

HAEMODIALYSIS
IN
PRIVATE CENTRES

Stock and Flow

Death on Haemodialysis and Transfer to PD

Haemodialysis Patient Characteristics

Survival Analysis

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Dyslipidaemia in HD patients

Treatment of Renal Bone Disease

Management of Blood Pressure

Management of Anaemia

Nutritional status

Prevalence of anti-HCV antibodies and HbsAg

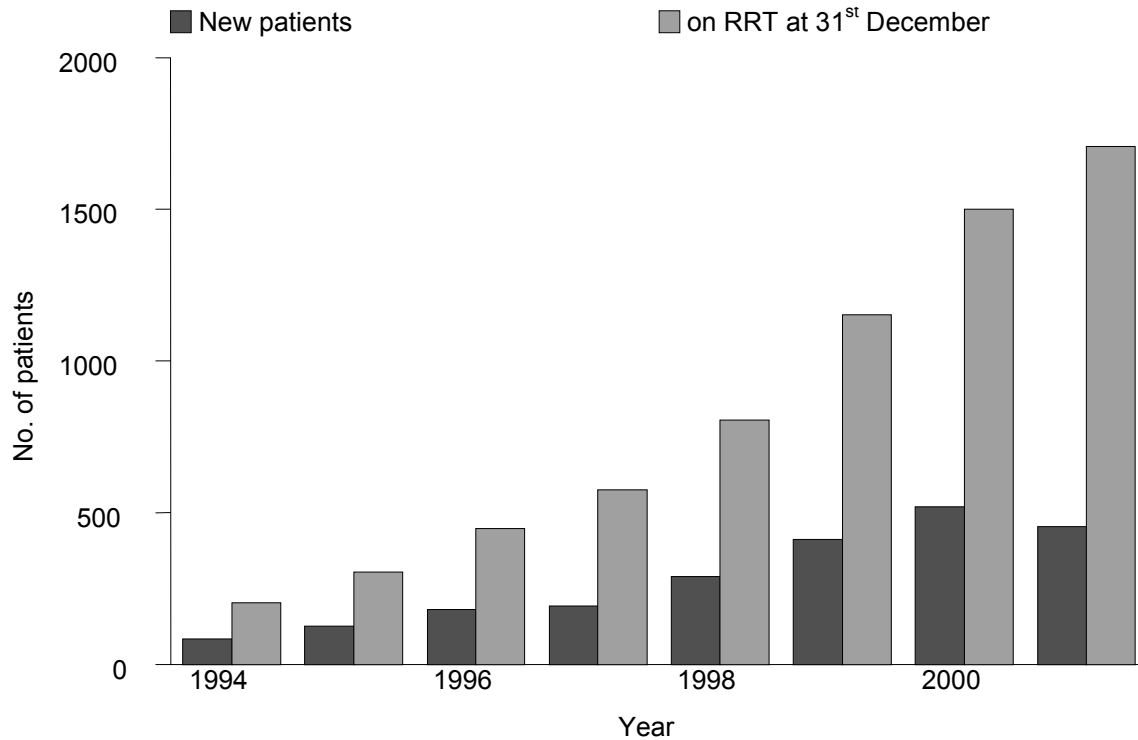
3.3: HAEMODIALYSIS IN PRIVATE CENTRES

3.3.1 STOCK AND FLOW

Table 3.3.01: Stock and Flow HD Patient, Private Centres 1994 – 2001

Year	1994	1995	1996	1997	1998	1999	2000	2001
New patients	84	126	180	193	290	412	519	455
Died	16	20	24	48	50	52	118	179
Transferred to PD	0	1	2	2	1	0	7	8
Transplanted	6	2	8	7	5	14	39	42
Lost to Follow up	2	3	4	7	4	1	6	20
Dialysing at 31st December	205	305	447	576	806	1151	1500	1706

Figure 3.3.01: Stock and Flow HD Patient, Private Centres 1994 – 2001



3.3.3 DEATH ON HAEMODIALYSIS, PRIVATE CENTRES

Table 3.3.04: HD Death Rate and Transfer to PD, Private Centres 1994 – 2001

	1994	1995	1996	1997	1998	1999	2000	2001
No. at risk	205	255	376	512	691	979	1326	1603
Deaths	16	20	24	48	50	52	118	179
Death rate %	8	8	6	9	7	5	9	11
Transfer to PD	0	1	2	2	1	0	7	8
Transfer to PD rate %	0	0	1	0	0	0	1	0
All Losses	16	21	26	50	51	52	125	187
All Losses rate %	8	8	7	10	7	5	9	12

