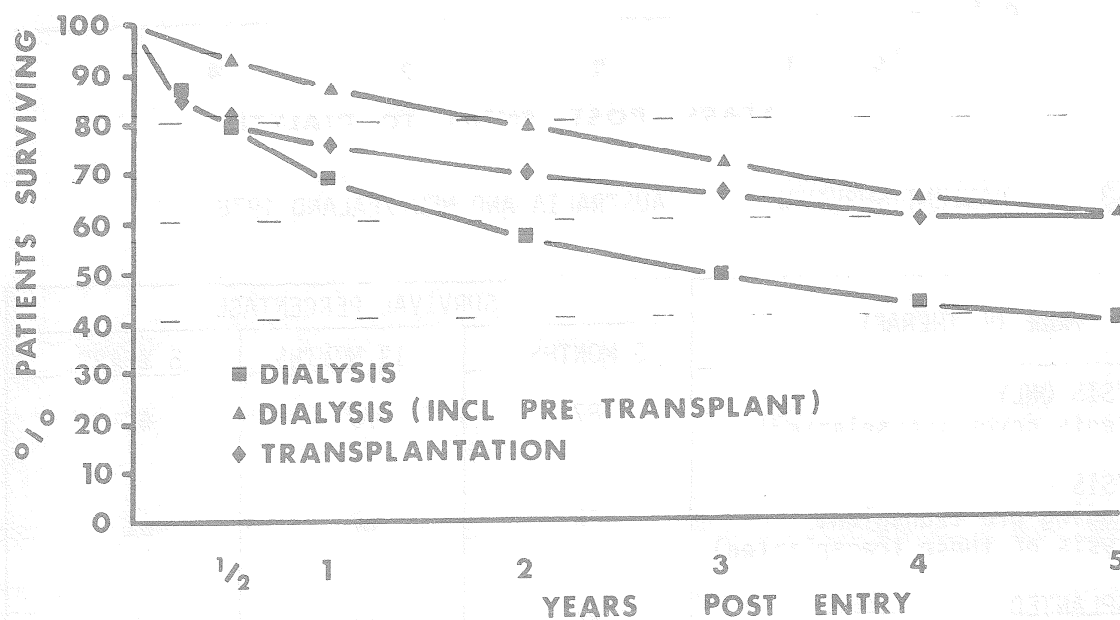
b) DIALYSIS (Including dialysis prior to transplantation) (Figure 10, Table 13)

The addition of dialysis survival data from patients prior to their first transplant operation produces a more accurate indication of dialysis mortality risk.

This curve discloses an 87% twelve month survival, which exceeds the transplanted patient survival by 10%; the five year survival however, has decreased to 61% similar to that of the transplanted patient group.

FIGURE 10

PATIENT SURVIVAL AUST. & N.Z. 1978



c) TRANSPLANTED PATIENTS (Living and cadaver donor) AUSTRALIA AND NEW ZEALAND

i) Patients survival calculated from the FIRST graft, and including patients with a FAILED graft. (Figure 10, Table 13)

From a 77% twelve month survival, the curve gradually decreases to 60% by five years; this rate of decline, as expected, is less than that of the dialysis patient group.

ii) Patient survival by age group: (Figure 11 and 12, Table 14)

As expected patient survival decreases with increasing age, the difference being 6% per decade at twelve months, and 10% per decade by five years from transplantation. These figures need further analysis with respect to control non-renal failure group life expectancy for each decade of patient age.

The average age of patients transplanted in Australia in the last twelve months was forty years, for which the five year life expectancy is approximately 55%: which is comparable with E.D.T.A. (1977) first cadaver grafted patient survival of approximately 48% for the same age group.

