

# **HAEMODIALYSIS IN MALAYSIA**

## **HAEMODIALYSIS IN GOVERNMENT CENTRES**

## **HAEMODIALYSIS IN NON-GOVERNMENTAL ORGANISATION (NGO) CENTRES**

## **HAEMODIALYSIS IN PRIVATE CENTRES**

**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

### 3. HAEMODIALYSIS IN MALAYSIA

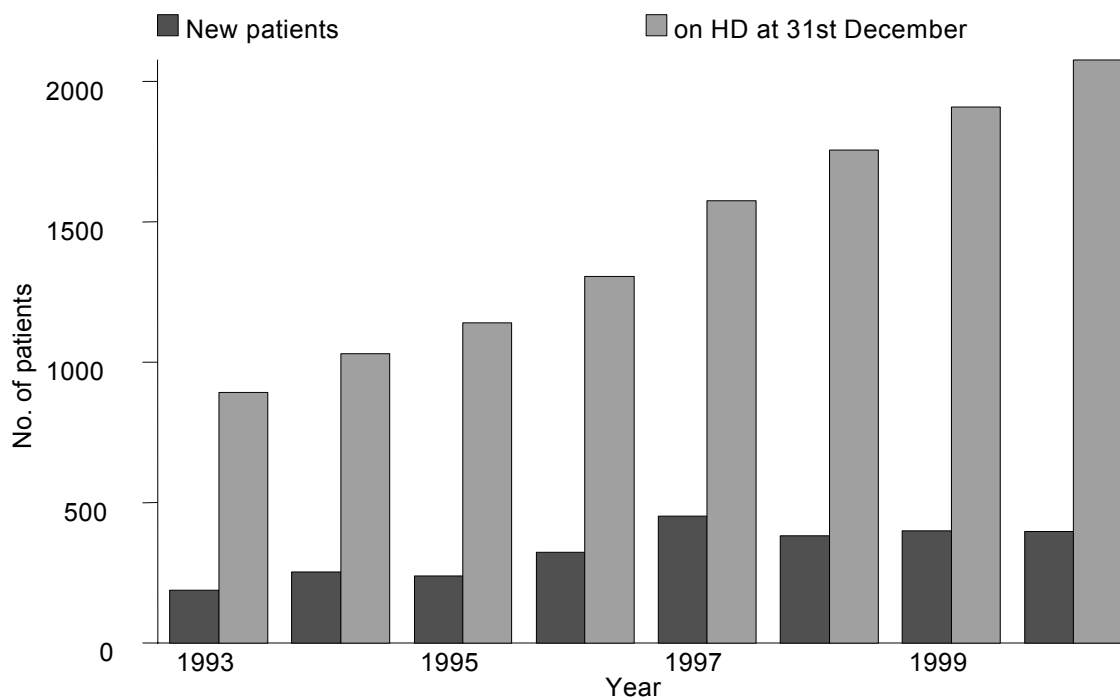
#### 3.1 HAEMODIALYSIS IN GOVERNMENT CENTRES

##### 3.1.1 STOCK AND FLOW

**Table 3.1.01: Stock and flow of Haemodialysis Patients, Government Centres 1993 – 2000**

Year	1993	1994	1995	1996	1997	1998	1999	2000
New patients	187	253	239	323	453	383	400	397
Died	75	79	85	115	138	159	206	194
Transferred to PD	6	7	12	7	9	5	10	7
Transplanted	29	30	26	35	34	30	25	23
Lost to follow up	2	0	6	1	4	7	5	4
on HD at 31 <sup>st</sup> December	893	1030	1140	1305	1573	1755	1909	2077

**Figure 3.1.01: Stock and Flow HD patients, Government Centres 1993 - 2000**

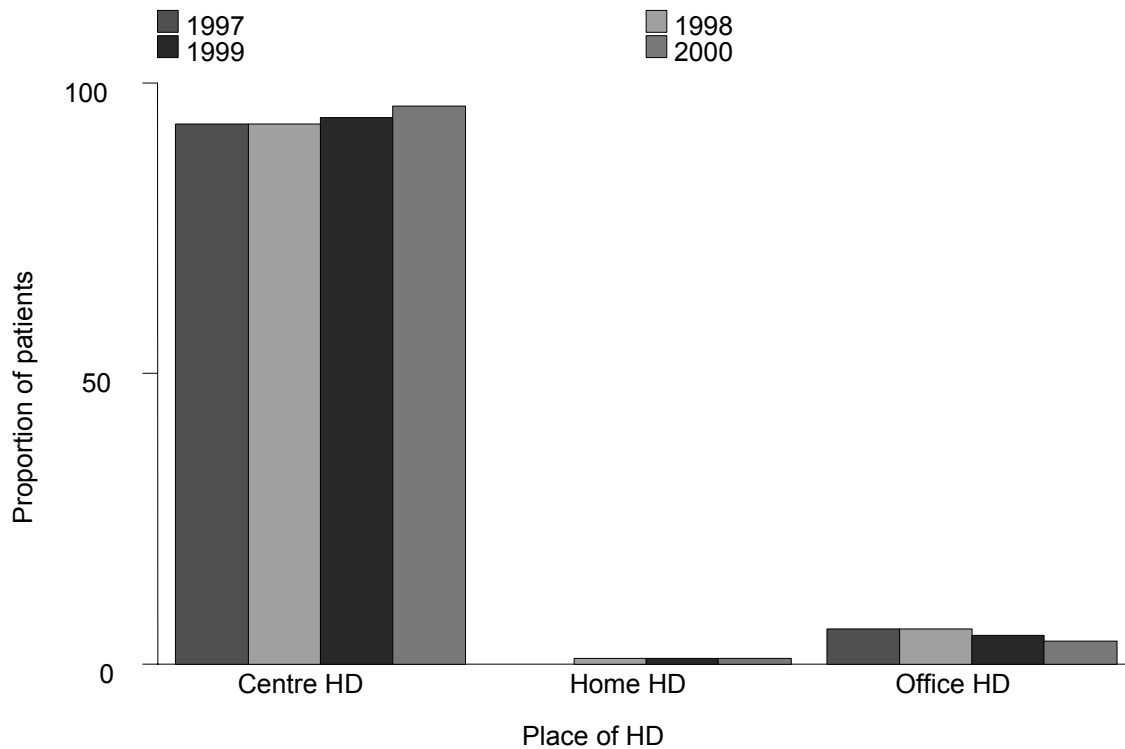


### 3.1.2 PLACE OF HAEMODIALYSIS AND ITS FINANCE

**Table 3.1.02: Place for HD, Government Centres 1997 – 2000**

Year	1997	1998	1999	2000
New patients	453	383	400	397
% Centre HD	93	93	94	96
% Home HD	0	1	1	1
% Office HD	6	6	5	4
on RRT at 31st December	1573	1755	1909	2077
% Centre HD	82	85	86	88
% Home HD	6	5	4	3
% Office HD	12	11	10	9

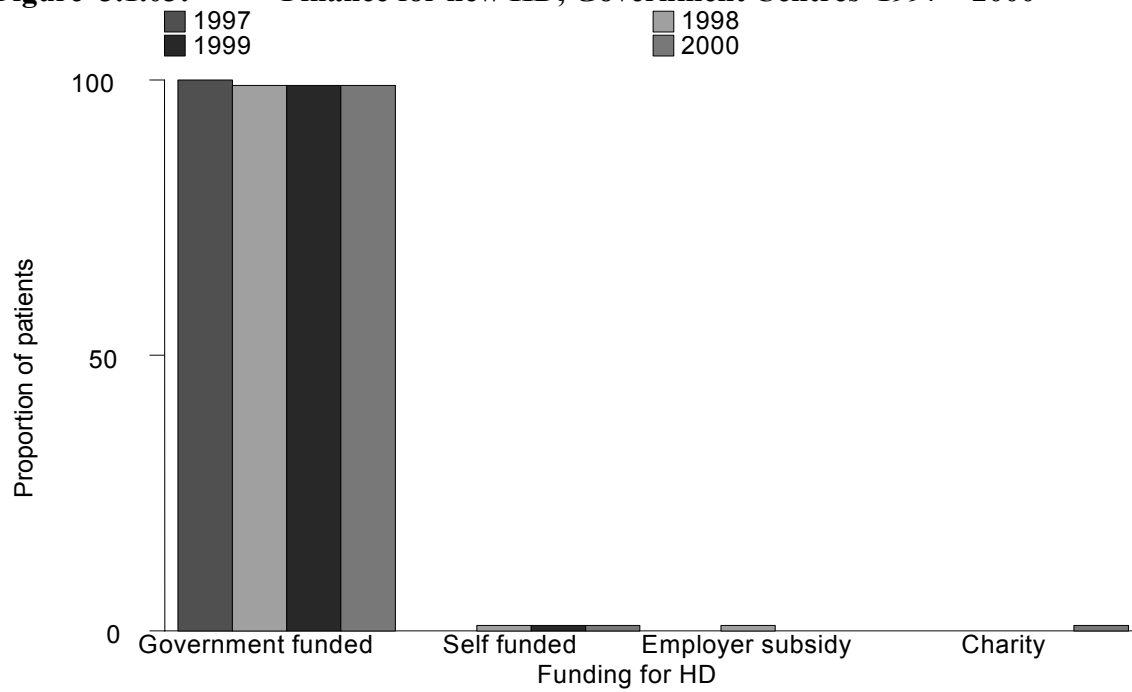
**Figure 3.1.02: Place of HD, Government Centres 1997- 2000**



**Table 3.1.03: Finance for HD, Government Centres 1997 – 2000**

Year	1997	1998	1999	2000
New patients	453	383	400	397
Government funded	100	99	99	99
% Self funded	0	1	1	1
% Employer subsidy	0	1	0	0
% Charity	0	0	0	1
on HD at 31st December	1573	1755	1909	2077
% Government funded	95	96	97	98
% Self funded	4	3	2	2
% Employer subsidy	2	1	1	1
% Charity	0	0	0	0

**Figure 3.1.03: Finance for new HD, Government Centres 1997 – 2000**

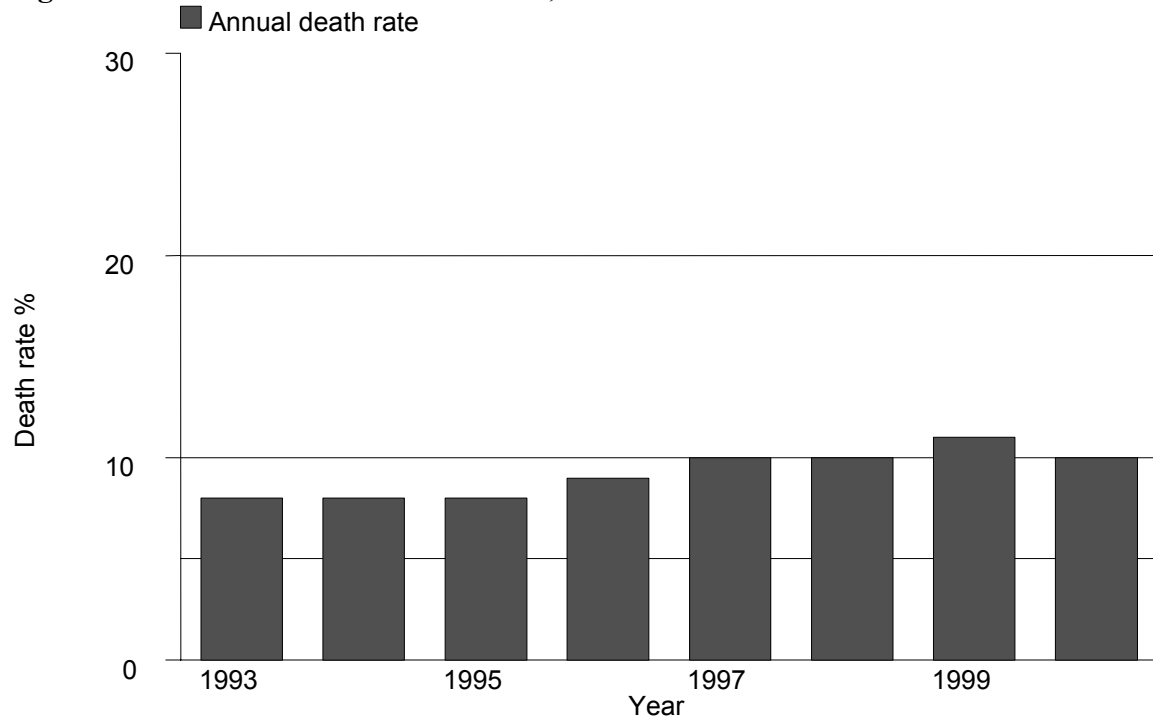


### 3.1.3 DEATH ON HAEMODIALYSIS AND TRANSFER TO PERITONEAL DIALYSIS

**Table 3.1.04: HD Death Rate and Transfer to PD, Government Centres 1993 - 2000**

year	1993	1994	1995	1996	1997	1998	1999	2000
No. at risk	893	962	1085	1223	1439	1664	1832	1993
Deaths	75	79	85	115	138	159	206	194
Death rate %	8	8	8	9	10	10	11	10
Transfer to PD	6	7	12	7	9	5	10	7
Transfer to PD rate %	1	1	1	1	1	0	1	0
All Losses	81	86	97	122	147	164	216	201
All Losses rate %	9	9	9	10	10	10	12	10

