CHAPTER 3

DEATHS

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INTRODUCTION

AUSTRALIA

DIALYSIS DEPENDENT

The number of deaths totalled 1,205 (15.4 deaths per 100 pt yrs at risk) in 2004.

For those treated with peritoneal dialysis, 287 deaths occurred (16.0 deaths per 100 pt yrs at risk) and for haemodialysis there were 918 deaths (15.2 deaths per 100 pt yrs at risk) (fig 3.5).

The death rate for each State/Territory per 100 pt yrs at risk is shown in Figures 3.1 and 3.2. It can be seen death rates have been constant for several years.

Figure 3.3 shows the age specific mortality rates for patients treated with dialysis or transplantation relative to the Australian population rates for 2004.

FUNCTIONING TRANSPLANT

There were 125 deaths (2.0 deaths per 100 pt yrs at risk) of patients with a functioning transplant.

The deceased donor recipient death rate was 106 deaths (2.4 per 100 pt yrs) and the live donor recipient death rate 19 deaths (1.1 per 100 pt yrs).

The death rate in relation to age is shown in Figure 3.6.

NEW ZEALAND

DIALYSIS DEPENDENT

There were 301 deaths (17.3 deaths per 100 pt yrs at risk) in 2004.

For those treated with peritoneal dialysis, 152 deaths occurred (20.0 deaths per 100 pt yrs at risk) and for haemodialysis there were 149 deaths (15.2 deaths per 100 pt yrs at risk) shown in Figure 3.7.

FUNCTIONING TRANSPLANT

There were 25 deaths (2.1 deaths per 100 pt yrs at risk) in 2004.

The mortality rate for recipients of deceased donor kidneys was 19 deaths (2.3 per 100 pt yrs) and, live donor recipients 6 deaths (1.6 per 100 pt yrs) shown in Figure 3.8.

See Appendix III at the Website (www.anzdata.org.au/ANZDATA/AnzdataReport/download.htm)

Figure 3.1

Death Rates by States 1996 - 2004
All Dialysis Patients
(per 100 patient years)

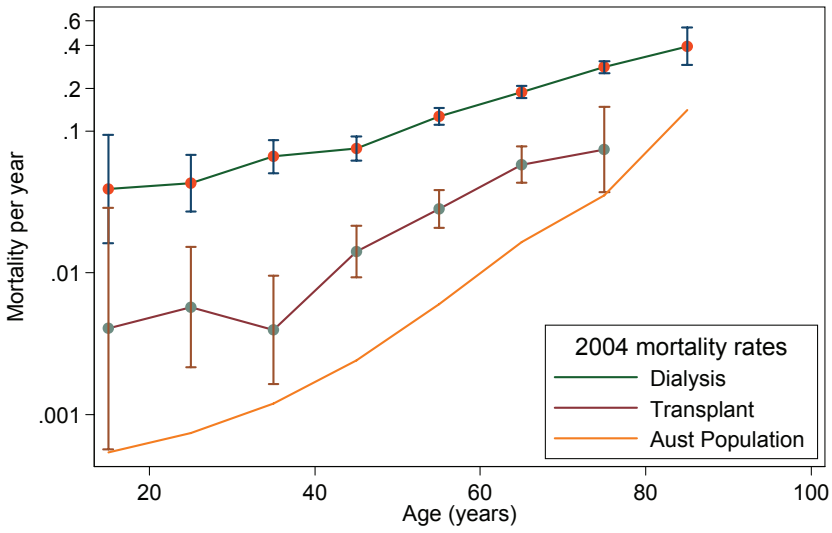
Year	Qld	NSW	ACT	Vic	Tas	SA	NT	WA	Aust	NZ
1996	17.7	14.2	15.4	14.0	14.6	23.5	23.1	14.5	**15.6**	**14.8**
1997	16.5	16.7	12.2	12.5	15.3	20.5	18.4	17.1	**15.8**	**15.9**
1998	19.3	16.9	15.3	15.8	25.9	15.7	15.8	13.6	**16.7**	**16.6**
1999	20.7	16.0	14.7	14.1	23.9	15.2	17.6	17.3	**16.5**	**16.4**
2000	16.9	16.5	13.5	14.0	14.7	14.3	20.0	16.3	**15.7**	**19.2**
2001	18.6	15.3	14.2	14.3	23.4	14.3	15.0	21.9	**16.2**	**18.6**
2002	17.4	15.1	11.4	13.6	12.0	12.3	14.8	16.6	**14.9**	**15.2**
2003	16.8	14.0	9.2	15.0	20.3	14.0	15.1	16.0	**15.0**	**15.9**
2004	16.3	16.1	11.6	15.0	18.1	16.2	15.2	12.4	**15.4**	**17.3**

