

KIDNEY DIALYSIS FOUNDATION

ANNUAL REPORT

PERITONEAL DIALYSIS PROGRAMME

2009

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1. EXECUTIVE SUMMARY

The Peritoneal Dialysis Centre of the Kidney Dialysis Foundation is located at the Ghim Moh Centre and the programme started on 1 July 2003. The dialysis service is contracted out to a dialysis provider and the current provider is Baxter Healthcare Pte Ltd.

This report covers medical data collated at the end of 2009.

Demographics: There were 86 patients on the PD programme as of 31 Dec 2009. Five patients joined the programme during the year and all were from the Singapore General Hospital.

The mean age of the prevalent 86 patients was 54 ± 10 years; 41 (47.7%) were male, 45 (52.3%) female; Chinese-64, Malay-16, Indian-6. Fifty-six were on CAPD and 30 on APD. The major cause of end-stage renal failure was diabetic nephropathy making up 60.0% of the new patients and 34.9% of the existing patients. The mean age of entry into the programme was 44 ± 11.9 years.

Deaths and Withdrawals: There were 14 deaths and 6 withdrawals; 3 were transferred to haemodialysis and 3 received renal transplants. The commonest cause of death was a cardiac event (42.9%) with infections (21.4%) being the second most common cause of death. The main cause of transfer to haemodialysis was peritonitis.

The death rate was 13.2% based on total number of patients in the year and the mean age at death was 60 ± 14 years. The overall 1-year patient survival was 91.7% and 5-year survival was 44.3%.

Hospitalisations: 55.7% of the patients were admitted in the year. The admission rate was 1.24 episodes per patient year or 15.8 days per patient year. The diabetic patients were more likely to be admitted (62.2% vs 49.0%) and had a higher rate of admission days per patient year (25.2 vs 7.24 in non-diabetic patients). PD related admissions accounted for 18.6% of all admissions.

Dialysis Parameters

Dialysis Adequacy: The total KT/V was 2.12 ± 0.49 with 82.0% of the patients meeting the minimum target of 1.7.

Peritonitis Rate: The peritonitis rate was 1 in 59.6 patient months.

Anaemia: The mean haemoglobin was 10.6 ± 1.9 g/dl with 81.4% on erythropoietin.

Serum Albumin: The patients had a low serum albumin level with a mean of 30.4 ± 4.3 g/L. The majority (93.0%) of the patients could not meet the lower limit of normal which is 37 g/L.

Lipid profiles: The mean LDL cholesterol was 2.87 ± 1.26 mmol/L and triglyceride of 1.88 ± 1.25 mmol/L. The mean HDL cholesterol level was 1.03 ± 0.34 mmol/L. 75.6% of the patients were on lipid-lowering agents.

Transplant Waiting List: 19.8% of the patients were on the National Transplant waiting list while another 55.8% were not medically eligible for transplantation.

PERITONEAL DIALYSIS PROGRAMME

2. STAFFING

Medical

The Medical Director (Peritoneal Dialysis) continues to review patients once in 6 months following their routine blood investigations. Dr Tan Seng Hoe joined as a volunteer visiting doctor in March 2009 and conducts a patient review session on alternate months. The patients also go for follow-up with their primary physicians in restructured hospitals every 6 months or less. Urgent medical cover has been arranged with family physicians working in the vicinity using the same clinics as those arranged for the hemodialysis patients.

Nursing

The PD programme is supervised by the Senior Executive, Patient Services, Ms Lay Kwee Chin, and assisted by Ms Theresa Soh, Patient Services Coordinator and Ms Tay See Inn Caroline, Nurse Clinician (joined in December 2009). The centre is managed by a dialysis provider, Baxter Healthcare Pte Ltd. Nurse Clinician Lim Kah Bee was the charge nurse until August 2009 and she was followed by Nurse Clinician Wenly Low with supervision from Nurse Manager Jessie Low on doctor's clinic days till December 2009. PD Clinical Nurse, Florence Fan Fung Yin joined the Foundation in January 2010.

DIETETICS

KDF provides a dietitian, Mr Nelson Chin from Food and Nutrition Specialists Pte Ltd, to counsel patients. The patients were seen once every six months at the same time as their follow-up with the Medical Director/Visiting Doctor.

PATIENT WELFARE

Patients continued to receive subsidies for their dialysis and erythropoietin on a case by case basis and were managed by Welfare Officer, Ms Rena Lee.

3. PATIENT POPULATION

There were 86 patients on the PD programme as of 31 December 2009. Five new cases from the Singapore General Hospital (SGH) were accepted into the PD programme during the period of 1 Jan – 31 Dec 2009.

During the same period of 1 Jan – 31 Dec 2009, 20 patients exited the programme; there were 3 transfers to hemodialysis, 3 transplants (1 living related and 2 cadaveric) and 14 deaths.