Figure 3.3.04: Death Rate on HD, Private Centres 1994 – 2001

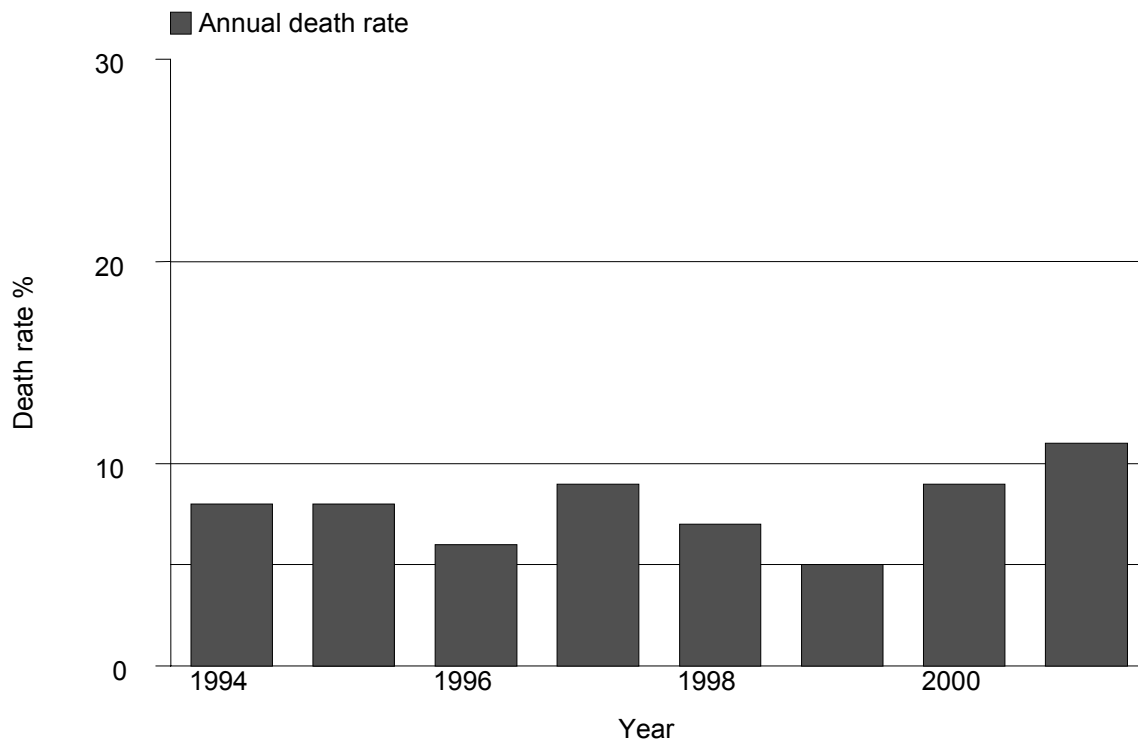


Table 3.3.05: Causes of Death HD Patient, Private Centres 1998 – 2001

Causes of death	1998		1999		2000		2001	
	No.	%	No.	%	No.	%	No.	%
Cardiovascular	11	22	13	25	42	36	73	41
Died at home	10	20	14	27	33	28	63	35
Sepsis	4	8	8	15	11	9	13	7
GIT bleed	1	2	1	2	2	2	3	2
Cancer	3	6	1	2	2	2	3	2
Liver disease	0	0	2	4	2	2	2	1
Others	19	38	11	21	21	18	15	8
Unknown	2	4	2	4	5	4	5	3
Total	50	100	52	100	118	100	179	100

3.3.5 HAEMODIALYSIS PATIENTS' CHARACTERISTICS, PRIVATE CENTRES

Table 3.3.08: Age Distribution of Dialysis Patients, Private Centres 1998 – 2001

Year	1998	1999	2000	2001
New Dialysis patients	290	412	519	455
1-14 years	0	0	0	0
15-24 years	3	2	1	2
25-34 years	6	6	5	4
35-44 years	14	15	14	10
45-54 years	18	21	22	22
55-64 years	31	28	32	31
≥65 years	27	28	26	30
Dialysing at 31 st December	806	1151	1500	1706
1-14 years	0	0	0	0
15-24 years	2	3	2	2
25-34 years	12	10	9	8
35-44 years	18	17	16	15
45-54 years	18	19	20	21
55-64 years	28	28	30	30
≥65 years	21	23	23	24