Figure 3.2

Death Rates by States
Dialysis Modality and Age Groups 2004
(per 100 patient years)

Age Group	Treatment	Qld	NSW	ACT	Vic	Tas	SA	NT	WA	Aust	NZ
45-64 yrs	All Dx Patients	13.9	9.4	4.2	10.1	15.0	10.3	12.9	9.6	**10.6**	**16.5**
	PD	14.4	8.8	-	9.3	15.2	22.2	11.7	16.7	**10.4**	**18.6**
	HD	13.8	9.6	5.7	10.3	14.9	8.8	13.1	9.5	**10.6**	**15.2**
65-84 yrs	All Dx Patients	21.1	24.7	21.8	21.8	29.1	24.1	28.6	16.9	**22.5**	**26.5**
	PD	23.2	25.9	4.0	22.0	-	13.4	42.4	17.9	**23.3**	**28.0**
	HD	20.3	24.1	31.1	21.7	34.4	16.1	27.6	9.8	**22.2**	**24.9**

Figure 3.3 Age-specific mortality rates for patients treated with dialysis or transplantation across, relative to the Australian population rates for 2004.



Aust population 2003 rates used for comparison as 2004 unavailable at time of printing

Cause of Deaths

Australia

Dialysis Dependent

Cardiac events (40%) were the most common cause of death reported, followed by "social causes" (27%), infection (14%), miscellaneous (10%) and vascular (9%). Myocardial infarction (20%) and "cardiac arrest" (16%) formed the majority of the cardiac group.

The site of infection was most commonly reported as septicaemia followed by the lung and the peritoneum. The detail of the site and identity of the organisms can be found at the Website (www.anzdata.org.au/ANZDATA/AnzdataReport/download.htm).

In response to requests to examine the trends among the group who cease dialysis treatment, six more detailed categories were introduced in October 2003 to explore whether withdrawal was precipitated by comorbid events. The current reporting period includes this data for the first full year of this collection.

Withdrawal of treatment was reported as the cause for 27% of deaths, mostly in the older age groups. Twenty eight percent were diabetics. There was one patient under 25 years of age, four under 35 years of age and 72 patients were >=80 years of age.

The proportion of deaths from malignancy 63 patients (5%) was less than previous years, although a further (3%) withdrew from dialysis due to malignancy.

Functioning Transplant

Malignancy was the most common cause of death (39%), followed by cardiac events (22%), then infection (21%) and vascular (8%).

Death of Young Adults

15-24 Years of Age

There were six deaths in the age group 15-24 years; three females and three males. Five were haemodialysis patients (one cardiac arrest, one chronic respiratory failure, one cerebrovascular accident, one malignancy and one withdrew due to malignancy). One death with a functioning transplant was caused by a motor vehicle accident.

25-34 Years of Age

There were 22 deaths in this age group; thirteen males and nine females. Four died with a functioning transplant, fifteen were treated with haemodialysis (twelve hospital, two satellite and one home) and three with peritoneal dialysis (one continuous ambulatory peritoneal dialysis, one home and one hospital automated peritoneal dialysis). Four of the haemodialysis patients had a previous failed transplant.

Causes of death were: cardiac, nine (including five hospital, one satellite and one home haemodialysis, one home continuous ambulatory peritoneal dialysis and one functioning transplant): "social", five (all hospital haemodialysis): infection, four (two functioning transplants, one hospital and one satellite haemodialysis); other causes, three (one hospital haemodialysis, one hospital and one home automated peritoneal dialysis) and one functioning transplant with malignancy.

