KIDNEY DIALYSIS FOUNDATION

ANNUAL REPORT

PERITONEAL DIALYSIS PROGRAMME

2012

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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 was formerly contracted out to a dialysis provider but since 1 January 2010 the programme has been directly administered by KDF.

This report covers medical data collated at the end of 2012.

Demographics: There were 44 patients on the PD programme as of 31 Dec 2012. Nine patients joined the programme (NUH 1, TTSH 1, SGH 7).
The mean age of the prevalent patients was 52 ± 11.3 years; 16 (36.4%) were male, 28 (63.6%) female; Chinese - 37, Malay - 6, Indian - 1. Twenty-seven were on CAPD and 17 on APD. The major cause of end-stage renal failure in new patients was diabetic nephropathy (44.5%). In the existing patients, the major cause of end-stage renal failure was chronic glomerulonephritis (no biopsy) which accounted for 40.9% of the cases. Diabetic nephropathy was second and present in 25% of the patients. The age of entry into the programme was 54±14.7 years.

Deaths and Withdrawals: There were 12 deaths and 8 withdrawals. Of the 8 withdrawals, one received a kidney transplant, five were transferred to hemodialysis because of PD-related infections and two chose to go on palliative care. The commonest causes of death were cardiac-related deaths(25%) and infections (25%).
The death rate was 18.8% based on total number of patients in the year and the mean age at death was 59 ± 9 years.

Hospitalisations: 60.9% of the patients were admitted in the year. The admission rate was 1.38 episodes per patient year or 17.3 days per patient year. The diabetic patients had higher rates than the non-diabetic patients. PD related admissions accounted for 21.9% of all admissions.

Dialysis Parameters
Dialysis Adequacy: The total KT/V was 2.39 ± 0.38 with 100% of the patients meeting the minimum target of 1.7.
Anaemia: The mean haemoglobin was 11.2 ± 1.9 g/dl with 95.3% on erythropoietin.
Serum Albumin: The patients had a low serum albumin level with a mean of 31.7 ± 3.5 g/L. The majority (90.7%) of the patients could not meet the lower limit of normal which is 37 g/L. Fourteen patients received a subsidy for protein supplements.
Mineral Metabolism: The mean corrected serum calcium was 2.5 ± 0.20 mmol/L, serum phosphate 1.55 ± 0.5 mmol/L and iPTH 45.5 ± 36.5 pmol/L. All the patients were on calcium-based phosphate binders and 11 (25.6%) were on Lanthanum carbonate.
Lipid profiles: The mean LDL cholesterol was 2.65 ± 0.83 mmol/L and triglyceride 2.02 ± 1.6 mmol/L. The mean HDL cholesterol level was 1.08 ± 0.41 mmol/L.

Transplant Waiting List: 29.5% of the patients were on the National Transplant waiting list while the majority was medically not eligible for transplantation.

PERITONEAL DIALYSIS PROGRAMME

1. STAFFING

Medical

The Medical Director (Peritoneal Dialysis) and volunteer doctor, Dr Tan Seng Hoe (on alternate months) continue to review patients monthly. Patients are reviewed once in 6 months following their routine blood investigations. 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 managed by PD Clinical Nurse Fan Fung Yin, Florence with assistance from Patient Services Senior Nurse Clinician Ms Lay Kwee Chin, Clinical Nurse Ms Sunitha and Clinical Coordinator Ms Theresa Soh. Baxter Healthcare continues to provide service in doing home visits.

DOCTOR'S REVIEW AND DIET COUNSELLING

Patients are counselled on their blood tests results and diet by both the doctor and PD nurse when they come for review or for procedures.

PATIENT WELFARE

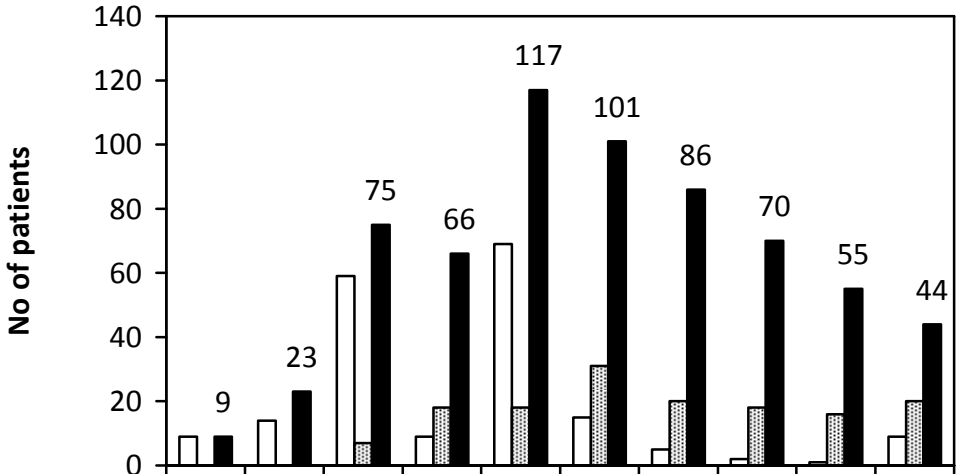
Patients continued to receive subsidies for their dialysis and medications (erythropoietin, Lanthanum carbonate and Bene protein supplements) on a case to case basis. Welfare Officer, Ms Sandy Lim reviews and recommends the fee revision on an annual basis.