Table 3.3.09: Patients' Characteristics , Private Centres 1998 – 2001

Year	1998	1999	2000	2001
New Dialysis patients (No)	290	412	519	455
Mean age±sd (years)	55±14	55±14	56±13	57±13
% male	47	55	57	56
% Diabetic	47	46	52	52
% HbsAg+	3	4	4	4
% Anti-HCV+	12	9	5	3

3.3.6 SURVIVAL ANALYSIS, PRIVATE HD CENTRES

Table 3.3.10: HD Patient Survival, Private Centres 1996 – 2001

Year	1996			1997			1998		
Interval	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	90	2	155	93	2	175	94	1	269
12	87	3	144	90	2	169	92	2	261
24	81	3	130	85	3	159	84	2	234
36	75	3	118	78	3	144	79	2	207
48	67	4	105	71	3	129			
60	61	4	93						

Year	1999			2000			2001		
Interval	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	96	1	389	95	1	478	95	1	213
12	91	1	362	90	1	435			
24	82	2	305						

No. = number at risk SE = standard error

Figure 3.3.10: HD Patient Survival by year of entry, Private Centres

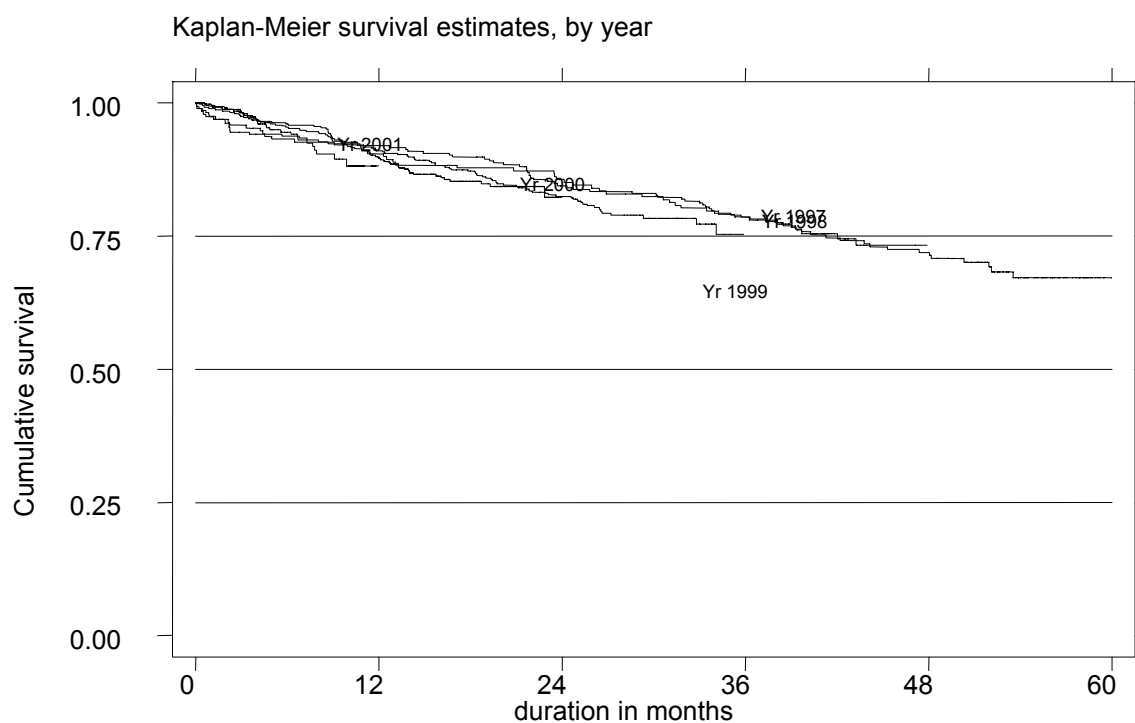


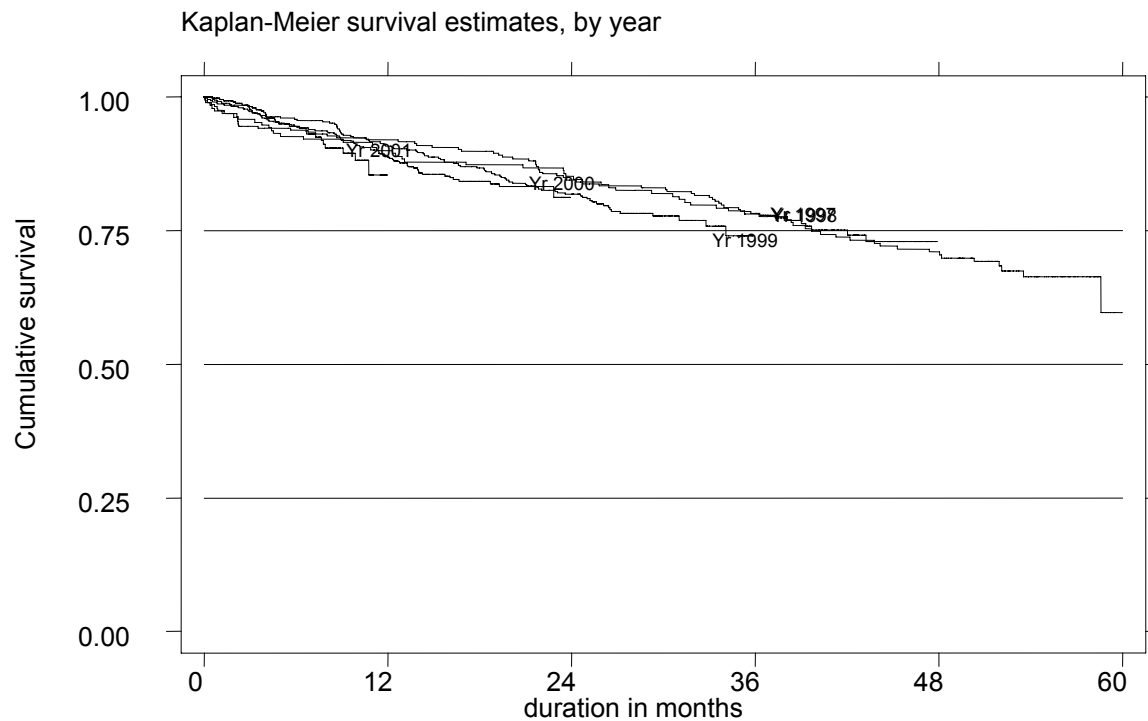
Table 3.3.11: HD Technique Survival, Private Centres

Year	1996			1997			1998		
Interval	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	89	2	155	92	2	175	94	1	269
12	86	3	144	90	2	169	92	2	261
24	79	3	130	85	3	159	84	2	234
36	73	3	118	78	3	144	78	2	207
48	65	4	105	71	3	129			
60	60	4	93						

Year	1999			2000			2001		