Fig 1: Patient Stock and Flow

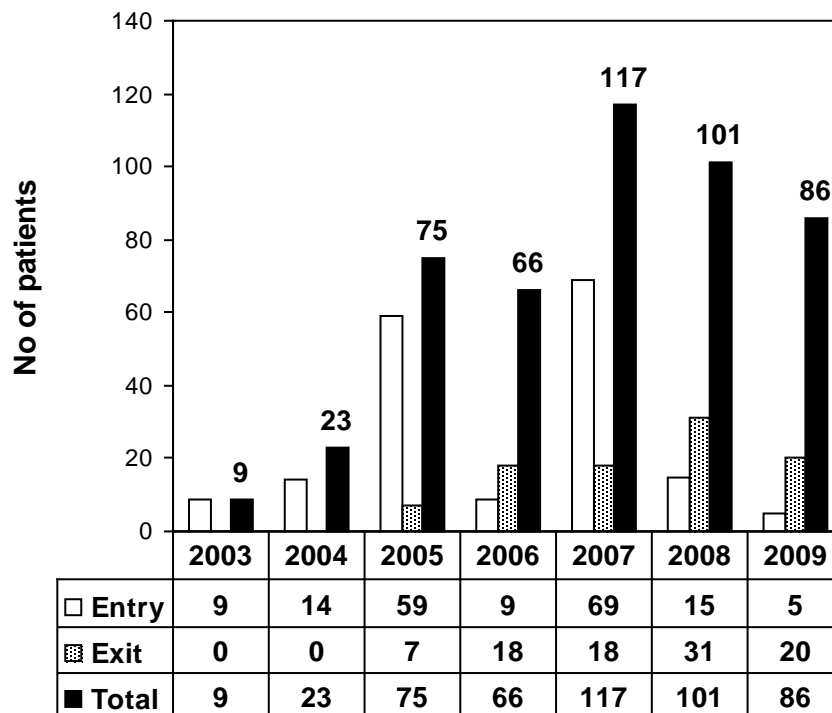


Table 1: Source of Referral

	2003	2004	2005	2006	2007	2008	2009
SGH	7	12	22	2	68	15	5
NUH	2	2	35	6	0	0	0
Private / TTSH	0	0	2	1	1	0	0
Total Entries	9	14	59	9	69	15	5

Patient characteristics

The mean age of the existing 86 patients was 54 ± 10 years, with a slight predominance of females [Male: 41 (47.7%), Female: 45 (52.3%)]. This female predominance has been present through the years but the proportion has decreased. The ethnic distribution was similar to the general population. Fifty six patients were on CAPD and 30 on APD. The proportion of patients on APD has increased over the years and currently makes up 34.9% of the PD population. The main cause of end-stage renal failure in the PD programme remained diabetic nephropathy making up 60.0% of the new patients and 34.9% of the existing patients. The mean age of entry into the programme was 44 ± 11.9 years and was younger as compared to 57 ± 11.7 years in 2008.

Figure 2: Modality of PD

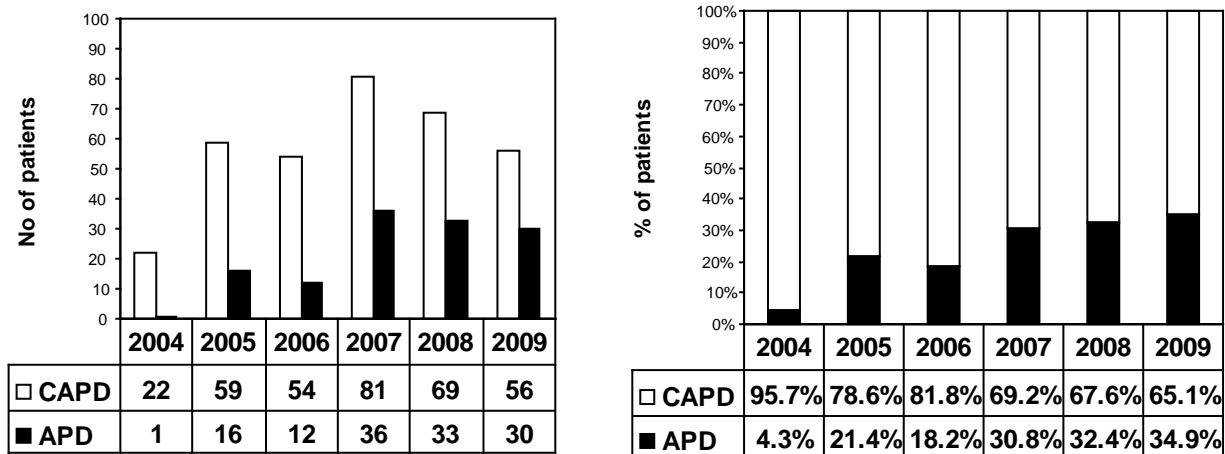


Table 2: Gender of new patients

	2003		2004		2005		2006		2007		2008		2009	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Male	1	11.1	3	21.4	31	52.5	6	66.7	40	58.0	5	33.3	3	60.0
Female	8	88.9	11	78.6	28	47.5	3	33.3	29	42.0	10	66.7	2	40.0
Total	9	100.0	14	100.0	59	100.0	9	100.0	69	100.0	15	100.0	5	100.0

Table 3: Gender of prevalent patients

	2003		2004		2005		2006		2007		2008		2009	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Male	1	11.1	4	17.4	27	36.0	27	40.9	57	48.7	45	44.6	41	47.7
Female	8	88.9	19	82.6	48	64.0	39	59.1	60	51.3	56	55.4	45	52.3
Total	9	100.0	23	100.0	75	100.0	66	100.0	117	100.0	101	100.0	86	100.0

Table 4: Ethnic distribution of new patients

	2003		2004		2005		2006		2007		2008		2009	
	n	%	n	%	N	%	n	%	n	%	n	%	n	%
Chinese	5	56.0	8	57.0	41	69.5	7	77.8	59	85.5	12	80.0	4	80.0
Malay	2	22.0	6	43.0	17	28.8	1	11.1	7	10.1	1	6.7	1	20.0
Indian	2	22.0	0	0	1	1.7	1	11.1	2	2.9	2	13.3	0	0
Others	0	0	0	0	0	0	0	0	1	1.4	0	0	0	0
Total	9	100.0	14	100.0	59	100.0	9	100.0	69	100.0	15	100.0	5	100.0

Table 5: Ethnic distribution of prevalent patients

	2003		2004		2005		2006		2007		2008		2009	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Chinese	5	56.0	13	56.5	47	62.7	44	66.7	90	76.9	76	75.2	64	74.4
Malay	2	22.0	8	34.8	24	32.0	18	27.2	22	18.8	18	17.8	16	18.6
Indian	2	22.0	2	8.7	4	5.3	4	6.1	4	3.4	7	6.9	6	7.0
Others	0	0	0	0	0	0	0	0	1	0.9	0	0.0	0	0
Total	9	100.0	23	100.0	75	100.0	66	100.0	117	100.0	101	100.0	86	100.0