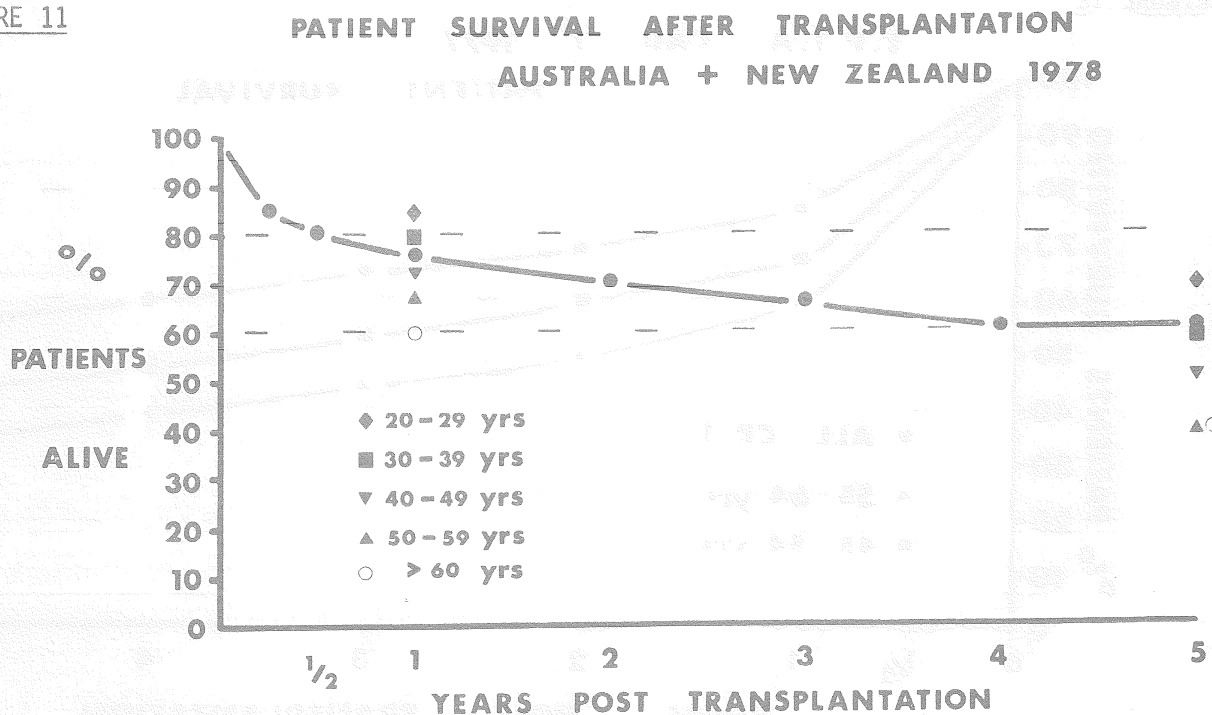
The over sixty age group survival at five years (38%), is at least 15% worse than that for the forty year old, (55%) and 20% worse than the average survival of all patients (60%).

Future analyses of these differences will include an examination of the survival data for patients transplanted in the last three years in an attempt to provide a current picture rather than a composite one for the fifteen years of renal transplantation in Australasia.

The average age of patients transplanted in New Zealand in the past year was thirty one, nearly ten years younger than their Australian counterparts. This difference would seem to reflect the younger age of the New Zealand dialysis population, and a further trend towards selection of such patients for transplantation.

During a period of limited supply of cadaver donor kidneys, the possibility of increased graft wastage from patient death (with normal graft function) in the over sixty age group warrants careful consideration of the benefits of such an operation if a younger patient has a better survival prospect.

FIGURE 11



The curve in the above figure represents the cumulative survival for all patients as a comparison for the different age groups.