**Figure 3.1.04: Death Rate on HD, Government Centres 1993 - 2000**



**Table 3.1.05: Causes of Death on HD, Government Centres 1997 – 2000**

Cause of death	1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%
Cardiovascular	43	31	50	31	78	38	71	37
Died at home	20	14	34	21	43	21	32	16
Sepsis	32	23	34	21	37	18	43	22
GIT bleed	2	1	5	3	6	3	6	3
Cancer	5	4	4	3	2	1	6	3
Liver disease	2	1	1	1	2	1	1	1
Others	25	18	22	14	34	17	34	18
Unknown	9	7	9	6	4	2	1	1
Total	138	100	159	100	206	100	194	100

### 3.1.4 GOVERNMENT HAEMODIALYSIS CENTRES

**Table 3.1.07: Centre Distribution of HD patients, Government Centres 2000**

n	Centre	No	percent
0	No.on RRT at 31st December	2077	100
1	801 Rumah Sakit Angkatan Tentera, Kuching	8	0
2	807 Rumah Sakit Angkatan Tentera, Sg Petani	7	0
3	810 Rumah Sakit Angkatan Tentera, Majidee	8	0
4	819 Rumah Sakit Angkatan Tentera, TUDM	1	0
5	94 Hospital Angkatan Tentera, Terendak	28	1
6	95 Hospital Angkatan Tentera, Kinrara	25	1
7	96 Hospital Angkatan Tentera, Lumut	20	1
8	Alor Setar Hospital	79	4
9	Baling Hospital	6	0
10	Banting Hospital	17	1
11	Batu Pahat Hospital	30	1
12	Beaufort Hospital	6	0
13	Besut Hospital	12	1
14	Bintulu Hospital	16	1
15	Bukit Mertajam Hospital	39	2
16	Dungun Hospital	9	0
17	Dutches of Kent Hospital	27	1
18	Ipoh Hospital	115	6
19	Kajang Hospital	25	1
20	Kangar Hospital	44	2
21	Kemaman Hospital	10	0
22	Keningau Hospital	20	1
23	Kluang Hospital	15	1
24	Kota Bharu Hospital	51	2
25	Kuala Krai Hospital	6	0
26	Kuala Lumpur Hospital	178	9
27	Kuala Lumpur Hospital (Paed.)	3	0
28	Kuala Nerang Hospital	5	0
29	Kuala Pilah Hospital	29	1
30	Kuala Terengganu Hospital	51	2



31	Kuching Hospital	102	5
32	Kulim Hospital	8	0
33	Labuan Hospital	23	1
34	Langkawi Hospital	11	1
35	Melaka Hospital	44	2
36	Mentakab Hospital	38	2
37	Miri Hospital	72	3
38	Muar Hospital	50	2
39	Pontian Hospital	11	1
40	Pulau Pinang Hospital	71	3
41	Pusat Hemodialisis KEMENTAH	14	1
42	Pusat Rawatan Angkatan Tentera , Kota Bharu	8	0
43	Putrajaya Hospital	12	1
44	Queen Elizabeth Hospital	87	4
45	Raub Hospital	22	1
46	Segamat Hospital	26	1
47	Selayang Hospital	25	1
48	Seremban Hospital	53	3
49	Sibu Hospital	52	3
50	Sik Hospital	10	0
51	Sri Aman Hospital	4	0
52	Sultanah Aminah Hospital	103	5
53	Sungai Petani Hospital	35	2
54	Taiping Hospital	36	2
55	Tanah Merah Hospital	6	0
56	Tanjung Malim, HD Unit	1	0
57	Tawau Hospital	50	2
58	Teluk Intan Hospital	28	1
59	Tengku Ampuan Afzan Hospital, Kuantan	47	2
60	Tengku Ampuan Rahimah Hospital, Klang	68	3
61	Tg. Ampuan Jemaah Hospital	1	0
62	Universiti Kebangsaan Malaysia Hospital	22	1
63	Universiti Sains Malaysia Hospital	4	0
64	University Hospital	37	2
65	Yan Hospital	6	0

### 3.1.5 HAEMODIALYSIS PATIENTS' CHARACTERISTICS

**Table 3.1.08: Age Distribution of HD patients, Government Centres 1997 – 2000**

Year	1997	1998	1999	2000
New patients	453	383	400	397
% 1-14 years	0	1	1	2
% 15-24 years	7	7	8	9
% 25-34 years	13	13	12	14
% 35-44 years	20	22	17	18
% 45-54 years	23	27	32	25
% 55-64 years	28	22	23	25
% ≥65 years	9	8	6	8
Dialysing at 31st December	1573	1755	1909	2077
% 1-14 years	1	1	1	1
% 15-24 years	7	7	8	8
% 25-34 years	20	19	19	19
% 35-44 years	26	26	25	25
% 45-54 years	23	24	25	25
% 55-64 years	18	18	17	18
% ≥65 years	5	5	5	4

**Table 3.1.09: HD Patient Characteristics, Government Centres 1997 – 2000**

Year	1997	1998	1999	2000
New patients	453	383	400	397
Mean age $\pm$ sd	47 $\pm$ 14	46 $\pm$ 14	46 $\pm$ 14	46 $\pm$ 15
% Male	62	61	64	59
% Diabetic	31	31	33	30
% HbsAg+	5	6	7	8
% Anti-HCV+	12	11	6	5

### 3.1.6 SURVIVAL ANALYSIS

**Table 3.1.10: HD patient Survival related to Year of Entry, Government Centres 1995 – 2000**

Year	1995			1996			1997		
Interval (months)	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	98	1	226	95	1	297	93	1	414
12	96	1	211	91	2	275	88	2	385
24	88	2	181	86	2	244	81	2	348
36	80	3	162	76	2	215	75	2	313
48	76	3	150	69	3	175			
60	69	3	128						

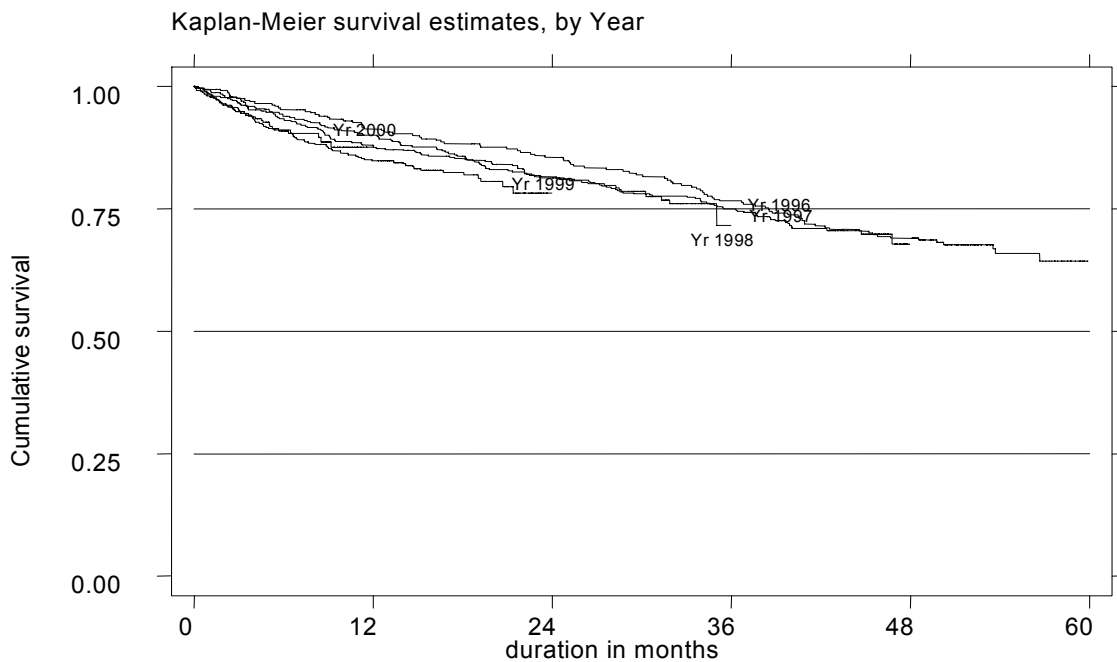
  

Year	1998			1999			2000		
Interval (months)	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	94	1	353	91	1	360	91	2	187
12	90	2	330	85	2	328			
24	81	2	287						

No. = number at risk

SE = standard error

**Table 3.1.10: HD patient Survival related to Year of Entry, Government Centres 1996– 2000**



**Table 3.1.10: HD Technique Survival related to Year of Entry, Government Centres 1995– 2000**

Year	1995			1996			1997		
Interval	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	98	1	227	95	1	297	93	1	414
12	95	1	211	91	2	275	88	2	385
24	85	2	181	84	2	244	81	2	348
36	77	3	162	75	3	215	74	2	315
48	73	3	150	67	3	175			
60	65	3	128						

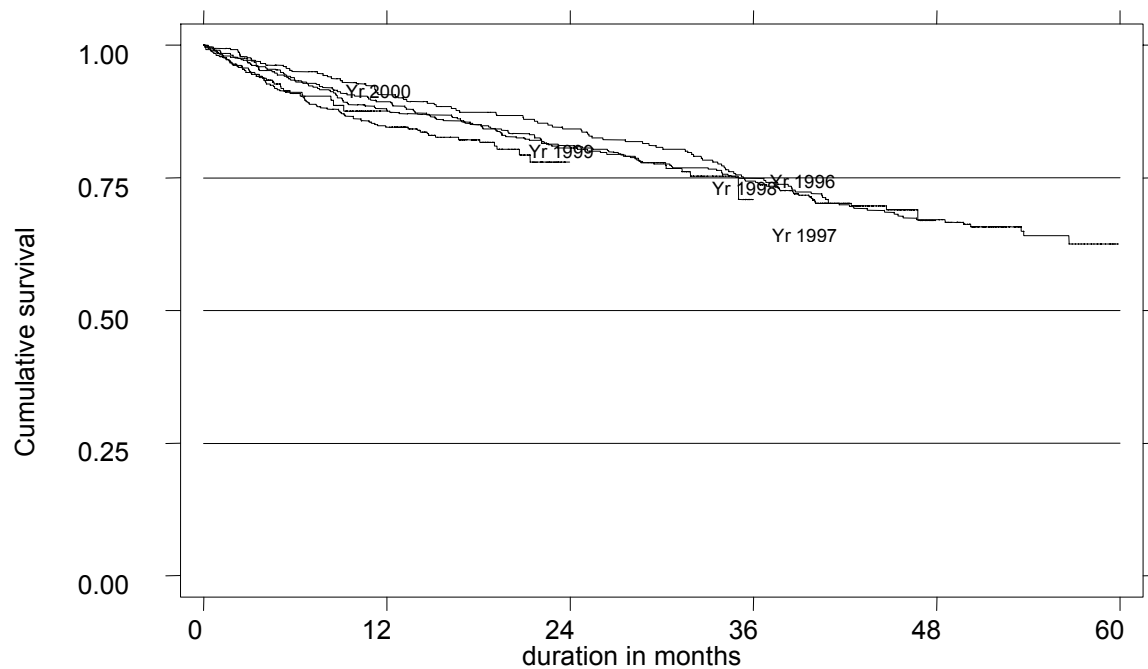
Year	1998			1999			2000		
Interval	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	93	1	353	91	1	360	91	2	187
12	89	2	330	85	2	328			
24	81	2	287						

No. = number at risk

SE = standard error

**Figure 3.1.11 HD Technique Survival by Year of Entry Government Centres 1996 – 2000**

Kaplan-Meier survival estimates, by Year



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

**Table 3.1.12: Work Related Rehabilitation on HD, Government Centres  
1997 - 2000**

REHABILITATION STATUS	1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%
Full time work for pay	487	40	520	40	607	35	628	33
Part time work for pay	111	9	115	9	162	9	216	11
Able to work but unable to get a job	39	3	45	3	45	3	72	4
Able to work but not yet due to dialysis schedule	29	2	19	1	51	3	44	2
Able but disinclined to work	14	1	9	1	30	2	35	2
Home maker	258	21	268	21	363	21	413	22
Full time student	10	1	15	1	24	1	43	2
Age<15 years	3	0	3	0	4	0	6	0
Retired	128	11	158	12	202	12	199	11
Age>65 years	70	6	84	6	98	6	122	6
Unable to work due to poor health	69	6	66	5	137	8	111	6
<b>Total</b>	<b>1218</b>	<b>100</b>	<b>1302</b>	<b>100</b>	<b>1723</b>	<b>100</b>	<b>1889</b>	<b>100</b>