New Zealand

Dialysis Dependent

Cardiac events comprised the most common cause of death (51%). Other reported causes were, "social" (22%), infection (12%), miscellaneous (9%) and vascular (6%). Treatment withdrawal was reported in 65 patients (22%).

One patient between 15-24 years of age died on home continuous ambulatory peritoneal dialysis from peritonitis.

Six patients between 25-34 years of age died. Three were from cardiac causes (one hospital, one home haemodialysis and one home continuous ambulatory peritoneal dialysis), two were "social" (one hospital haemodialysis and one hospital continuous ambulatory peritoneal dialysis) and one with a functioning transplant from infection. Two of the dialysis patients had previously been transplanted.

Functioning Transplant

Amongst the 25 deaths of functioning transplant patients, the major causes were malignancy (32%), vascular and infection (24%) and cardiac (12%). There were no deaths from "social" causes reported.

Figure 3.4

Cause of Death and Transplant Dependent
1-Jan-2004 to 31-Dec-2004

Cause of Death		Australia		New Zealand	
		Dialysis	Transplant	Dialysis	Transplant
Cardiac					
Cardiac arrest		188	16	57	1
Haemorrhagic pericarditis		1	-	-	-
Hyperkalaemia		6	1	1	-
Hypertensive cardiac failure		5	-	2	-
Myocardial infarction		147	5	29	2
Myocardial infarction (presumed)		99	4	59	-
Other causes of cardiac failure		33	-	7	-
Pulmonary oedema		6	1	-	-
	Sub Total	**485 (40%)**	**27 (22%)**	**155 (51%)**	**3 (12%)**
Infection					
CNS - viral		-	-	1 (o)	1 (o)
CNS - fungal		-	1 (a)	-	-
CNS - other		1 (b)	1 (b)	-	1 (b)
Lung - bacterial		25	8	4	-
Lung - viral		2 (c,d)	-	-	-
Lung - fungal		2 (e,f)	-	-	-
Lung - protozoa		-	1 (g)	-	1 (g)
Lung - other		10 (b)	-	1 (b)	1 (b)
Urinary tract - bacterial		1	1	-	-
Wound - bacterial		16	1	2	-
Wound - other		-	-	1 (b)	-
Shunt - bacterial		1	-	-	-
Peritoneum - bacterial		13	-	13	-
Peritoneum - fungal		7 (h,I,j,f)	-	1 (p)	-
Peritoneum - other		1 (b)	1 (b)	-	-
Septicaemia - bacterial		45	4	9	-
Septicaemia - viral		-	3 (m)	-	-
Septicaemia - fungal		4 (f,e,k)	-	-	-
Septicaemia - protozoa		-	2 (n)	-	-
Septicaemia - other		14 (b)	2 (b)	-	-
Liver - viral		1 (l)	-	-	-
Other site - bacterial		20	1	5	2
Other site - viral		1 (m)	-	-	-
Other site - other		1 (b)	-	-	-
	Sub Total	**165 (14%)**	**26 (21%)**	**37 (12%)**	**6 (24%)**
Vascular					
Bowel infarction		19	1	-	2
Cerebrovascular accident		75	7	10	4
Gastrointestinal haemorrhage		3	-	4	-
Haemorrhage - dialysis access site		4	-	1	-
Haemorrhage - elsewhere		5	1	2	-
Ruptured aortic aneurysm		6	1	-	-
	Sub Total	**112 (9%)**	**10 (8%)**	**17 (6%)**	**6 (24%)**
Social					
Accident		2	2	-	-
Patient refused further treatment		2	-	-	-
Suicide		1	-	1	-
Therapy ceased		2	-	4	-
Withdrawal - access problems		16	-	1	-
Withdrawal - cardiovascular		58	-	11	-
Withdrawal - cerebrovascular		26	-	1	-
Withdrawal - malignancy		38	1	4	-
Withdrawal - peripheral Vascular		34	-	13	-
Withdrawal - psychosocial		150	1	31	-
	Sub Total	**329 (27%)**	**4 (3%)**	**66 (22%)**	**-**
Miscellaneous					
Cachexia		14	-	5	2
Chronic respiratory failure		12	1	-	-
Hepatic failure		2	3	1	-
Malignancy		**63**	**49**	**15**	**8**
Other		16	1	4	-
Pancreatitis		1	4	-	-
Perforation abdominal viscus		6	-	1	-
	Sub Total	**114 (10%)**	**58 (46%)**	**26 (9%)**	**10 (40%)**
	Total	**1205 (100%)**	**125 (100%)**	**301 (100%)**	**25 (100%)**