2. PATIENT POPULATION

There were 44 patients on the PD programme as of 31 December 2012. A total of nine cases, one from NUH and one from TTSH and the rest from SGH were accepted into the PD programme during the period of 1 Jan – 31 Dec 2012.

During the same period of 1 Jan – 31 Dec 2012, 20 patients exited the programme; there were 5 transfers to hemodialysis, 2 to palliative care, 12 deaths and 1 transplant.

Fig 1: Patient Stock and Flow



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Entry	9	14	59	9	69	15	5	2	1	9
Exit	0	0	7	18	18	31	20	18	16	20
Total	9	23	75	66	117	101	86	70	55	44

Table 1: Source of Referral

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
SGH	7	12	22	2	68	15	5	1	0	7
NUH	2	2	35	6	0	0	0	1	0	1
Private / TTSH	0	0	2	1	1	0	0	0	0	1
AH	-	-	-	-	-	-	-	-	1	-
Total Entries	9	14	59	9	69	15	5	2	1	9

Patient characteristics

The mean age of the existing 44 patients was 52 ± 11.3 years, with a preponderance of females [Male: 16 (36.4%), Female: 28 (63.6%)]. The ethnic distribution was similar to the general population. Twenty-seven patients were on CAPD and 17 on APD. The proportion of patients on APD was 38.6% which is slightly higher than the previous year of 33% of the PD population. The main cause of end-stage renal failure in the PD programme was chronic glomerulonephritis (40.9%) with diabetic nephropathy the second commonest cause, making up 25% of the existing patients.

Figure 2: Modality of PD

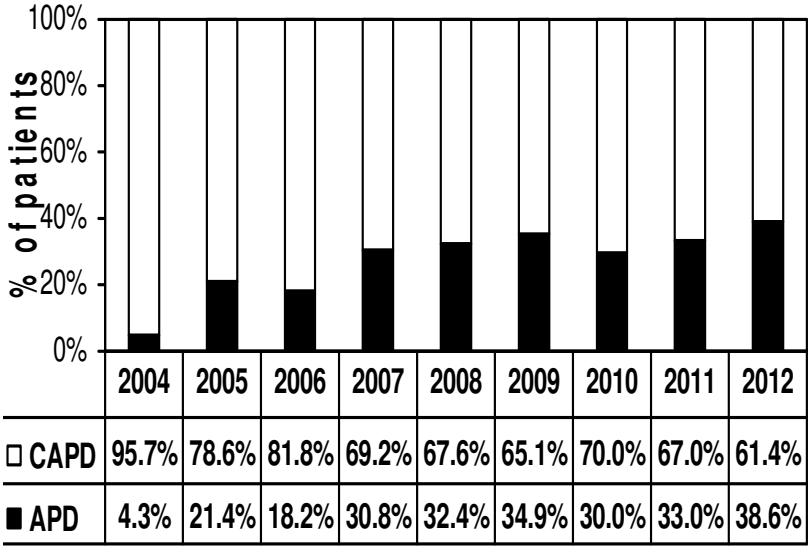


Table 2: Gender of new patients

	2006		2007		2008		2009		2010		2011		2012	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Male	6	66.7	40	58.0	5	33.3	3	60.0	1	50.0	0	0	3	33.3
Female	3	33.3	29	42.0	10	66.7	2	40.0	1	50.0	1	100	6	66.7
Total	9	100	69	100	15	100	5	100	2	100	1	100	9	100

Table 3: Gender of prevalent patients

	2006		2007		2008		2009		2010		2011		2012	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Male	27	40.9	57	48.7	45	44.6	41	47.7	28	40.0	21	38.2	16	36.4
Female	39	59.1	60	51.3	56	55.4	45	52.3	42	60.0	35	61.8	28	63.6
Total	66	100	117	100	101	100	86	100	70	100	55	100	44	100

