

Chapter 3 Section 1

HAEMODIALYSIS IN MALAYSIA

HAEMODIALYSIS IN GOVERNMENT CENTRES

Stock and Flow
Place of Haemodialysis and its Finance
Death on Haemodialysis and Transfer to PD
Government Haemodialysis Centres
Haemodialysis Patient Characteristics
Survival Analysis
Work related rehabilitation and quality of life
Haemodialysis practices
Dyslipidaemia in HD patients
Treatment of Renal Bone Disease
Management of Blood Pressure
Management of Anaemia
Nutritional status
Prevalence of anti-HCV and HBsAg

HAEMODIALYSIS IN NON-GOVERNMENTAL ORGANISATION (NGO) CENTRES

Stock and Flow
Death on Haemodialysis and Transfer to PD
NGO Haemodialysis Centres
Haemodialysis Patient Characteristics
Survival Analysis
Work related rehabilitation and quality of life
Haemodialysis practices
Dyslipidaemia in HD patients
Treatment of Renal Bone Disease
Management of Blood Pressure
Management of Anaemia
Nutritional status
Prevalence of anti-HCV and HBsAg

HAEMODIALYSIS IN PRIVATE CENTRES

Stock and Flow
Death on Haemodialysis and Transfer to PD
Haemodialysis Patient Characteristics
Survival Analysis

3. HAEMODIALYSIS IN MALAYSIA

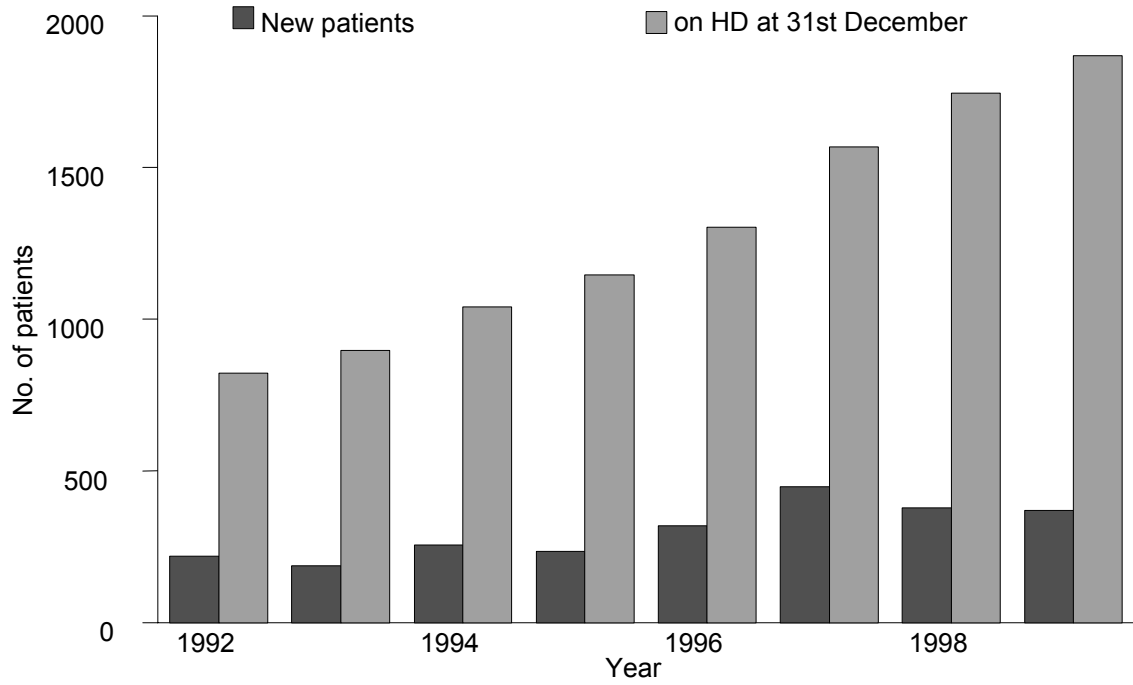
3.1 HAEMODIALYSIS IN GOVERNMENT CENTRES,

3.1.1 STOCK AND FLOW

Table 3.1.01 Stock and flow of Haemodialysis Patients,
Government Centres 1992 – 1999

Year	1992	1993	1994	1995	1996	1997	1998	1999
New patients	218	188	257	236	319	448	378	371
Died	70	74	79	85	115	135	158	205
Transferred to HD/PD	4	6	7	12	7	9	6	10
Transplanted	45	29	29	26	35	34	30	25
Lost to F/U	4	3	0	7	4	6	8	6
on RRT at 31 st December	822	898	1040	1146	1304	1568	1744	1869

Figure 3.1.01: Stock and Flow HD patients, Government Centres 1992 - 1999



3.1.2 PLACE OF HAEMODIALYSIS AND ITS FINANCE

Table 3.1.02: Place for HD, Government Centres 1996 – 1999

Year	1996	1997	1998	1999
New patients	319	448	378	371
% Centre HD	88	92	94	94
% Home HD	3	0	0	1
% Office HD	9	8	6	5
on RRT at 31st December	1304	1568	1744	1869
% Centre HD	76	80	83	85
% Home HD	9	7	5	4
% Office HD	15	13	12	11

Figure 3.1.02: Place of HD, Government Centres 1996 - 1999

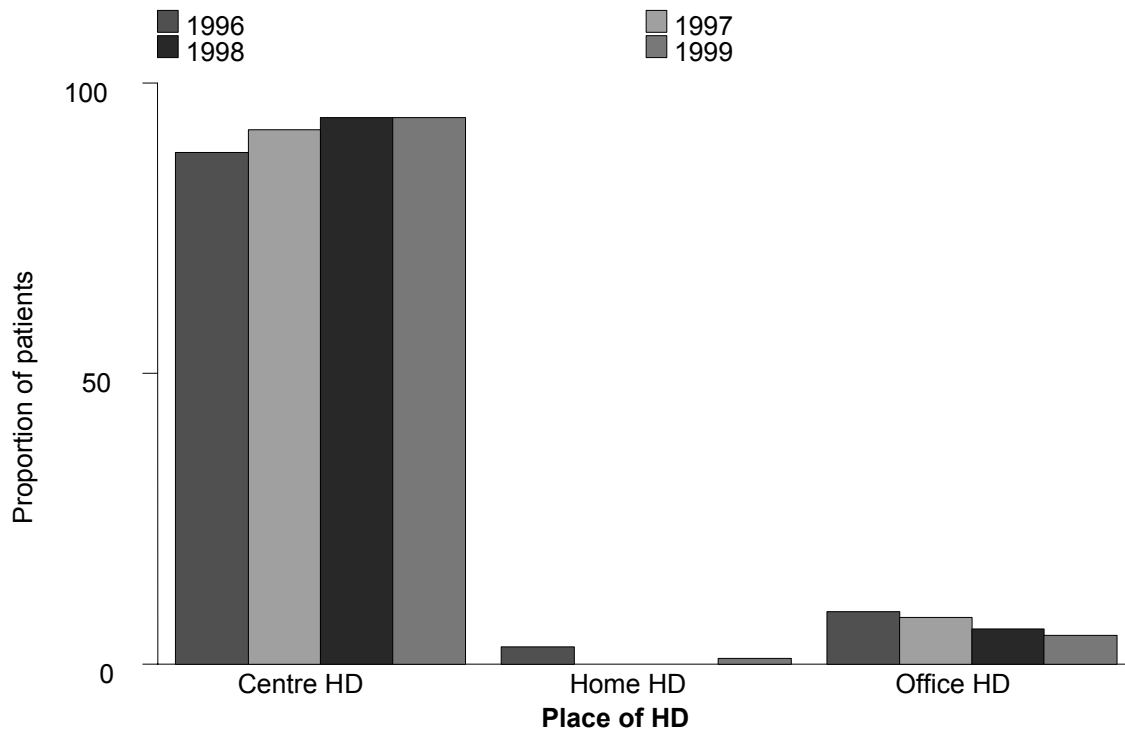
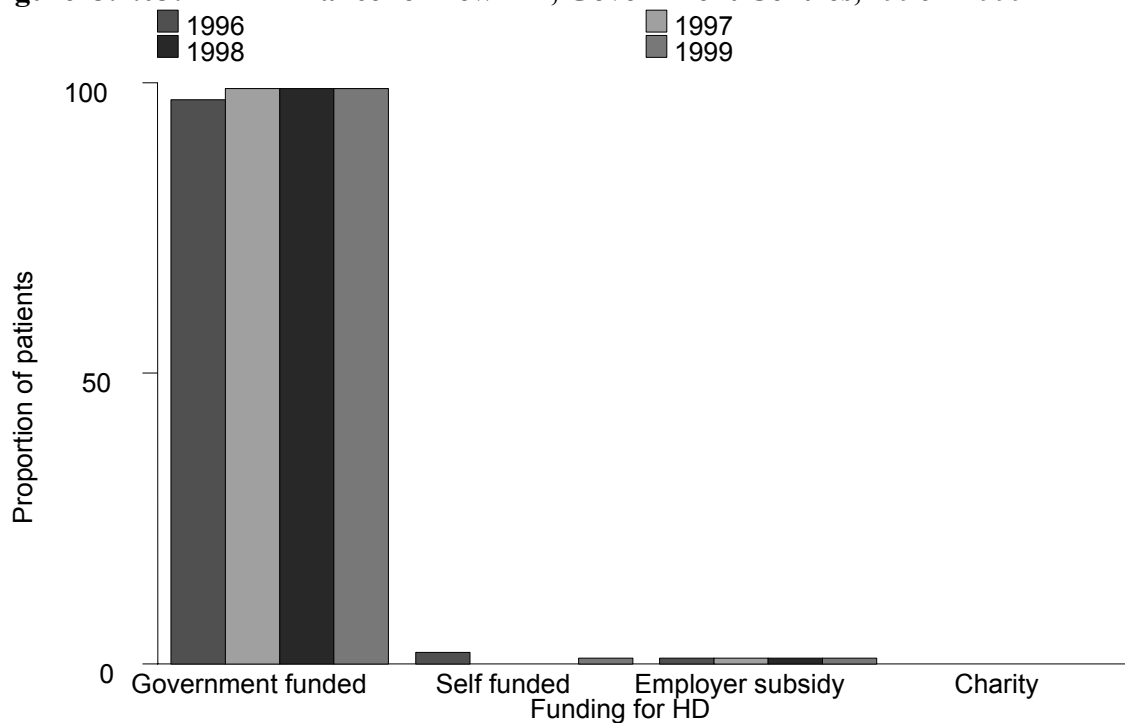


Table 3.1.03: Finance for HD, Government Centres, 1996 – 1999

Year	1996	1997	1998	1999
New patients	319	448	378	371
Government funded	97	99	99	99
% Self funded	2	0	0	1
% Employer subsidy	1	1	1	1
% Charity	0	0	0	0
on RRT at 31st December	1304	1568	1744	1869
% Government funded	92	94	95	96
% Self funded	6	4	3	3
% Employer subsidy	2	2	2	1
% Charity	0	0	0	0

Figure 3.1.03: Finance for new HD, Government Centres, 1996 – 1999



3.1.3 DEATH ON HAEMODIALYSIS AND TRANSFER TO PERITONEAL DIALYSIS

Table 3.1.04: HD Death Rate and Transfer to PD, Government Centres 1992 - 1999

year	1992	1993	1994	1995	1996	1997	1998	1999
No. at risk	822	860	969	1093	1225	1436	1656	1807
Deaths	70	74	79	85	115	135	158	205
Death rate %	9	9	8	8	9	9	10	11
Transfer to PD	4	6	7	12	7	9	6	10
Transfer to PD rate %	0	1	1	1	1	1	0	1
All Losses	74	80	86	97	122	144	164	215
All Losses rate %	9	9	9	9	10	10	10	12