(a) nocardia (e) aspergillus (i) curvulaira lunata (m) cmv
(b) organism not isolated (f) candida ((j) fungus presumed (n) toxoplasmosis
(c) influenzae (g) pneumocystis (k) cryptococcus (o) herpes zoster
(d) virus presumed (h) biopolaris species (l) hepatitis B (p) paecilomyces

Figure 3.5 **Australia**

Death Rates, Dialysis Patients 2004 (per 100 patient years) * Treatment at Death

Age Groups	00-14	15-24	25-44	45-64	65-84	>=85	All Ages
All Dialysis							
All Patients Death Rate	**-**	**4.1**	**6.0**	**10.6**	**22.5**	**31.9**	**15.4**
No. of Deaths	-	5	70	306	782	42	**1205**
Years of Risk	31	121	1173	2889	3478	132	**7824**
Diabetic Death Rate	**-**	**-**	**12.4**	**15.7**	**23.4**	**19.2**	**18.4**
No. of Deaths	-	-	23	135	165	2	**325**
Years of Risk	-	1	186	860	705	10	**1761**
Non Diabetic Death Rate	**-**	**4.2**	**4.8**	**8.4**	**22.2**	**33.0**	**14.5**
No. of Deaths	-	5	47	171	617	40	**800**
Years of Risk	31	120	988	2030	2773	121	**6063**
Peritoneal Dialysis *							
All Patients Death Rate	**-**	**-**	**5.9**	**10.4**	**23.3**	**53.6**	**16.0**
No. of Deaths	-	-	15	65	197	10	**287**
Years of Risk	26	29	253	624	845	19	**1797**
Diabetic Death Rate	**-**	**-**	**15.3**	**18.7**	**27.0**	**58.8**	**21.9**
No. of Deaths	-	-	8	39	51	1	**99**
Years of Risk	-	-	52	208	189	2	**451**
Non Diabetic Death Rate	**-**	**-**	**3.5**	**6.2**	**22.2**	**53.1**	**14.0**
No. of Deaths	-	-	7	26	146	9	**188**
Years of Risk	26	29	201	416	657	17	**1345**
Haemodialysis *							
All Patients Death Rate	**-**	**5.5**	**6.0**	**10.6**	**22.2**	**28.3**	**15.2**
No. of Deaths	-	5	55	241	585	32	**918**
Years of Risk	6	91	920	2265	2632	113	**6027**
Diabetic Death Rate	**-**	**-**	**11.2**	**14.7**	**22.1**	**11.4**	**17.2**
No. of Deaths	-	-	15	96	114	1	**226**
Years of Risk	-	-	133	651	516	9	**1310**
Non Diabetic Death Rate	**-**	**5.5**	**5.1**	**9.0**	**22.3**	**29.7**	**14.7**
No. of Deaths	-	5	40	145	471	31	**692**
Years of Risk	6	91	787	1614	2116	104	**4717**

Figure 3.6 **Australia**

Death Rates, Transplant Patients 2004 (per 100 patient years)

