

Table 5.1: Characteristics of participating centres

Characteristics	HD	CAPD
Number of units, n (%)		
•Total HD units	44	11
•Unit in State Hospital	14 (31.82)	10 (90.9)
•Unit in District Hospitals	30 (68.18)	1 (9.1)
Hospitals with Resident Nephrologist, n (%)		
•Yes	13 (29.5)	11 (100)
•No	31 (70.5)	-
Duration of operation of Unit up to end-2001, n (%)		
•≥ 10 years	19 (43.2)	4 (36.3)
•5-9 years	7 (15.9)	2 (1.82)
•3-4 years	15 (34.1)	3 (2.73)
•≤ 2 years	3 (6.8)	2 (1.82)
Unit build-up area, square feet		
•Mean (SD)	3,427.67 (2,745.60)	790.11 (750.24)
•Median (IQR)	2,858 (1991)	444 (752.25)
HD machines in Unit, n(%)		
•≤ 5	19 (43.18)	-
•6-9	13 (29.55)	-
•≥ 10	12 (27.27)	-

Number of staff in unit		
•Mean (SD)	10 (6)	6 (5)
•Median (IQR)	10 (7)	4 (3)
Service provision		
•Mean Chronic Haemodialysis (SD)	6,124.11 (4,542.92)	-
•Mean Acute (temporary) Haemodialysis (SD)	590.93 (1,005.18)	-
•Mean Continuous renal replacement therapy (SD)	21.77 (29.90)	-
•Mean Haemoperfusion (SD)	-	-
•Mean Others (SD)	13.67 (16.95)	
•Mean CAPD output, pt-month (SD)		645.18 (673.53)

Table 5.2: Characteristics of sample HD and CAPD subjects

Characteristics	HD Patients, n=30	CAPD Patients, n=30
Age profile at starting dialysis		
•Mean Age (SD)	45.8 (10.24)	43.5 (16.16)
Age Group, n (%)		
•<40	7 (23.33)	10 (33.33)
•40-54	18 (60.0)	11 (36.67)
•≥55	5 (16.67)	9 (30.00)
Sex, n (%)		
•Female	20 (66.67)	10 (33.33)
•Male	10 (33.33)	20 (66.67)
Duration on Modality		
•Mean Duration (SD)	9.51 (3.57)	7.20 (1.62)
Duration, Grouped, n (%)		
•<7 years	6 (20)	16 (53.33)
•7-10 years	16 (53.33)	11 (36.67)
•>10 years	8 (26.67)	3 (10)

Co-morbidities, n (%)		
•Cardiovascular disease	1 (3.33)	5 (16.67)
•Diabetes Mellitus	8 (26.67)	3 (10)
•Hypertension	22 (73.33)	22 (73.33)
•HbsAg+	3 (10.0)	1 (3.33)
•Anti-HCV+	3 (10.0)	1 (3.33)
Deaths, n (%)		
•Number of Deaths	6 (20%)	6 (20%)
Cause of death		
•Cardiovascular disease	1 (3.3%)	1 (3.3%)
•Sepsis	4 (13.3%)	1 (3.3%)
•Peritonitis		2 (6.7%)
•Dialysis dementia	1 (3.3%)	1 (3.3%)
•Death at home		1 (3.3%)
Baseline Lab, mean (SD)		
•Sr. Calcium (mmol/l)	2.42 (0.22)	2.42 (0.28)
•Haemoglobin (g/dL)	10.12 (1.73)	10.38 (1.21)
•Sr. Albumin (g/L)	40.34 (3.86)	33.78 (5.19)