Table 4: Ethnic distribution of new patients

	2006		2007		2008		2009		2010		2011		2012	
	n	**%**	**n**	**%**	**n**	**%**	**n**	%	**n**	**%**	**n**	**%**	**n**	**%**
Chinese	7	77.8	59	85.5	12	80.0	4	80.0	1	50	1	100	6	66.7
Malay	1	11.1	7	10.1	1	6.7	1	20.0	1	50	0	0	2	22.2
Indian	1	11.1	2	2.9	2	13.3	0	0	0	0	0	0	1	11.1
Others	0	0	1	1.4	0	0	0	0	0	0	0	0	0	0
Total	9	100	69	100	15	100	5	100	2	100	1	100	9	100

Table 5: Ethnic distribution of prevalent patients

	2006		2007		2008		2009		2010		2011		2012	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Chinese	44	66.7	90	76.9	76	75.2	64	74.4	52	74.3	41	74.5	37	84.1
Malay	18	27.2	22	18.8	18	17.8	16	18.6	15	21.4	13	23.6	6	13.6
Indian	4	6.1	4	3.4	7	6.9	6	7.0	3	4.3	1	1.8	1	2.3
Others	0	0	1	0.9	0	0	0	0	0	0	0	0	0	0
Total	66	100	117	100	101	100	86	100	70	100	55	100	44	100

Table 6: Mean age at entry into programme

Year	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Mean age (years)	59	56	57	44	62.4	65	54
SD	13.9	11.6	11.7	11.9	8.1	-	14.7

Table 7: Mean age of existing patients

Year	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Mean age (years)	54	55	54	54	56	54	52
SD	11.3	11	10.7	10	10.9	10.7	11.3

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

	2006		2007		2008		2009		2010		2011		2012	
Etiology	n	%	n	%	n	%	n	**%**	n	%	n	%	n	%
Chronic GN (no biopsy)	1	11.0	19	27.5	4	30.8	1	20.0	-	-	-	-	3	33.3
IgA nephropathy	-	-	4	5.8	-	-	-	-	-	-	-	-	1	11.1
SLE	-	-	2	2.9	-	-	-	-	-	-	-	-	-	-
Focal sclerosing GN	-	-	1	1.4	-	-	-	-	-	-	-	-	-	-
Drug induced GN	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Membranous GN	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diabetic nephropathy	7	78.0	33	47.8	9	60.0	3	60.0	2	100.0	1	100.0	4	44.5
PCKD	-	-	3	4.3	-	-	-	-	-	-	-	-	-	-
Renal calculi	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Renovascular disease	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TB Kidney	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Others			5	7.2	2	13.13	1	20.0	-	-	-	-	-	-
Unknown	1	11.0	2	2.9	-	-	-	-	-	-	-	-	1	11.1
Total	**9**	**100.0**	**69**	**100.0**	**15**	**100.0**	**5**	**100.0**	**2**	**100.0**	**1**	**100.0**	**9**	**100.0**

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

	2006		2007		2008		2009		2010		2011		2012	
Etiology	n	%	n	%	n	%	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Chronic GN (no biopsy)	14	21.2	30	25.6	30	29.7	28	32.6	24	34.3	19	34.5	18	40.9
IgA nephropathy	5	7.5	9	7.7	8	7.9	6	7	5	7.1	4	7.3	3	6.8
SLE	1	1.5	2	1.7	2	2.0	2	2.3	2	3.0	2	3.6	2	4.5
Focal sclerosing GN	-		2	1.7	2	2.0	2	2.3	1	1.4	1	1.8	1	2.3
Drug induced GN	1	1.5	1	0.9	1	1.0	1	1.2	-	-	-	-	-	-
Diabetic nephropathy	37	56.3	53	45.3	39	38.6	30	34.9	24	34.3	17	30.9	11	25
PCKD	3	4.5	5	4.3	4	3.9	4	4.7	4	5.7	4	7.3	2	4.5
Renal calculi	1	1.5	1	0.9	1	1.0	1	1.2	1	1.4	1	1.8	1	2.3
Renovascular disease	2	3.0	-	-	-	-	-	-	-	-	-	-	-	-
TB Kidney	1	1.5	-	-	-	-	-	-	-	-	-	-	-	-
Others			5	4.3	6	5.9	5	5.8	4	5.7	3	5.5	2	4.5
Unknown	1	1.5	9	7.7	8	7.9	7	8.1	5	7.1	4	7.3	4	9.2
Total	**66**	**100.0**	**117**	**100.0**	**101**	**100.0**	**86**	**100.0**	**70**	**100.0**	**55**	**100.0**	**44**	**100.0**

DEATHS / TRANSFERS AND SURVIVAL ANALYSIS

There were 12 deaths and 8 withdrawals in 2012. The causes of death are shown in Table 10 and the commonest causes of death were cardiac-related deaths (25%) and infections (25%). Unfortunately, two patients died from peritonitis. One patient died in a road traffic accident and two others died at home.