Age Groups	00-04	05-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	All Ages
All Transplants										
All Patients Death Rate	**-**	**0.9**	**0.4**	**0.6**	**0.4**	**1.4**	**2.8**	**6.2**	**9.2**	**2.0**
No. of Deaths	-	1	1	4	5	22	39	44	9	**125**
Years of Risk	15	113	255	733	1255	1559	1369	716	98	**6113**
Diabetic Death Rate	**-**	**-**	**-**	**-**	**1.3**	**2.6**	**5.4**	**17.3**	**-**	**3.2**
No. of Deaths	-	-	-	-	2	4	5	4	-	**15**
Years of Risk	-	-	1	49	153	155	92	23	-	**472**
Non Diabetic Death Rate	**-**	**0.9**	**0.4**	**0.6**	**0.3**	**1.3**	**2.7**	**5.8**	**9.2**	**2.0**
No. of Deaths	-	1	1	4	3	18	34	40	9	**110**
Years of Risk	15	113	254	684	1102	1404	1277	693	98	**5640**
Cadaver Transplants										
All Patients Death Rate	**-**	**2.4**	**-**	**0.8**	**0.5**	**1.6**	**3.1**	**6.0**	**8.6**	**2.4**
No. of Deaths	-	1	-	3	4	18	35	37	8	**106**
Years of Risk	1	41	92	368	844	1149	1115	617	94	**4320**
Diabetic Death Rate	**-**	**-**	**-**	**-**	**1.5**	**2.5**	**5.3**	**11.4**	**-**	**2.9**
No. of Deaths	-	-	-	-	2	3	4	2	-	**11**
Years of Risk	-	-	-	36	132	122	76	18	-	**383**
Non Diabetic Death Rate	**-**	**2.4**	**-**	**0.9**	**0.3**	**1.5**	**3.0**	**5.8**	**8.6**	**2.4**
No. of Deaths	-	1	-	3	2	15	31	35	8	**95**
Years of Risk	1	41	92	332	711	1028	1039	599	94	**3937**
Live Donor Transplants										
All Patients Death Rate	**-**	**-**	**0.6**	**0.3**	**0.2**	**1.0**	**1.6**	**7.1**	**22.5**	**1.1**
No. of Deaths	-	-	1	1	1	4	4	7	1	**19**
Years of Risk	14	72	163	364	411	410	254	99	4	**1792**
Diabetic Death Rate	**-**	**-**	**-**	**-**	**-**	**3.0**	**6.2**	**36.0**	**-**	**4.5**
No. of Deaths	-	-	-	-	-	1	1	2	-	**4**
Years of Risk	-	-	-	13	20	33	16	6	-	**89**
Non Diabetic Death Rate	**-**	**-**	**0.6**	**0.3**	**0.3**	**0.8**	**1.3**	**5.4**	**22.5**	**0.9**
No. of Deaths	-	-	1	1	1	3	3	5	1	**15**
Years of Risk	14	72	163	351	391	377	238	93	4	**1704**

Figure 3.7 **New Zealand**

Death Rates, Dialysis Patients 2004 (per 100 patient years) * Treatment at Death

Age Groups	00-14	15-24	25-44	45-64	65-84	>=85	All Ages
All Dialysis							
All Patients Death Rate	**-**	**1.8**	**5.3**	**16.5**	**26.5**	**23.8**	**17.3**
No. of Deaths	-	1	16	133	149	2	**301**
Years of Risk	7	55	304	804	562	8	**1741**
Diabetic Death Rate	**-**	**-**	**10.7**	**21.4**	**24.9**	**-**	**21.4**
No. of Deaths	-	-	6	87	51	-	**144**
Years of Risk	-	3	56	407	205	1	**672**
Non Diabetic Death Rate	**-**	**1.9**	**4.0**	**11.6**	**27.4**	**27.0**	**14.7**
No. of Deaths	-	1	10	46	98	2	**157**
Years of Risk	7	52	248	397	357	7	**1069**
Peritoneal Dialysis *							
All Patients Death Rate	**-**	**4.2**	**7.2**	**18.6**	**28.0**	**27.7**	**20.0**
No. of Deaths	-	1	8	59	82	2	**152**
Years of Risk	7	24	111	318	293	7	**760**
Diabetic Death Rate	**-**	**-**	**18.7**	**23.4**	**30.6**	**-**	**25.2**
No. of Deaths	-	-	4	39	31	-	**74**
Years of Risk	-	3	21	167	101	1	**293**
Non Diabetic Death Rate	**-**	**4.7**	**4.5**	**13.3**	**26.6**	**32.0**	**16.7**
No. of Deaths	-	1	4	20	51	2	**78**
Years of Risk	7	21	89	151	192	6	**466**
Haemodialysis *							
All Patients Death Rate	**-**	**-**	**4.1**	**15.2**	**24.9**	**-**	**15.2**
No. of Deaths	-	-	8	74	67	-	**149**
Years of Risk	-	31	193	487	269	1	**982**
Diabetic Death Rate	**-**	**-**	**5.8**	**20.0**	**19.3**	**-**	**18.5**
No. of Deaths	-	-	2	48	20	-	**70**
Years of Risk	-	-	34	240	103	-	**379**
Non Diabetic Death Rate	**-**	**-**	**3.8**	**10.6**	**28.4**	**-**	**13.1**
No. of Deaths	-	-	6	26	47	-	**79**
Years of Risk	-	31	159	246	165	1	**603**