TABLE 14

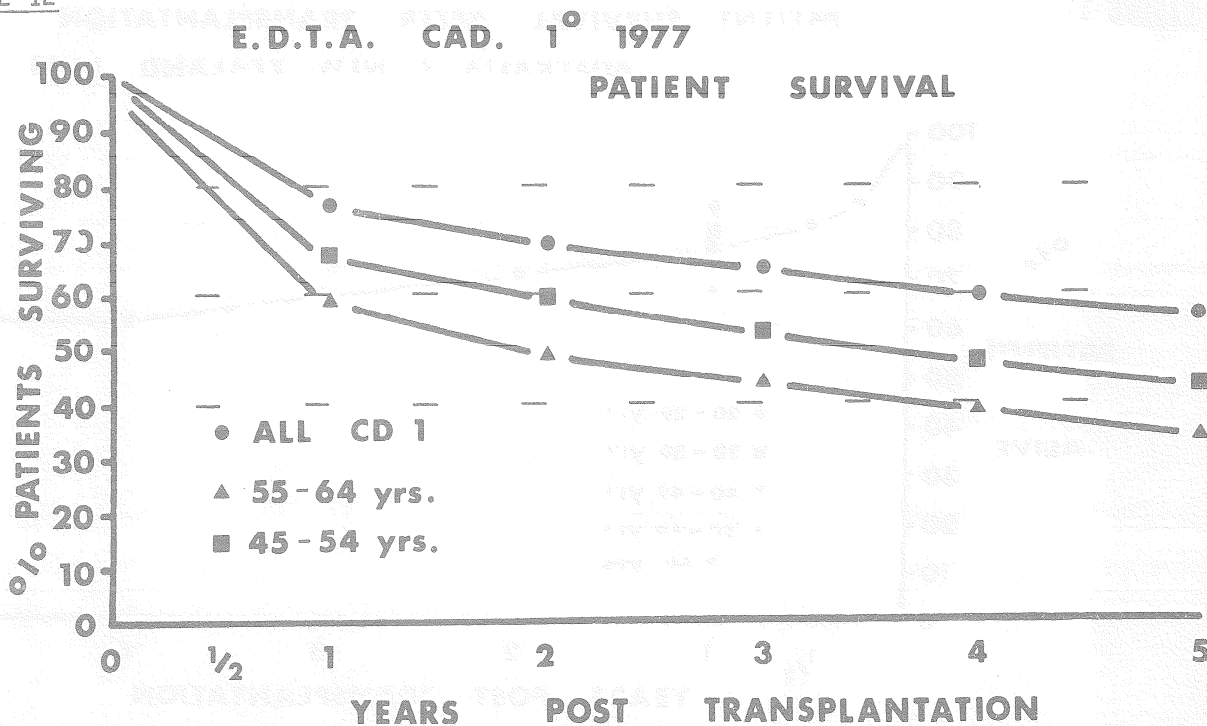
TRANSPLANTED PATIENT SURVIVAL

RELATED TO AGE AT TRANSPLANTATION

(AUSTRALIA AND NEW ZEALAND - 1978)

AGE	PERCENTAGE SURVIVAL		
	3 MONTHS	12 MONTHS	5 YEARS
< 20 YEARS	93	87	64
20 - 29	91	85	70
30 - 39	87	79	60
40 - 49	83	73	50
50 - 59	80	67	42
> 60 YEARS	72	60	38
TOTAL	86	77	60