Table 5.3: Cost per HD procedure with cost component breakdown

	Land	%	Building	%	Equip	%	Staff	%	Overhead	%	C'mable	%	Total
All Hospitals (n=43)													
•Mean cost	3.08	1.4	6.99	4.1	20.99	13.1	40.79	25.0	40.68	20.0	56.25	36.4	168.78
•Median cost	1.24	0.9	4.96	3.5	17.72	13.2	34.01	23.4	23.11	17.3	50.13	37.5	149.75
State Hospitals (n=14)													
•Mean	2.84	2.0	4.44	3.6	15.73	13.7	27.02	23.1	23.99	17.7	47.16	39.9	121.18
•Median	1.48	1.4	3.80	3.5	15.17	13.6	27.77	21.8	17.16	14.8	46.61	41.3	115.08
District Hospitals (n=29)													
•Mean	3.20	1.1	8.22	4.3	23.53	12.9	47.43	25.9	48.73	21.1	60.64	34.6	191.75
•Median	1.13	0.8	6.89	4.2	19.94	13.1	42.46	25.4	26.19	17.3	53.39	34.8	169.67
IT Hospitals (n=2)													
•Mean	1.98	1.1	11.88	6.5	44.05	23.6	43.64	23.5	37.66	20.8	45.70	24.6	184.90
Non-IT hospitals (n=41)													
•Mean	3.14	1.4	6.75	4.0	19.86	12.6	40.65	25.1	40.82	20.0	56.77	36.9	167.99
•Median	1.24	0.9	4.86	3.5	17.48	13.1	33.57	23.4	23.11	17.3	50.13	37.6	145.09
Resident Nephrologist (13)													
• Mean	2.89	2.0	5.05	3.8	17.01	14.3	28.37	23.4	26.14	18.3	45.86	38.2	125.30
•Median	1.41	1.4	3.81	3.5	15.32	14.0	30.66	21.6	16.56	14.6	46.11	38.0	115.62

	Land	%	Building	%	Equip	%	Staff	%	Overhead	%	C'mable	%	Total
Without Resident (n=29)													
•Mean	3.16	1.2	7.83	4.2	22.72	12.6	46.17	25.7	46.98	20.8	60.76	35.6	187.61
•Median	1.18	0.8	6.27	3.9	19.55	13.0	42.44	25.2	25.38	17.7	55.78	35.8	164.77
Established centre# (n=23)													
•Mean	2.50	1.5	4.81	3.5	17.05	13.0	28.99	22.4	37.29	19.7	51.82	39.8	142.47
•Median	0.97	0.8	3.90	3.4	15.90	13.4	30.66	21.3	19.04	14.7	47.10	41.1	119.16
New centre# (n=20)													
•Mean	3.75	1.3	9.50	4.7	25.52	13.3	54.35	28.0	44.57	20.4	61.35	32.4	199.03
•Median	1.65	0.9	8.13	4.5	23.99	13.2	51.12	28.2	36.62	18.8	58.74	30.4	177.26
Large Centre* (n=15)													
•Mean	1.71	1.4	4.19	3.5	16.10	14.3	26.54	23.2	22.21	17.9	44.71	39.6	115.47
•Median	1.24	1.3	3.79	3.5	15.01	14.0	24.67	21.6	17.75	14.9	45.01	41.1	109.29

	Land	%	Building	%	Equip	%	Staff	%	Overhead	%	C'mable	%	Total
Medium Centre* (n=19)													
•Mean	2.43	1.2	6.33	3.9	19.38	11.5	39.60	24.7	46.83	21.3	59.40	37.3	173.97
•Median	0.97	0.7	5.95	3.5	17.72	11.5	39.10	26.7	24.57	17.3	58.17	36.6	153.32
Small Centre* (n=9)													
•Mean	6.76	1.9	13.04	5.4	32.52	14.6	67.04	28.5	58.47	20.8	68.84	28.8	246.67
•Median	2.15	1.0	12.06	4.7	26.65	13.5	64.46	25.4	43.50	17.3	65.94	26.8	215.30

Established centre: in operation before 1997, New centre: in operation after 1997

* Large centre: more than 8,000 HD procedures p.a.,
 Medium centre: 2,500 to 8,000 HD procedures p.a.,
 Small centre: less than 2,500 HD procedures p.a.