Figure 3.8 **New Zealand**

Death Rates, Transplant Patients 2004 (per 100 patient years)

Age Groups	00-04	05-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	All Ages
All Transplants										
All Patients Death Rate	**-**	**-**	**-**	**0.7**	**0.7**	**1.6**	**3.0**	**4.2**	**26.7**	**2.1**
No. of Deaths	-	-	-	1	2	5	7	5	5	**25**
Years of Risk	1	29	50	141	285	321	232	120	19	**1197**
Diabetic Death Rate	**-**	**-**	**-**	**-**	**-**	**3.0**	**6.0**	**-**	**-**	**2.8**
No. of Deaths	-	-	-	-	-	1	2	-	-	**3**
Years of Risk	-	-	-	5	26	33	33	9	-	**106**
Non Diabetic Death Rate	**-**	**-**	**-**	**0.7**	**0.8**	**1.4**	**2.5**	**4.5**	**26.7**	**2.0**
No. of Deaths	-	-	-	1	2	4	5	5	5	**22**
Years of Risk	1	29	50	136	258	288	198	111	19	**1091**
Cadaver Transplants										
All Patients Death Rate	**-**	**-**	**-**	**-**	**1.1**	**2.1**	**2.1**	**2.8**	**28.2**	**2.3**
No. of Deaths	-	-	-	-	2	5	4	3	5	**19**
Years of Risk	1	9	18	65	182	234	187	106	18	**820**
Diabetic Death Rate			**-**	**-**	**-**	**4.1**	**7.7**	**-**	**-**	**3.5**
No. of Deaths	-	-	-	-	-	1	2	-	-	**3**
Years of Risk	-	-	-	5	21	24	26	9	-	**86**
Non Diabetic Death Rate	**-**	**-**	**-**	**-**	**1.2**	**1.9**	**1.2**	**3.1**	**28.2**	**2.2**
No. of Deaths	-	-	-	-	2	4	2	3	5	**16**
Years of Risk	1	9	18	60	161	209	161	97	18	**734**
Live Donor Transplants										
All Patients Death Rate	**-**	**-**	**-**	**1.3**	**-**	**-**	**6.8**	**14.2**	**-**	**1.6**
No. of Deaths	-	-	-	1	-	-	3	2	-	**6**
Years of Risk	-	21	32	76	102	87	44	14	1	**378**
Diabetic Death Rate	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
No. of Deaths	-	-	-	-	-	-	-	-	-	**-**
Years of Risk	-	-	-	-	5	8	7	-	-	**20**
Non Diabetic Death Rate	**-**	**-**	**-**	**1.3**	**-**	**-**	**8.1**	**14.2**	**-**	**1.7**
No. of Deaths	-	-	-	1	-	-	3	2	-	**6**
Years of Risk	-	21	32	76	97	78	37	14	1	**357**