Table 6: Mean age at entry into programme

Year	2003	2004	2005	2006	2007	2008	2009
Mean age (years)	46	49	59	59	56	57	44
SD	9.3	7.3	10.8	13.9	11.6	11.7	11.9

Table 7: Mean age of existing patients

Year	2003	2004	2005	2006	2007	2008	2009
Mean age (years)	49	48	50	54	55	54	54
SD	9.0	8.1	9.5	11.3	11	10.7	10

A. Etiology of Renal failure

Table 8: Etiology of end-stage renal disease in new patients

Etiology	2003		2004		2005		2006		2007		2008		2009	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Chronic GN (no biopsy)	2	22.0	2	14.3	10	17.0	1	11.0	19	27.5	4	30.8	1	20
IgA nephropathy	2	22.0	2	14.3	1	1.7	-	-	4	5.8	-	-	-	-
SLE	-	-	-	-	-	-	-	-	2	2.9	-	-	-	-
Focal sclerosing GN	-	-	1	7.1	-	-	-	-	1	1.4	-	-	-	-
Drug induced GN	-	-	-	-	1	1.7	-	-	-	-	-	-	-	-
Membranous GN	-	-	-	-	1	1.7	-	-	-	-	-	-	-	-
Diabetic nephropathy	2	22.0	6	42.9	34	57.6	7	78.0	33	47.8	9	60.0	3	60
PCKD	3	34.0	-	-	1	1.7	-	-	3	4.3	-	-	-	-
Renal calculi	-	-	1	7.1	-	-	-	-	-	-	-	-	-	-
Renovascular disease	-	-	-	-	2	3.4	-	-	-	-	-	-	-	-
TB Kidney	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Others									5	7.2	2	13.13	1	20
Unknown	-	-	2	14.3	9	15.2	1	11.0	2	2.9	-	-	-	-
Total	9	100.0	14	100.0	59	100.0	9	100.0	69	100.0	15	100.0	5	100.0

Table 9: Etiology of end-stage renal disease in existing patients

Etiology	2003		2004		2005		2006		2007		2008		2009	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Chronic GN (no biopsy)	2	22.0	4	17.4	14	18.7	14	21.2	30	25.6	30	29.7	28	32.6
IgA nephropathy	2	22.0	4	17.4	5	6.7	5	7.5	9	7.7	8	7.9	6	7
SLE							1	1.5	2	1.7	2	2.0	2	2.3
Focal sclerosing GN	-	-	1	4.3	1	1.3	-	-	2	1.7	2	2.0	2	2.3
Drug induced GN	-	-	-	-	1	1.3	1	1.5	1	0.9	1	1.0	1	1.2
Diabetic nephropathy	2	22.0	8	34.8	37	49.4	37	56.3	53	45.3	39	38.6	30	34.9
PCKD	3	34.0	3	13.0	4	5.3	3	4.5	5	4.3	4	3.9	4	4.7
Renal calculi	-	-	1	4.3	1	1.3	1	1.5	1	0.9	1	1.0	1	1.2
Renovascular disease	-	-	-	-	2	2.7	2	3.0	-	-	-	-		
TB Kidney							1	1.5	-	-	-	-		
Others									5	4.3	6	5.9	5	5.8
Unknown	-	-	2	8.8	10	13.3	1	1.5	9	7.7	8	7.9	7	8.1
Total	9	100.0	23	100.0	75	100.0	66	100.0	117	100.0	101	100.0	86	100.0

COMORBIDITY

There were 51 (50.0%) patients with diabetes in the prevalent population in 2009.

DEATHS / TRANSFERS AND SURVIVAL ANALYSIS

There were 14 deaths and 6 withdrawals (transfer to hemodialysis or transplanted) in 2009. The causes of death are shown in Table 10 and the commonest cause was a cardiac death (either acute myocardial infarction or other cardiac cause). Infections were the second most common cause of death. When compared to previous years, it appears that there were more cardiac deaths in 2008 and the reason is not clear.

The reasons for withdrawal from PD are shown in Table 11. Three patients were transferred to hemodialysis because of peritonitis. Two patients received deceased donor renal transplants and one patient had a living related transplant.

The death rate was 13.2% based on total number of patients in the year. The mean age at death in 2009 was 60 ± 14 years.