The reasons for withdrawal from PD are shown in Table 11. Five patients were transferred to hemodialysis; three were due to peritonitis and the other two because of exit site infection. Two patients chose to discontinue dialysis and go onto palliative care and one patient received a renal transplant.

The death rate was 18.8% based on total number of patients in the year. The mean age at death in 2012 was 59 ± 8.8 years.

Table 10: Cause of Death

	2006		**2007**		**2008**		**2009**		**2010**		**2011**		**2012**	
Cause of Death	n	%	n	%	n	%	n	%	**n**	**%**	**n**	**%**	**n**	**%**
Acute Myocardial Infarction	1	8.3	1	7.6	10	41.7	1	7.2	1	9.1	1	11.1	1	8.3
Other Cardiac	-	-	-	-	2	8.3	5	35.7	2	18.2	-	-	2	16.7
Cerebrovascular Accident	2	16.8	-	-	-	-	-	-			-	-	-	-
Infections	5	41.7	4	30.7	5	20.8	3	21.4	3	27.2	4	44.4	3	25.0
Liver Failure	1	8.3	-	-	-	-	-	-	-	-	-	-	-	-
Malignancy	1	8.3	-	-	1	4.2	-	-	1	9.1	-	-	-	-
Accidental	1	8.3	-	-	-	-	-	-	-	-	-	-	1	8.3
Bleeding from Gastro-intestinal Tract	-	-	1	7.6	-	-	-	-	-	-	-	-	-	-
Died at Home	1	8.3	3	23.4	5	20.8	3	21.4	2	18.2	1	11.1	2	16.7
Others	-	-	4	30.7	1	4.2	2	14.3	2	18.2	3	33.4	3	25.0
Total	**12**	**100.0**	**13**	**100.0**	**24**	**100.0**	**14**	**100.0**	**11**	**100.0**	**9**	**100.0**	**12**	**100.0**
Death Rate	**14.3%**		**9.6%**		**17.4%**		**13.2%**		**12.5%**		**12.7%**		**18.8%**	

Table 11: Reason of Withdrawal

	2006		**2007**		**2008**		**2009**		**2010**		**2011**		**2012**	
Reason of Withdrawal	n	%	n	%	n	%	n	%	**n**	**%**	**n**	**%**	**n**	**%**
PD related Infection	1	16.6	5	100.0	5	71.4	3	50.0	5	71.4	4	57.1	5	62.5
Technical Reason	2	33.4	-		-	-	-	-	2	28.6	1	14.3	-	-
Elective transfer to HD	-	-	-	-	1	14.3	-	-	-	-	-	-	-	-
Transplant	2	33.4	-	-	1	14.3	3	50.0	-	-	2	28.6	1	12.5
Others	1	16.6	-	-	-	-	-	-	-	-	-	-	*2	25
Total	**6**	**100.0**	**5**	**100.0**	**7**	**100.0**	**6**	**100.0**	**7**	**100.0**	**7**	**100.0**	**8**	**100**

* Patients withdrew to be on palliative care.

HOSPITALISATIONS

There were 73 admissions in 64 patients and 60.9% of the patients in the PD programme were admitted in the year. Nine patients (23.1%) had three or more admissions during the year. The admission rate was 1.38 episodes per patient year or 17.3 days per patient year. Although the non-diabetic patients had a higher percentage who were admitted compared to the diabetic patients (59.2% vs 62.2%), the diabetic patients had a higher episode per patient year rate (1.52 vs 1.08) and higher days of hospitalization per patient year (21.5 vs 10.5). PD-related infections accounted for 21.9% of the admissions, other infections accounted for 24.7% and other causes accounted for 53.4%.

When compared to the previous year (2012), the rates of hospitalization were slightly higher.

Table 12: Hospitalisations

HOSPITALISATION	**ALL**		**DM**		**NON-DM**	
	2011	**2012**	2011	**2012**	2011	**2012**
Number of patients ever in prog	71	**64**	31	**27**	40	**37**
Total patient years	61.2	**52.8**	25.1	**21.2**	36.1	**31.6**
Number of patients ever admitted	36	**39**	19	**16**	17	**23**
Admission episodes	77	**73**	38	**33**	39	**40**
Admission days	903	**913**	539	**491**	380	**422**
Days hospitalized						
PD related – technical	42	**15**	0	**0**	42	**15**
- infection	133	**234**	49	**69**	84	**165**
Other Infections	122	**211**	106	**171**	16	**40**
Others	606	**453**	384	**251**	238	**202**
% patients ever admitted	50.7	**60.9**	61.3	**59.2**	42.5	**62.2**
Episodes per patient year	1.25	**1.38**	1.52	**1.56**	1.08	**1.27**
Days per patient year	14.8	**17.3**	21.5	**23.2**	10.5	**13.4**
Days per patient year						
PD related – technical	0.69	**0.28**	0.0	**0.0**	1.16	**0.47**
- infection	2.17	**4.43**	1.95	**3.25**	2.33	**5.22**
Other Infections	1.99	**4.00**	4.22	**8.06**	0.44	**1.27**
Others	9.90	**8.58**	15.29	**11.84**	6.59	**6.39**