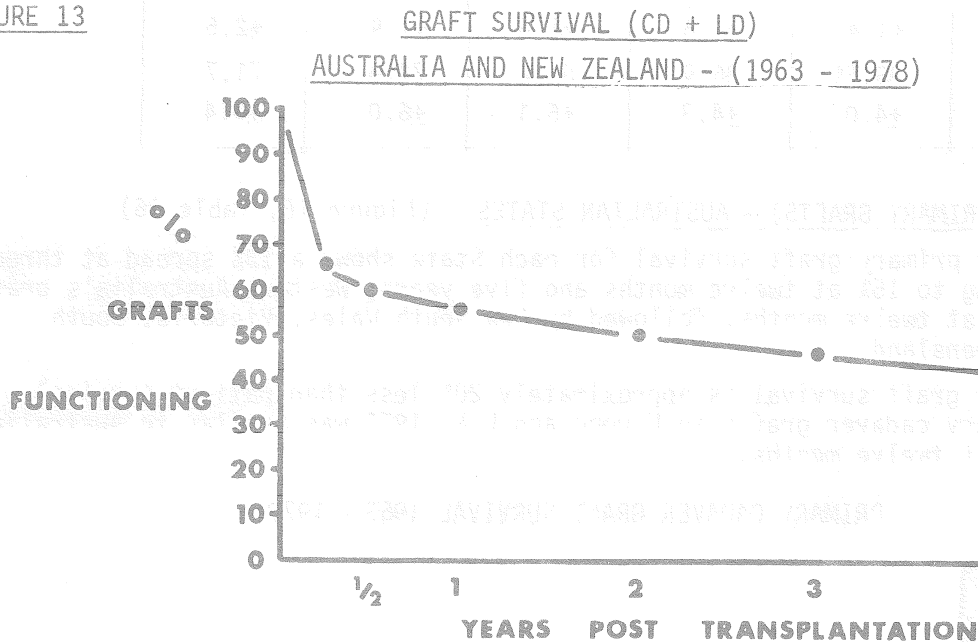
FIGURE 12



1) PRIMARY GRAFTS - AUSTRALIA AND NEW ZEALAND (including death with a functioning graft)

The three months graft survival was 65%, reflecting as expected the early graft loss which occurs in this period; the slope of the survival curve changes markedly to one with an annual decrease of less than 5%; 80% of the grafts functioning at twelve months are likely to be functioning at five years.

FIGURE 13

2) LIVING DONORS - AUSTRALIA (Figure 14, Table 15)

The three month graft survival of 89% was convincingly superior to the 65% survival of cadaver donor grafts; the twelve month survival was 81%, and the five year survival was 72%. Of those grafts functioning twelve months after transplantation, 90% are likely to be functioning at five years.

The E.D.T.A. Registry has published survival figures for living primary grafts in the three year period 1975-1977: these results are 8% less than those for Australia for the period 1963-1978.

FIGURE 14

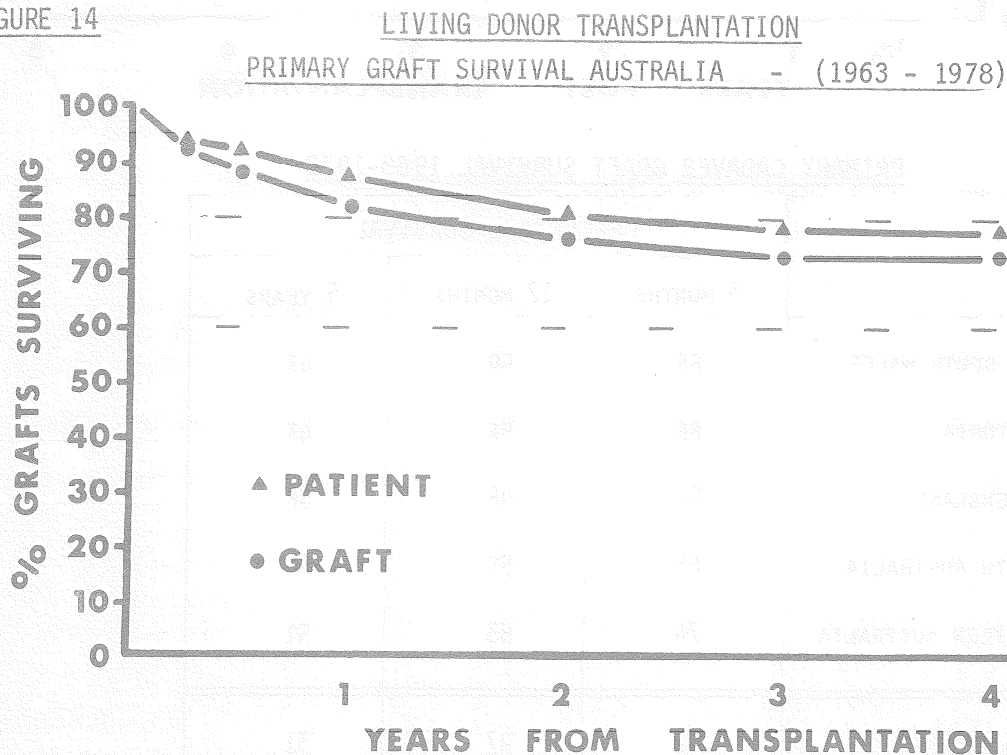


TABLE 15 LIVING DONOR PRIMARY GRAFT SURVIVAL

	3 MONTHS	6 MONTHS	12 MONTHS	2 YEARS	3 YEARS
E.D.T.A. 1975-1977	80.6% ±1.4	75.6 ±1.6	72.8 ±1.6	68.1 ±1.9	63.5 ±2.5
AUSTRALIA 1963-1978	88.6% ±4.0	86.9 ±4.3	81.2 ±5.1	74.5 ±6.0	71.7 ±6.4