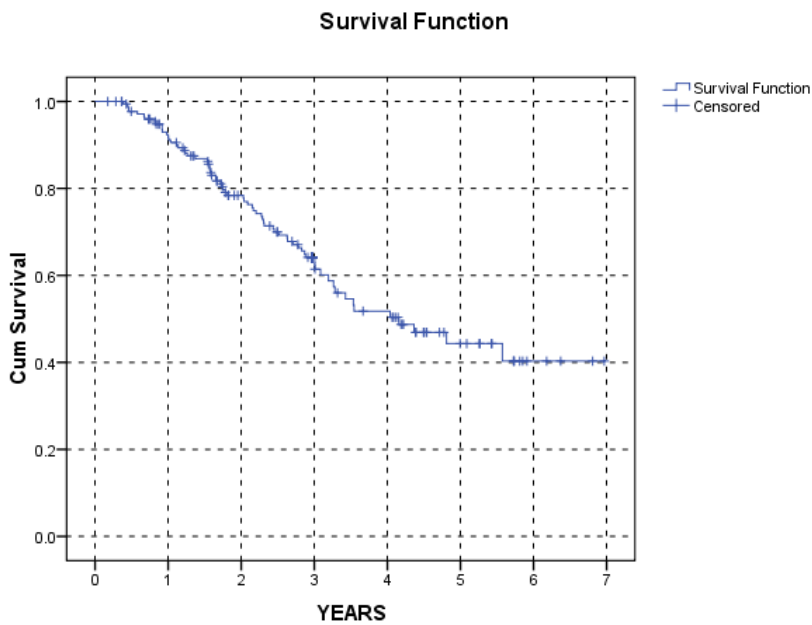
Table 10: Cause of Death

Cause of Death	2005		2006		2007		2008		2009	
	n	%	n	%	n	%	n	%	n	%
Acute Myocardial Infarction	1	25.0	1	8.3	1	7.6	10	41.7	1	7.2
Other Cardiac	-	-	-	-	-	-	2	8.3	5	35.7
Cerebrovascular Accident	-	-	2	16.8	-	-	-	-	-	-
Infections	1	25.0	5	41.7	4	30.7	5	20.8	3	21.4
Liver Failure	-	-	1	8.3	-	-	-	-	-	-
Malignancy	1	25.0	1	8.3	-	-	1	4.2	-	-
Accidental	-	-	1	8.3	-	-	-	-	-	-
Bleeding from Gastro-intestinal Tract	-	-	-	-	1	7.6	-	-	-	-
Died at Home	1	25.0	1	8.3	3	23.4	5	20.8	3	21.4
Others	-	-	-	-	4	30.7	1	4.2	2	14.3
Total	4	100.0	12	100.0	13	100.0	24	100.0	14	100.0
Death Rate	4.8%		14.3%		9.6%		17.4%		13.2%	

Table 11: Reason of Withdrawal

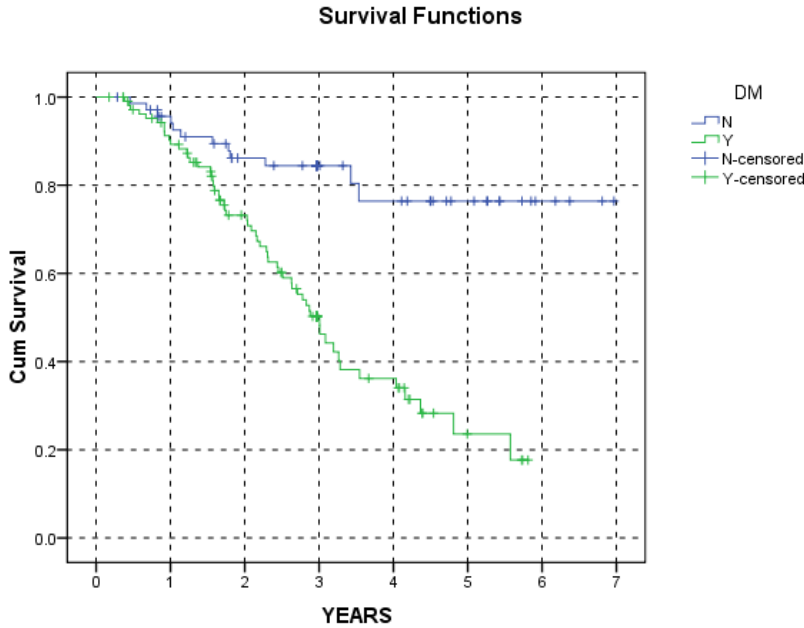
Reason of Withdrawal	2005		2006		2007		2008		2009	
	n	%	n	%	n	%	n	%	n	%
PD related Infection	1	33.3	1	16.6	5	100.0	5	71.4	3	50.0
Technical Reason	2	66.7	2	33.4	-	-	-	-	-	-
Elective transfer to HD	-	-	-	-	-	-	1	14.3	-	-
Transplant	-	-	2	33.4	-	-	1	14.3	3	50.0
Unknown	-	-	1	16.6	-	-	-	-	-	-
Total	3	100.0	6	100.0	5	100.0	7	100.0	6	100.0

Fig 3: Kaplan-Meier Survival Curves for PD patients (2003-2009)



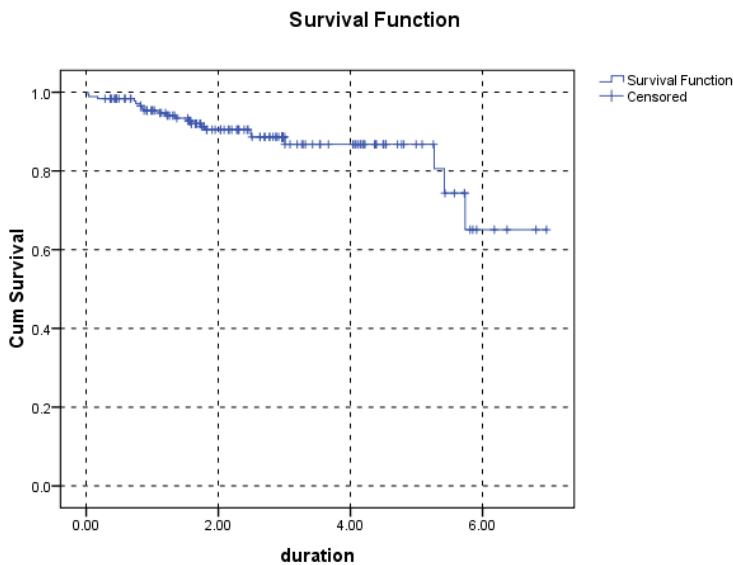
The 1 year patient survival was 91.7%, 3 year survival was 62.8% and 5 year survival was 44.3%. There was no change in the patient survival from the previous year.