Table 5.4: Cost per patient-month of CAPD treatment with cost component breakdown

	Land	%	Building	%	Equip	%	Staff	%	Overhead	%	C'mable	%	Total
IT Hospital (1)													
•Mean	1.50	0.0	49.99	1.6	344.85	10.8	263.47	8.2	426.51	13.3	2,117.44	66.1	3,203.76
Non-IT hospitals (10)													
•Mean	26.02	1.0	23.82	1.1	56.78	2.6	174.65	7.6	227.46	9.2	1,575.52	78.5	2,084.24
•Median	5.24	0.3	16.44	0.8	45.76	2.3	97.87	6.2	99.97	5.1	1,575.81	82.0	1,828.85

Table 5.5: Costs of Outpatient care

No	Item	Mean cost per patient on HD		Mean cost per patient on CAPD	
		per year	per visit	per year	per visit
1	Drugs	808.95	180.17	827.61	125.21
2	Labs	892.15	198.70	981.33	148.46
3	Radiology	188.55	41.99	98.40	14.89
4	Procedures	177.26	39.48	164.34	24.86
5	Referrals	58.34	12.99	49.66	7.51
	TOTAL	2,125.26	473.33	2,121.33	320.93

Table 5.6: Average length of Hospitalisation per month on Dialysis

Chronological time on Dialysis		Mean LOS per month on HD	Mean LOS per month on CAPD
A	Initial phase after starting dialysis	0.2147	0.897
B	Mid phase	0.1498	0.3705
C	End phase before death	1.059	0.979

Table 5.7: Costs of Hospitalisation care

No	Item	Mean cost per patient-month on HD	Mean cost per patient-month on CAPD
A	<i>Initial phase after starting dialysis</i>		
	Drugs	0.99	9.29
	Procedures & Investigations	24.59	65.76
	Per diem	10.94	60.16
	TOTAL	36.51	135.21
B	<i>Mid phase</i>		
	Drugs	0.63	3.40
	Procedures & Investigations	15.70	24.08
	Per diem	6.98	22.03
	TOTAL	23.31	49.51
C	<i>End phase before death</i>		
	Drugs	47.17	103.64
	Procedures & Investigations	71.57	80.18
	Per diem	90.01	59.60
	TOTAL	208.74	243.42

Table 5.8: Costs of EPO utilisation per patient-year

		HD			CAPD		
		Mean EPO Dose	% Utilisation	Cost / patient - year	Mean EPO Dose	% Utilisation	Cost / patient - year
1	Actual dose and utilisation	3,661	62.9%	4,510.67	3374	38.4%	2,542.61
2	Actual dose and 100% utilisation	3,661	100%	7,171.18	3374	100%	6,621.39
3	Optimal dose and Actual utilisation	6,000	62.9%	7,385.03	6000	38.4%	4,508.51
4	Optimal dose and 100% utilisation	6,000	100%	11,740.90	6000	100%	11,740.90
5	No utilisation	0	0%	0	0	0%	0

Table 5.9: Life expectancies on HD and CAPD by Age

	HD			CAPD		
	N	Life Expectancy, Years (SE)	% of Expected Life Lost	N	Life Expectancy, Years (SE)	% of Expected Life Lost
Age group:						
All ages	4920	10.96 (0.4)	67%	2067	5.21 (0.2)	84%
<40	1899	17.34 (0.8)	62%	671	9.04 (0.5)	82%
40-54	1770	8.52 (0.3)	71%	672	4.85 (0.3)	83%
>=55	1251	5.05 (0.2)	72%	724	3.30 (0.1)	81%
Diabetes:						
Absent	3751	12.15 (0.4)	66%	1340	6.46 (0.3)	83%
Present	1169	5.23 (0.2)	78%	727	2.97 (0.1)	87%

Table 5.10: Cost per Life-year saved on HD and CAPD
(at 3% discount on cost and life year saved)

		HD		CAPD	
		Cost per Life year saved	%	Cost per Life year saved	%
1	Land	490.91	1.5	312.20	1.0
2	Building	1,056.58	3.1	285.81	0.9
3	Equipment	3,109.52	9.2	681.32	2.2
4	Staff	6,362.71	18.9	2,095.84	6.6
5	Overhead	6,390.28	19.0	2,729.54	8.6
6	Dialysis unit consumables	8,886.18	26.4	18,906.20	59.8
7	EPO treatment (actual utilisation)	4,510.67	13.4	2,542.61	8.0
8	Outpatient clinic care	2,125.26	6.3	2,121.33	6.7
9	Hospitalisation	709.85	2.1	1,960.08	6.2
	TOTAL	33,641.96	100	31,634.93	100