3) CADAVER DONORS (PRIMARY GRAFTS) - AUSTRALIAN STATES (Figure 15, Table 16)

The cadaver donor primary graft survival for each State shows a 13% spread at three months, increasing to 15% at twelve months and five years; Western Australia's graft survival was 63% at twelve months, followed by New South Wales, Victoria, South Australia and Queensland.

The cadaver donor graft survival is approximately 20% less than patient survival. Survival of primary cadaver grafts in Europe and U.K. 1977 was similar to Australian figures, 50-55% at twelve months.

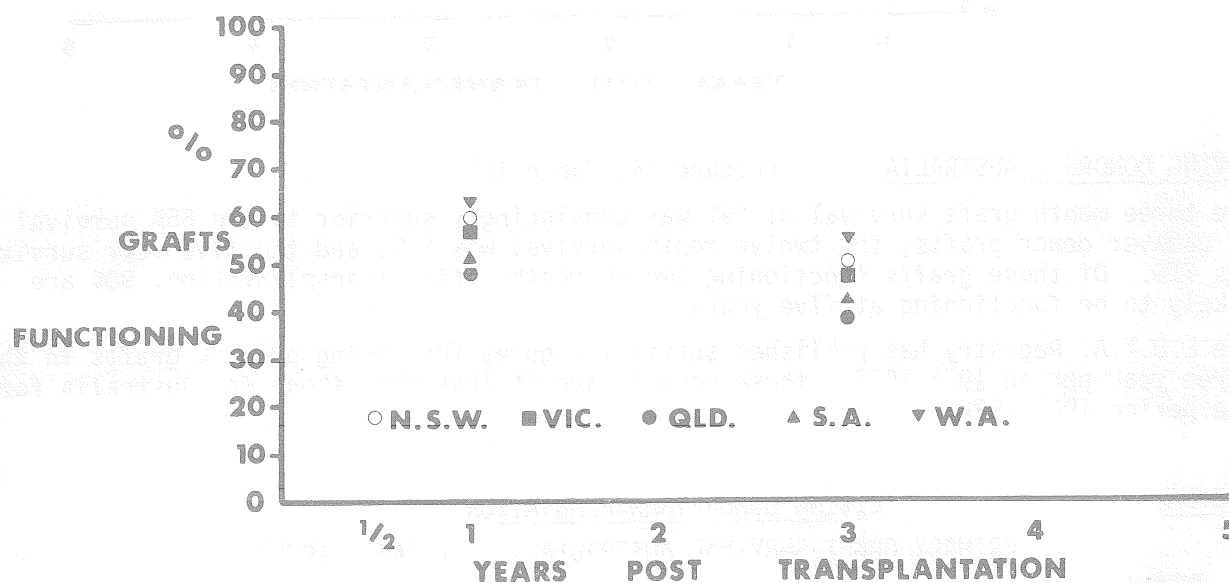
FIGURE 15 PRIMARY CADAVER GRAFT SURVIVAL 1963 - 1978

TABLE 16

PRIMARY CADAVER GRAFT SURVIVAL 1963-1978

	PERCENTAGE SURVIVAL		
	3 MONTHS	12 MONTHS	5 YEARS
NEW SOUTH WALES	68	59	43
VICTORIA	66	58	43
QUEENSLAND	61	48	36
SOUTH AUSTRALIA	65	52	38
WESTERN AUSTRALIA	74	63	51
NEW ZEALAND	58	47	31

GRAFT SURVIVAL (CD AND LD) RELATED TO HLA AND BLOOD GROUP

When considering the effects of 'immunological' factors such as HLA, A and B match and blood groups, the European and British transplant registries have proposed that loss of a functioning graft due to patient death should be excluded from analysis. Some of the Australasian data has been analysed in this manner. In due course survival data including those patients dying with a functioning graft will be published, but it is not available for this interim report.

a) HLA A AND B MATCH (Figure 16, Table 17)

For this analysis, we considered donor antigen compatibility with recipient antigen; further analysis comparing antigen incompatibilities is proceeding.