Fig 4: Kaplan-Meier Survival Curves for PD patients with and without Diabetes (2003-2009)



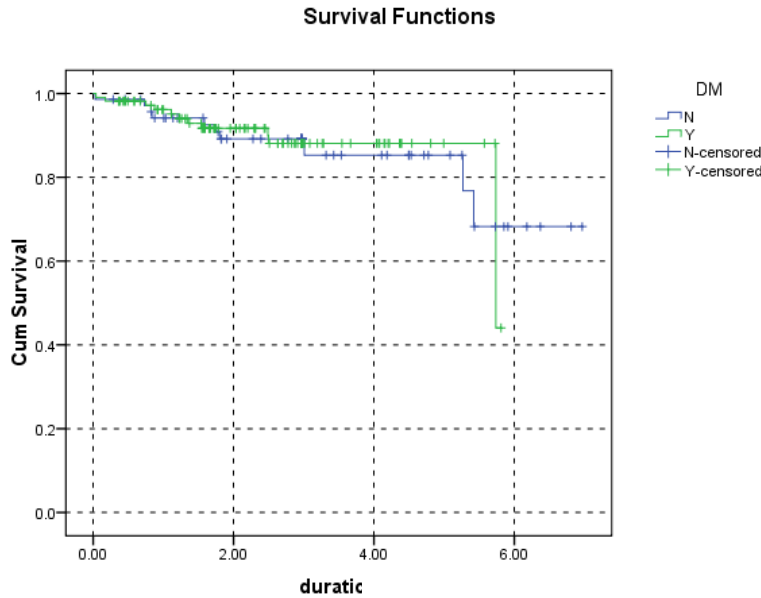
The 1 year and 3 year survivals in non-diabetic patients was better than those who were diabetic (1 year survival: Diabetes 89.2% versus Non-Diabetes 94.1%, 3 year survival: Diabetes 48.2% versus Non-Diabetes 80.4%). This, again, remains essentially unchanged from the previous year.

Fig 5: Kaplan-Meier Technique Survival Curves for PD patients (2003-2009)



The 1 year technique survival was 94.7%, the 3 year survival was 86.7% and 5 year survival was 80.6%.

Fig 6: Kaplan-Meier Technique Survival Curves for PD patients with and without Diabetes (2003-2009)



The 1 year and 3 year technique survivals were similar in both diabetics and non-diabetics. (1 year survival: Diabetes 95.1% versus Non-Diabetes 94.2%, 3 year survival: Diabetes 88.1% versus Non-Diabetes 85.3%).

HOSPITALISATIONS

There were 117 admissions in 59 patients and 55.7% of the patients were admitted in the year. Twenty-four (40.7%) of the 59 patients admitted had at least two admissions with 14 patients (23.7%) having 3 or more admissions in the year and accounting for 886 admission days (59.4% of total admission days). The admission rate was 1.24 episodes per patient year or 15.8 days per patient year. The diabetic patients were more likely to be admitted (62.2% vs 49.0%) and had a higher rate of admission days per patient year (25.2 vs 7.24 in non-diabetic patients). Interestingly, the rates (as reflected by days per patient year) for PD-related problems (technical and infections) were higher in the non-diabetic patients and this was mainly related to more PD infections in the non-diabetic patients. However, the diabetic patients had higher rates of admission for other infections and other causes. PD related admissions accounted for 18.6% of all admissions.

When compared to the previous year (2008), the rates of hospitalization were higher. However, there was an improvement in the rate of hospitalization for technical problems.

Table 12: Hospitalisations

HOSPITALISATION	ALL		DM		NON-DM	
	2008	2009	2008	2009	2008	2009
Number of patients ever in prog	132	106	76	53	56	53
Total patient years	118.8	94.2	66.7	45	52.1	49.2
Number of patients ever admitted	71	59	48	33	23	26
Admission episodes	117	117	86	76	31	41
Admission days	1633	1491	1365	1135	268	356
Days hospitalized						
PD related – technical	78	10	78	4	0	6
- infection	244	266	180	91	64	175
Other Infections	377	420	348	377	29	43
Others	934	795	759	663	175	132
% patients ever admitted	53.8	55.7	63.2	62.3	41.1	49.1
Episodes per patient year	0.98	1.24	1.29	1.68	0.59	0.83
Days per patient year	13.75	15.8	20.46	25.2	5.14	7.24
Days per patient year						
PD related – technical	0.66	0.12	1.17	0.08	0.0	0.12
- infection	2.05	2.82	2.69	2.02	1.23	3.56
Other Infections	3.17	4.46	5.22	8.38	0.56	0.87
Others	7.86	8.44	11.38	14.73	3.36	2.68
% of admissions						
PD related - technical	4.3	1.7	5.8	1.3	0.0	2.3
- infections	15.4	16.9	13.9	7.9	19.4	33.4
Other Infections	23.1	20.4	26.7	23.7	12.9	14.3
Others	57.2	61.0	53.6	67.1	67.7	50.0

Hospitalisations during the period Jan-Dec 2009 were analysed and expressed as days hospitalized per patient year of dialysis programme.