**Table 3.1.13: Quality of Life on Haemodialysis, Government Centres 1997 – 2000**

QOL Index Summated Score	1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%
0 (Worst QOL)	0	0	1	0	2	0	1	0
1	0	0	1	0	2	0	2	0
2	5	0	5	0	6	0	7	0
3	6	0	8	1	12	1	10	1
4	13	1	21	2	26	2	31	2
5	26	2	37	3	54	3	52	3
6	55	4	60	5	69	4	73	4
7	64	5	56	4	110	7	121	6
8	116	9	89	7	124	7	144	8
9	113	9	95	7	170	10	179	10
10 (Best QOL)	837	68	900	71	1109	66	1245	67
Total	1235	100	1273	100	1684	100	1865	100

### 3.1.8 HAEMODIALYSIS PRACTICES IN GOVERNMENT CENTRES

**Table 3.1.14: Vascular Access on Haemodialysis, Government Centres 1997 - 2000**

Access types	1997		1998		1999		2000	
	No	%	No	%	No	%	No	%
Wrist AVF	1109	84	1368	83	1487	80	1644	79
BCF*	179	14	224	14	295	16	358	17
Venous graft	2	0	3	0	2	0	5	0
Artificial graft	9	1	17	1	23	1	10	0
PERMCATH	4	0	8	0	12	1	13	1
Temporary CVC*	17	1	32	2	48	3	44	2
Total	1320	100	1652	100	1867	100	2074	100

\* BCF = Brachiocephalic fistula

\* CVC = Central venous catheter

**Table 3.1.15: Difficulties reported with Vascular Access, Government Centres 1997 - 2000**

Access difficulty	1997		1998		1999		2000	
	No	%	No	%	No	%	No	%
Difficulty with needle placement	40	3	67	4	98	5	77	4
Difficulty in obtaining desired blood flow rate	27	2	36	2	59	3	66	3
Other difficulty	6	0	19	1	29	2	15	1
No difficulty	1247	94	1539	93	1687	90	1923	92
Total	1320	100	1661	100	1873	100	2081	100



**Table 3.1.16: Complications reported with Vascular Access, Government Centres 1997 - 2000**

Complication	1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%
thrombosis	49	4	59	4	92	5	80	4
bleed	7	1	26	2	14	1	9	0
aneurysmal dilatation	100	8	120	7	123	7	121	6
swollen limb	15	1	20	1	22	1	19	1
access related infection, local/systemic	17	1	13	1	19	1	31	1
distal limb ischaemia	2	0	4	0	7	0	2	0
venous outflow obstruction	17	1	25	2	29	2	30	1
carpal tunnel	15	1	11	1	24	1	27	1
other	6	0	28	2	22	1	20	1
no complication	1092	83	1356	82	1521	81	1741	84
<b>Total</b>	<b>1320</b>	<b>100</b>	<b>1662</b>	<b>100</b>	<b>1873</b>	<b>100</b>	<b>2080</b>	<b>100</b>

**Table 3.1.17: Blood Flow Rates in Government HD Units 1997– 2000**

Blood flow rates	1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%
<150 ml/min	2	0	4	0	5	0	4	0
150-199 ml/min	27	2	28	2	43	2	38	2
200-249 ml/min	448	35	506	31	427	23	375	19
250-299 ml/min	634	50	799	49	954	52	927	46
300-349 ml/min	151	12	268	16	376	21	599	30
> 350 ml/min	18	1	27	2	21	1	77	4
Total	1280	100	1632	100	1826	100	2020	100

**Table 3.1.18: Number of HD Sessions per week, Government HD Units 1997 - 2000**

HD sessions Per week	1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%
1	1	0	1	0	1	0	1	0
2	4	0	2	0	14	1	14	1
3	1309	99	1654	100	1851	99	2058	99
4	7	1	2	0	1	0	3	0
Total	1321	100	1659	100	1867	100	2077	100

**Table 3.1.19: Duration of HD in Government Units 1997 - 2000**

Duration of HD per session	1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%
≤3 hours	7	1	3	0	2	0	6	0
3.5 hours	3	0	17	1	0	0	1	0
4 hours	1238	94	1537	93	1739	93	1964	95
4.5 hours	67	5	88	5	104	6	93	4
5 hours	7	1	8	0	22	1	11	1
≥5 hours	1	0	3	0	0	0	0	0
Total	1323	100	1656	100	1867	100	2075	100

**Table 3.1.20: Dialyser membrane types in Government HD Units 1997 - 2000**

Dialyser membrane	1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%
Cellulosic	908	72	794	53	515	37	491	31
Cellulose acetate	279	22	323	22	322	23	303	19
Synthetic	66	5	370	25	544	39	803	50
Total	1253	100	1487	100	1381	100	1597	100

**Table 3.1.21: Dialyser Reuse Frequency in Government HD Units 1997- 2000**

Dialyser reuse frequency	1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%
1*	17	1	14	1	16	1	16	1
2	7	1	4	0	5	0	11	1
3	935	74	172	11	121	7	105	5
4	125	10	101	7	95	5	114	6
5	47	4	102	7	124	7	72	4
6	96	8	756	50	925	53	990	51
7	2	0	36	2	41	2	63	3
8	4	0	64	4	80	5	117	6
9	25	2	109	7	174	10	63	3
10	0	0	69	5	66	4	72	4
11	0	0	23	2	5	0	3	0
12	0	0	63	4	106	6	281	14
≥13	0	0	0	0	0	0	42	2
Total	1258	100	1513	100	1758	100	1949	100

1\* is single use i.e. no reuse

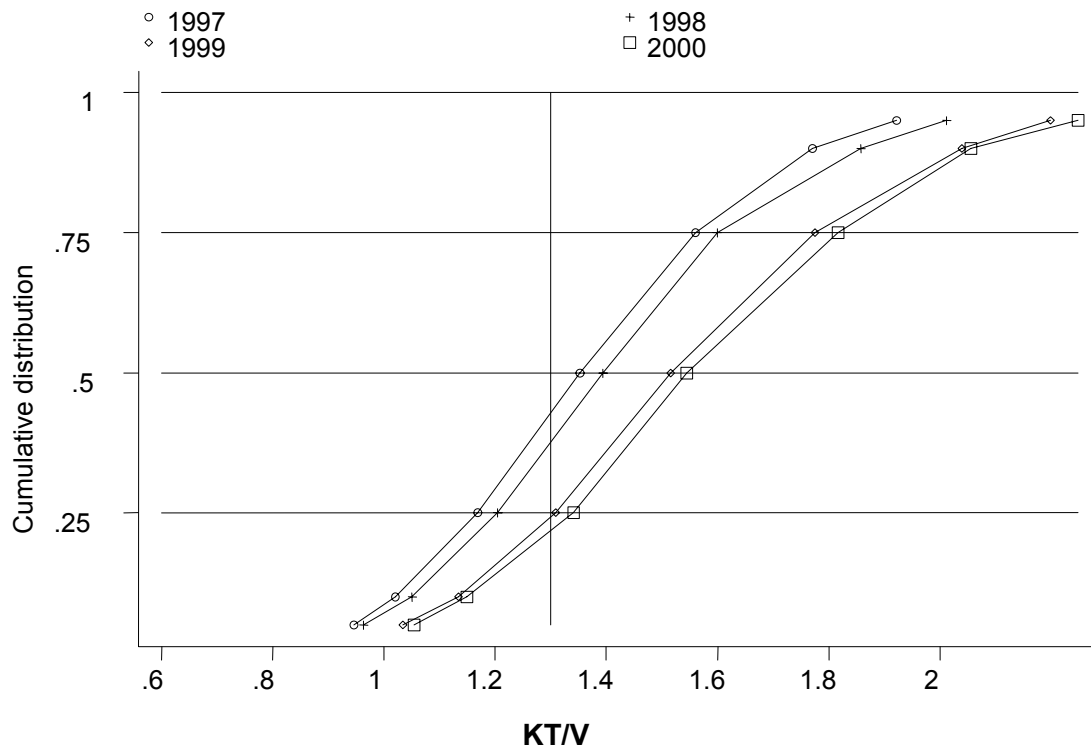
**Table 3.1.22: Dialysate Buffer used in Government HD Units 1997 - 2000**

Dialysate buffer	1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%
Acetate	500	38	549	34	448	24	283	14
Bicarbonate	819	62	1084	66	1421	76	1781	86
Total	1319	100	1633	100	1869	100	2064	100

**Table 3.1.23: Distribution of Prescribed KT/V, Government Centres  
1997 - 2000**

Year	No of subjects	No of observations	median	LQ	UQ	% > 1.3
1997	1226	12666	1.4	1.2	1.6	57
1998	1595	16530	1.4	1.2	1.6	63
1999	1782	17987	1.5	1.3	1.8	76
2000	1962	20407	1.5	1.3	1.8	79

**Figure 3.1.23: Cumulative distribution of Prescribed KT/V by year**

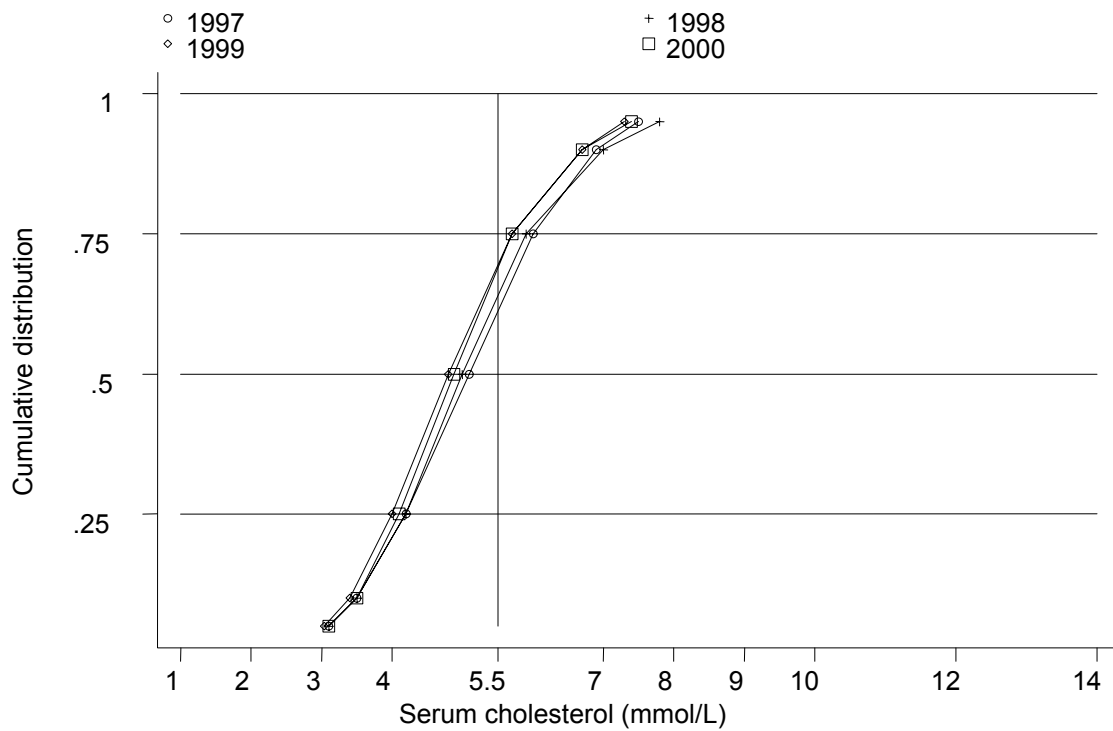


### 3.1.9. DYSLIPIDAEMIA IN HD PATIENTS, GOVERNMENT CENTRES

**Table 3.1.24: Distribution of serum Cholesterol Levels (mmol/l), HD patients, Government Centres 1997 – 2000**

year	No of subjects	No of observations	median	LQ	UQ	% patients < 5.3 mmol/l
1997	854	1514	5.1	4.2	6	63
1998	1057	1720	5	4.2	5.9	63
1999	1542	2529	4.8	4	5.7	69
2000	1706	2842	4.9	4.1	5.7	69