Table 12: Hospitalisations (Continued)

HOSPITALISATION	**ALL**		**DM**		**NON-DM**	
	2011	**2012**	2011	**2012**	2011	**2012**
% of admissions						
PD related - technical	4.7	**1.4**	0.0	**0.0**	5.2	**2.5**
- infections	14.7	**20.5**	10.5	**24.2**	12.8	**17.5**
Other Infections	13.5	**24.7**	18.4	**39.4**	2.5	**12.5**
Others	67.1	**53.4**	71.1	**36.4**	79.5	**67.5**

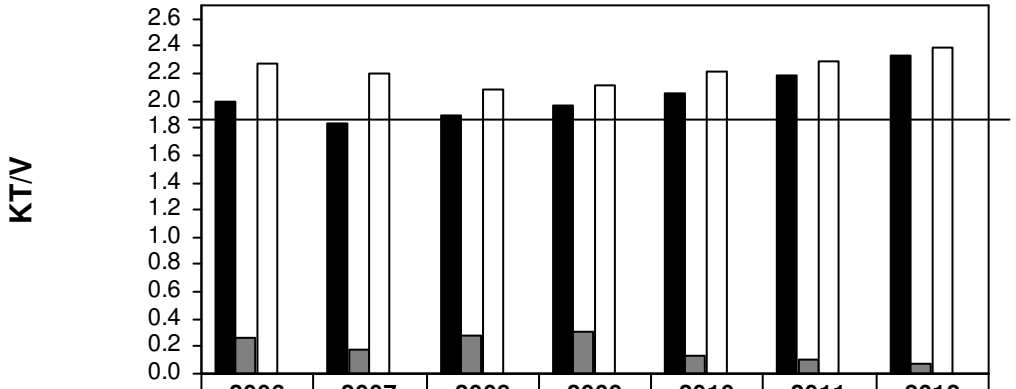
Hospitalisations during the period Jan-Dec 2012 were analysed and expressed as days hospitalized per patient year of dialysis programme.

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 2.39 ± 0.38. It is encouraging to note that the dialysate KT/V (2.33 ± 0.37) is also above the minimum target and this implies that no change in the dialysis prescription would be required when the patient loses residual renal function. Another observation is that 100% of the patients were above the minimum target of 1.7.

Fig 3: KT/V



	2006	2007	2008	2009	2010	2011	2012
■ Dialysate	2.00	1.84	1.89	1.97	2.06	2.18	2.33
SD	0.4	0.34	0.39	0.5	0.35	0.37	0.37
▒ Residual	0.26	0.17	0.28	0.31	0.13	0.11	0.08
SD	0.3	0.25	0.32	0.43	0.34	0.25	0.2
□ Total KT/V	2.27	2.2	2.09	2.12	2.21	2.29	2.39
SD	0.5	0.43	0.41	0.49	0.44	0.33	0.38
% achieving KT/V 1.7	90.0%	82.5%	74.6%	81.9%	92.2%	100.0%	100.0%

Table 13: KT/V

	2006	2007	2008	2009	2010	2011	2012
N	60 (6 not done)	40 (11 not done)	71 (30 not done)	83 (3 not done)	64 (6 not done)	50 (5 not done)	39 (7 not done)
Total KT/V	2.27 ± 0.5	2.20 ± 0.43	2.09 ± 0.41	2.12 ± 0.49	2.21 ± 0.44	2.29 ± 0.33	2.39 ± 0.38
Dialysate KT/V	2.00 ± 0.4	1.84 ± 0.34	1.89 ± 0.39	1.97 ± 0.5	2.06 ± 0.35	2.18 ± 0.37	2.33 ± 0.37
Residual KT/V	0.26 ± 0.3	0.17 ± 0.25	0.28 ± 0.32	0.31 ± 0.43	0.13 ± 0.34	0.11 ± 0.25	0.08 ± 0.2
% patients with KT/V ≥ 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)	92.2 (5/64 <1.7)	100.0	100.00