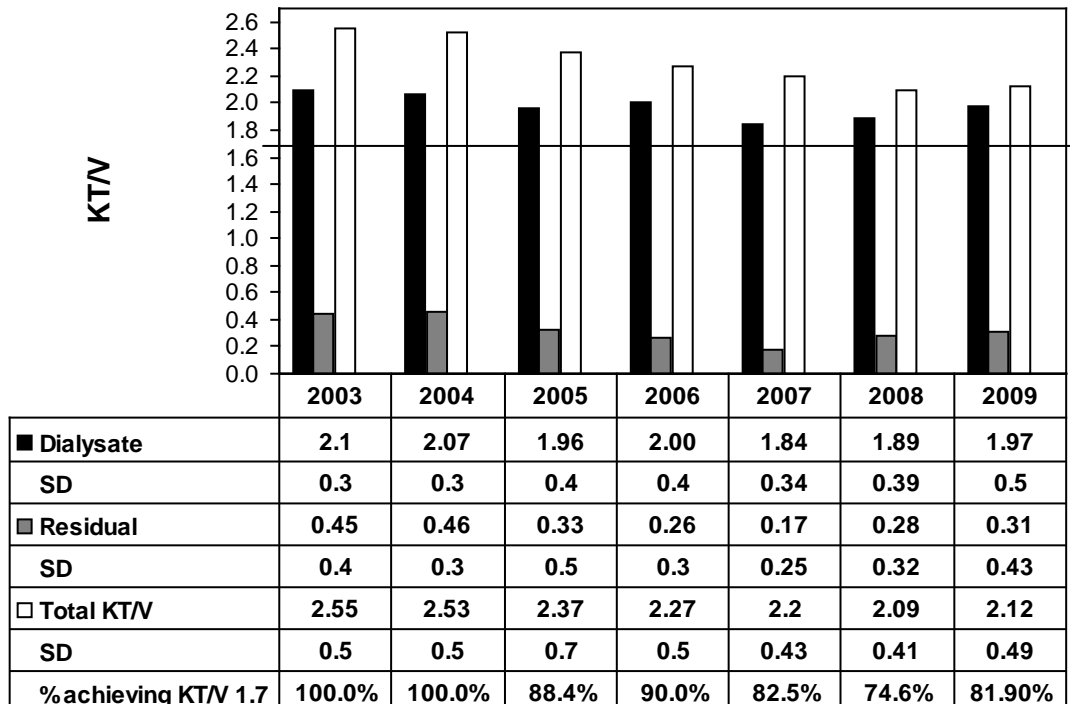
DIALYSIS PARAMETERS

Dialysis Adequacy

Dialysis adequacy is assessed using the total KT/V and is measured 6 monthly. The minimum target total KT/V is 1.7. The total KT/V (which is the sum of the dialysate and residual KT/V) of the cohort was 2.12 ± 0.49 . Although the mean KT/V was above the minimum requirement, 15 patients (18 %) did not meet the required minimum of 1.7.

As observed in past years, the 15 patients who did not meet the minimum target had virtually no residual renal function compared to the group with $KT/V > 1.7$ (51.8% vs 93.3%, $p < 0.05$).

Fig 7: KT/V



Peritonitis Rate

There were a total of 19 episodes of peritonitis during the period of 1 Jan 2009 to 31 Dec 2009 making the peritonitis rate 1 episode in 59.6 patient months. There were two patients who had 2 episodes of peritonitis each. Sixteen (84.2%) of the 19 episodes of peritonitis required admission to hospital. Three patients (3/17, 17.6%) discontinued PD and were transferred to hemodialysis. There is probably under-reporting of the peritonitis episodes that have resulted in the excellent peritonitis rates.

Table 13: Peritonitis rate

System	Total Patient Months	No of episodes	Infection Rate (Patient month / Episodes)
APD (Home choice)			
2005	91.8	2	45.6
2006	133.1	3	44.4
2007	147.2	3	49.1
2008	420.1	6	70.0
2009	375.3	4	93.8*
CAPD (Ultrabag)			
2005	626.0	9	69.6
2006	701.3	12	53.9
2007	552.1	13	42.5
2008	907.6	19	47.8
2009	756.2	15	50.4*
All Systems			
2005	717.8	11	65.2
2006	834.4	15	52.2
2007	699.3	16	43.7
2008	1327.7	25	53.1
2009	1131.5	19	59.6*

* There probably is an element of under-reporting resulting in the “excellent” peritonitis rates.

Anaemia

The mean haemoglobin was 10.6 ± 1.9 g/dl with 81.4% (70) of the patients receiving erythropoietin. The mean dose of erythropoietin was 5284 ± 2684 U/week (range 2000 – 12000 U/week). The mean haemoglobin has remained stable over the last two years. It is encouraging to note that the disturbing trend of patients not being on erythropoietin (EPO) in 2008 has been corrected. Only 1 (1%) patient with a haemoglobin of less than 10 g/dl was not on EPO compared to 63.3% in 2008. A combination of factors prevent adequate dosing of erythropoietin in PD patients and these include non compliance (as the injections are self-administered), uncontrolled hypertension leading to omission of the erythropoietin and financial constraints.

Fig 8: Mean Haemoglobin Level

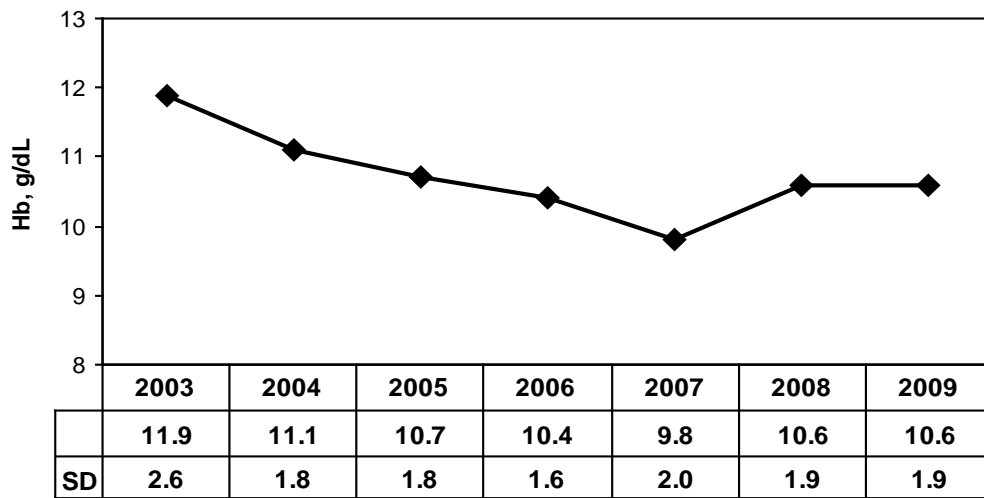
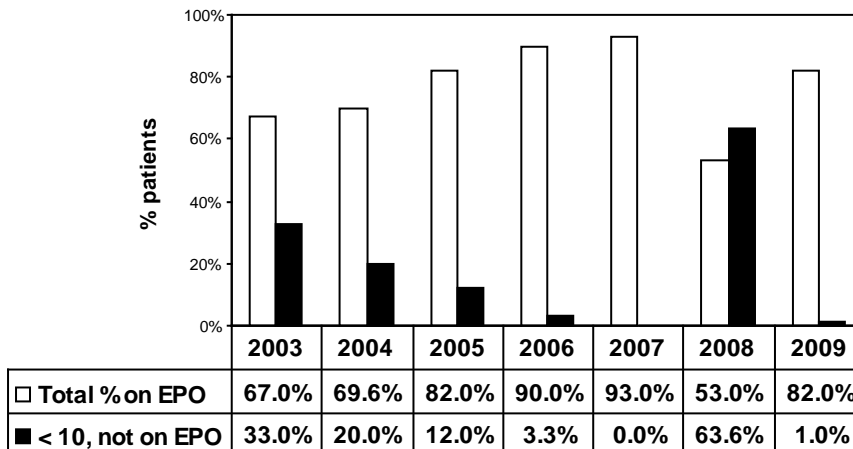