Table 5.11: Cost per Life-year saved on HD and CAPD by Age (3% discount)

	<i>HD</i>	<i>CAPD</i>
Age group	Cost per Life-year saved	Cost per Life-year saved
All age groups	33,641.96	31,634.93
<40 years	33,483.72	31,056.21
40-54 years	33,765.13	31,736.32
>=55 years	34,145.27	32,444.57

Table 5.12: Cost Effectiveness under different scenarios

Variable	Cost per Life Year Saved	
	HD	CAPD
Discount rate		
•3%	33,641.96	31,634.93
•5%	34,538.83	31,991.32
Overhead		
•Maximum cost in sample	79,712.99	39,989.45
•Minimum cost in sample	28,427.26	29,155.46
EPO		
•Actual dose, 100% utilisation rate	36,302.46	35,713.71
•Optimal dose, actual utilisation rate	36,516.32	33,600.82
•Optimal dose, 100% utilisation	40,872.19	40,833.21
•No EPO	29,131.29	29,092.32
Hospitalisation		
•In-patient lab cost	33,939.96	32,541.67

Figure 5.1: Cost-efficiency of HD in relation to Volume

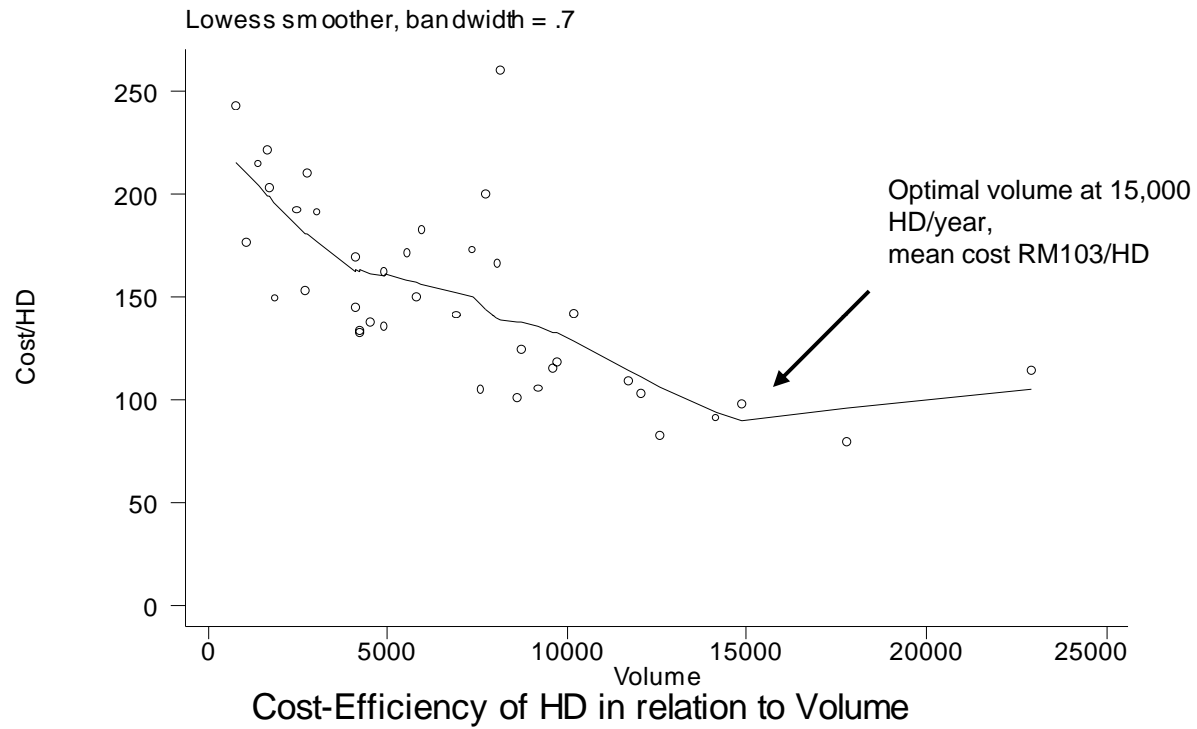
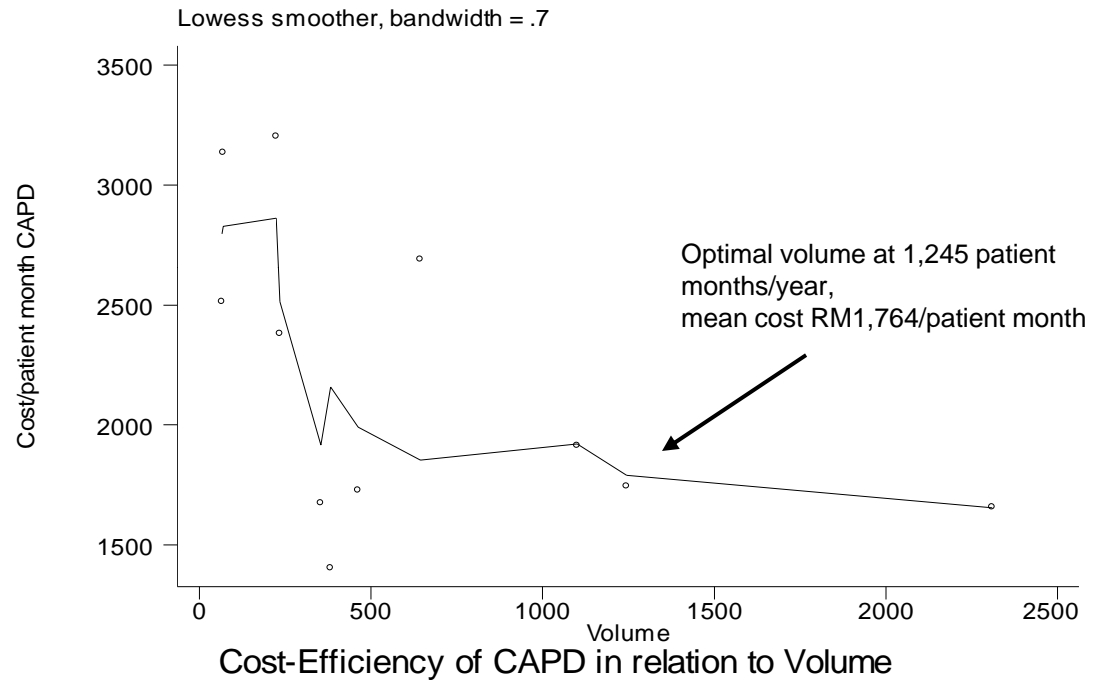