As the majority of antigen match analyses have demonstrated, the four antigen match provides notably superior survival; the twelve month survival was 85%, and five year deviation of 10%.

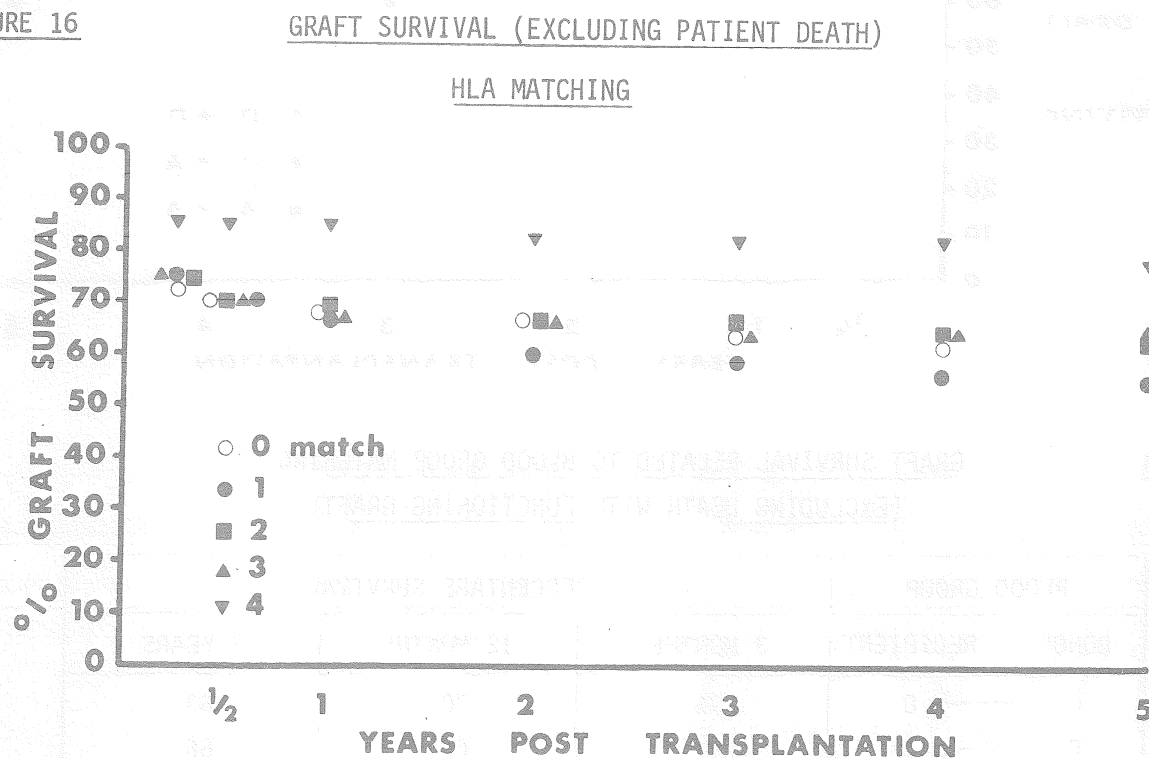
The difference between the 0, 1, 2, 3 antigen match graft survival was not significant at any time, from three months to five years.

In the light of the recent Terasaki and Opelz report (Dialysis and Transplantation, February, 1979. Page 167) regarding the significance of HLA match in relation to sex and blood group, such analyses for Australasia will be interesting and are in progress.

We have not analysed separate loci antigen identity in conjunction i.e. 1 locus A identity + 2 locus B identity vs 2 locus A + 1 locus B, etc; U.K. Transplant in their 1977 report were unable to show any difference at all resulting from such an analysis.