Figure 3.1.04: Death Rate on HD, Government Centres 1992 - 1999

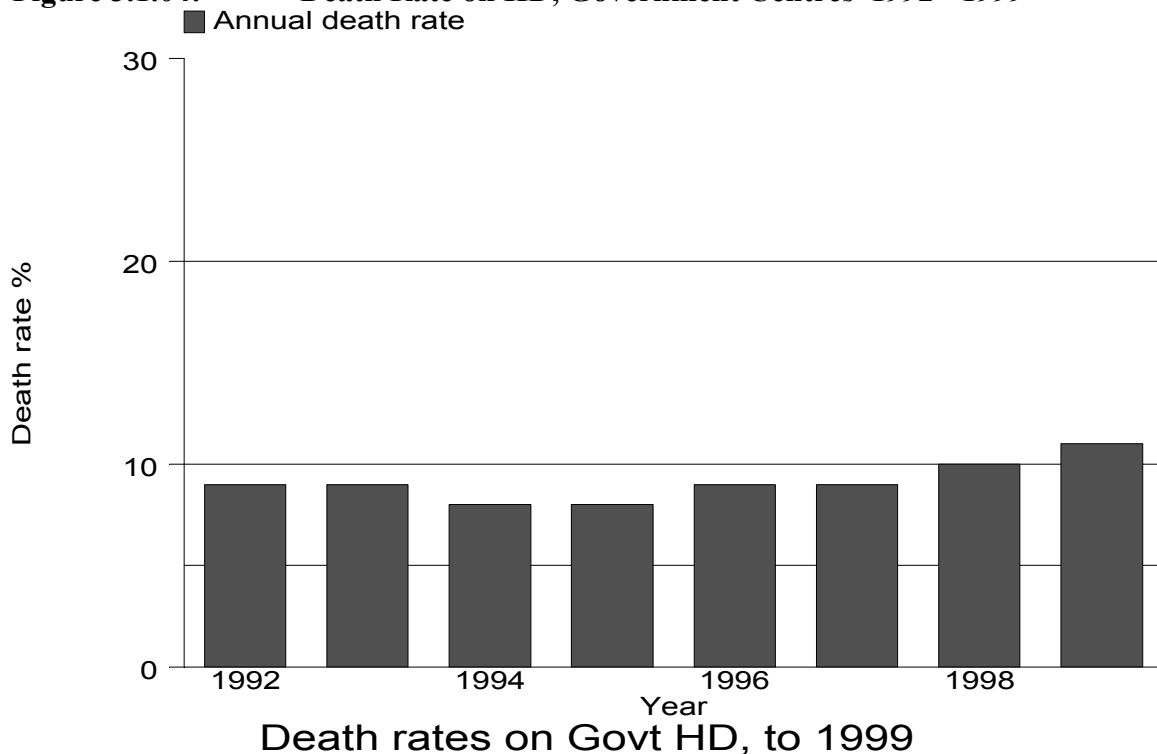


Table 3.1.05: Causes of Death on HD, Government Centres 1996 – 1999

Cause of death	1996		1997		1998		1999	
	No.	%	No.	%	No.	%	No.	%
Cardiovascular	26	23	43	32	50	32	77	38
Died at home	19	17	20	15	34	22	43	21
Sepsis	21	18	31	23	34	22	35	17
GIT bleed	2	2	2	1	5	3	6	3
Cancer	2	2	4	3	4	3	2	1
Liver disease	1	1	3	2	1	1	2	1
Others	34	30	23	17	21	13	36	18
Unknown	10	9	9	7	9	6	4	2
Total	115	100	135	100	158	100	205	100

3.1.4 GOVERNMENT HAEMODIALYSIS CENTRES

Table 3.1.06: Centre Distribution of HD patients, Government Centres 1999

No	Centre	No	percent
0	No.on RRT at 31st December	1869	100
1	801 RSAT Kucing	8	0
2	807 RSAT Sg. Petani	6	0
3	810 RSAT Majidee	3	0
4	819 RSAT TUDM	7	0
5	94 HAT Terendak	28	1
6	95 HAT Kinrara	24	1
7	96 HAT Lumut	19	1
8	Alor Setar Hospital	75	4
9	Baling Hospital	4	0
10	Batu Pahat Hospital	27	1
11	Besut Hospital	10	1
12	Bintulu Hospital	10	1
13	Bukit Mertajam Hospital	36	2
14	Dutches of Kent Hospital	19	1
15	HTAA, Kuantan	41	2
16	Ipoh Hospital	109	6
17	Kajang Hospital	14	1
18	Kangar Hospital	38	2
19	Kemaman Hospital	7	0
20	Keningau Hospital	13	1
21	Kluang Hospital	7	0
22	Kota Bharu Hospital	47	3
23	Kuala Krai Hospital	6	0
24	Kuala Lumpur Hospital	190	10
25	Kuala Nerang Hospital	2	0
26	Kuala Pilah Hospital	24	1
27	Kuala Terengganu Hospital	57	3
28	Kuching Hospital	103	6
29	Kulim Hospital	4	0

30	Labuan Hospital	18	1
31	Langkawi Hospital	8	0
32	Melaka Hospital	43	2
33	Mentakab Hospital	30	2
34	Miri Hospital	67	4
35	Muar Hospital	44	2
36	Pulau Pinang Hospital	70	4
37	Pusat Hemodialisis KEMENTAH	15	1
38	Pusat Rawatan Angkatan Tentera (KB)	6	0
39	Queen Elizabeth Hospital	91	5
40	Raub Hospital	19	1
41	Segamat Hospital	18	1
42	Selayang Hospital	17	1
43	Seremban Hospital	53	3
44	Sg Petani Hospital	27	1
45	Sibu Hospital	42	2
46	Sik Hospital	7	0
47	Sultanah Aminah Hospital	104	6
48	Taiping Hospital	38	2
49	Tawau Hospital	51	3
50	Teluk Intan Hospital	30	2
51	Tg Ampuan Rahimah	65	3
52	UKM Hospital	17	1
53	USM Hospital	8	0
54	University Hospital	39	2
55	Yan Hospital	4	0

3.1.5 HAEMODIALYSIS PATIENTS' CHARACTERISTICS

Table 3.1.08: Age Distribution of HD patients, Government Centres 1996 – 1999

Year	1996	1997	1998	1999
New patients	319	448	378	371
% 1-14 years	1	0	1	1
% 15-24 years	10	7	7	9
% 25-34 years	14	13	13	12
% 35-44 years	22	21	22	16
% 45-54 years	28	22	28	32
% 55-64 years	18	29	21	24
% >=65 years	8	8	8	6
Dialysing at 31st December	1304	1568	1744	1869
% 1-14 years	1	1	1	1
% 15-24 years	8	7	8	8
% 25-34 years	22	20	19	19
% 35-44 years	27	26	26	25
% 45-54 years	24	23	24	25
% 55-64 years	15	18	18	17
% >=65 years	5	5	5	5

Table 3.1.09: HD Patient Characteristics, Government Centres 1996 – 1999

Year	1996	1997	1998	1999
New patients	319	448	378	371
Mean age \pm sd	44 \pm 14	47 \pm 14	46 \pm 14	46 \pm 14
% Male	59	62	62	64
% Diabetic	22	30	31	32
% HbsAg+	5	5	6	7
% Anti-HCV+	16	12	9	4

3.1.6 SURVIVAL ANALYSIS

Table 3.1.10: HD patient Survival related to Year of Entry, Government Centres 1994 – 1999

Year Interval (months)	1994			1995			1996		
	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	94	1	235	98	1	223	95	1	292
12	90	2	214	96	1	207	91	2	270
24	82	2	189	87	2	177	85	2	239
36	72	3	164	80	3	157	76	3	194
48	67	3	149	76	3	140			
60	57	3	124						

Year Interval (months)	1997			1998			1999		
	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	93	1	409	94	1	347	91	2	159
12	88	2	380	90	2	318			
24	82	2	340						

No. = number at risk

SE = standard error

Table 3.1.10: HD patient Survival related to Year of Entry, Government Centres 1995 – 1999

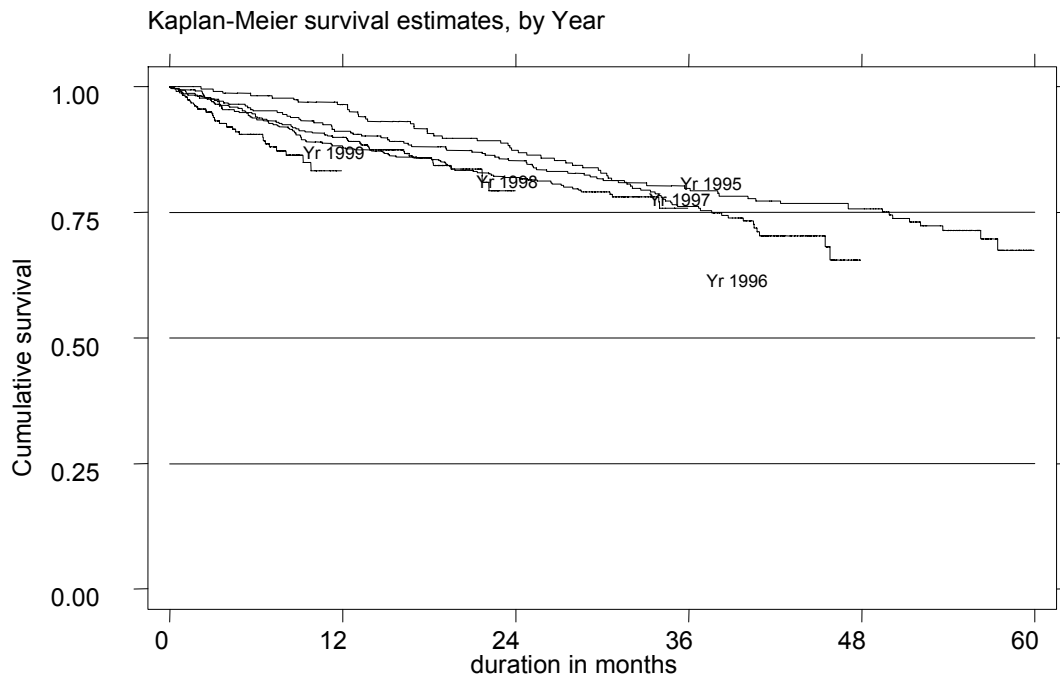


Table 3.1.10: HD Technique Survival related to Year of Entry, Government Centres 1994– 1999

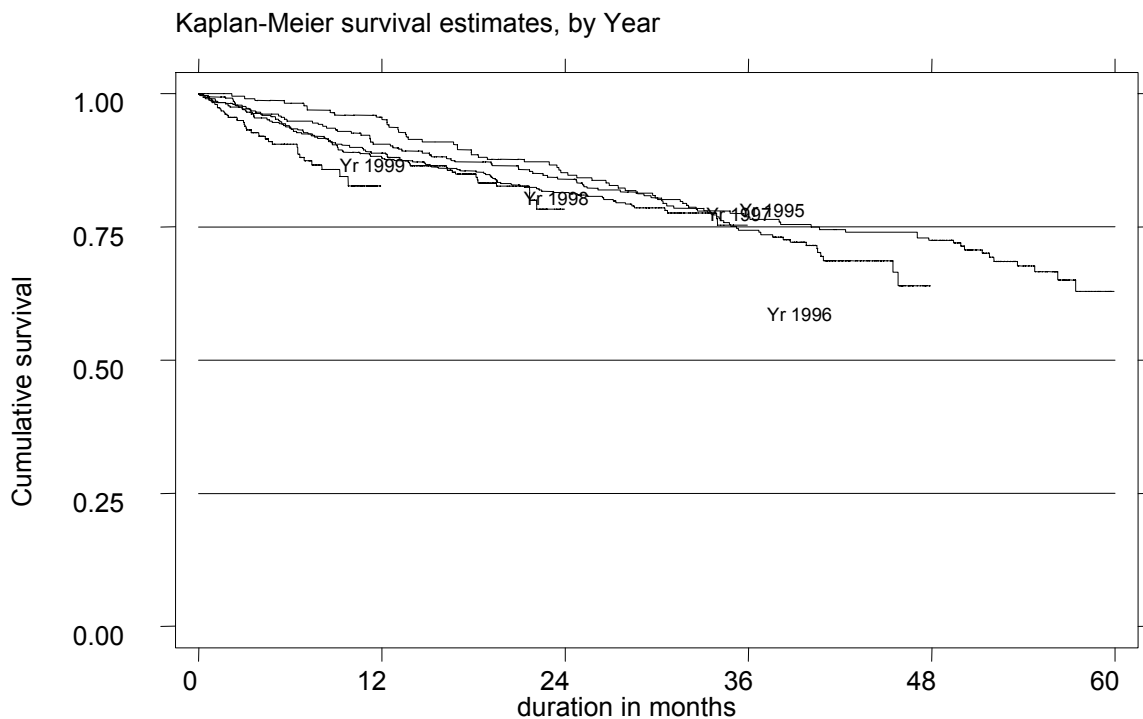
Year	1994			1995			1996		
Interval	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	93	2	235	98	1	224	95	1	292
12	87	2	214	95	1	207	90	2	270
24	79	3	189	85	2	177	84	2	239
36	69	3	164	77	3	157	74	3	195
48	63	3	149	73	3	144			
60	54	3	124						

Year	1997			1998			1999		
Interval	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	93	1	409	93	1	347	91	2	159
12	88	2	380	89	2	318			
24	82	2	340						

No. = number at risk

SE = standard error

Figure 3.1.11 HD Technique Survival by Year of Entry Government Centres 1995 – 1999