Interval	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	96	1	389	94	1	478	95	1	213
12	91	1	362	89	1	435			
24	82	2	305						

No. = number at risk SE = standard error

Figure 3.3.11: HD Technique Survival by year of entry, Private Centres



3.3.7 WORK RELATED REHABILITATION AND QUALITY OF LIFE ON HAEMODIALYSIS, PRIVATE CENTRES

Table 3.3.12: Work Related Rehabilitation on HD, Private centres 1999-2001

REHABILITATION STATUS	1999		2000		2001	
	No.	%	No.	%	No.	%
Full time work for pay	110	29	153	23	168	20
Part time work for pay	24	6	31	5	43	5
Able to work but unable to get a job	4	1	6	1	23	3
Able to work but not yet due to dialysis schedule	5	1	9	1	11	1
Able but disinclined to work	2	1	6	1	7	1
Home maker	87	23	175	27	188	22
Full time student	1	0	2	0	3	0
Age<15 years	0	0	0	0	0	0
Retired	46	12	81	12	121	14
Age>65 years	61	16	122	19	161	19
Unable to work due to poor health	33	9	71	11	120	14
Total	373	100	656	100	845	100

Table 3.3.13: Quality of Life on Haemodialysis, Private Centres 1999-2001

QOL Index Summated Score	1999		2000		2001	
	No.	%	No.	%	No.	%
0 (Worst QOL)	1	0	1	0	0	0
1	0	0	0	0	2	0
2	2	1	1	0	4	0
3	0	0	10	1	11	1
4	3	1	20	3	36	4
5	22	6	49	7	46	5
6	25	7	56	8	67	8
7	40	11	51	7	79	9
8	30	8	67	10	86	10
9	49	13	67	10	72	9
10 (Best QOL)	196	53	359	53	444	52
Total	368	100	681	100	847	100