HLA DR matching, and comparison of sensitised and non sensitised patients will be performed as soon as sufficient reliable data is available.

FIGURE 16



(EXCLUDING PATIENT DEATH AUSTRALIA AND NEW ZEALAND 1963 - 1978)

HLA MATCH	PERCENTAGE SURVIVAL		
	3 MONTHS	12 MONTHS	5 YEARS
0 MATCH	74 ± 2	68 ± 2	61 ± 3
1 MATCH	75 ± 2	66 ± 2	55 ± 4
2 MATCH	75 ± 1	69 ± 2	62 ± 2
3 MATCH	76 ± 3	67 ± 4	64 ± 4
4 MATCH	85 ± 5	85 ± 5	71 ± 1.0

b) BLOOD GROUP MATCH (Figure 17 and Table 18)

In contrast to suggestions that blood group identity is an important determinant of graft survival, the Australasian data showed no significant difference between a group 0 donor, or a group A donor for a group A recipient; in fact the 0 → A had a slightly better survival.

FIGURE 17

BLOOD GROUP COMPATIBILITY

GRAFT SURVIVAL (EXCLUDING PATIENT DEATH)

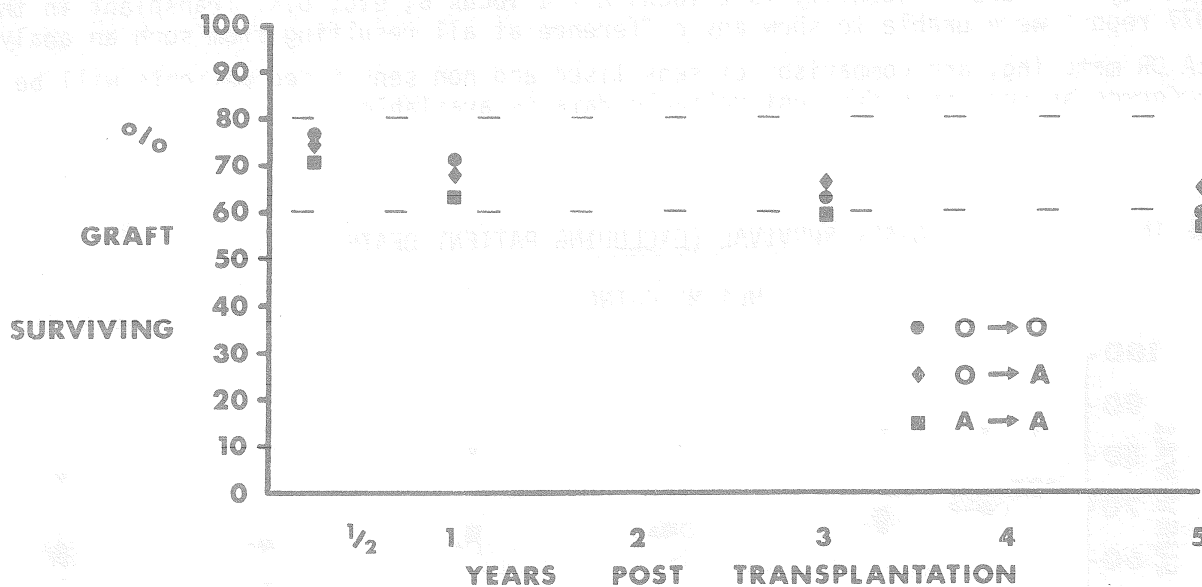


TABLE 18

GRAFT SURVIVAL RELATED TO BLOOD GROUP MATCHING
(EXCLUDING DEATH WITH FUNCTIONING GRAFT)

BLOOD GROUP		PERCENTAGE SURVIVAL		
DONOR	RECIPIENT	3 MONTHS	12 MONTHS	3 YEARS
0	→ 0	76	70	63
0	→ A	74	68	66
A	→ A	71	64	60

DIABETIC NEPHROPATHY 1963-1978 AUSTRALIA (Figure 18, Table 19)

There were 76 patients treated during this period, and of these 30 patients (40%) were transplanted; only two were living donor grafts, and two patients had a second graft.