3.1.7 WORK RELATED REHABILITATION AND QUALITY OF LIFE ON HAEMODIALYSIS, GOVERNMENT CENTRES 1997

Table 3.1.12: Work Related Rehabilitation on HD, Government Centres, 1996 - 1999

REHABILITATION STATUS	1996		1997		1998		1999	
	No.	%	No.	%	No.	%	No.	%
Full time work for pay	474	47	499	40	529	40	613	36
Part time work for pay	47	5	110	9	115	9	161	9
Able to work but unable to get a job	18	2	39	3	45	3	43	2
Able to work but not yet due to dialysis schedule	15	1	29	2	19	1	50	3
Able but disinclined to work	12	1	14	1	9	1	30	2
Home maker	201	20	260	21	272	21	360	21
Full time student	12	1	10	1	15	1	24	1
Age<15 years	0	0	3	0	3	0	4	0
Retired	126	13	129	10	159	12	202	12
Age>65 years	48	5	70	6	85	6	97	6
Unable to work due to poor health	53	5	70	6	67	5	139	8
Total	1006	100	1233	100	1318	100	1723	100

Table 3.1.13: Quality of Life on Haemodialysis, Government Centres, 1996 – 1999

QOL Index Summated Score	1996		1997		1998		1999	
	No.	%	No.	%	No.	%	No.	%
0 (Worst QOL)	0	0	0	0	1	0	2	0
1	1	0	0	0	1	0	2	0
2	2	0	5	0	5	0	6	0
3	10	1	6	0	8	1	12	1
4	13	1	14	1	23	2	25	1
5	33	3	26	2	37	3	55	3
6	38	4	55	4	61	5	67	4
7	49	5	64	5	56	4	109	6
8	72	7	118	9	92	7	120	7
9	91	9	112	9	96	7	171	10
10 (Best QOL)	709	70	849	68	909	71	1114	66
Total	1018	100	1249	100	1289	100	1683	100

3.1.8 HAEMODIALYSIS PRACTICES IN GOVERNMENT CENTRES

Table 3.1.14: Vascular Access on Haemodialysis, Government Centres, 1996 - 1999

Access types	1996		1997		1998		1999	
	No	%	No	%	No	%	No	%
Wrist AVF	907	85	1121	84	1382	83	1486	80
BCF*	141	13	182	14	227	14	295	16
venous graft	0	0	2	0	3	0	2	0
artificial graft	8	1	9	1	17	1	23	1
PERMCATH	2	0	4	0	8	0	12	1
temporary CVC	4	0	17	1	32	2	49	3
Total	1062	100	1335	100	1669	100	1867	100

- *BCF* = *Brachiocephalic fistula*
- *CVC* = *Central venous catheter*

Table 3.1.15: Difficulties reported with Vascular Access, Government Centres 1996 - 1999

Access difficulty	1996		1997		1998		1999	
	No	%	No	%	No	%	No	%
Difficulty with needle placement	31	3	41	3	68	4	99	5
Difficulty in obtaining desired blood flow rate	10	1	27	2	36	2	59	3
Other difficulty	5	0	7	1	21	1	28	1
No difficulty	1017	96	1260	94	1553	93	1687	90
Total	1063	100	1335	100	1678	100	1873	100

Table 3.1.16: Complications reported with Vascular Access, Government Centres 1996 - 1999

Complication	1996		1997		1998		1999	
	No.	%	No.	%	No.	%	No.	%
thrombosis	27	3	50	4	59	4	88	5
bleed	3	0	7	1	27	2	14	1
aneurysmal dilatation	36	3	103	8	122	7	123	7
swollen limb	4	0	15	1	20	1	22	1
access related infection, local/systemic	3	0	17	1	13	1	19	1
distal limb ischaemia	2	0	2	0	4	0	7	0
venous outflow obstruction	9	1	18	1	25	1	29	2
carpal tunnel	13	1	15	1	11	1	25	1
other	11	1	6	0	30	2	23	1
no complication	955	90	1102	83	1368	81	1523	81
	1063	100	1335	100	1679	100	1873	100

Table 3.1.17: Blood Flow Rates in Government HD Units, 1996 – 1999

Blood flow rates	1996		1997		1998		1999	
	No.	%	No.	%	No.	%	No.	%
<150 ml/min	1	0	2	0	4	0	5	0
150-199 ml/min	16	2	27	2	28	2	42	2
200-249 ml/min	498	49	455	35	516	31	429	23
250-299 ml/min	418	41	642	50	803	49	951	52
300-349 ml/min	77	8	151	12	270	16	382	21
> 350 ml/min	9	1	18	1	27	2	21	1
Total	1019	100	1295	100	1648	100	1830	100

Table 3.1.18: Number of HD Sessions per week, Government HD Units, 1996 - 1999

HD sessions Per week	1996		1997		1998		1999	
	No.	%	No.	%	No.	%	No.	%
1	0	0	1	0	1	0	1	0
2	4	0	4	0	2	0	9	0
3	1047	99	1323	99	1671	100	1856	99
4	6	1	7	1	2	0	1	0
Total	1057	100	1335	100	1676	100	1867	100

Table 3.1.19 Duration of HD in Government Units, 1996 - 1999

Duration of HD per session	1996		1997		1998		1999	
	No.	%	No.	%	No.	%	No.	%
≤3 hours	2	0	7	1	3	0	2	0
3.5 hours	1	0	3	0	17	1	0	0
4 hours	1019	96	1251	94	1554	93	1744	93
4.5 hours	27	3	68	5	88	5	104	6
5 hours	8	1	7	1	8	0	17	1
≥5 hours	0	0	1	0	3	0	0	0
Total	1057	100	1337	100	1673	100	1867	100

Table 3.1.20: Dialyser membrane types in Government HD Units, 1996 - 1999

Dialyser membrane	1996		1997		1998		1999	
	No.	%	No.	%	No.	%	No.	%
Cellulosic	782	77	916	72	805	54	511	37
Cellulose acetate	206	20	284	22	325	22	320	23
Synthetic	33	3	66	5	373	25	545	40
Total	1021	100	1266	100	1503	100	1376	100

Table 3.1.21: Dialyser Reuse Frequency in Government HD Units, 1996 - 1999

Dialyser reuse frequency	1996		1997		1998		1999	
	No.	%	No.	%	No.	%	No.	%
1*	14	1	17	1	14	1	16	1
2	10	1	7	1	5	0	6	0
3	724	76	948	75	174	11	128	7
4	154	16	125	10	104	7	94	5
5	11	1	45	4	106	7	125	7
6	30	3	97	8	760	50	919	52
7	0	0	2	0	36	2	41	2
8	1	0	4	0	65	4	82	5
9	10	1	25	2	109	7	174	10
10	0	0	0	0	69	5	66	4
11	0	0	0	0	23	2	5	0
12	0	0	0	0	63	4	105	6
≥13	0	0	0	0	0	0	0	0
Total	954	100	1270	100	1528	100	1761	100

* 1 is single use ie no reuse

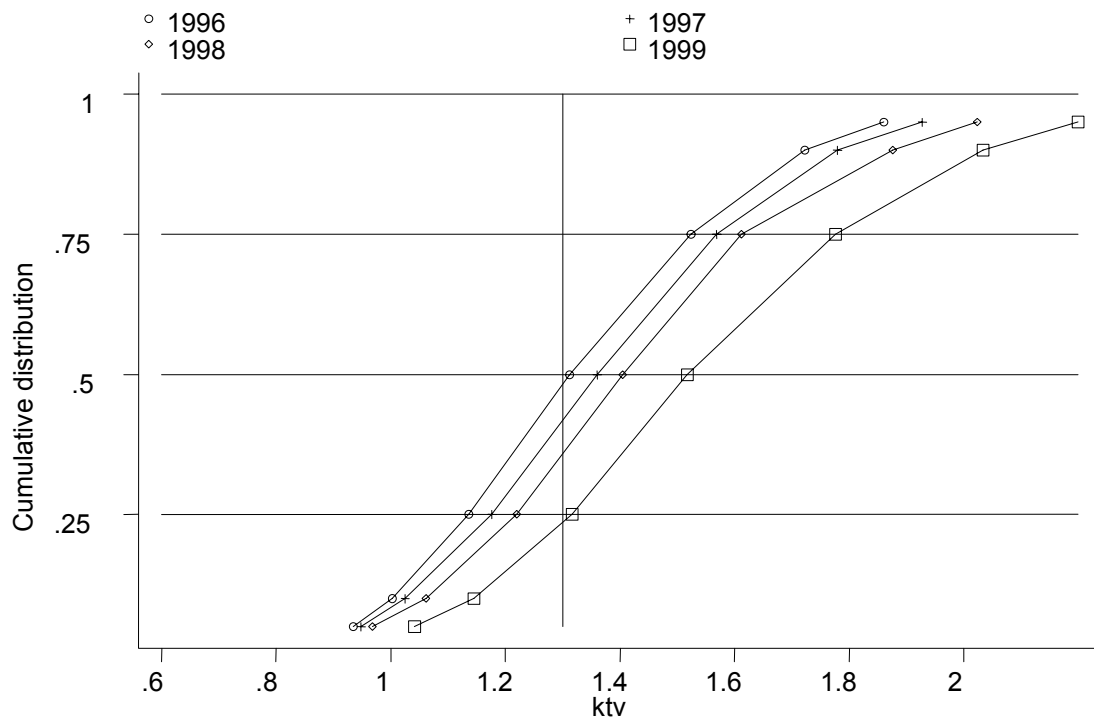
Table 3.1.22 Dialysate Buffer used in Government HD Units, 1996 - 1999

Dialysate buffer	1996		1997		1998		1999	
	No.	%	No.	%	No.	%	No.	%
Acetate	605	57	514	39	564	34	456	24
Bicarbonate	462	43	818	61	1086	66	1412	76
Total	1067	100	1332	100	1650	100	1868	100

**Table 3.1.23: Distribution of Prescribed KT/V, Government Centres
1996 - 1999**

year	No of subjects	No of observations	median	LQ	UQ	% > 1.45
1996	1001	10491	1.3	1.1	1.5	52
1997	1255	12955	1.4	1.2	1.6	58
1998	1616	16757	1.4	1.2	1.6	64
1999	1803	18181	1.5	1.3	1.8	77

Figure 3.1.23: Cumulative Distribution of Prescribed KT/V by Year



3.1.8. DYSLIPIDAEMIA IN HD PATIENTS, GOVERNMENT CENTRES

Table 3.1.24: Distribution of Serum Cholesterol Levels (mmol/l), HD patients, Government Centres 1996 – 1999

year	No of subjects	No of observations	median	LQ	UQ	% patients < 5.3 mmol/l
1996	626	1072	5	4.1	5.9	62
1997	859	1522	5.1	4.2	6	63
1998	1066	1736	5	4.2	5.9	63
1999	1555	2550	4.8	4	5.7	69

Figure 3.1.24: Cumulative distribution of serum cholesterol concentration by year

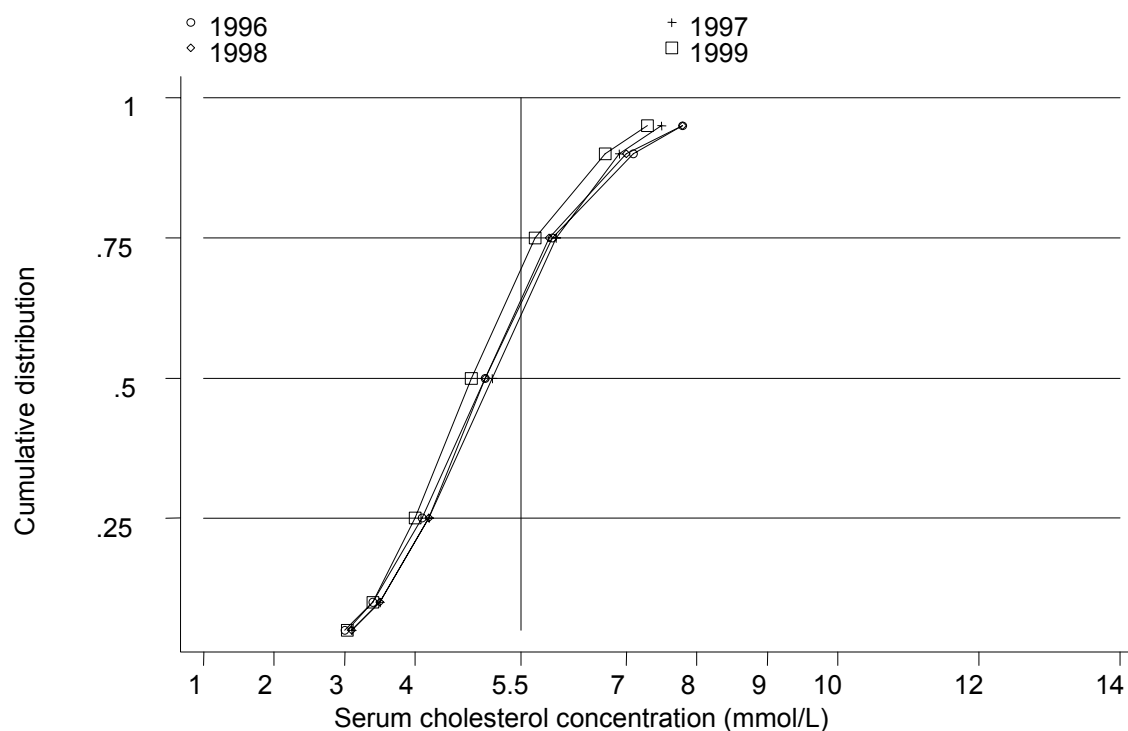


Table 3.1.25: Distribution of Serum Triglyceride (mmol/l), HD patients, Government Centres 1996 - 1999

year	No of subjects	No of observations	median	LQ	UQ	% patients < 3.5 mmol/l
1996	556	942	1.8	1.2	2.7	87
1997	808	1442	1.8	1.2	2.5	87
1998	1004	1614	1.8	1.2	2.6	86
1999	1450	2305	1.7	1.2	2.5	88