3.3.8 HAEMODIALYSIS PRACTICES IN PRIVATE CENTRES

Table 3.3.14: Vascular Access on Haemodialysis, Private Centres 1999 - 2001

Access types	1999		2000		2001	
	No	%	No	%	No	%
Wrist AVF	322	82	609	80	743	77
BCF*	43	11	115	15	160	17
Venous graft	4	1	3	0	7	1
Artificial graft	6	2	10	1	27	3
PERMCATH	2	1	3	0	6	1
Temporary CVC*	17	4	18	2	20	2
Total	394	100	758	100	963	100

* BCF = Brachiocephalic fistula

* CVC = Central venous catheter

Table 3.3.15: Difficulties reported with Vascular Access, Private Centres 1999 - 2001

Access difficulty	1999		2000		2001	
	No	%	No	%	No	%
Difficulty with needle placement	12	3	27	4	60	6
Difficulty in obtaining desired blood flow rate	7	2	23	3	44	5
Other difficulty	6	2	3	0	3	0
No difficulty	369	94	706	93	857	89
Total	394	100	759	100	964	100

**Table 3.3.16: Complications reported with Vascular Access, Private Centres
1999 - 2001**

Complication	1999		2000		2001	
	No.	%	No.	%	No.	%
thrombosis	12	3	22	3	41	4
bleed	2	1	3	0	6	1
aneurysmal dilatation	11	3	38	5	52	5
swollen limb	6	2	3	0	5	1
access related infection, local/systemic	1	0	3	0	4	0
distal limb ischaemia	1	0	7	1	2	0
venous outflow obstruction	1	0	6	1	15	2
carpal tunnel	2	1	2	0	4	0
other	6	2	5	1	11	1
no complication	352	89	670	88	826	86
Total	394	100	759	100	966	100

Table 3.3.17: Blood Flow Rates in Private HD Units 1998 - 2001

Blood flow rates	1999		2000		2001	
	No.	%	No.	%	No.	%
<150 ml/min	1	0	2	0	5	1
150-199 ml/min	9	2	16	2	23	2
200-249 ml/min	195	53	384	53	382	40
250-299 ml/min	130	36	246	34	376	40
300-349 ml/min	22	6	76	10	154	16
> 350 ml/min	9	2	5	1	8	1
Total	366	100	729	100	948	100

Table 3.3.18: Number of HD Sessions per week, Private HD Units 1999 - 2001

HD sessions Per week	1999		2000		2001	
	No.	%	No.	%	No.	%
1	2	1	3	0	6	1
2	117	30	233	31	264	27
3	270	69	514	68	654	68
4	1	0	2	0	35	4
Total	390	100	754	100	962	100

Table 3.3.19: Duration of HD in Private HD Units, 1999 - 2001

Duration of HD per session	1999		2000		2001	
	No.	%	No.	%	No.	%
≤3 hours	1	0	0	0	3	0
3.5 hours	8	2	9	1	11	1
4 hours	291	75	605	80	846	88
4.5 hours	52	13	73	10	50	5
5 hours	37	10	57	8	52	5
≥5 hours	0	0	10	1	0	0
Total	389	100	754	100	962	100

Table 3.3.20: Dialyser membrane types in Private HD Units 1999 - 2001

Dialyser membrane	1999		2000		2001	
	No.	%	No.	%	No.	%
Cellulosic	143	81	321	77	343	64
Cellulose acetate	10	6	15	4	56	10
Synthetic	23	13	80	19	139	26
Total	176	100	416	100	538	100

Table 3.3.21: Dialyser Reuse Frequency in Private HD Units 1999 - 2001

Dialyser reuse frequency	1999		2000		2001	
	No.	%	No.	%	No.	%
1*	44	13	59	9	62	7
2	6	2	2	0	1	0
3	28	8	30	4	46	5
4	128	37	296	43	232	25
5	42	12	74	11	96	10
6	94	27	160	23	215	23
7	2	1	4	1	4	0
8	3	1	44	6	209	23
9	0	0	0	0	0	0
10	0	0	15	2	36	4
11	1	0	1	0	5	1
12	1	0	2	0	6	1
≥13	0	0	0	0	4	0
Total	349	100	687	100	916	100