Figure 3.9

Deaths from Malignancy 2004 By RRT Modality at Time of Death

Australia	Dx	Tx	Total
Adenocarcinoma			
Bladder	1 (*1)	-	**1**
Breast	3 (#2)	3	**6**
Colon	-	6	**6**
Kidney	4 (#3)	-	**4**
Lung	8 (#1)	3	**11**
Mediastinum	-	1	**1**
Oesophagus	2 (#1)	1	**3**
Ovary	1	1	**2**
Pancreas	-	1	**1**
Prostate	2 (#1)	-	**2**
Small bowel	1 (#1)	-	**1**
Stomach	3 (#2)	-	**3**
Unknown site	1 (*1)	2	**3**
Leukaemia	-	1	**1**
Lymphoproliferative Disease			
Abdomen	-	1	**1**
Neck node	1 (*1)	-	**1**
Stomach	-	1	**1**
Tonsil	-	1	**1**
Lymphoma			
Brain	1 (#1)	1	**2**
Inguinal	1 (#1)	-	**1**
Pancreas	1 (#1)	-	**1**
Stomach	-	1	**1**
Tonsil	-	1	**1**
Transverse colon	1	-	**1**
Melanoma			
Arm	-	1	**1**
Back	-	1	**1**
Merkel Cell	-	1	**1**
Myeloma	15 (#13)	-	**15**
Squamous Cell Carcinoma			
Cervix	2 (#1)	-	**2**
Genital tract	-	1	**1**
Gingiva	1 (*1)	-	**1**
Larynx	1	1	**2**
Lung	1	3	**4**
Oesophagus	1	1	**2**
Skin	-	6	**6**
Unknown site	-	1	**1**
Transitional Cell Carcinoma			
Bladder	3 (#2)	1	**4**
Kidney	2 (#1)	-	**2**
Other			
Anaplastic - primary unknown	-	1	**1**
Hodgkins - paratracheal	-	1	**1**
Large cell - lung	1	1	**2**
Large cell - pancreas	1	-	**1**
Neuroendocrine - occiput	1	-	**1**
Unknown - lung	2	1	**3**
Unknown - primary unknown	1	3	**4**
Total Deaths	**63**	**49**	**112**

#(31 pts) diagnosed pre dialysis
* (4 patients) had previously been transplanted

New Zealand			
Adenocarcinoma			
Breast	-	1	**1**
Kidney	1 (#1)	-	**1**
Lung	1 (#1)	-	**1**
Rectosigmoid	-	1	**1**
Rectum	1 (#1)	-	**1**
Stomach	1 (#1)	2	**3**
Melanoma	-	2	**2**
Myeloma	5 (#4)	-	**5**
Squamous Cell Carcinoma			
Lung	1	-	**1**
Skin	1 (#1)	1	**2**
Other			
Hepatoma - liver	2	-	**2**
Mesothelioma - pleura	-	1	**1**
Phaeochromocytoma - adrenal	1 (#1)	-	**1**
Poorly differentiated - unknown	1	-	**1**
Total Deaths	**15**	**8**	**23**

No dialysis patients had a previous transplant
(10 pts) diagnosed pre dialysis

DEATHS FROM MALIGNANCY

AUSTRALIA

During 2004 there were 112 deaths directly attributed to malignancies (63 among dialysis dependent and 49 among functioning transplant patients). Deaths were attributed by modality at time of death.

DIALYSIS DEPENDENT

Thirty one of the 63 patients had cancer diagnosed before their first dialysis.

A further three tumours were identified less than nine months after the first dialysis. There were sixteen patients who had been dialysed for more than five years. Four patients had a previous renal transplant.

There were fifteen cases with myeloma, twelve tumours of the lung, six of the kidney and three each of the bladder, breast and stomach. There were four lymphomas (brain, inguinal, pancreas and transverse colon), one lymphoproliferative disease, one large cell of the pancreas and one neuroendocrine of the occiput.

The myeloma patients had a median survival from diagnosis of 32 months (range 1-174 months).

FUNCTIONING TRANSPLANT

There were 49 deaths in 2004 (42 in 2003) in this group.

Forty died from non-skin cancer: eighteen adenocarcinoma, seven squamous cell carcinoma, three lymphoma, three lymphoproliferative disease, one leukaemia, one transitional cell carcinoma of the bladder, one Hodgkin's disease, one large cell of the lung and five with an unknown primary.