Figure 3.1.25: Cumulative distribution of serum triglyceride concentration by year

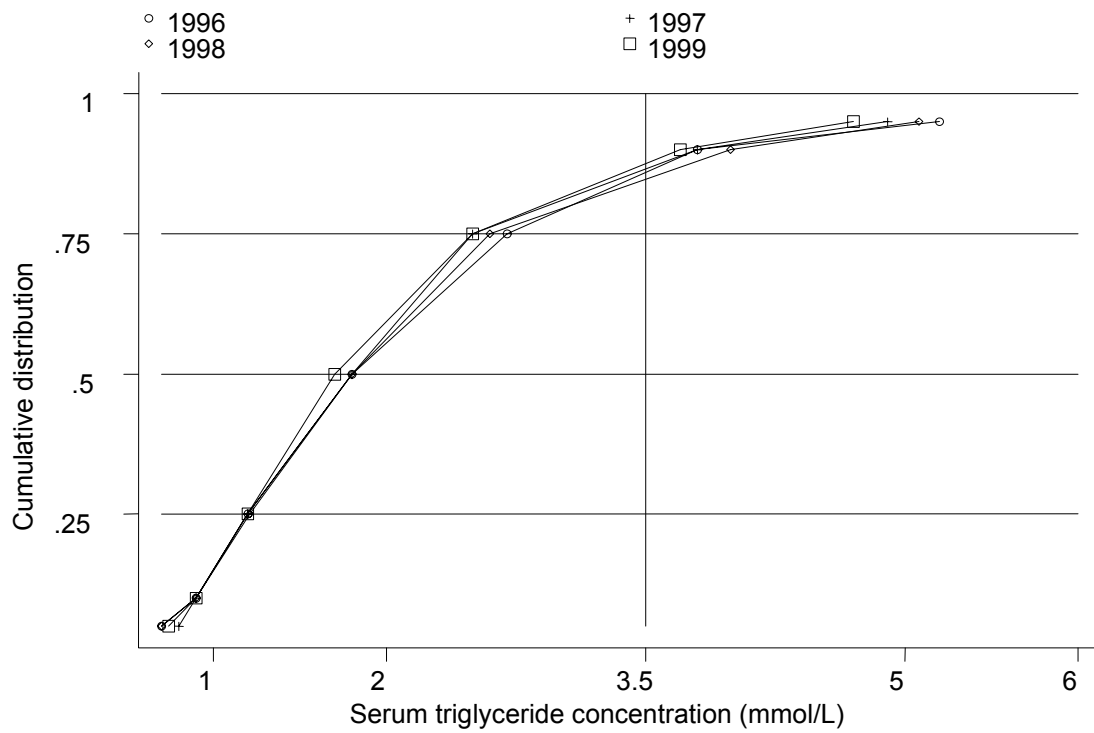


Table 3.1.26: Distribution of serum LDL (mmol/l), HD patient, Government Centres 1996 – 1999

year	No of subjects	No of observations	median	LQ	UQ	% patients <5 mmol/l
1996	279	450	3.3	2.4	4.3	86
1997	403	676	3.2	2.4	4.2	92
1998	477	737	3	2.2	3.9	92
1999	742	1047	3	2.3	3.9	93

Figure 3.1.26 : Cumulative distribution of serum LDL by year

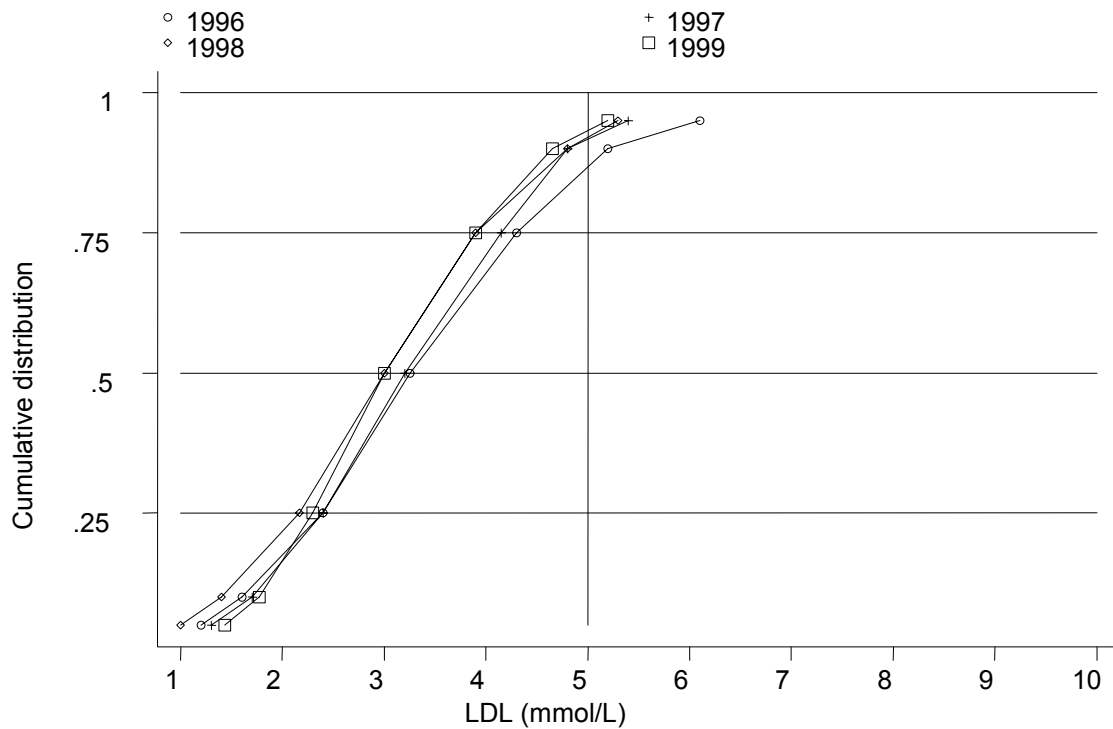
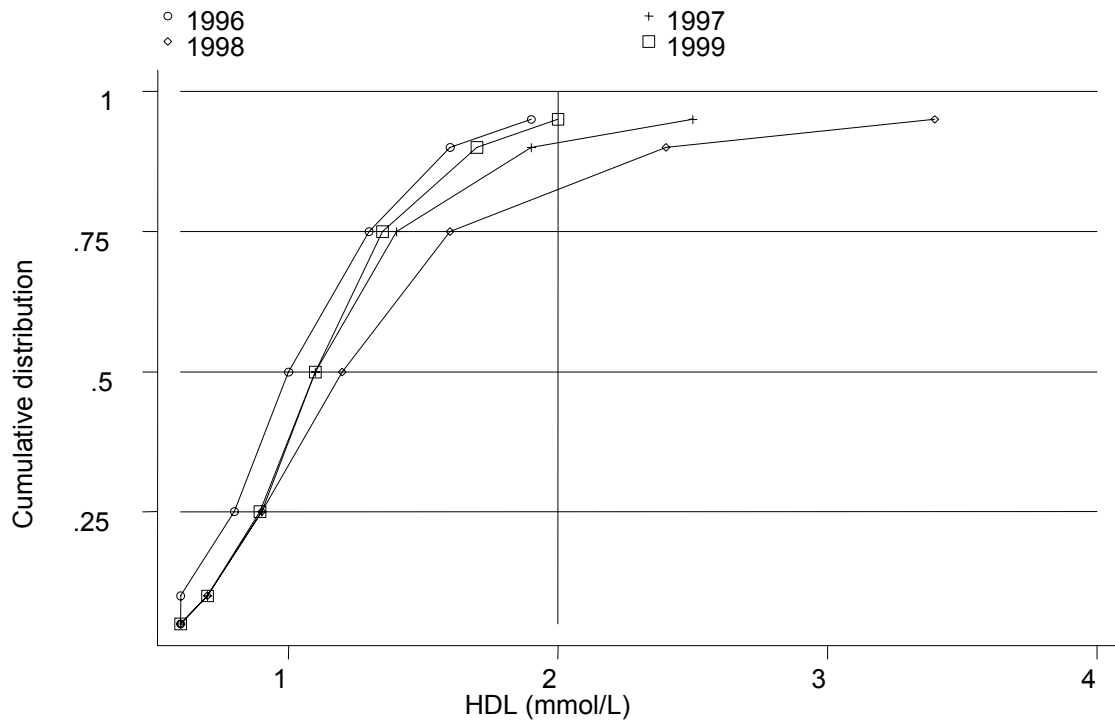


Table 3.1.27: Distribution of serum HDL (mmol/l), HD patient, Government Centres 1996 - 1999

year	No of subjects	No of observations	median	LQ	UQ	% patients < 2mmol/l
1996	259	426	1	.8	1.3	95
1997	389	661	1.1	.9	1.4	91
1998	482	751	1.2	.9	1.6	84
1999	757	1080	1.1	.9	1.4	95

Figure 3.1.27: Cumulative distribution of serum HDL by year



3.1.10 MANAGEMENT OF RENAL BONE DISEASE, GOVERNMENT CENTRES

Table 3.1.28: Treatment for Renal Bone Disease, HD patients, Government Centres 1996- 1999

year	No of subjects	% on CaCO ₃	% on Al(OH) ₃	% on Vit D
1996	1071	90	45	54
1997	1347	90	26	40
1998	1690	90	18	28
1999	1884	91	10	24

Table 3.1.29: Distribution of serum Phosphate (mmol/l), HD patients, Government Centres 1996 – 1999

year	No of subjects	No of observations	median	LQ	UQ	% patients < 1.6 mmol/l
1996	1052	3632	1.9	1.5	2.3	31
1997	1313	4418	1.8	1.5	2.3	33
1998	1623	5360	1.9	1.5	2.3	30
1999	1831	5916	1.8	1.4	2.3	36

Figure 3.1.29 Cumulative Distribution of serum Phosphate by year

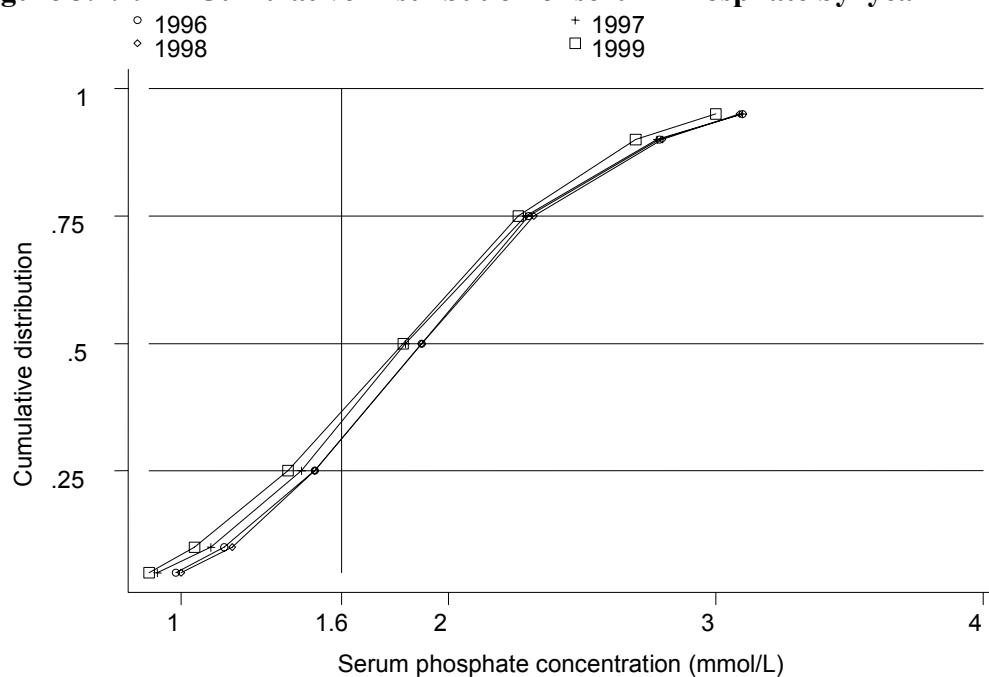


Table 3.1.30: Distribution of serum Calcium (mmol/l), HD patients, Government Centres 1996– 1999

year	No of subjects	No of observations	median	LQ	UQ	% patients ≥ 2.2 & ≤ 2.6 mmol/l
1996	1055	3653	2.4	2.2	2.6	54
1997	1313	4442	2.4	2.2	2.6	52
1998	1653	5462	2.3	2.2	2.5	53
1999	1847	6048	2.3	2.2	2.5	51