Peritonitis

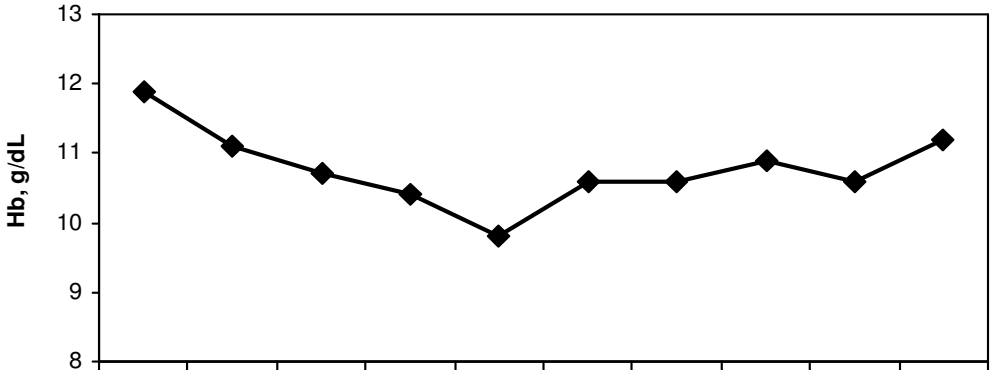
Patients who develop peritonitis are treated at their primary hospitals. As such, the KDF PD programme only captures data of hospitalisations for peritonitis.

Eleven patients (8 CAPD, 3 APD) were admitted for peritonitis during the period of 1 Jan 2012 to 31 Dec 2012. Six resolved and 3 were transferred to hemodialysis, two died.

Anaemia

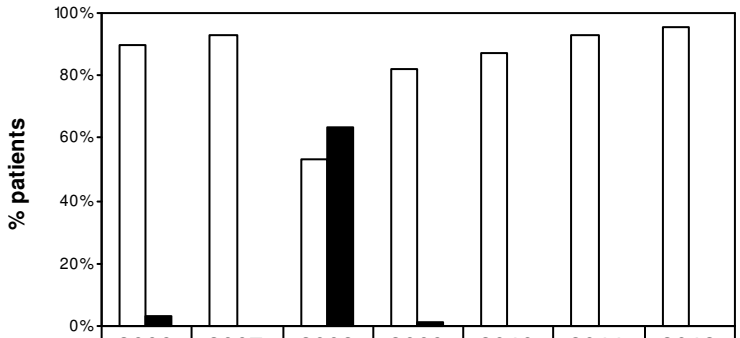
The mean haemoglobin was 11.2 ± 1.9 g/dl with 95.3% (41/43) of the patients receiving erythropoietin (EPO). The mean dose of EPO was 5150 ± 2969 U/week (range 1000 – 12000 U/week). The mean haemoglobin has remained stable except for the slight dip to 9.8 g/dl in 2007. All patients with a haemoglobin less than 10 g/dl were on EPO.

Fig 4: Mean Haemoglobin Level



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
	11.9	11.1	10.7	10.4	9.8	10.6	10.6	10.9	10.6	11.2
SD	2.6	1.8	1.8	1.6	2.0	1.9	1.9	1.8	1.9	1.9

Fig 5: Percentage of patients on EPO



	2006	2007	2008	2009	2010	2011	2012
□ Total % on EPO	90.0%	93.0%	53.0%	82.0%	87.1%	92.7%	95.3%
■ < 10, not on EPO	3.3%	0.0%	63.6%	1.0%	0.0%	0.0%	0.0%

Table 14: Haemoglobin and Use of EPO

Hb (g/dl)	2006		2007		2008		2009		2010		2011		2012	
N	66		43		83*		86		68		54		43	
Mean ± SD	10.4± 1.6		9.8 ± 2.0		10.6 ± 1.9		10.6 ± 1.9		10.9 ± 1.8		10.6 ± 1.9		11.2 ± 1.9	
< 10 not on EPO	1	1.5%	0	0	14	16.9%	1	1.0%	0	0%	0	0%	0	0%
< 10 on EPO	29	43.9%	22	51%	18	21.7%	32	37.0%	20	29.4%	20	37.0%	10	23.3%
> 10 not on EPO	5	7.6%	3	7%	25	30.1%	14	16.0%	6	8.8%	4	7.4%	2	4.7%
> 10 on EPO	31	47.0%	18	42%	26	31.3%	39	45.0%	42	61.8%	30	55.6%	31	72.1%

* 18 patients with no data (2008)

Serum Albumin

The patients continue to have a low serum albumin level with a mean of 31.7 ± 3.5g/L. The majority of patients (90.7%) did not achieve a normal albumin level of 37 g/L and 25.6% 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.

A protein supplement (Beneprotein) subsidy program was started in October 2011 and there are currently 14 patients on Beneprotein as at end December 2012. This may have contributed to the slight improvement in serum albumin levels compared to 2011.