Nine died from skin cancer: six from squamous cell carcinoma, two from melanoma and one from Merkel Cell.

NEW ZEALAND

DIALYSIS DEPENDENT

There were fifteen deaths due to malignancy, ten were diagnosed before dialysis, including one with skin cancer. None had received a previous transplant. Two patients had dialysed for more than five years.

FUNCTIONING TRANSPLANT

There were eight deaths; four from adenocarcinoma, three skin cancers (two melanomas and one squamous cell carcinoma) and one mesothelioma of the pleura.

Deaths From Withdrawal From Treatment Related to Malignancy

Australia

From October 2003, six new categories were introduced to provide more detail regarding treatment withdrawal (principally withdrawal from dialysis). One of these new categories was withdrawal from treatment related to malignancy.

During 2004 there were 39 deaths (38 among dialysis patients and one functioning transplant patient) attributed to withdrawal from treatment related to malignancy.

Dialysis Dependent

Twenty five of the thirty eight patients had cancer diagnosed before their first dialysis or within two months of commencing treatment.

Two further tumours were identified less than twelve months after the first dialysis. There were four patients who had been dialysed for more than five years. None had a previous renal transplant. Two patients dialysed for less than one month and six patients between one and six months before treatment was withdrawn.

There were thirteen cases with adenocarcinoma, twelve with myeloma, two each with squamous cell and transitional cell carcinoma, one melanoma and eight other types of malignancy.

The myeloma patients had a median survival from diagnosis of 14 months (range 1-58 months).

Functioning Transplant

There was only one patient in this group in 2004 who had treatment withdrawn due to squamous cell carcinoma of the sub-glottis.

New Zealand

Dialysis Dependent

Four patients had withdrawal of treatment related to malignancy in 2004.

Two of the four patients had cancer diagnosed before their first dialysis and one within a month of commencing treatment. One each had adenocarcinoma of the caecum, lymphoma of the stomach, squamous cell carcinoma of the lung and myeloma. None had been transplanted previously.

Figure 3.10

Deaths from Withdrawal from Treatment Due to Malignancy 2004 By RRT Modality at Time of Death

Australia	Dx	Tx	Total
Adenocarcinoma			
Breast	1	-	**1**
Duodenum	1	-	**1**
Kidney	4 (#4) (x1)	-	**4**
Lung	3	-	**3**
Pancreas	1	-	**1**
Prostate	2 (#2)	-	**2**
Rectum	1 (#1)	-	**1**
Melanoma			
Unknown site	1 (#1)	-	**1**
Myeloma	12 (#11)	-	**12**
Squamous Cell Carcinoma			
Genital tract	1 (#1)	-	**1**
Oesophagus	1 (#1)	-	**1**
Subglottis	-	1	**1**
Transitional Cell Carcinoma			
Bladder	1	-	**1**
Kidney	1 (#1)	-	**1**
Other			
Anaplastic small cell - lung	1	-	**1**
Cholangiocarcinoma - hepatic ducts	1	-	**1**
Ewings sarcoma - hip	1 (#1)	-	**1**
Non small cell - lung	1	-	**1**
Poorly differentiated - oesophagus	1	-	**1**
Small cell - ureter	1 (#1)	-	**1**
Unknown - larynx	1 (#1)	-	**1**
Unknown - primary unknown	1	-	**1**
Total Deaths	**38**	**1**	**39**

#(25 pts) diagnosed pre dialysis or within two months of commencing
No patient had previously been transplanted
X (1 patient) had Adenocarcinoma and TCC in the same kidney

New Zealand			
Adenocarcinoma			
Caecum	1 (#1)	-	**1**
Lymphoma			
Stomach	1 (#1)	-	**1**
Myeloma	1 (#1)	-	**1**
Squamous Cell Carcinoma			
Lung	1	-	**1**
Total Deaths	**4**	**-**	**4**

(3) patients diagnosed pre dialysis or within two months of commencing
No dialysis patients had a previous transplant