* 1 is single use i.e. no reuse

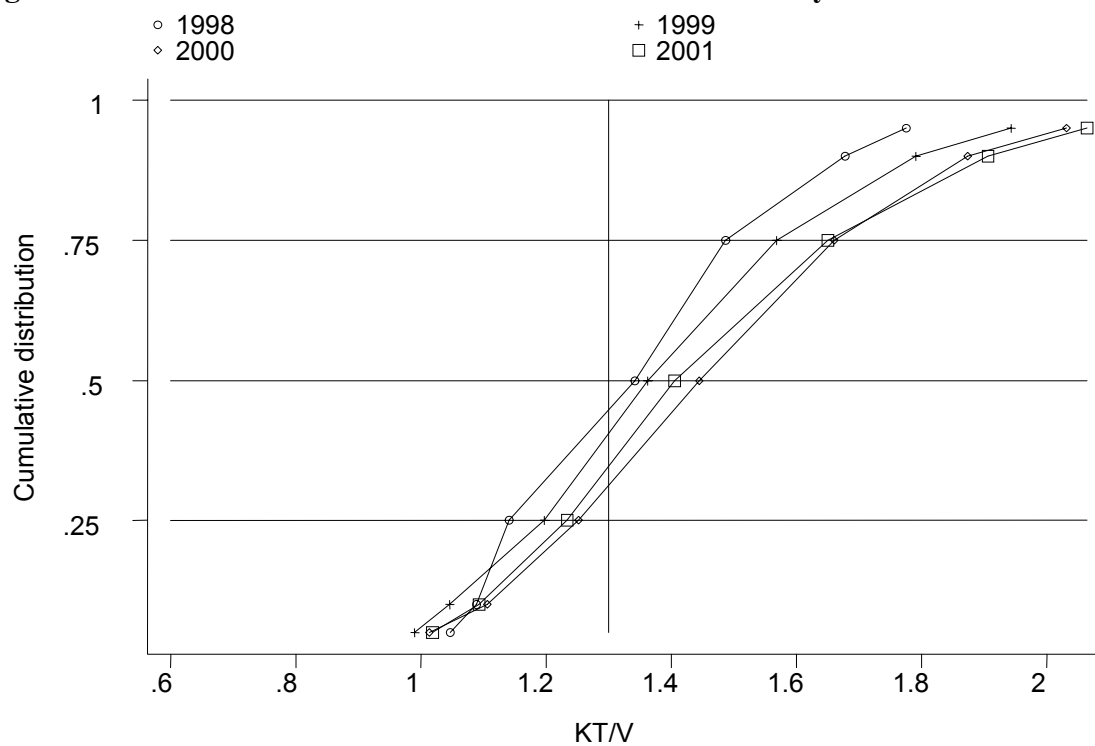
Table 3.3.22: Dialysate Buffer used in Private HD Units 1999 – 2001

Dialysate buffer	1999		2000		2001	
	No.	%	No.	%	No.	%
Acetate	64	16	84	11	59	6
Bicarbonate	330	84	668	89	899	94
Total	394	100	752	100	958	100

Table 3.3.23: Distribution of Prescribed KT/V, Private Centres 1999 - 2001

Year	No of subjects	No of observations	median	LQ	UQ	% > 1.3
1999	235	1700	1.4	1.2	1.6	60
2000	472	4480	1.4	1.3	1.7	68
2001	605	5808	1.4	1.2	1.6	65

Figure 3.3.23: Cumulative distribution of Prescribed KT/V by Year



3.3.9 DYSLIPIDAEMIA IN HD PATIENTS, PRIVATECENTRES

Table 3.3.24: Distribution of Serum Cholesterol Levels (mmol/l), HD patients, Private Centres 1999- 2001

year	No of subjects	No of observations	median	LQ	UQ	% patients < 5.3 mmol/l
1999	188	284	5	4.3	5.7	68
2000	328	522	4.9	4.1	5.7	66
2001	400	615	5	4.2	5.8	65

Figure 3.3.24: Cumulative distribution of serum cholesterol concentration by year