Fig 9: Percentage of patients on EPO



Serum Albumin

The patients continue to have a low serum albumin level with a mean of 30.4 ± 4.3 g/L. The majority of patients (93%) did not achieve a normal albumin level of 37 g/L and 43% were below 30 g/L. This occurs as a result of protein loss in the dialysate in patients on peritoneal dialysis. This is a perennial problem in patients on PD and is best addressed through nutritional supplementation.

Table 14: Serum albumin

Albumin (g/L)	2003	2004	2005	2006	2007	2008	2009
N	9	21	71	66	46	82	84*
Mean \pm SD	28.7 ± 4.6	30.7 ± 5.9	31.5 ± 4.7	31.0 ± 5.2	30.3 ± 3.9	30.9 ± 4.3	30.4 ± 4.4
% < 37 g/L	88.8	95.2	52.1	45.5	58.7	52.4	93.0
% < 30 g/L	66.7	33.3	39.4	40.9	39.1	40.2	43.0

* No results in 2 patients

Hyperlipidaemia

The mean LDL cholesterol level was 2.87 ± 1.26 mmol/L with 50% of the patients achieving the recommended MOH guidelines for LDL cholesterol of < 2.6 mmol/L. The mean HDL cholesterol level (1.03 ± 0.34 mmol/L) is the same as previous year. Interestingly the triglyceride levels were much lower than previous years. A large proportion of the patients (65/86, 75.6%) are on lipid-lowering agents.

Fig 10: Lipid profile

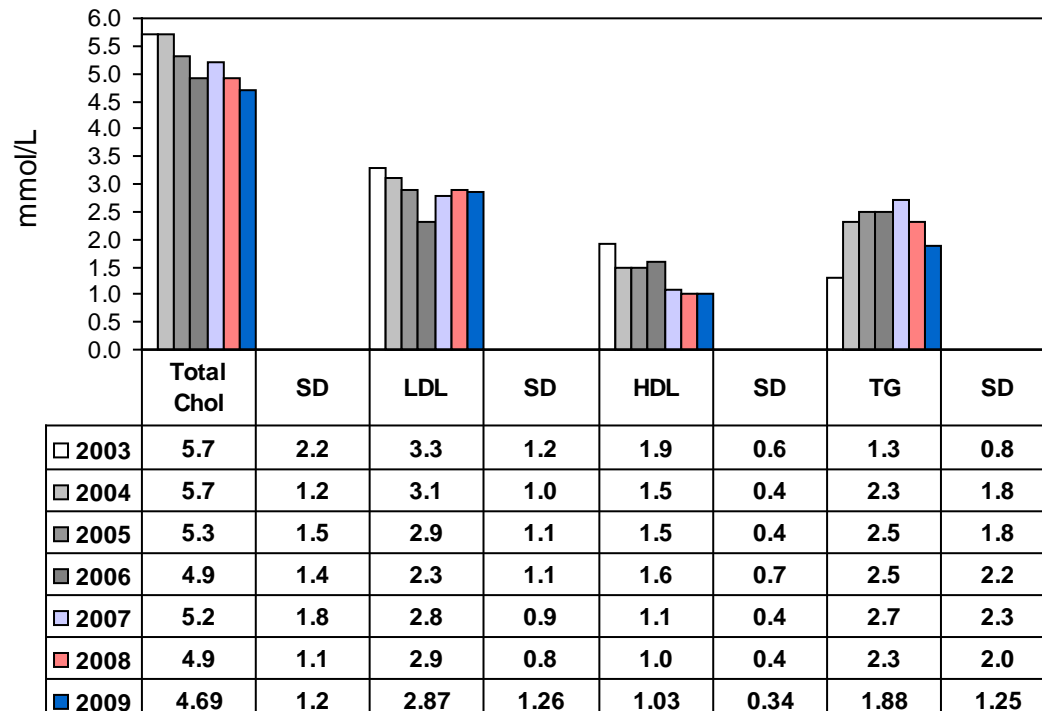
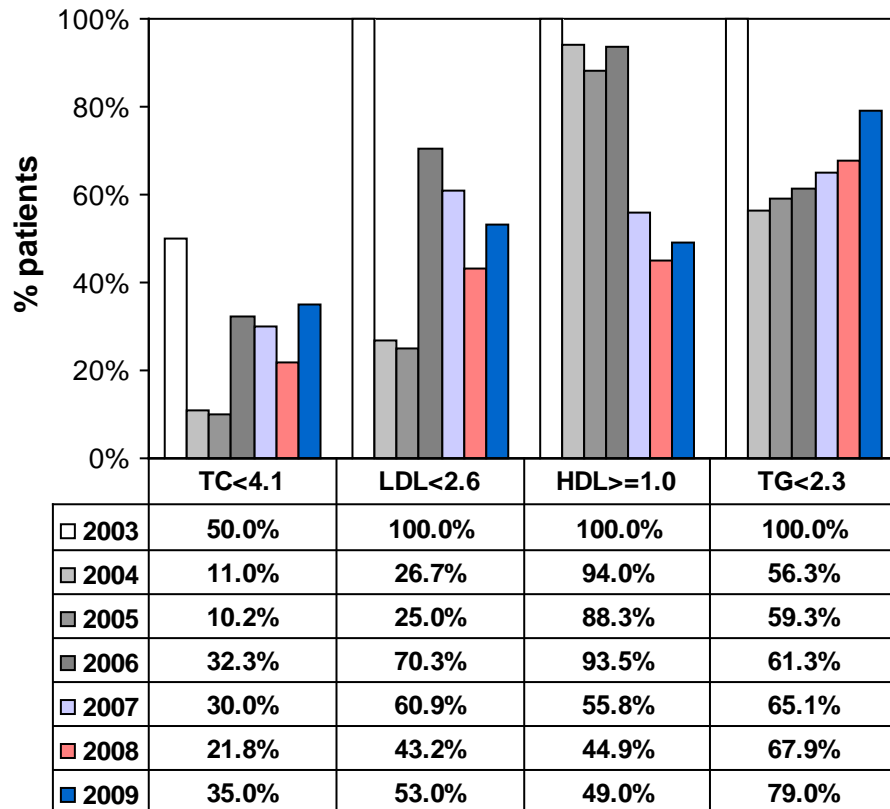