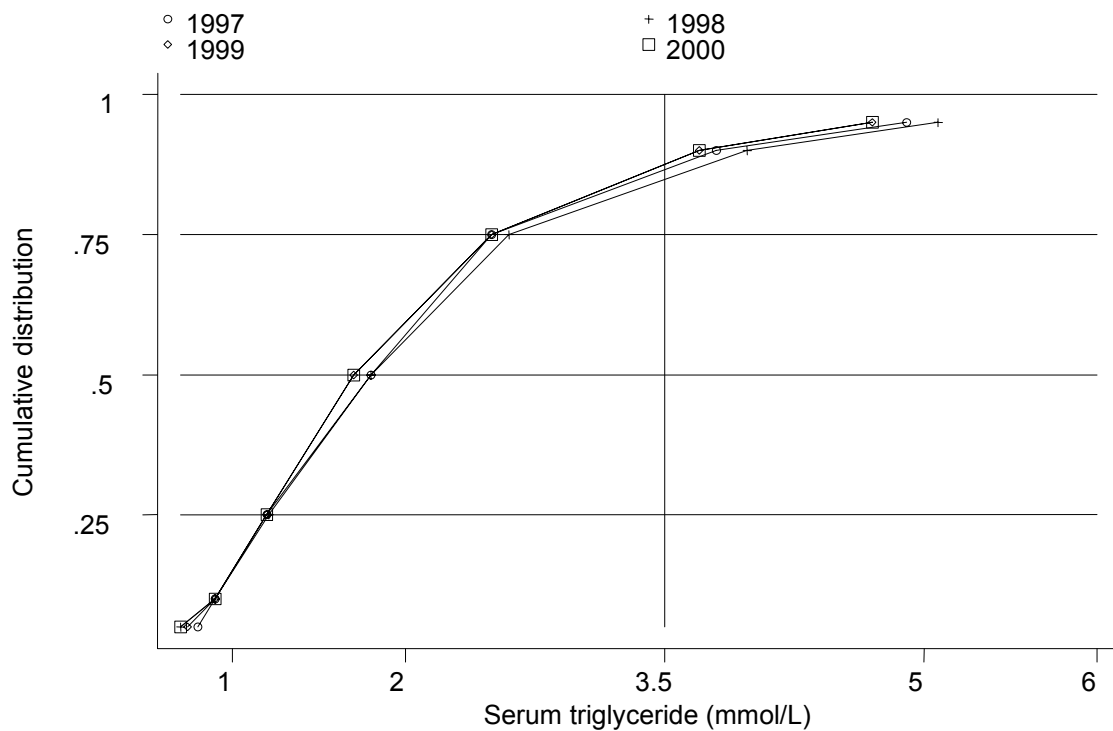
**Figure 3.1.24: Cumulative distribution of serum cholesterol concentration by year**



**Table 3.1.25: Distribution of serum Triglyceride (mmol/l), HD patients, Government Centres 1997 - 2000**

year	No of subjects	No of observations	median	LQ	UQ	% patients < 3.5 mmol/l
1997	803	1433	1.8	1.2	2.5	87
1998	995	1600	1.8	1.2	2.6	86
1999	1431	2276	1.7	1.2	2.5	88
2000	1574	2606	1.7	1.2	2.5	88

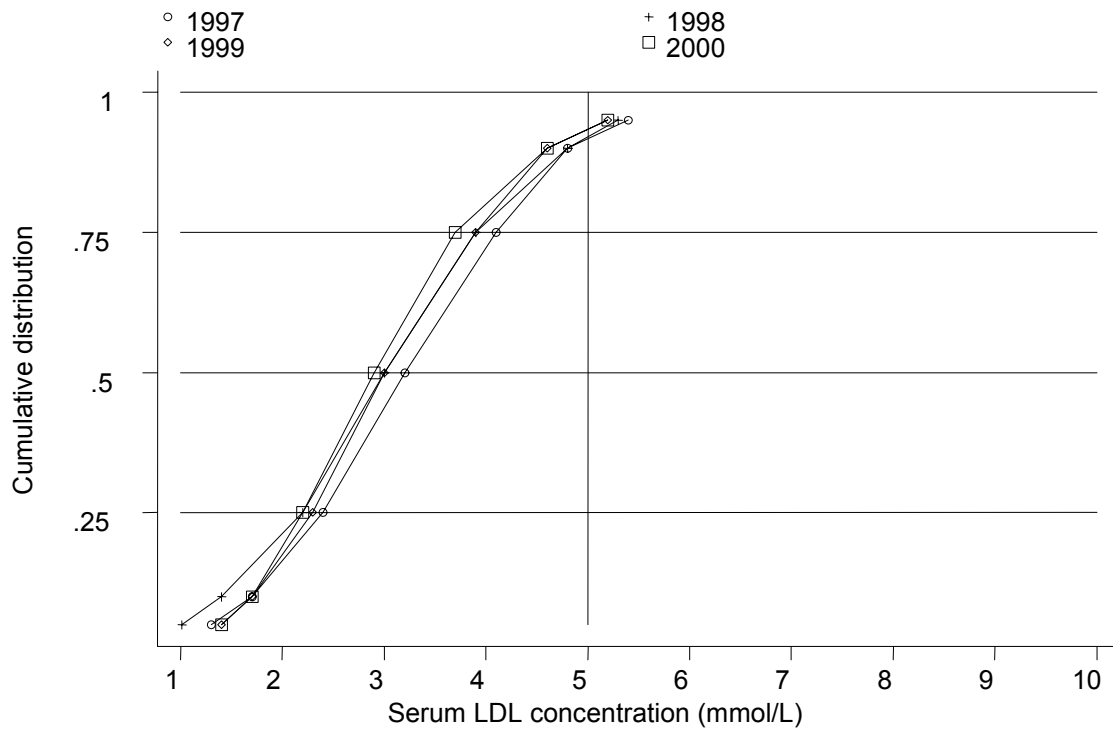
**Figure 3.1.25: Cumulative distribution of serum triglyceride concentration by year**



**Table 3.1.26: Distribution of serum LDL (mmol/l), HD patient, Government Centres 1997 – 2000**

year	No of subjects	No of observations	median	LQ	UQ	% patients <5 mmol/l
1997	403	676	3.2	2.4	4.1	92
1998	473	731	3	2.2	3.9	92
1999	728	1028	3	2.3	3.9	93
2000	932	1519	2.9	2.2	3.7	94

**Figure 3.1.26 : Cumulative distribution of serum LDL concentration by year**

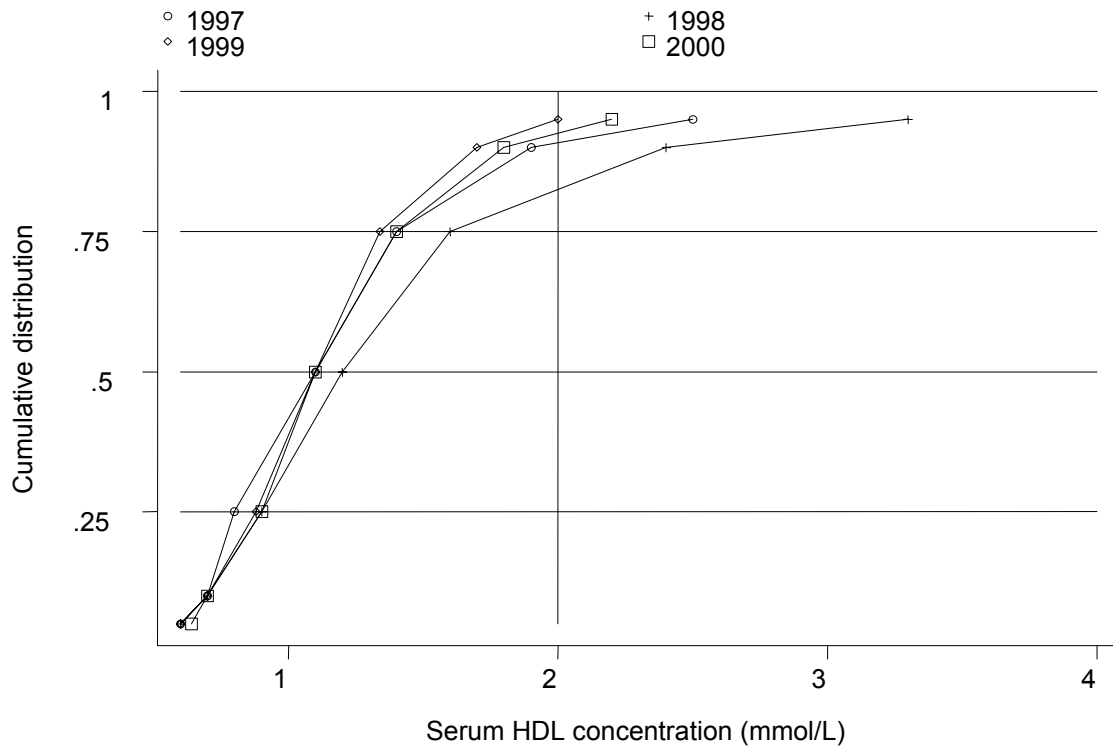




**Table 3.1.27: Distribution of serum HDL (mmol/l), HD patient, Government Centres 1997- 2000**

year	No of subjects	No of observations	median	LQ	UQ	% patients < 2mmol/l
1997	390	663	1.1	.8	1.4	91
1998	478	746	1.2	.9	1.6	84
1999	743	1061	1.1	.9	1.3	95
2000	954	1549	1.1	.9	1.4	93

**Figure 3.1.27: Cumulative distribution of serum HDL by year**



### 3.1.10 MANAGEMENT OF RENAL BONE DISEASE, GOVERNMENT CENTRES

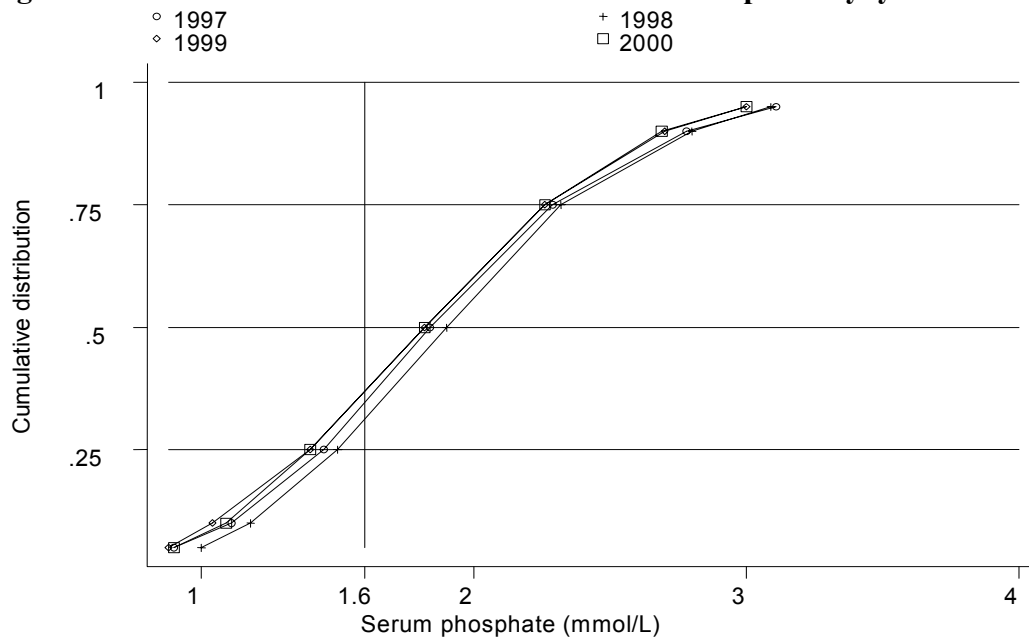
**Table 3.1.28: Treatment for Renal Bone Disease, HD patients, Government Centres 1997 - 2000**

year	No of subjects	% on CaCO <sub>3</sub>	% on Al(OH) <sub>3</sub>	% on Vit D
1997	1332	90	26	41
1998	1673	90	18	28
1999	1884	91	9	24
2000	2086	92	8	24

**Table 3.1.29: Distribution of serum Phosphate (mmol/l), HD patients, Government Centres 1997 – 2000**

year	No of subjects	No of observations	median	LQ	UQ	% patients < 1.6 mmol/l
1997	1299	4369	1.8	1.5	2.3	33
1998	1606	5296	1.9	1.5	2.3	30
1999	1828	5889	1.8	1.4	2.3	36
2000	2025	6593	1.8	1.4	2.3	36