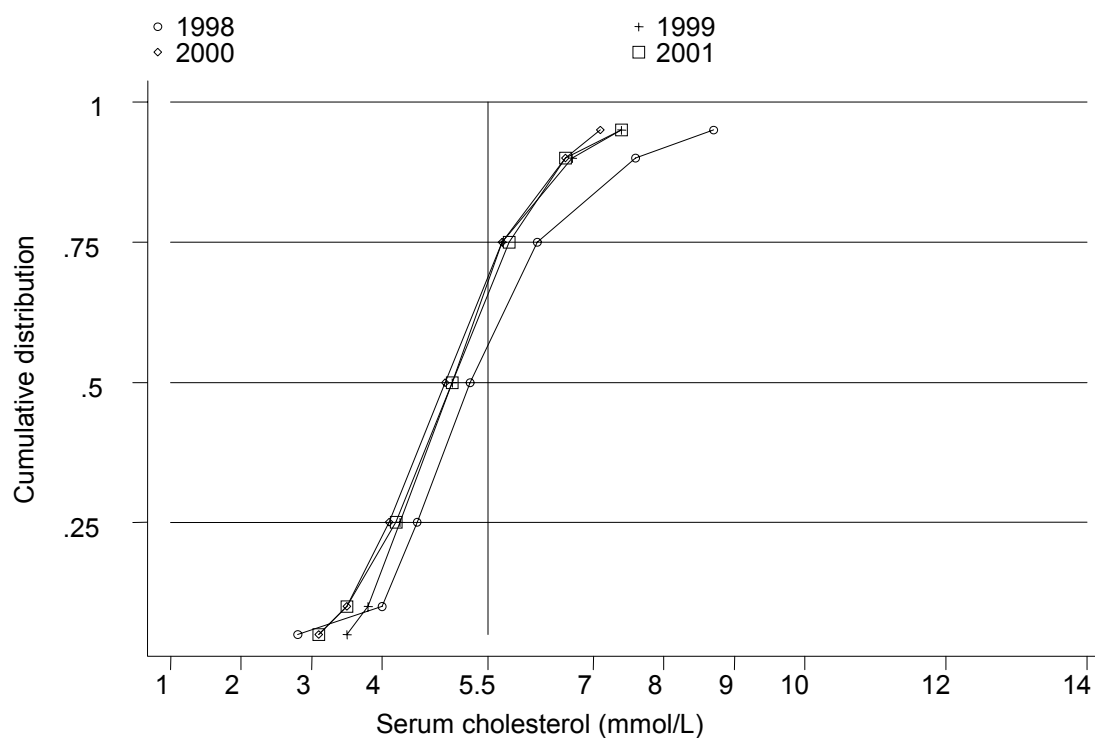


Table 3.3.25: Distribution of serum Triglyceride (mmol/l), HD patients, Private Centres 1999-2001

year	No of subjects	No of observations	median	LQ	UQ	% patients < 3.5 mmol/l
1999	83	107	1.8	1.2	2.7	86
2000	246	374	1.7	1.1	2.5	86
2001	282	410	1.6	1.1	2.5	89

Figure 3.3.25: Cumulative distribution of serum triglyceride concentration by year