Figure 3.1.30: Cumulative distribution of Serum Calcium by year

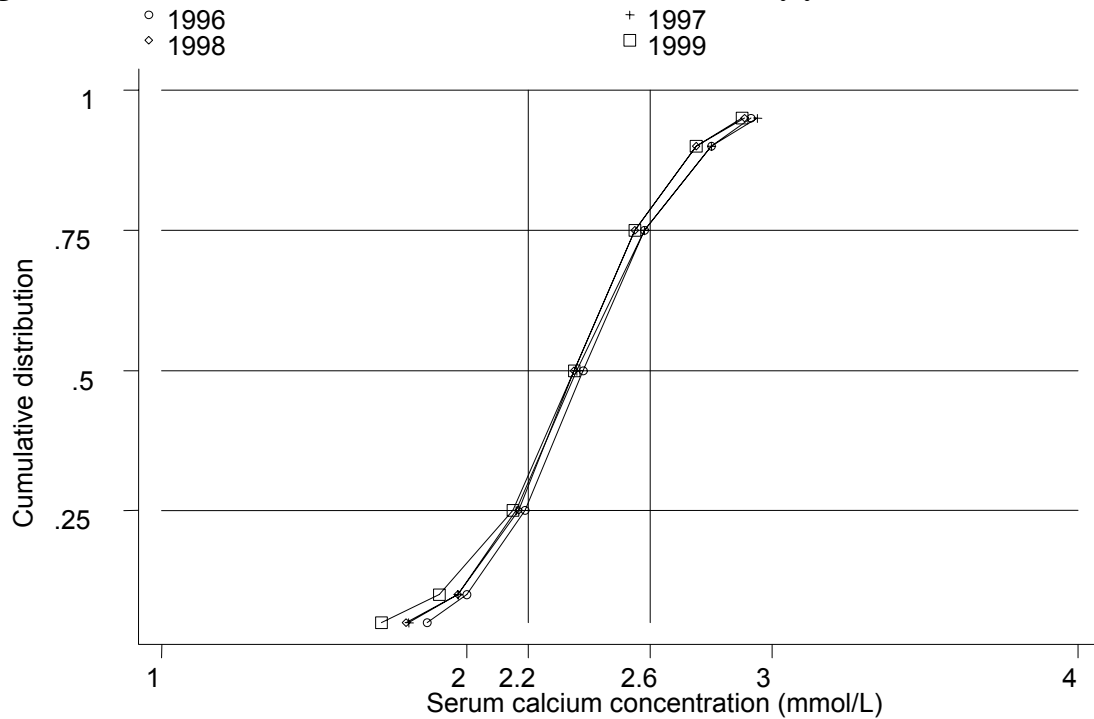
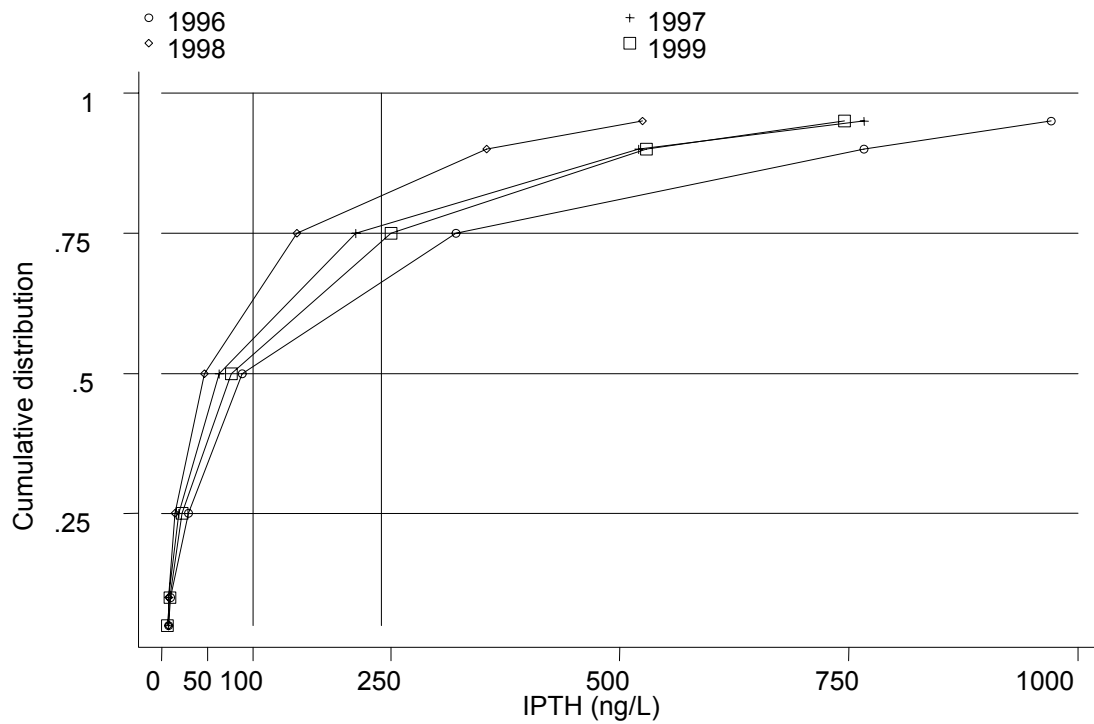


Table 3.1.31: Distribution of serum iPTH(ng/L), HD patients, Government Centres 1996 – 1999

year	No of subjects	No of observations	median	LQ	UQ	% patients ≥ 100 & ≤ 250 ng/l
1996	328	368	88	29	321.5	15
1997	829	1253	63	19	212	16
1998	759	1027	47	15	148	16
1999	1226	1864	76.2	22	250.5	18

Figure 3.1.31: Cumulative Distribution of serum iPTH by year,



3.1.11. MANAGEMENT OF HYPERTENSION, GOVERNMENT CENTRES

Table 3.1.32: Treatment for hypertension, HD patients, Government Centres 1996 - 1999

year	No.	% on anti-hypertensives	% on 1 anti-hypertensives	% on 2 anti-hypertensives	% on 3 anti-hypertensives
1996	1071	58	32	19	6
1997	1347	62	35	21	6
1998	1690	64	37	20	7
1999	1884	67	35	24	8

Table 3.1.33: Distribution of Systolic BP without anti-hypertensives, HD patients, Government Centres 1996 – 1999

year	No of subjects	No of observations	median	LQ	UQ	% patients < 160 mmHg
1996	450	4817	130	116	142	88
1997	500	5373	130	115	145	88
1998	606	6442	130	117	148	86
1999	612	6325	130	118	148	88

Figure 3.1.33: Cumulative Distribution of Systolic BP without anti-hypertensives by year

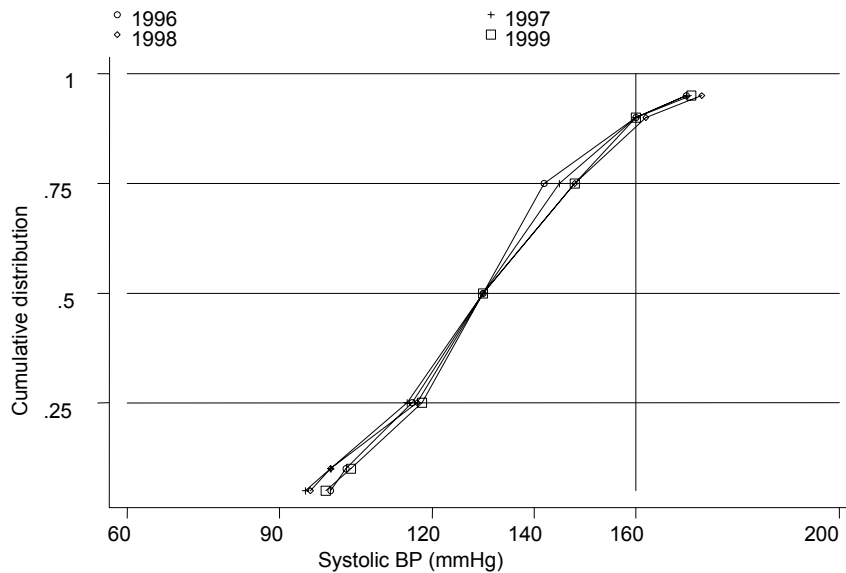


Table 3.1.34: Distribution of Diastolic BP without anti-hypertensives, HD patients, Government Centres 1996– 1999

Year	No of subjects	No of observations	median	LQ	UQ	% patients < 90 mmHg
1996	450	4817	80	70	90	74
1997	500	5363	80	70	90	75
1998	606	6441	80	70	88	77
1999	612	6322	79	70	86	80

Figure 3.1.34: Cumulative Distribution of Diastolic BP without anti-hypertensives by year

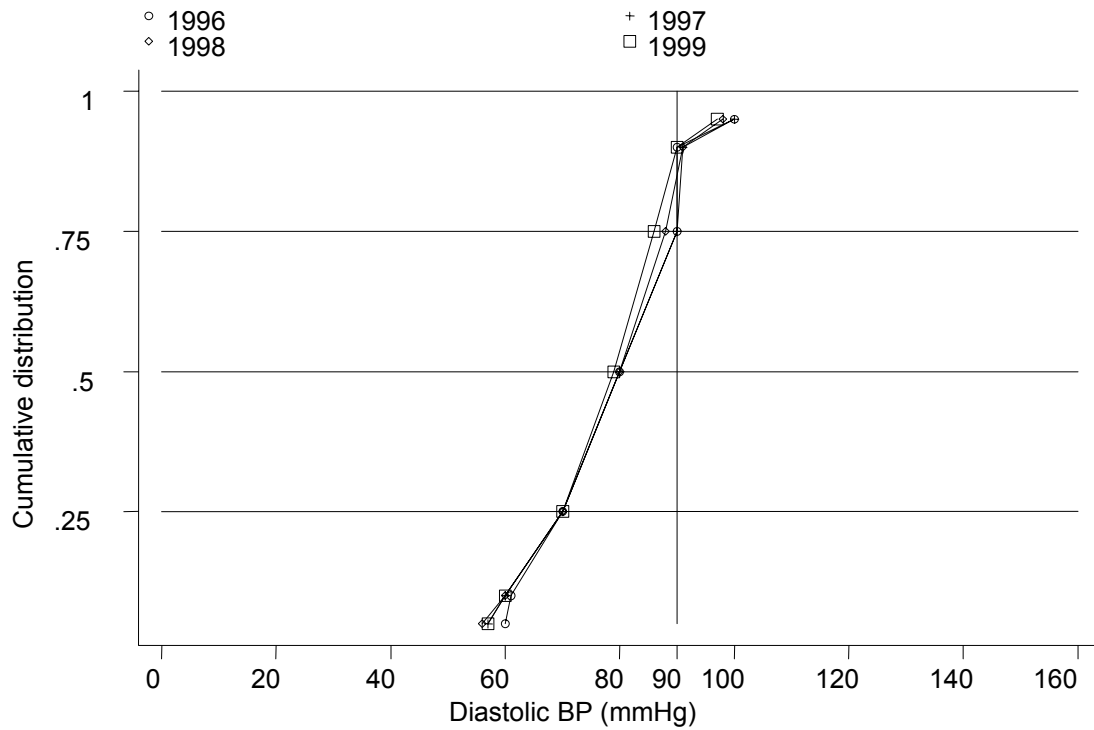


Table 3.1.35: Distribution of systolic BP on anti-hypertensives, HD patients, Government Centres 1996 – 1999

Year	No of subjects	No of observations	median	LQ	UQ	% patients < 160 mmHg
1996	611	6297	150	130	160	65
1997	824	8312	150	132	167	63
1998	1063	10840	150	137	166	62
1999	1256	12535	150	136	167	62