Table 15: Serum albumin

Albumin (g/L)	2006	2007	2008	2009	2010	2011	2012
N	66	46	82	84*	70*	54	43
Mean ± SD	31.0 ± 5.2	30.3 ± 3.9	30.9 ± 4.3	30.4 ± 4.4	30.9 ± 4.2	31.3 ± 3.8	31.7 ± 3.5
% < 37 g/L	45.5	58.7	52.4	93.0	88.6	96.3	90.7
% < 30 g/L	40.9	39.1	40.2	43.0	42.9	29.6	25.6

* No results in 2 patients

Mineral Metabolism

The mean corrected serum calcium was 2.5 ± 0.20 mmol/L and the mean serum phosphate was 1.55 ± 0.5 mmol/L (65.1% of patients had a serum phosphate > 1.78 mmol/L). All the patients were on calcium supplements (calcium acetate 74.4%, calcium carbonate 18.6%) and 11 patients (25.6%) were also on Lanthanum carbonate (non-calcium phosphate binder). As Lanthanum is costly, the patients received a subsidy for the medication.

The mean iPTH level was 46.4 ± 36.7 pmol/L with only 24.4% of the patients falling within the limits of 16.5-33 pmol/L. The 2003 KDOQI guidelines recommend that the iPTH in dialysis patients (CKD Stage 5) should be maintained within the range of 16.5 – 33 pmol/L. Hyperphosphatemia is a major factor and more attention to reducing the phosphate levels to within normal limits will definitely contribute to reducing the problem and the eventual need for surgical parathyroidectomy. The subsidies for Lanthanum carbonate are useful is helping patients normalize their phosphate levels.

Table 16: Percentage of patients according to iPTH levels

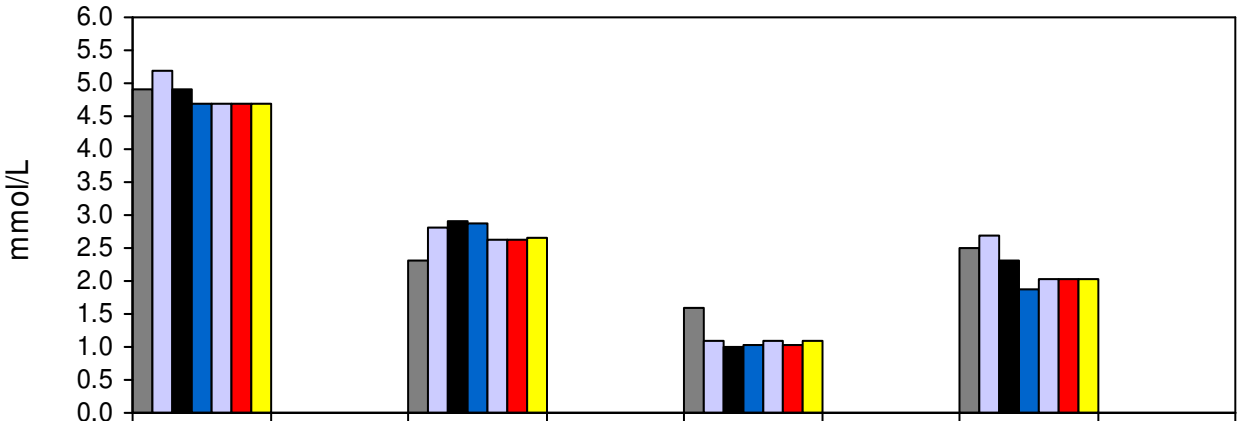
	2010		2011		2012	
	N	%	N	%	N	%
<16.5	10	15.9	12	23.1	10	24.4
16.5-33.0	16	25.4	13	25.0	10	24.4
>33.0	37	58.7	27	51.9	21	51.2
Total	63*	100.0	52	100.0	41	100

*Date not available for 7 patients (2010)