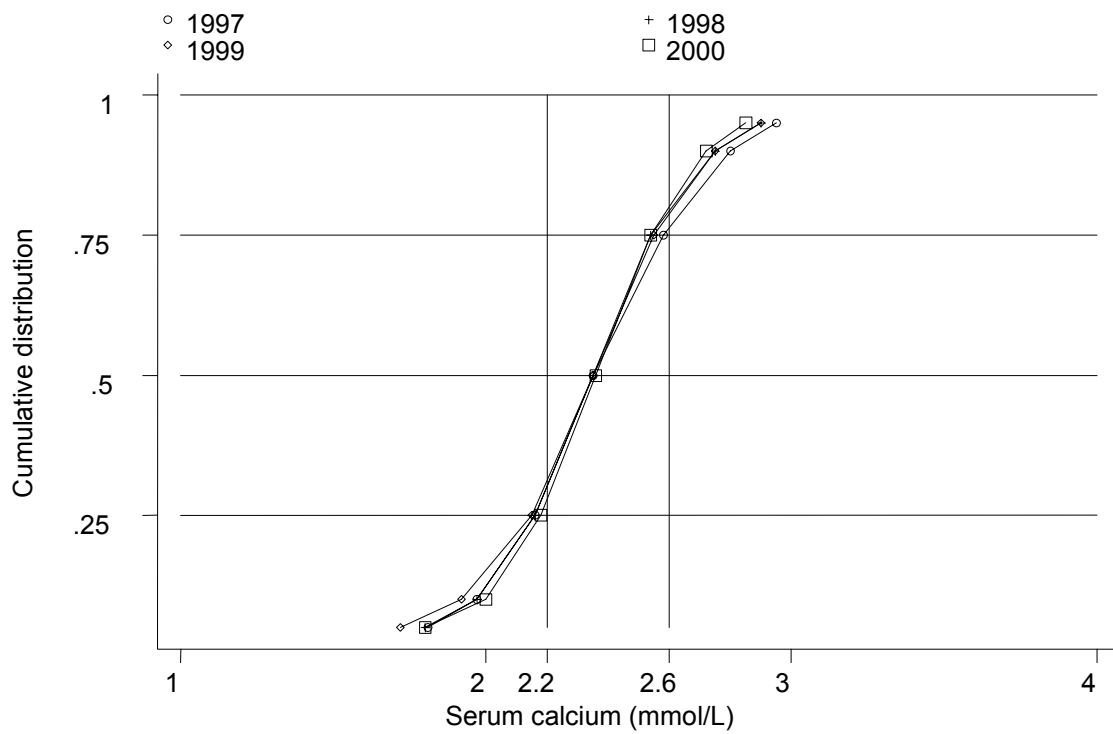
**Figure 3.1.29: Cumulative distribution of serum Phosphate by year**



**Table 3.1.30: Distribution of serum Calcium (mmol/l), HD patients, Government Centres 1997– 2000**

year	No of subjects	No of observations	median	LQ	UQ	% patients $\geq 2.2$ & $\leq 2.6$ mmol/l
1997	1299	4392	2.3	2.2	2.6	52
1998	1637	5404	2.3	2.2	2.5	53
1999	1843	6014	2.3	2.2	2.5	52
2000	2038	6704	2.4	2.2	2.5	56

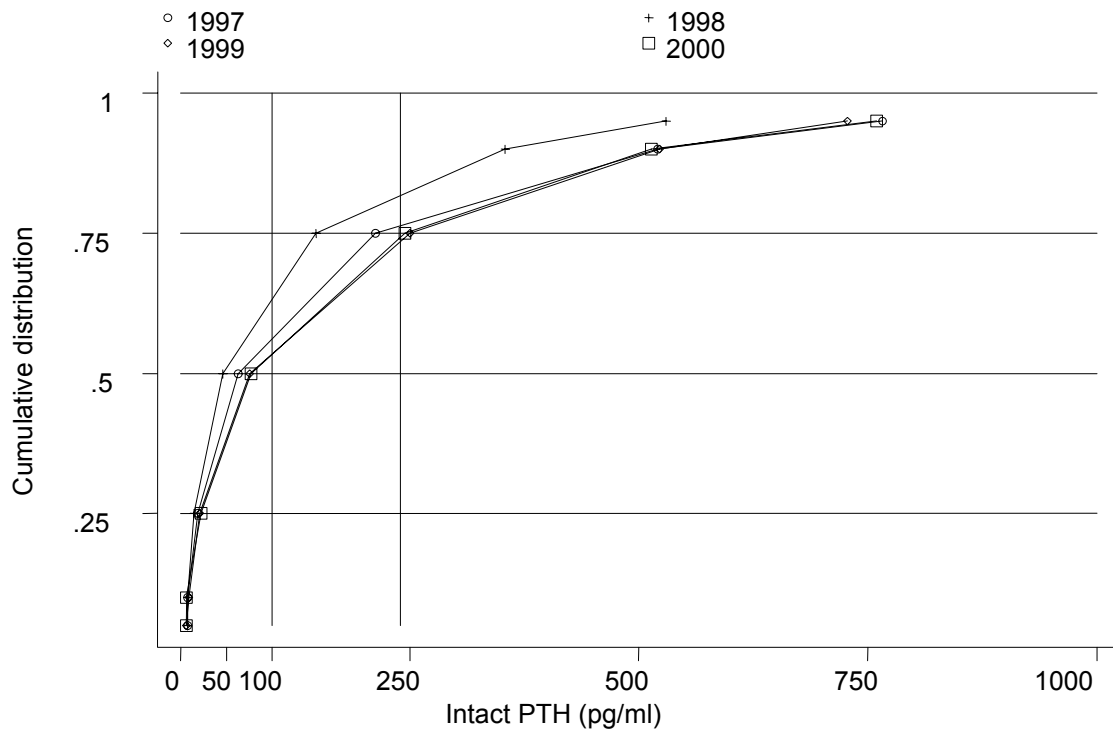
**Figure 3.1.30: Cumulative distribution of serum Calcium by year**



**Table 3.1.31: Distribution of serum iPTH(ng/L), HD patients, Government Centres 1997 – 2000**

year	No of subjects	No of observations	median	LQ	UQ	% patients $\geq 100$ & $\leq 250$ ng/l
1997	825	1248	63	19	212.5	16
1998	747	1013	46	15	148	16
1999	1215	1841	75.3	21.1	250	18
2000	1539	2381	77	22	245	18

**Figure 3.1.31: Cumulative distribution of serum iPTH by year**



### 3.1.11. MANAGEMENT OF BLOOD PRESSURE, GOVERNMENT CENTRES

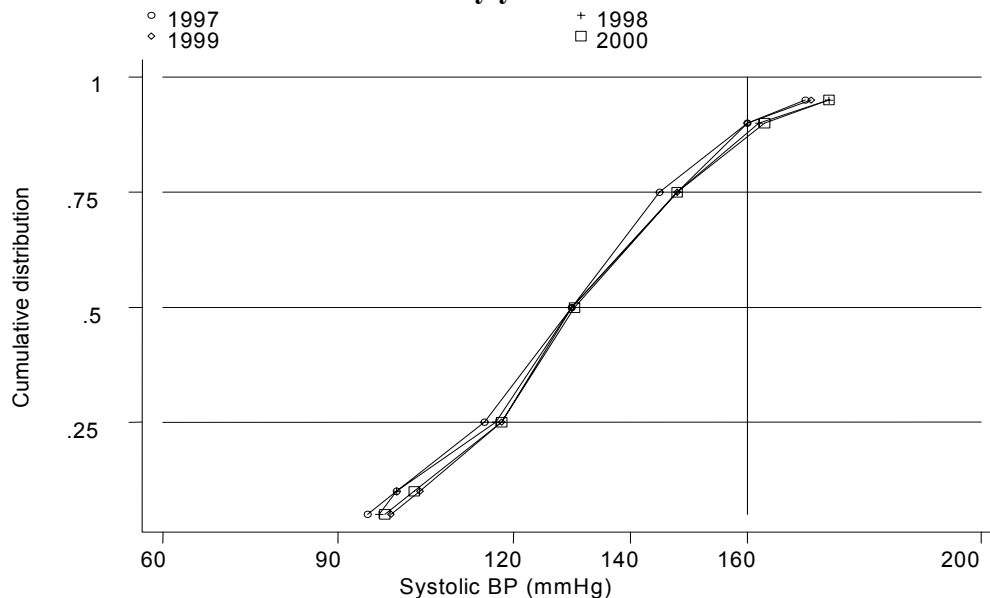
**Table 3.1.32: Treatment for hypertension, HD patients, Government Centres 1997 - 2000**

year	No.	% on anti-hypertensives	% on 1 anti-hypertensives	% on 2 anti-hypertensives	% on 3 anti-hypertensives
1997	1332	62	35	21	6
1998	1673	63	36	20	7
1999	1884	67	35	24	8
2000	2086	67	37	22	8

**Table 3.1.33: Distribution of Systolic BP without anti-hypertensives, HD patients, Government Centres 1997 – 2000**

year	No of subjects	No of observations	median	LQ	UQ	% patients < 160 mmHg
1997	495	5328	130	115	145	88
1998	604	6421	130	117	148	86
1999	613	6306	130	118	148	88
2000	693	7338	130.5	118	148	87

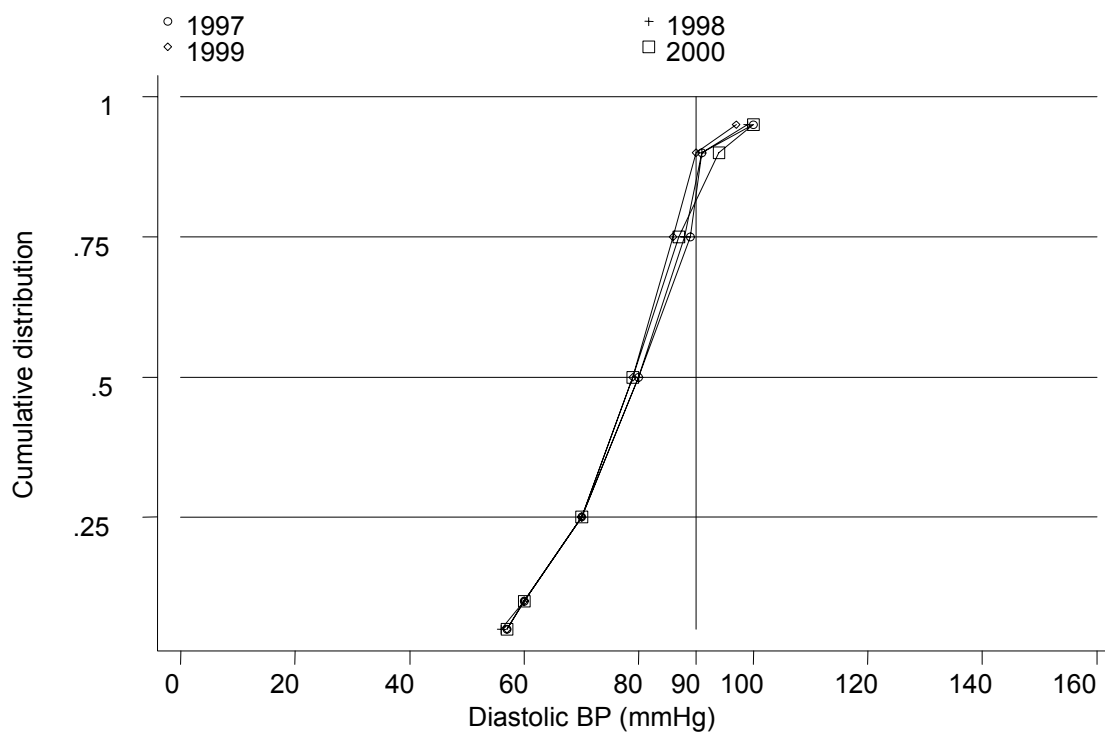
**Figure 3.1.33: Cumulative distribution of Systolic BP without anti-hypertensives by year**



**Table 3.1.34: Distribution of Diastolic BP without anti-hypertensives, HD patients, Government Centres 1997– 2000**

Year	No of subjects	No of observations	median	LQ	UQ	% patients < 90 mmHg
1997	495	5319	80	70	89	75
1998	604	6419	80	70	88	77
1999	613	6303	79	70	86	80
2000	693	7343	79	70	87	78