Table 3.1.35: Cumulative Distribution of systolic BP on anti-hypertensives, by year

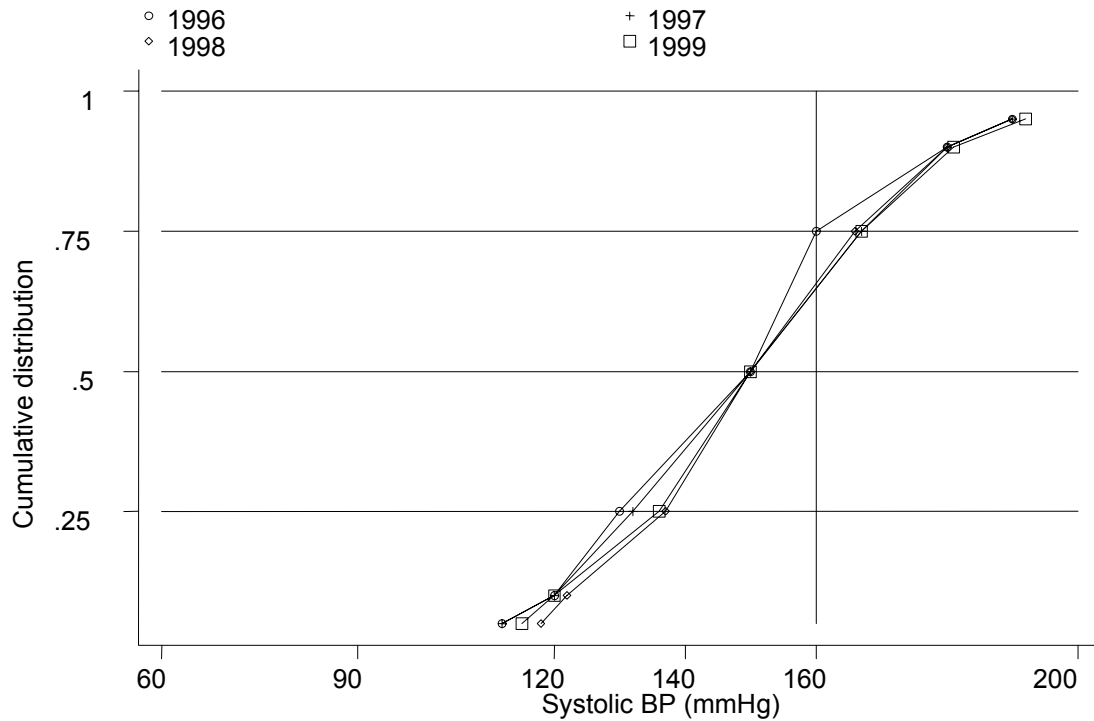
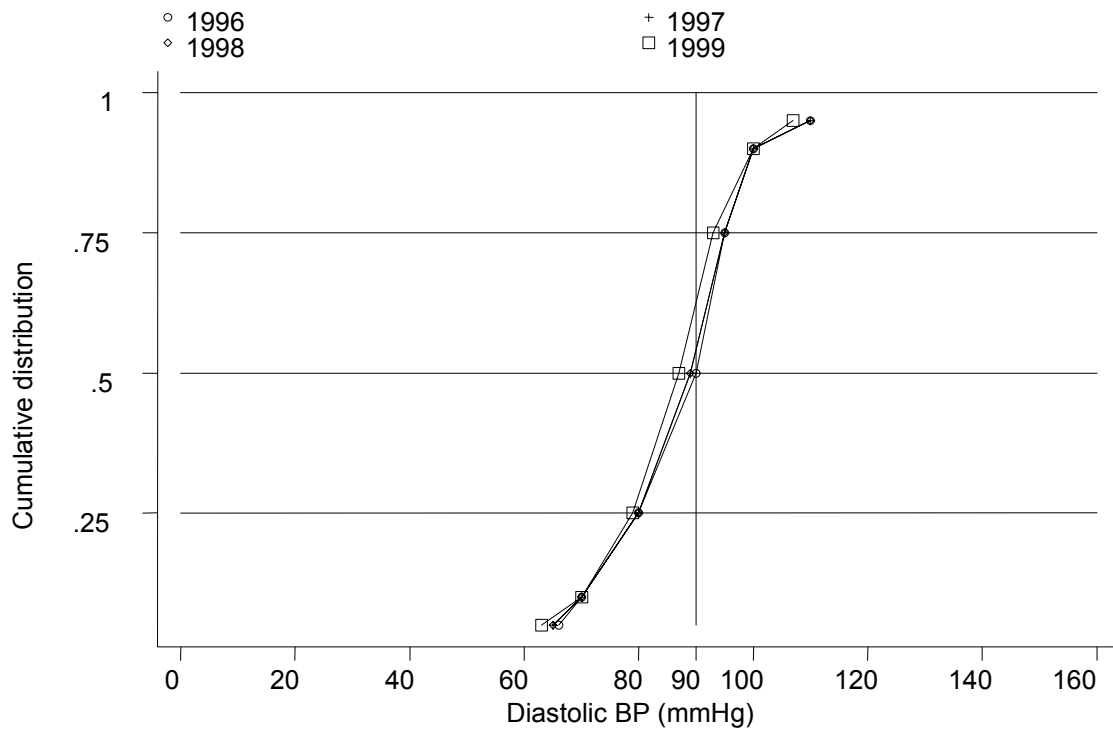


Table 3.1.36: Distribution of diastolic BP on anti-hypertensives, HD patients, Government Centres 1996 – 1999

year	No of subjects	No of observations	median	LQ	UQ	% patients < 90 mmHg
1996	611	6299	90	80	95	49
1997	824	8308	89	80	95	50
1998	1063	10846	89	80	95	51
1999	1256	12537	87	79	93	55

Figure 3.1.36: Cumulative Distribution of diastolic BP on anti-hypertensives by year



3.1.11 TREATMENT OF ANAEMIA, GOVERNMENT HD CENTRES

Table 3.1.37: Treatment for Anaemia, HD patients, Government Centres 1996 - 1999

year	No	% on rHuEpo	% received blood transfusion	% on oral Iron	% received parenteral Iron
1996	1071	34	7	94	3
1997	1347	45	8	92	5
1998	1690	45	14	92	5
1999	1884	48	16	94	5

Table 3.1.38: Distribution of rHuEpo dose per week, HD patients, Government Centres 1996 - 1999

Year	1996	1997	1998	1999
No. of patients	351	581	706	871
% on 2000 u/week	4	11	17	19
% on 2-4000 u/week	70	67	61	60
% on 4-6000 u/week	6	6	7	6
% on 6-8000 u/week	18	14	13	14
% on 8-12000 u/week	2	2	3	2
% on >12000 u/week	0	0	0	0

Table 3.1.39: Distribution of serum Iron without rHuEpo, HD patients, Government Centres 1996 – 1999

year	No of subjects	No of observations	median	LQ	UQ	% patients > 10 umol/l
1996	611	1789	14	10	19	72
1997	622	1606	14	10	20	71
1998	600	1481	14	10	21	73
1999	657	1555	14.1	10	22.3	72

Figure 3.1.39: Cumulative Distribution of serum Iron without rHuEpo by year

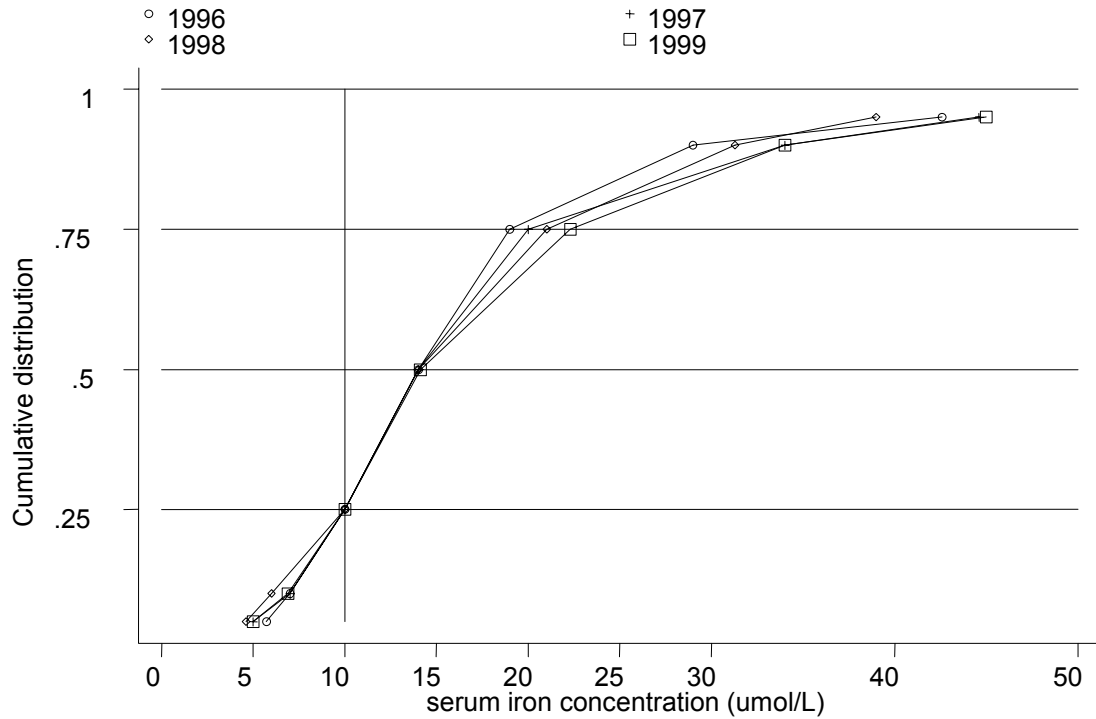


Table 3.1.40: Distribution of serum Iron on rHuEpo,HD patients, Government Centres 1996– 1999

Year	No of subjects	No of observations	median	LQ	UQ	% patients > 10 umol/l
1996	316	1024	15	10.6	23	75
1997	520	1484	14	10	21	72
1998	533	1566	14.4	10	22	73
1999	643	1871	14	10	23.2	74

Figure 3.1.40: Cumulative Distribution of serum Iron on rHuEpo, by year.

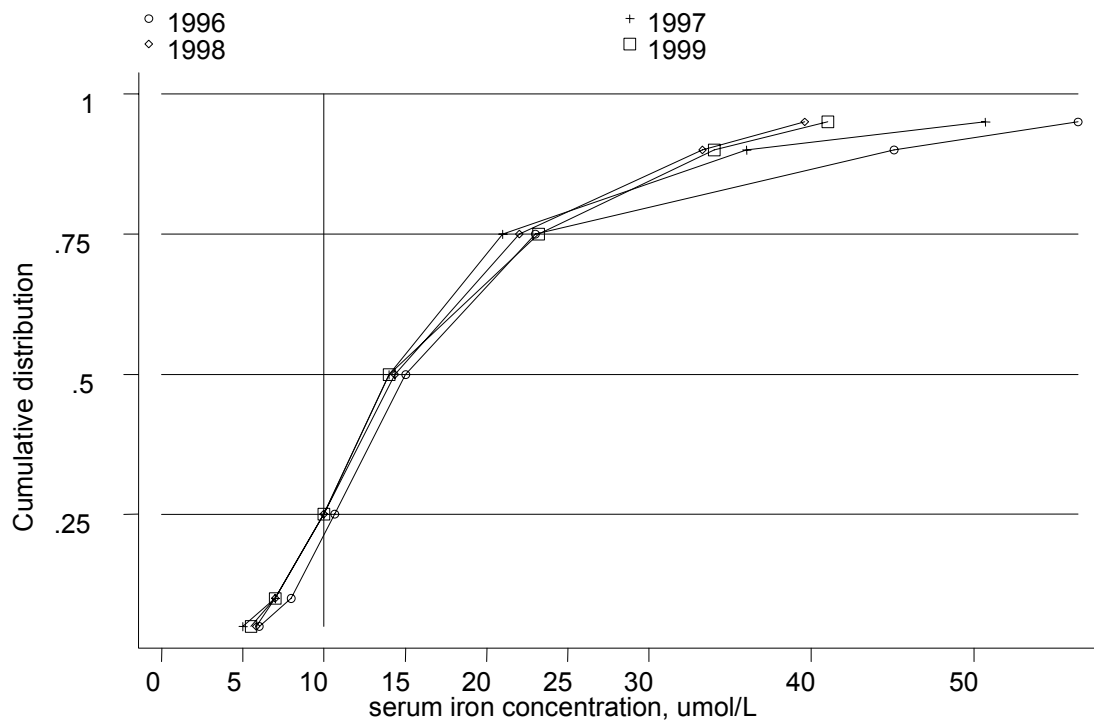


Table 3.1.41: Distribution of Transferrin Saturation without rHuEpo, HD patients, Government Centres 1996– 1999