Fig 11: Lipid profile – Percentage achieving MOH target levels



TRANSPLANT WAITING LIST

Seventeen (19.8%) patients were registered on the transplant register and 19 (22%) were pending registration. More than half of the patients (48 patients, 55.8%) were not eligible for transplant as a result of exceeding the age limit of 60 years (28/48 patients, 58.3%); four had ischemic heart disease and three were seropositive for Hepatitis B or C.

Table 15: Transplant status

	2003		2004		2005		2006		2007		2008		2009	
N	9		23		75		66		117		101		86	
Registered	1	11.0%	6	26.0%	8	10.6%	13	19.7%	28	23.9%	19	18.8%	17	19.8%
Not eligible	1	11.0%	4	17.4%	31	41.3%	21	31.8%	52	44.4%	63	62.4%	48	55.8%
Opted out	0	0	4	17.4%	13	17.3%	11	16.7%	2	1.7%	2	2%	2	2.3%
Pending	7	78.0%	9	39.0%	23	30.6%	21	31.8%	35	29.9%	17	16.8%	19	22.1%

INTERIM HEMODIALYSIS

Three patients required interim hemodialysis (due to peritonitis) and all were subsequently converted to permanent hemodialysis. Two of the patients were accepted into the KDF HD Programme and one went to a private dialysis centre.

4. ACTIVITIES OF THE PD CENTRE

Patient Activities

The PD patients participated in the following activities:

1. a Patient Education Seminar on “Anaemia and Kidney Failure” cum outing to the Singapore Flyer on 31 May 2009, and
2. a Patient Education Seminar on “Bone Problems in Dialysis Patients” on 8 November 2009.

Most Compliant Patient Awards

These awards are presented annually to encourage patients to actively participate in their dialysis treatment. The Medical Director and the PD nurses select the awardees based on standard criteria. This year’s awardees were Mdm Lim Guek Kee and Mr Tai See Cheong.

Provider Contract Expiry

The provider revised their contract and a new contract was signed to agree in funding the centre operation. This contract will be for 2 years till 1 January 2012.

Patient Review

The Medical Director will review about 12 patients monthly at the PD centre. The PD nurse will schedule all patients’ 6 monthly review in KDF accordingly.

5. CONCLUSION

The KDF PD programme provides an affordable home-based dialysis to patients who often require high dependency care. Meeting dialysis targets remains a challenge in this group as compliance is often difficult to track. However, dedicated personal care from the PD dialysis nurses has certainly added quality to the dialysis programme.

We would like to thank all who have contributed to the smooth running of the programme.

Dr Grace Lee Siew Luan
Medical Director (Peritoneal Dialysis)

6. ANNEXE

Table 16: KT/V

	2003	2004	2005	2006	2007	2008	2009
N	9	23	69 (6 not done)	60 (6 not done)	40 (11 not done)	71 (30 not done)	83 (3 not done)
Total KT/V	2.55 ± 0.5	2.53 ± 0.5	2.37 ± 0.7	2.27 ± 0.5	2.20 ± 0.43	2.09 ± 0.41	2.12 ± 0.49
Dialysate KT/V	2.10 ± 0.3	2.07 ± 0.3	1.96 ± 0.4	2.00 ± 0.4	1.84 ± 0.34	1.89 ± 0.39	1.97 ± 0.5
Residual KT/V	0.45 ± 0.4	0.46 ± 0.3	0.33 ± 0.5	0.26 ± 0.3	0.17 ± 0.25	0.28 ± 0.32	0.31 ± 0.43
% patients with KT/V ≥ 1.7	100.0	100.0	88.4 (8/69 <1.7)	90.0 (6/60 <1.7)	82.5 (7/40 <1.7)	74.6 (18/71 <1.7)	81.9 (15/83 <1.7)

Table 17: Haemoglobin and Use of EPO

Hb (g/dl)	2003		2004		2005		2006		2007		2008		2009	
N	9		23		75		66		43		83*		86	
Mean ± SD	11.9 ± 2.6		11.1 ± 1.8		10.7 ± 1.8		10.4 ± 1.6		9.8 ± 2.0		10.6 ± 1.9		10.6 ± 1.9	
< 10 not on EPO	1	11.0%	1	4.3%	3	4%	1	1.5%	0	0	14	16.9%	1	1.0%
< 10 on EPO	2	22.0%	4	17.4%	22	29%	29	43.9%	22	51%	18	21.7%	32	37.0%
> 10 not on EPO	1	11.0%	6	26.0%	10	13%	5	7.6%	3	7%	25	30.1%	14	16.0%
> 10 on EPO	5	56.0%	12	52.2%	40	53%	31	47.0%	18	42%	26	31.3%	39	45.0%

* 18 patients with no data (2008)