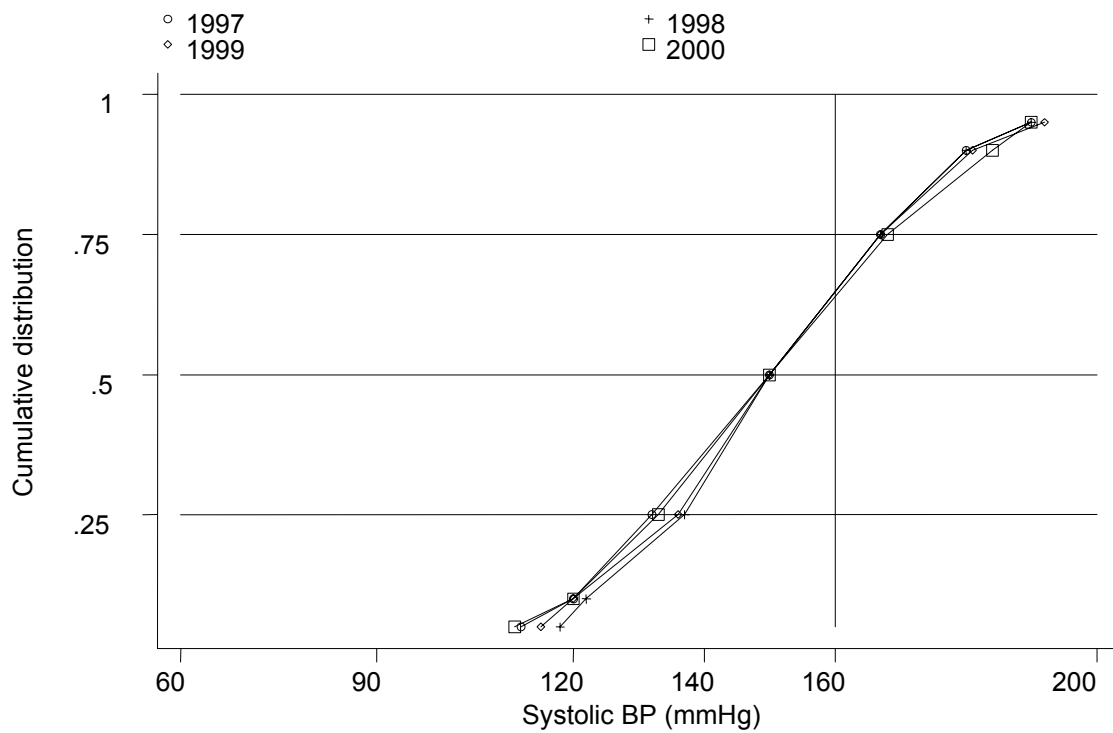
**Figure 3.1.34: Cumulative distribution of Diastolic BP without anti-hypertensives by year**



**Table 3.1.35: Distribution of systolic BP on anti-hypertensives, HD patients, Government Centres 1997 – 2000**

Year	No of subjects	No of observations	median	LQ	UQ	% patients < 160 mmHg
1997	814	8215	150	132	167	63
1998	1049	10685	150	137	167	62
1999	1255	12514	150	136	167	62
2000	1376	14113	150	133	168	63

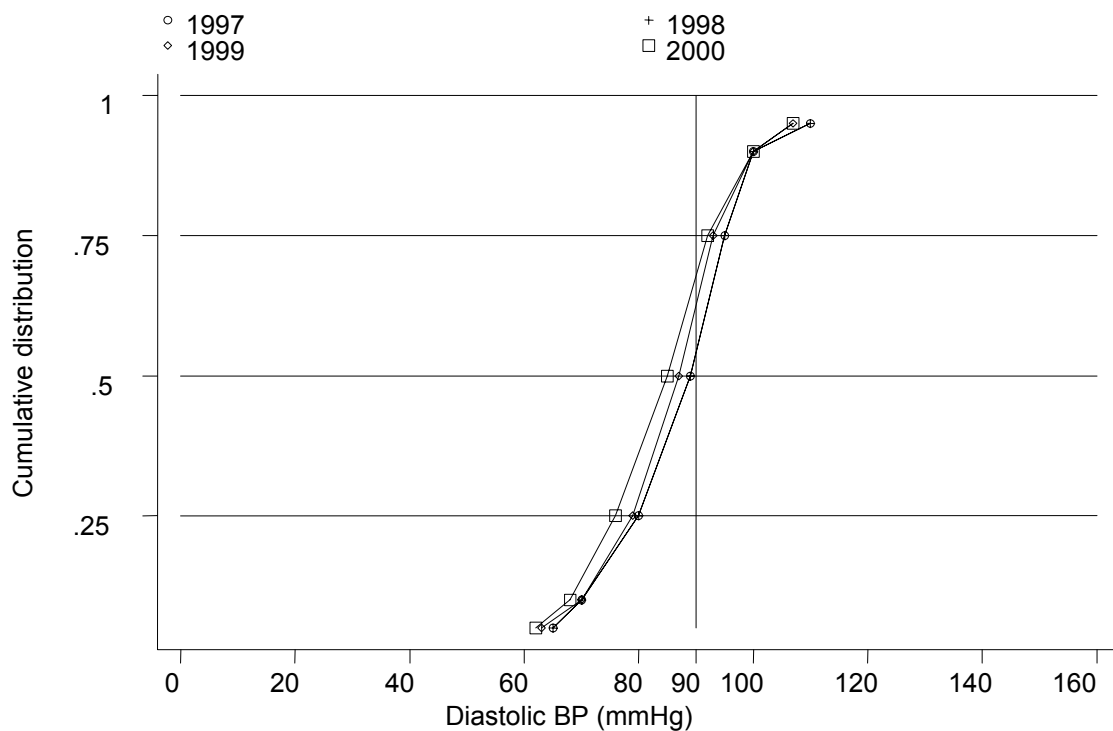
**Table 3.1.35: Cumulative distribution of systolic BP on anti-hypertensives by year**



**Table 3.1.36: Distribution of diastolic BP on anti-hypertensives, HD patients, Government Centres 1997 – 2000**

year	No of subjects	No of observations	median	LQ	UQ	% patients < 90 mmHg
1997	814	8211	89	80	95	50
1998	1049	10691	89	80	95	51
1999	1255	12515	87	79	93	55
2000	1376	14123	85	76	92	59

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





### 3.1.12 TREATMENT OF ANAEMIA, GOVERNMENT HD CENTRES

**Table 3.1.37: Treatment for Anaemia, HD patients, Government Centres 1997 - 2000**

year	No	% on rHuEpo	% received blood transfusion	% on oral Iron	% received parenteral Iron
1997	1332	46	8	92	5
1998	1673	45	14	92	5
1999	1884	48	16	94	5
2000	2086	54	15	92	7

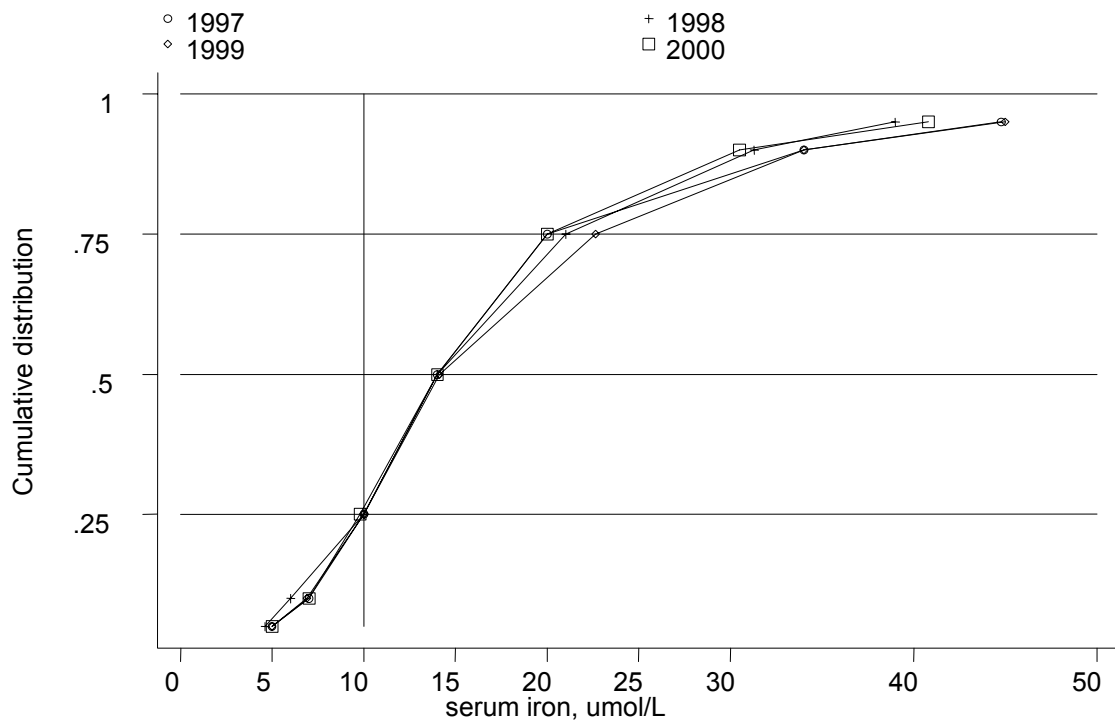
**Table 3.1.38: Distribution of rHuEpo dose per week, HD patients, Government Centres 1997 - 2000**

Year	1997	1998	1999	2000
No. of patients	580	702	872	1077
% on 2000 u/week	11	17	19	20
% on 2-4000 u/week	67	61	60	57
% on 4-6000 u/week	6	7	6	8
% on 6-8000 u/week	14	13	14	12
% on 8-12000 u/week	2	2	2	4
% on >12000 u/week	0	0	0	0

**Table 3.1.39: Distribution of serum Iron without rHuEpo, HD patients, Government Centres 1997 – 2000**

year	No of subjects	No of observations	median	LQ	UQ	% patients > 10 umol/l
1997	611	1573	14	10	20	72
1998	593	1463	14	10	21	73
1999	651	1536	14.1	10	22.7	71
2000	667	1666	14	9.8	20	70

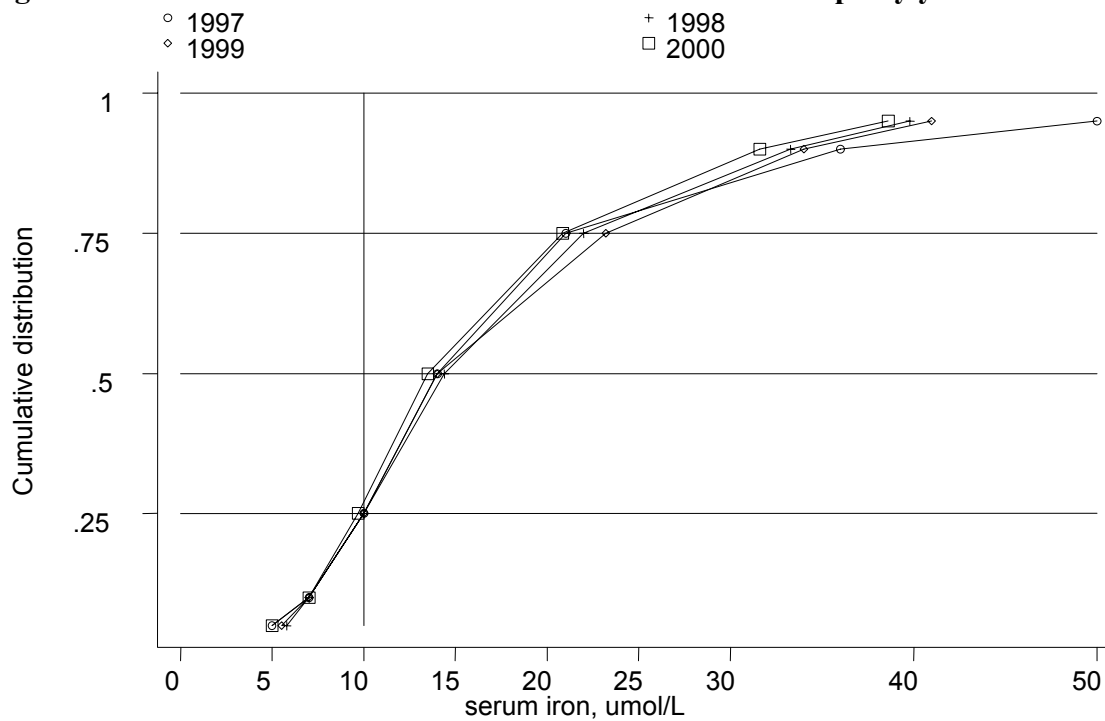
**Figure 3.1.39: Cumulative Distribution of serum Iron without rHuEpo by year**



**Table 3.1.40: Distribution of serum Iron on rHuEpo,HD patients, Government Centres 1997 – 2000**

Year	No of subjects	No of observations	median	LQ	UQ	% patients > 10 umol/l
1997	520	1483	14	10	21	72
1998	530	1557	14.4	10	22	73
1999	643	1866	14	10	23.2	74
2000	911	2656	13.5	9.7	20.8	69