Year	No of subjects	No of observations	median	LQ	UQ	% patients > 20%
1996	583	2332	27.8	19.4	38.3	72
1997	591	2364	29.3	20.4	42.2	76
1998	422	1688	29.8	18.2	43.6	70
1999	395	1580	27.2	18.4	41	70

Figure 3.1.41: Cumulative Distribution of serum Transferrin Saturation without rHuEpo by year

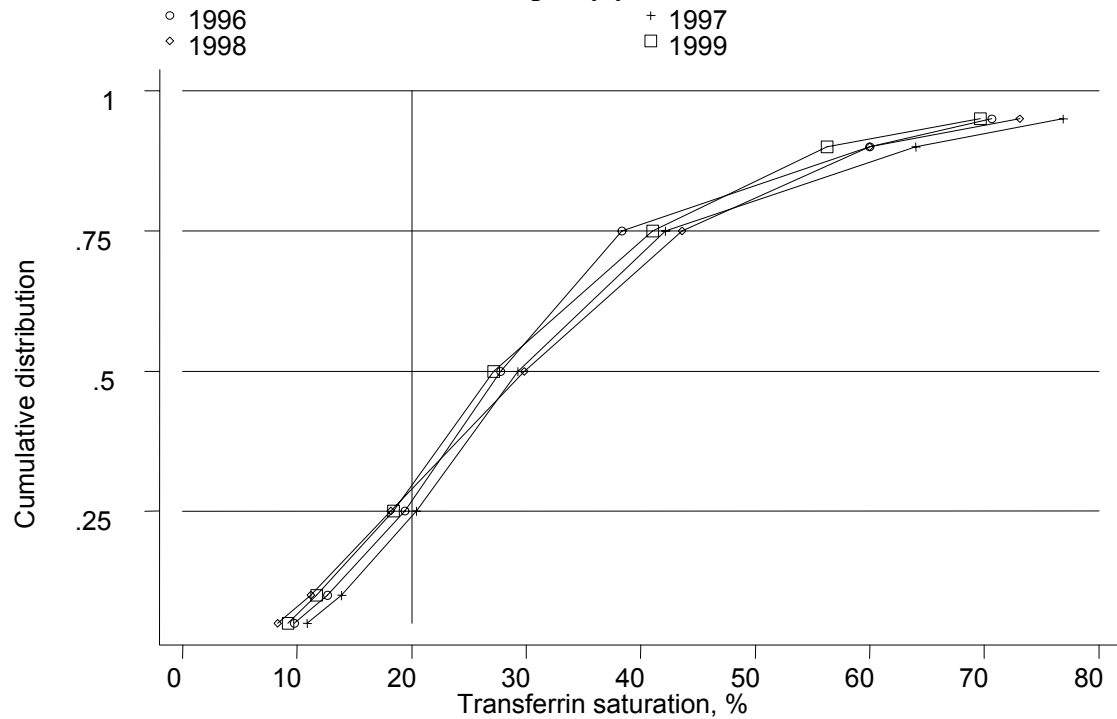


Table 3.1.42: Distribution of Transferrin Saturation on rHuEpo, HD patients, Government Centres 1996– 1999

Year	No of subjects	No of observations	median	LQ	UQ	% patients > 20%
1996	296	1184	32.8	23	49.6	79
1997	485	1940	30.3	22.2	43.9	81
1998	426	1704	31.2	22	44.7	81
1999	485	1940	30.3	20.9	42.4	77

Figure 3.1.42: Cumulative Distribution of serum Transferrin Saturation on rHuEpo by year

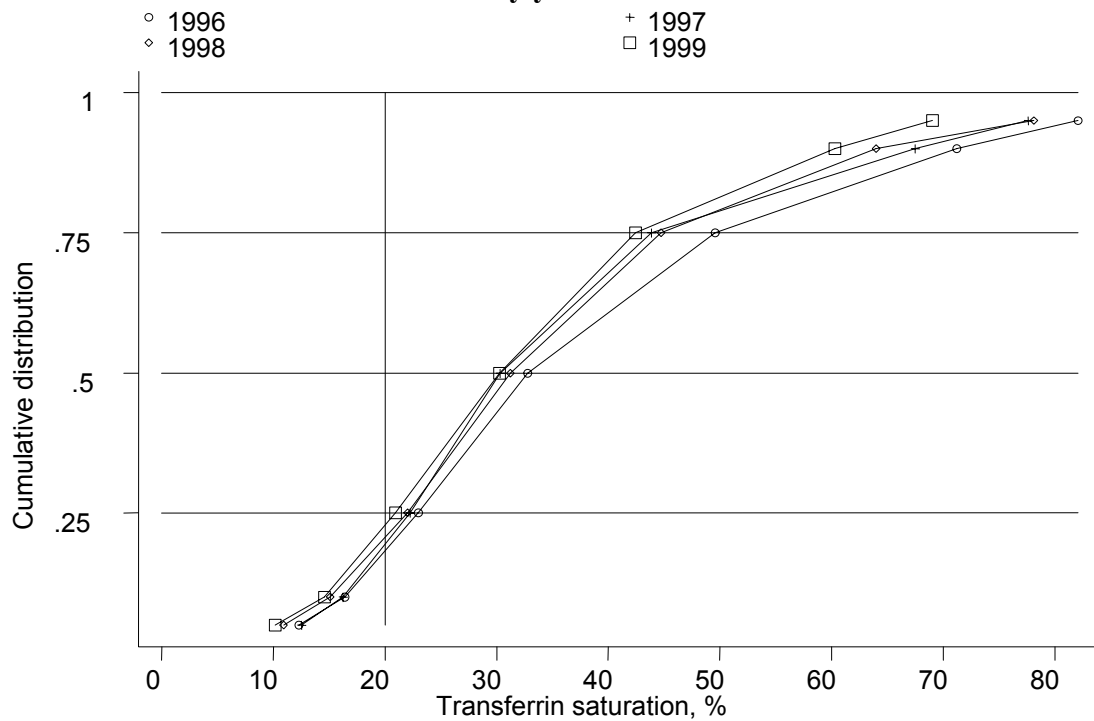


Table 3.1.43: Distribution of serum Ferritin without rHuEpo, HD patients, Government Centres 1996 – 1999

year	No of subjects	No of observations	median	LQ	UQ	% patients > 100 ug/l
1996	56	76	200.5	84	444	70
1997	149	216	387.5	105.5	867.5	77
1998	191	259	250	124	611.7	80
1999	295	446	379	155	826.5	84

Figure 3.1.43: Cumulative Distribution of serum Ferritin without rHuEpo by year

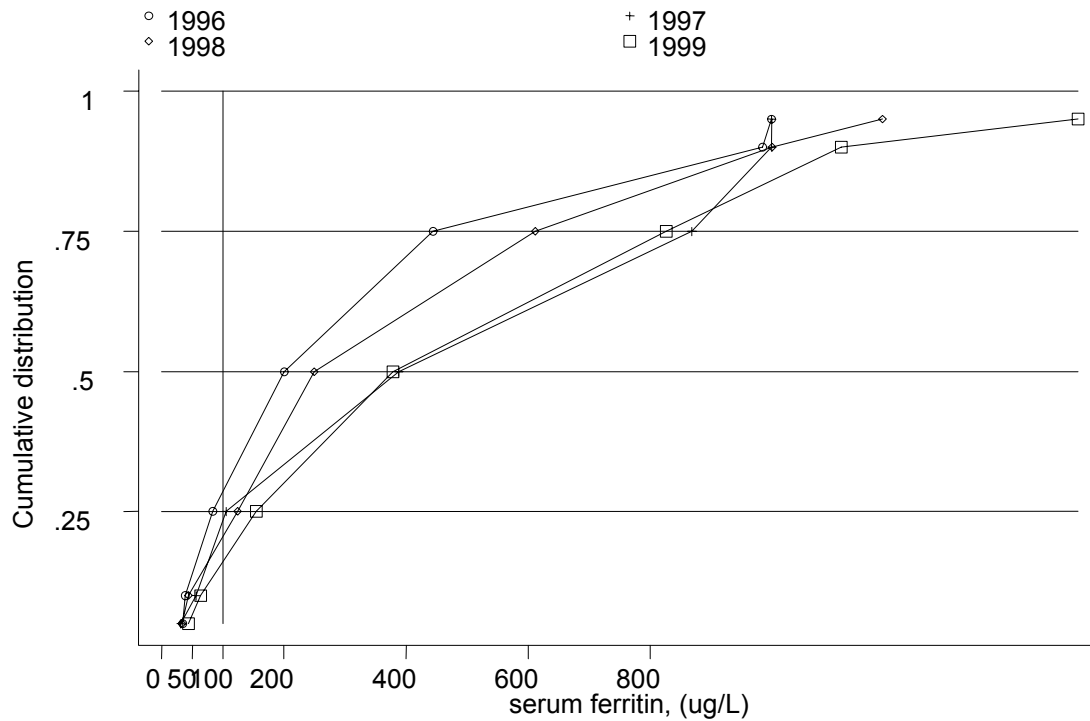


Table 3.1.44: Distribution of serum Ferritin on rHuEpo, HD patients, Government Centres 1996 – 1999

year	No of subjects	No of observations	median	LQ	UQ	% patients > 100 ug/l
1996	145	217	383	172	889	87
1997	318	525	424	184	897	87
1998	296	447	472	221	838	91
1999	446	701	426.8	210.7	840.7	91

Figure 3.1.44: Cumulative Distribution of serum Ferritin on rHuEpo, by year

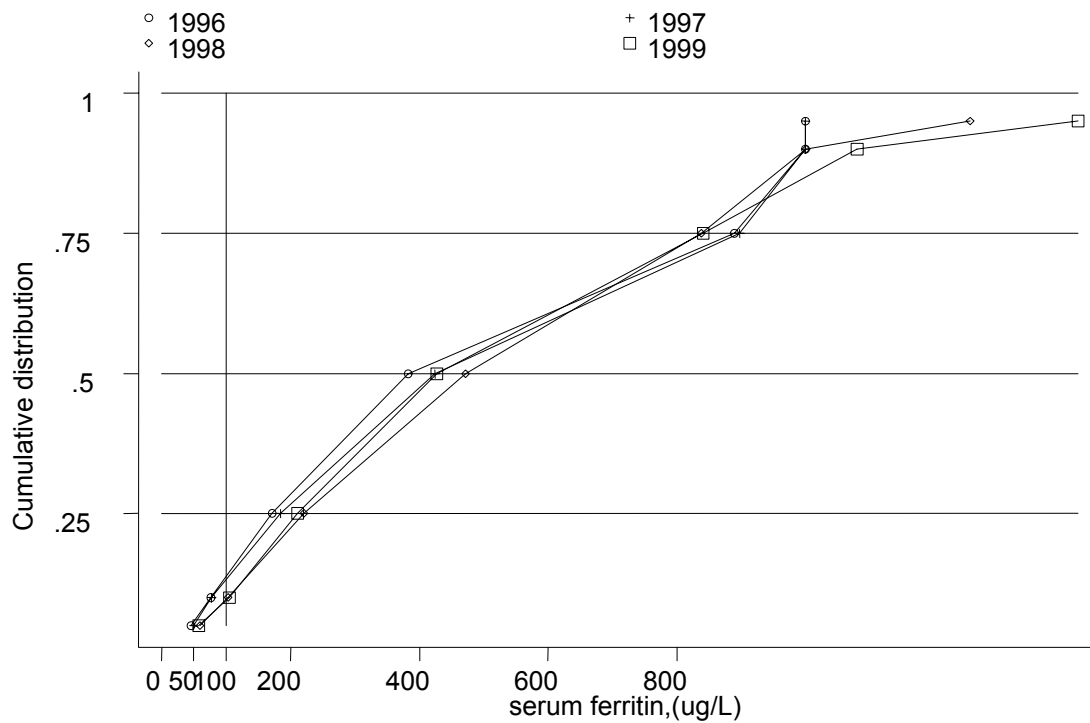


Table 3.1.45: Distribution of Haemoglobin concentration without rHuEpo, HD patients, Government Centres 1996 – 1999

year	No of subjects	No of observations	median	LQ	UQ	% patients <10 g/dl	% patients ≥ 10 & ≤ 12 g/dl	% patients >12 g/dl
1996	703	2447	8.9	7.6	10.5	68	23	9
1997	727	2415	9.3	7.9	10.8	62	26	12
1998	906	2852	9.1	7.8	10.6	66	24	10
1999	958	2953	9.3	7.8	10.7	63	27	10