Figure 5.2: Cost-efficiency of CAPD in relation to Volume



Appendix: Participating sites

Alor Setar Hospital	Langkawi Hospital
Baling Hospital	Melaka Hospital
Batu Pahat Hospital	Mentakab Hospital
Besut Hospital	Miri Hospital
Bintulu Hospital	Muar Hospital
Bukit Mertajam Hospital	Penang Hospital
Duchess of Kent Hospital	Putrajaya Hospital†‡
Ipoh Hospital	Queen Elizabeth Hospital
Kajang Hospital	Raub Hospital
Kangar Hospital	Segamat Hospital
Kemaman Hospital	Selayang Hospital†‡
Keningau Hospital	Seremban Hospital
Kluang Hospital	Sibu Hospital,
Kota Bahru Hospital	Sik Hospital
Kuala Krai Hospital†	Sultanah Aminah Hospital, Johor Baru
Kuala Lumpur Hospital	Sungai Petani Hospital
Kuala Nerang Hospital	Taiping Hospital
Kuala Pilah Hospital	Tawau Hospital
Kuala Trengganu Hospital	Teluk Intan Hospital
Kuching Hospital, Sarawak	Tengku Ampuan Afzan Hospital, Kuantan
Kulim Hospital	Tengku Ampuan Rahimah Hospital
Labuan Hospital	Yan Hospital

†missing data

‡Information Technology (IT) hospital