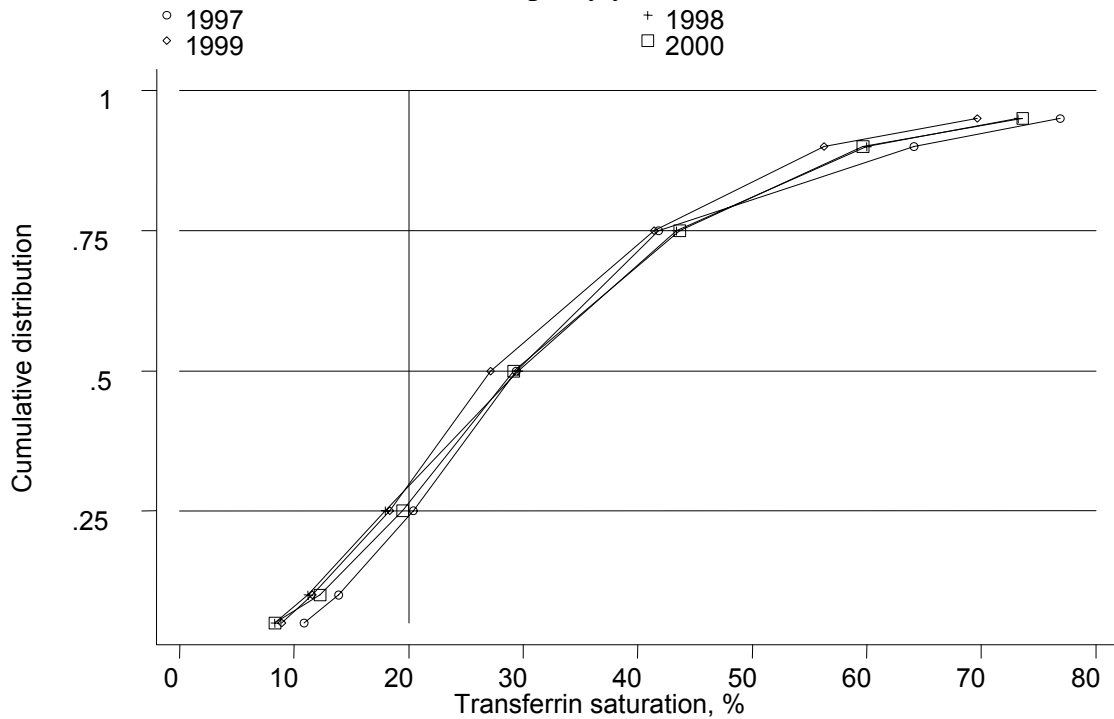
**Figure 3.1.40: Cumulative Distribution of serum Iron on rHuEpo by year**



**Table 3.1.41: Distribution of Transferrin Saturation without rHuEpo, HD patients, Government Centres 1997 – 2000**

Year	No of subjects	No of observations	median	LQ	UQ	% patients > 20%
1997	581	2324	29.4	20.4	41.8	76
1998	416	1664	29.6	17.9	43.4	69
1999	392	1568	27.2	18.4	41.5	69
2000	565	2260	29.2	19.5	43.7	72

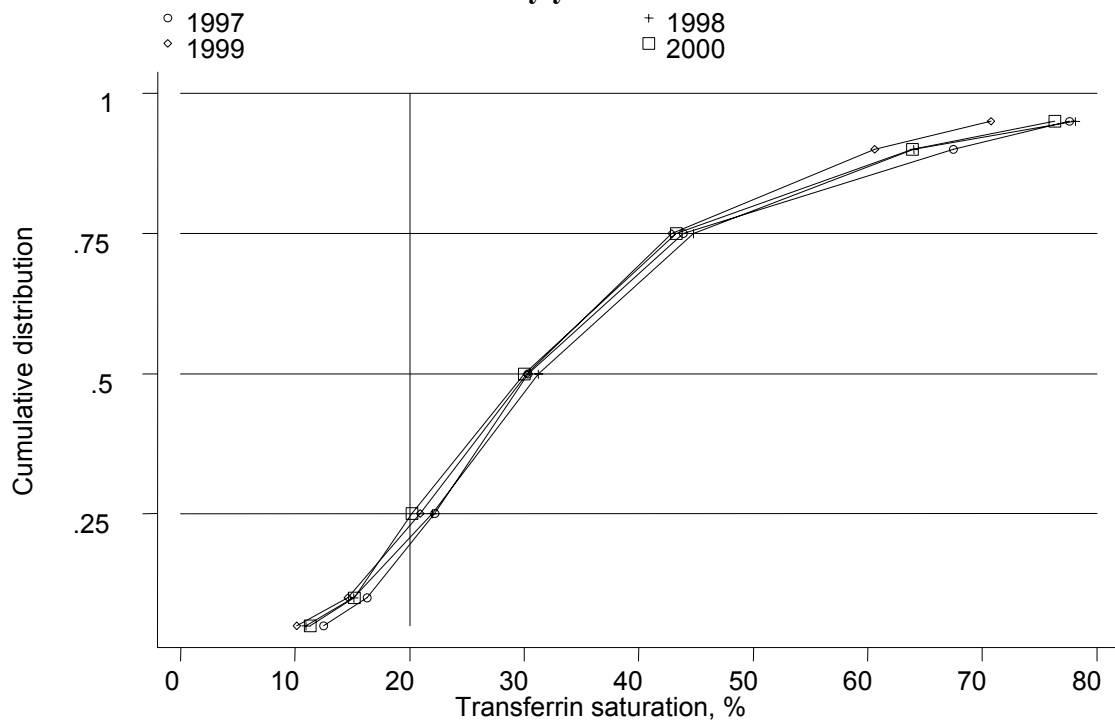
**Figure 3.1.41: Cumulative distribution of serum Transferrin Saturation without rHuEpo by year**



**Table 3.1.42: Distribution of Transferrin Saturation on rHuEpo, HD patients, Government Centres 1997 – 2000**

Year	No of subjects	No of observations	median	LQ	UQ	% patients > 20%
1997	485	1940	30.3	22.2	43.9	81
1998	424	1696	31.2	22	44.8	81
1999	485	1940	30.2	20.9	42.9	77
2000	853	3412	30	20.2	43.3	75

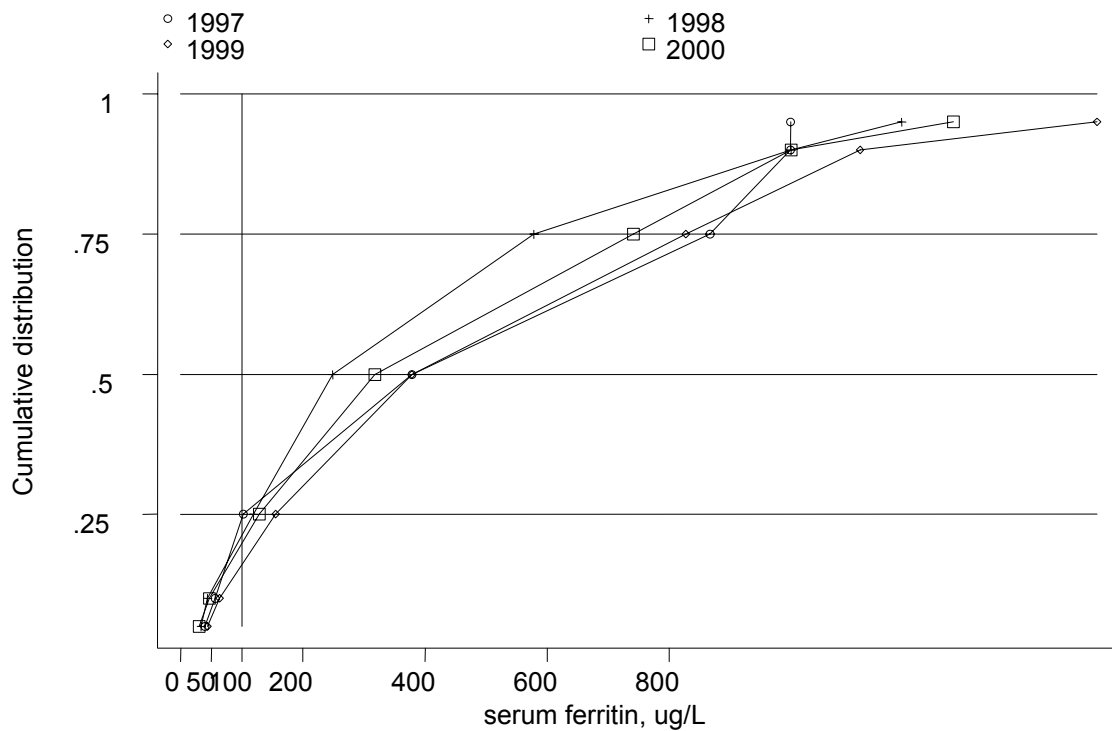
**Figure 3.1.42: Cumulative distribution of serum Transferrin Saturation on rHuEpo by year**



**Table 3.1.43: Distribution of serum Ferritin without rHuEpo, HD patients, Government Centres 1997 – 2000**

year	No of subjects	No of observations	median	LQ	UQ	% patients > 100 ug/l
1997	147	215	379	103	867	77
1998	189	255	249	119	578	79
1999	294	444	379	156	827.3	85
2000	380	582	317.5	129	741	79

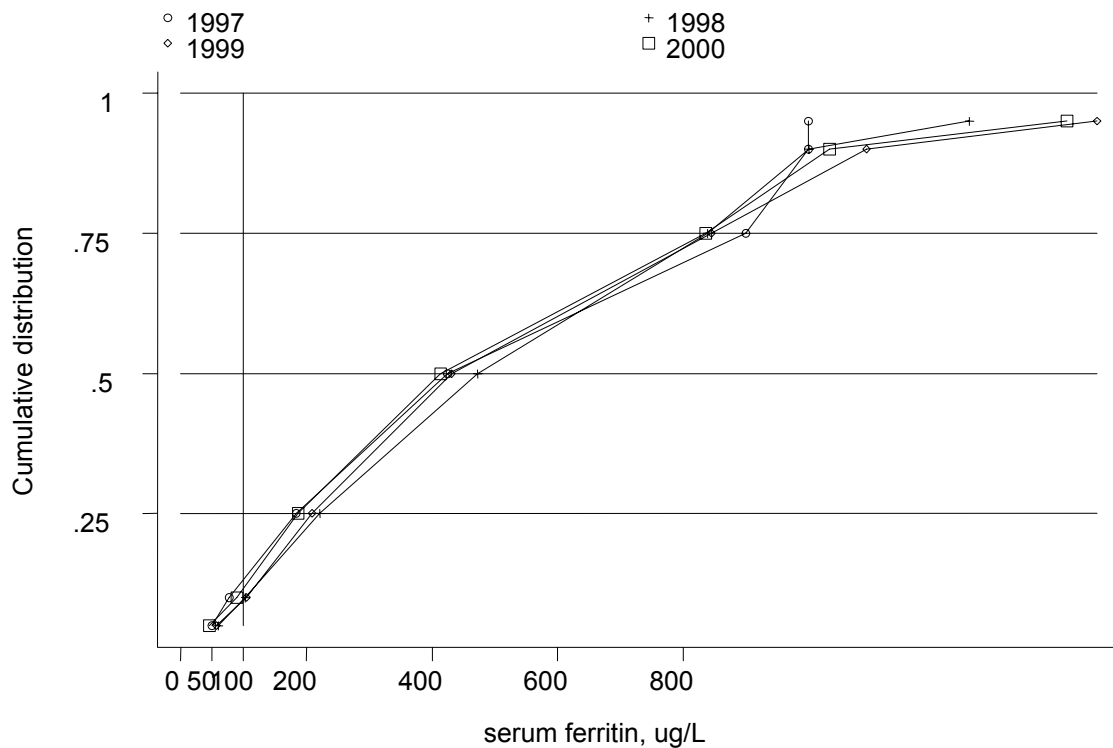
**Figure 3.1.43: Cumulative distribution of serum Ferritin without rHuEpo by year**



**Table 3.1.44: Distribution of serum Ferritin on rHuEpo, HD patients, Government Centres 1997 – 2000**

year	No of subjects	No of observations	median	LQ	UQ	% patients > 100 ug/l
1997	319	527	425	184	899	87
1998	294	444	473	221.5	838.5	91
1999	447	699	430.6	209	845	91
2000	711	1170	414	187	835	89