Table 3.1.45: Cumulative Distribution of Haemoglobin concentration without rHuEpo by year

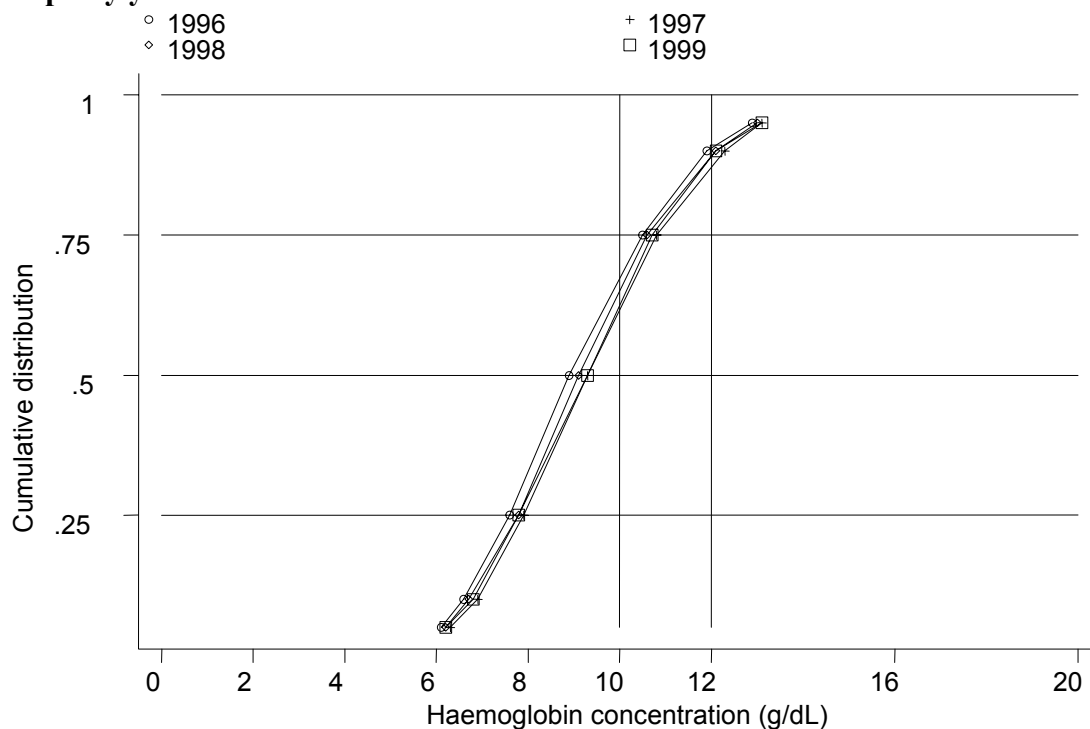
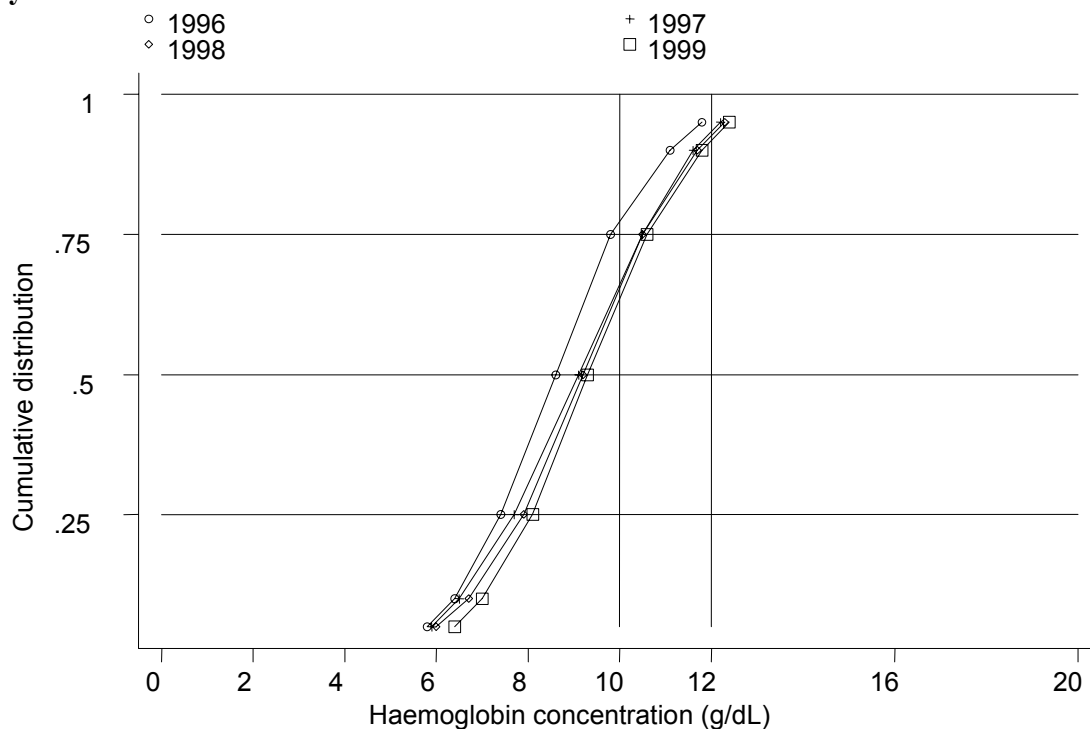


Table 3.1.46: Distribution of Haemoglobin concentration on rHuEpo, HD patients, Government Centres 1996 – 1999

year	No of subjects	No of observations	median	LQ	UQ	% patients <10 g/dl	% patients ≥ 10 & ≤ 12 g/dl	% patients >12 g/dl
1996	359	1304	8.6	7.4	9.8	78	18	4
1997	601	2155	9.1	7.7	10.5	67	28	6
1998	756	2732	9.2	7.9	10.5	64	29	7
1999	905	3240	9.3	8.1	10.6	62	30	8

Figure 3.1.46: Cumulative Distribution of Haemoglobin concentration on rHuEpo, by year

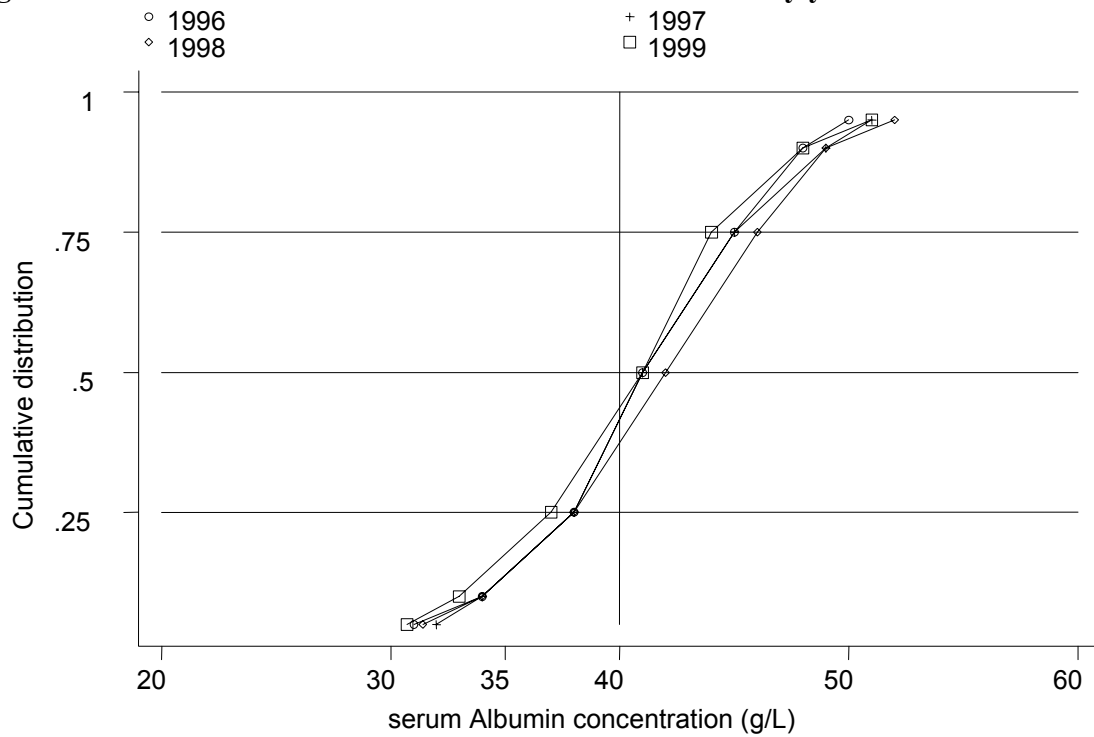


3.1.13 NUTRITIONAL STATUS OF HD PATIENTS GOVERNMENT CENTRES

Table 3.1.47: Distribution of serum Albumin (g/L), HD patients, Government Centres 1996– 9

year	No of subjects	No of observations	median	LQ	UQ	% patients >40g/l
1996	1024	3610	41	38	45	63
1997	1308	4420	41	38	45	63
1998	1654	5486	42	38	46	66
1999	1836	6024	41	37	44	60

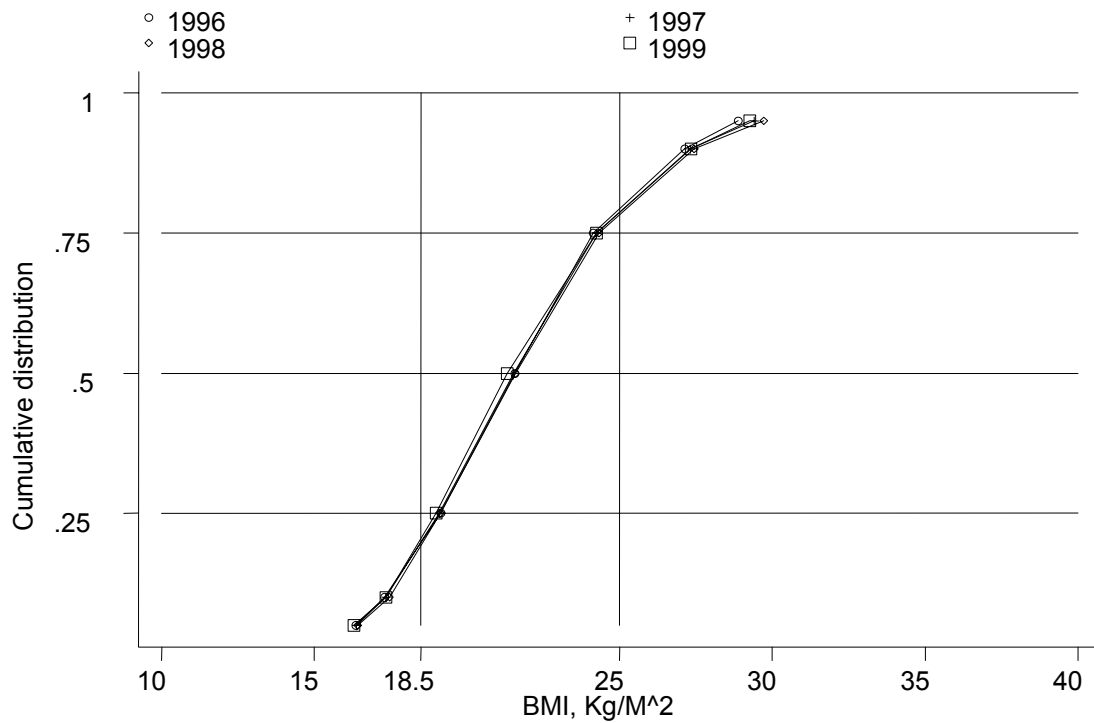
Figure 3.1.47: Cumulative Distribution of serum Albumin by year



**Table 3.1.48: Distribution of Body Mass Index
HD patients, Government Centres 1996 – 1999**

year	No of subjects	No of observations	median	LQ	UQ	% patients <18.5	% patients ≥ 18.5 & ≤ 25	% patients >25
1996	977	10199	21.6	19.1	24.1	19	62	19
1997	1239	12725	21.5	19.1	24.2	19	61	20
1998	1584	16395	21.6	19.1	24.3	18	61	20
1999	1773	17847	21.3	19	24.2	20	61	20

Figure 3.1.48: Cumulative Distribution of BMI by year



3.1.14 SEROLOGICAL STATUS, HD PATIENTS GOVERNMENT CENTRES

Table 3.1.49: Prevalence of positive anti-HCV and HbsAg HD patients, Government Centres 1996 – 1999

year	No	% HbsAg positive	% anti-HCV positive
1996	1071	5	25
1997	1347	5	23
1998	1690	6	22
1999	1884	6	25

Figure 3.1.49: Prevalence of positive anti-HCV and HbsAg HD patients, Government Centres 1996 – 1999