66% of the non-transplanted patients were alive, but only 43% of the transplanted patients; supporting the recent reports of dialysis patient survival comparing favorably with that of transplanted patients.

The twelve month survival of all diabetics (transplanted or non-transplanted) was 55%, compared to 80% for non diabetics.

After an initial increase in mortality for transplanted patients during the first twelve months, subsequent survival was similar to non-transplanted patients.

Graft survival was only 30% at twelve months, compared to 55% for non-diabetics.

Since 30% of all diabetics treated were new patients in the past twelve months, the survival results may change in several years, but at present there is only limited support for the cadaver donor transplantation approach to end-stage diabetic nephropathy.

FIGURE 18

DIABETIC NEPHROPATHY 1963 - 1978

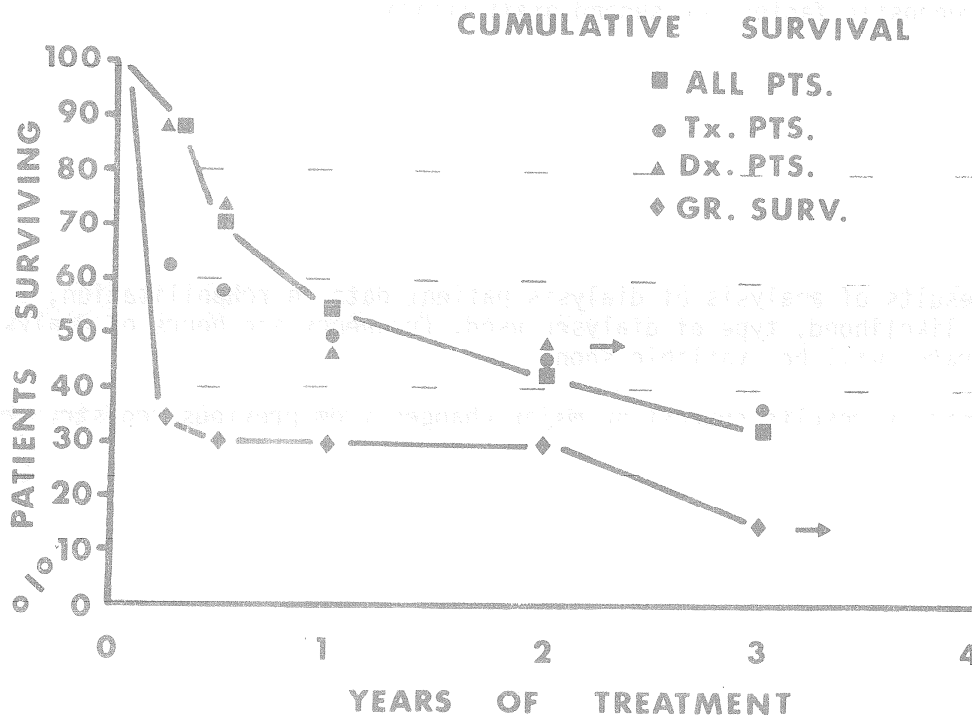


TABLE 19

AUSTRALIA 1963 - 1978

DIABETIC NEPHROPATHY

DIALYSIS ONLY	46
LIVING	29
TRANSPLANTED	30 (2)* (2) ^o
LIVING	13 (7) [▲]

* LD ^o 2^o ▲ GRAFT FUNCTIONING

Preliminary data is available on several more subjects and will appear in the next report.

- i) There is no obvious benefit from transfusion in the small patient population analysed.
- ii) Focal sclerosing GN and extracapillary GN with crescents (clinically rapidly progressive) have a lower twelve month graft survival than other forms of GN: reflux nephropathy had the best results. These observations are based on inadequate numbers for statistical significance.
- iii) Chronic rejection of the first graft, when compared to acute rejection as a cause of primary graft failure is a notably more favorable prognostic factor for second graft survival.

The results of analysis of dialysis patient data on rehabilitation, transplant likelihood, type of dialyser used, frequency and hours of dialysis, and death rates will be available soon.

Preliminary results suggest no major changes from previous registry reports.