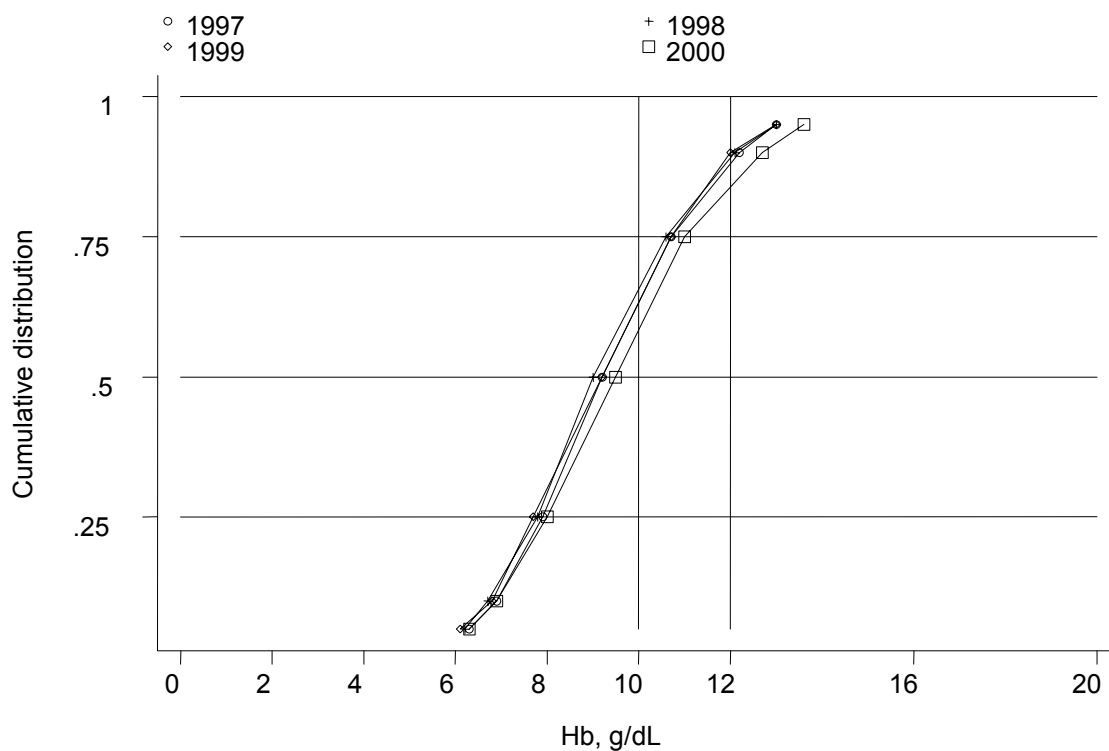
**Figure 3.1.44: Cumulative distribution of serum Ferritin on rHuEpo by year**



**Table 3.1.45: Distribution of Haemoglobin concentration without rHuEpo, HD patients, Government Centres 1997 – 2000**

year	No of subjects	No of observations	median	LQ	UQ	% patients <10 g/dl	% patients $\geq 10$ & $\leq 12$ g/dl	% patients >12 g/dl
1997	714	2370	9.2	7.9	10.7	62	26	12
1998	893	2803	9	7.8	10.6	66	24	10
1999	953	2928	9.2	7.7	10.7	63	27	10
2000	924	2821	9.5	8	11	58	27	15

**Figure 3.1.45: Cumulative distribution of Haemoglobin concentration without rHuEpo by year**

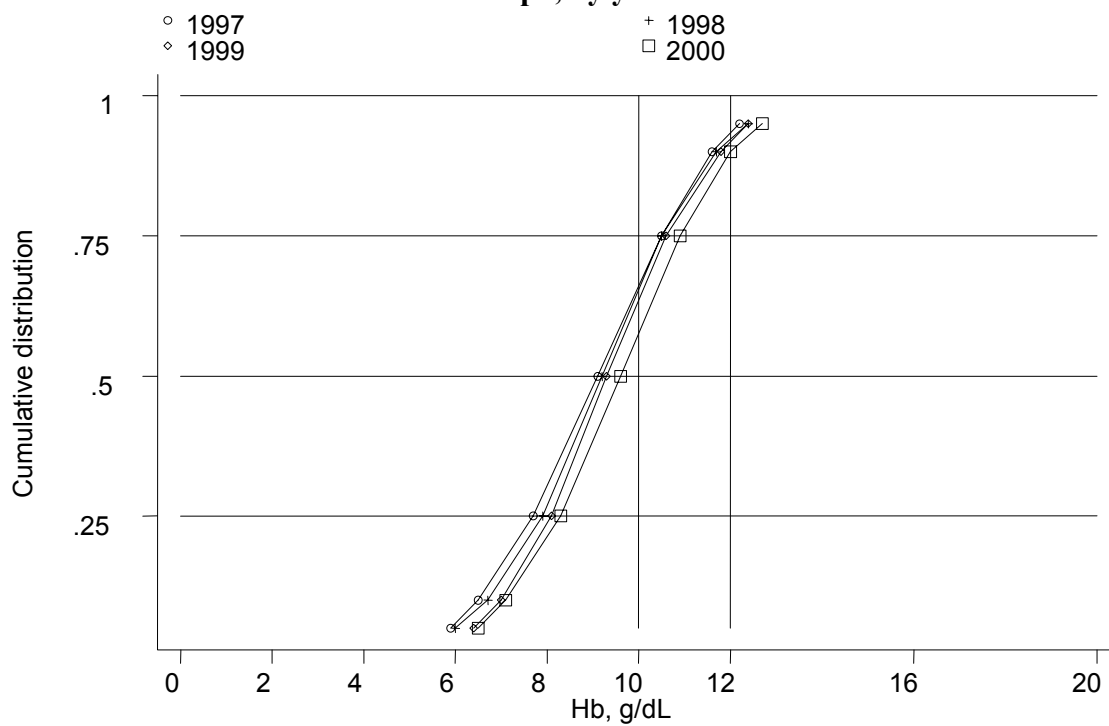




**Table 3.1.46: Distribution of Haemoglobin concentration on rHuEpo, HD patients, Government Centres 1997 - 2000**

Year	No of subjects	No of observations	median	LQ	UQ	% patients <10 g/dl	% patients $\geq 10$ & $\leq 12$ g/dl	% patients >12 g/dl
1997	600	2146	9.1	7.7	10.5	67	28	6
1998	752	2717	9.2	7.9	10.5	64	29	7
1999	906	3236	9.3	8.1	10.6	62	30	8
2000	1120	4045	9.6	8.3	10.9	56	35	10

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

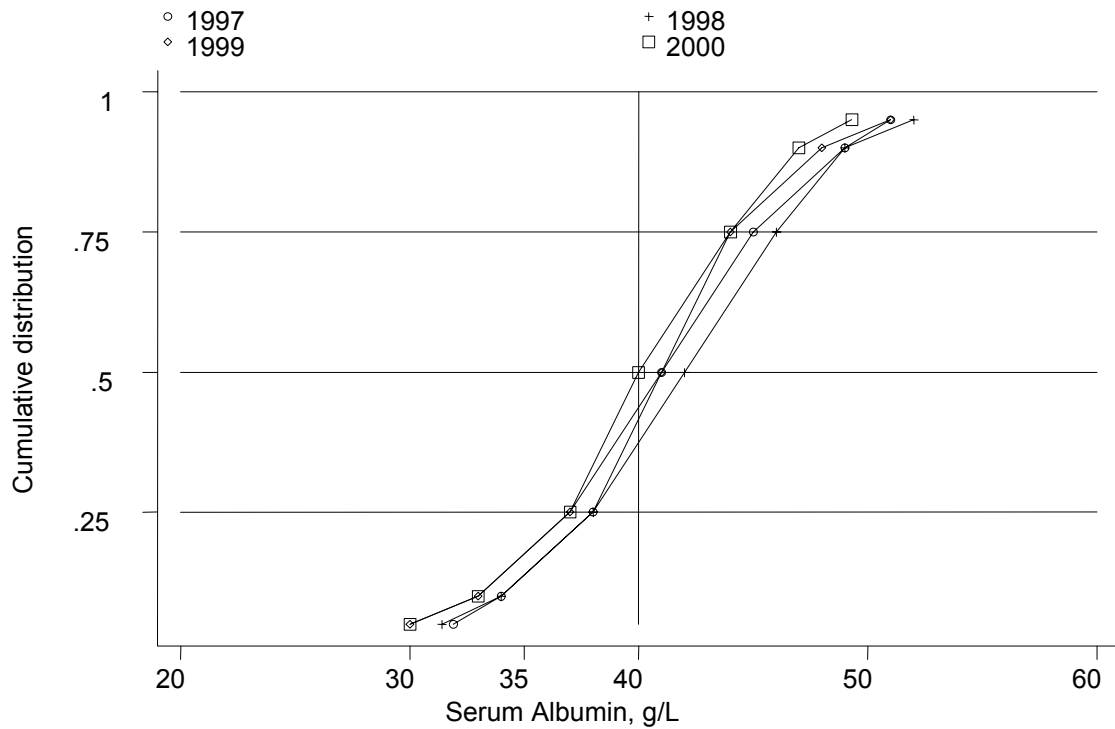


### 3.1.13 NUTRITIONAL STATUS OF HD PATIENTS GOVERNMENT CENTRES

**Table 3.1.47: Distribution of serum Albumin (g/L), HD patients, Government Centres 1997 - 2000**

year	No of subjects	No of observations	median	LQ	UQ	% patients >40g/l
1997	1294	4372	41	38	45	63
1998	1637	5422	42	38	46	65
1999	1833	5984	41	37	44	60
2000	1996	6507	40	37	44	57

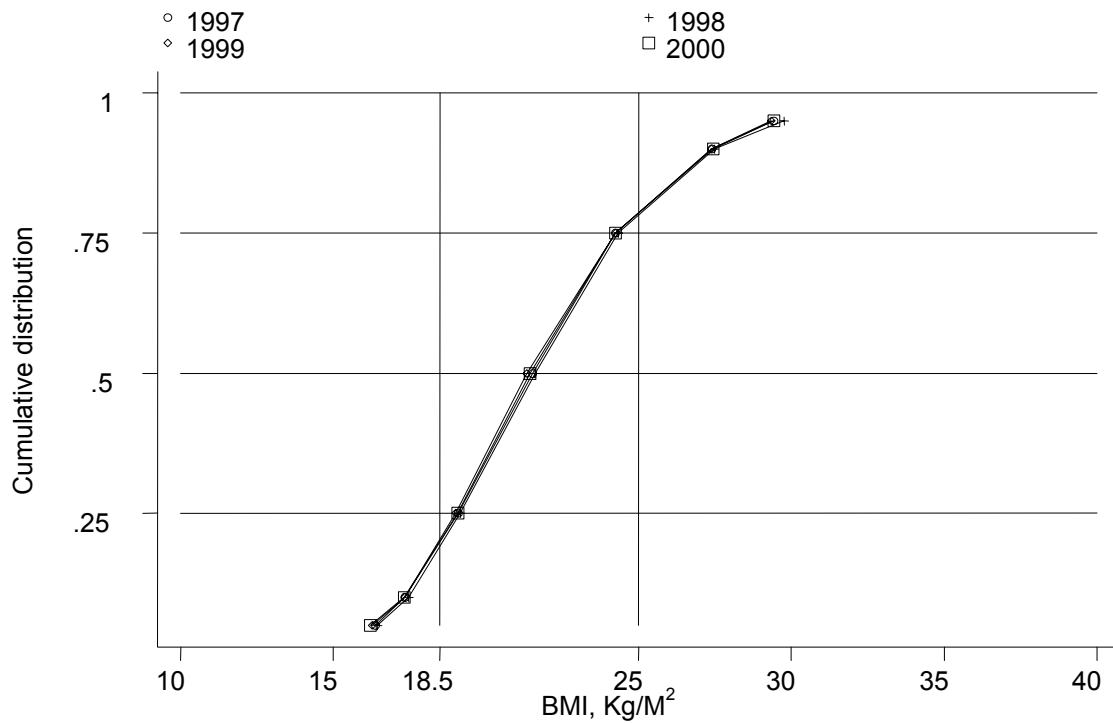
**Figure 3.1.47: Cumulative distribution of serum Albumin by year**



**Table 3.1.48: Distribution of Body Mass Index  
HD patients, Government Centres 1997 – 2000**

year	No of subjects	No of observations	median	LQ	UQ	% patients <18.5	% patients $\geq 18.5$ & $\leq 25$	% patients >25
1997	1227	12605	21.5	19.1	24.2	19	61	20
1998	1572	16248	21.6	19.2	24.3	18	61	20
1999	1776	17852	21.3	19	24.2	20	60	20
2000	1958	20308	21.4	19.1	24.2	19	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 1997 – 2000**

year	No	% HbsAg positive	% anti-HCV positive
1997	1332	5	23
1998	1673	6	22
1999	1884	6	25
2000	2086	6	29

**Figure 3.1.49: Prevalence of positive anti-HCV and HbsAg HD patients, Government Centres 1997 – 2000**