Hyperlipidaemia

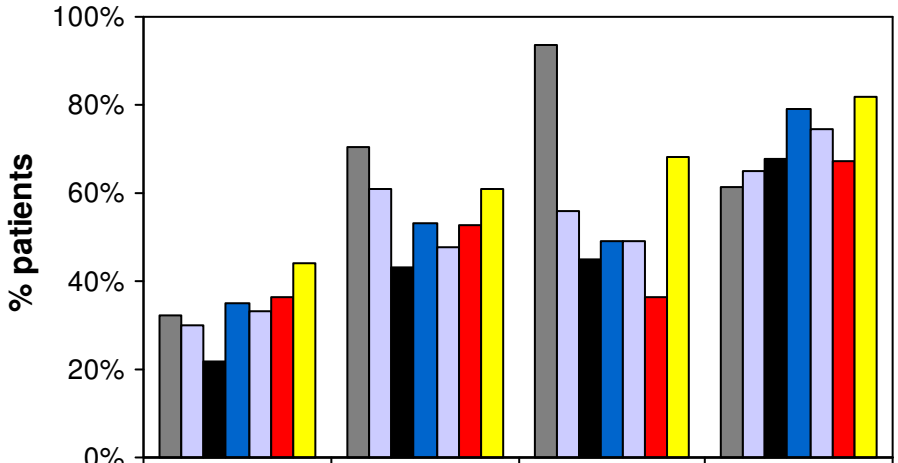
The lipid profile of the patients remained largely unchanged when compared to the previous years. The mean LDL cholesterol level was 2.65 ± 0.83 mmol/L with 61.0% of the patients achieving the recommended MOH guidelines for LDL cholesterol of < 2.6 mmol/L. The mean HDL cholesterol level was 1.08 ± 0.41 mmol/L and the mean triglyceride level was 2.02 ± 1.6 mmol/L. It is encouraging to note that a large proportion of patients (82%) achieve the recommended MOH guideline for triglyceride levels.

Fig 6: Lipid profile



	Total Chol	SD	LDL	SD	HDL	SD	TG	SD
2006	4.9	1.4	2.3	1.1	1.6	0.7	2.5	2.2
2007	5.2	1.8	2.8	0.9	1.1	0.4	2.7	2.3
2008	4.9	1.1	2.9	0.8	1.0	0.4	2.3	2.0
2009	4.69	1.2	2.87	1.26	1.03	0.34	1.88	1.25
2010	4.7	1.2	2.64	1.06	1.08	0.34	2.02	1.44
2011	4.7	1.1	2.64	1.03	1.03	0.28	2.024	1.1
2012	4.7	1	2.65	0.83	1.08	0.41	2.02	1.6

Fig 7: Lipid profile – Percentage achieving MOH target levels



	TC<4.1	LDL<2.6	HDL>=1.0	TG<2.3
2006	32.3%	70.3%	93.5%	61.3%
2007	30.0%	60.9%	55.8%	65.1%
2008	21.8%	43.2%	44.9%	67.9%
2009	35.0%	53.0%	49.0%	79.0%
2010	33.3%	47.6%	49.2%	74.6%
2011	36.3%	52.7%	36.3%	67.3%
2012	44.0%	61.0%	68.0%	82.0%

TRANSPLANT WAITING LIST

Thirteen (29.5%) patients were registered on the transplant register. Twenty-eight patients (63.6%) were not eligible for transplant for reasons including exceeding the age limit of 60 years* (13/44 patients, 29.5%), ischemic heart disease (1 patient) and seropositivity for Hepatitis B or C (2 patients). Only one patient was pending assessment.

*The age limit of 60 years was recently lifted and the patients now have to be reassessed for fitness for transplant.

Table 17: Transplant status

	2006		2007		2008		2009		2010		2011		2012	
N	66		117		101		86		70		55		44	
Registered	13	19.7%	28	23.9%	19	18.8%	17	19.8%	17	24.3%	12	21.8%	13	29.5%
Not eligible	21	31.8%	52	44.4%	63	62.4%	48	55.8%	35	50%	42	76.4%	28	63.6%
Opted out	11	16.7%	2	1.7%	2	2%	2	2.3%	2	2.9%	1	1.8%	2	4.5%
Pending	21	31.8%	35	29.9%	17	16.8%	19	22.1%	16	22.9%	0	0	1	2.3%

INTERIM HEMODIALYSIS

Five patients required interim hemodialysis (three due to peritonitis, two exit site infections) and three were subsequently converted to permanent hemodialysis. One of the patients was accepted into the KDF HD Programme and two went to private dialysis centres.

3. ACTIVITIES OF THE PD CENTRE

Patient Activities

The PD patients participated in the following activities:

1. A Patient Education Seminar on "I can do it! Everday OK" cum social outing to Jurong Bird Park on 20 May 2012, and a
2. Patient Education Seminar "Diet Swap – Making the Right Choice" cum social outing to Gardens by the Bay on 24 March 2013.

4. CONCLUSION

The KDF PD Programme provides a complementary clinical service to patients from the public institutions. The patients in the Programme not only receive a subsidy but also receive 6 monthly clinical reviews by the KDF doctor, more frequent reviews by the PD Nurse and home visits. They also receive subsidies for expensive medications including erythropoietin, Lanthanum carbonate and Bene protein supplements.

Meeting dialysis targets remains a challenge in this group of patients as compliance is often difficult to track and they have multiple co-morbidities. 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.

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