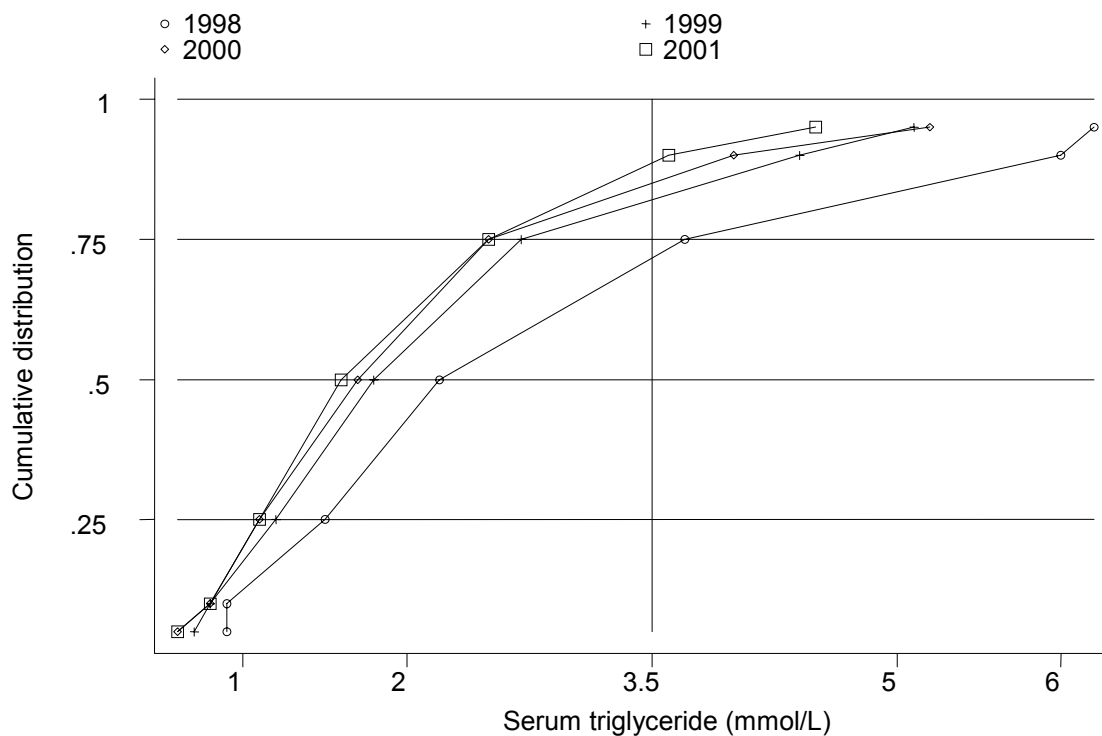
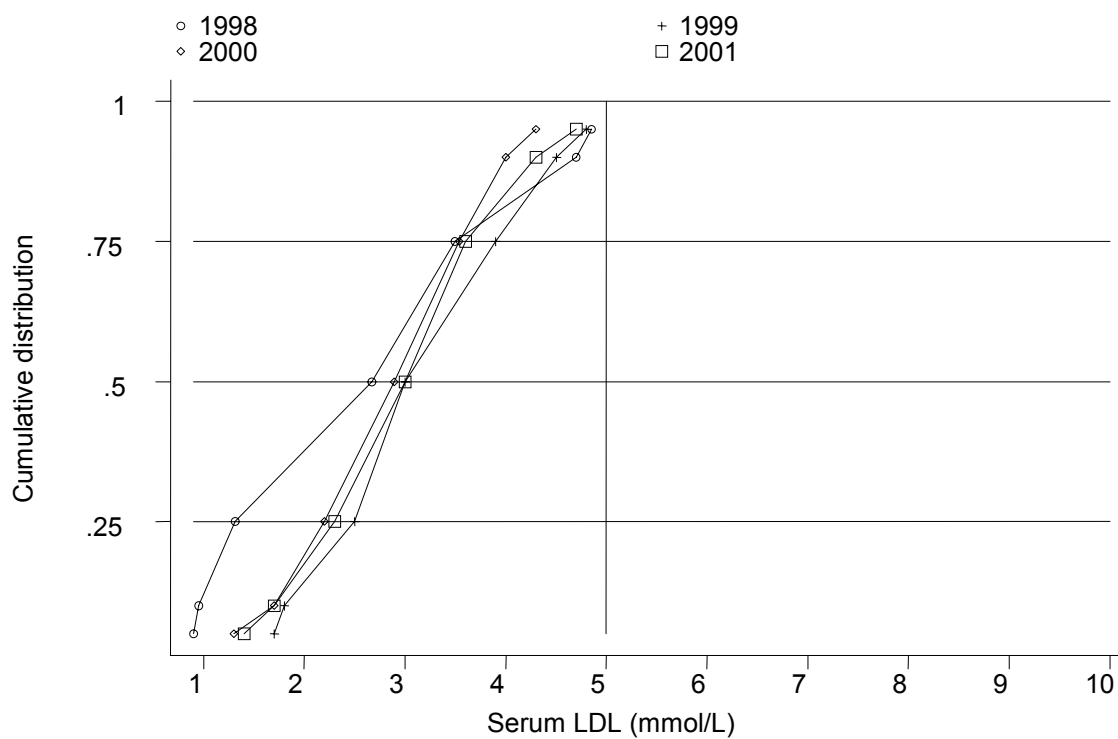


Table 3.3.26: Distribution of serum LDL (mmol/l), HD patient, Private Centres 1999-2001

year	No of subjects	No of observations	median	LQ	UQ	% patients <5 mmol/l
1999	73	93	3	2.5	3.9	96
2000	223	334	2.9	2.2	3.5	98
2001	276	398	3	2.3	3.6	97

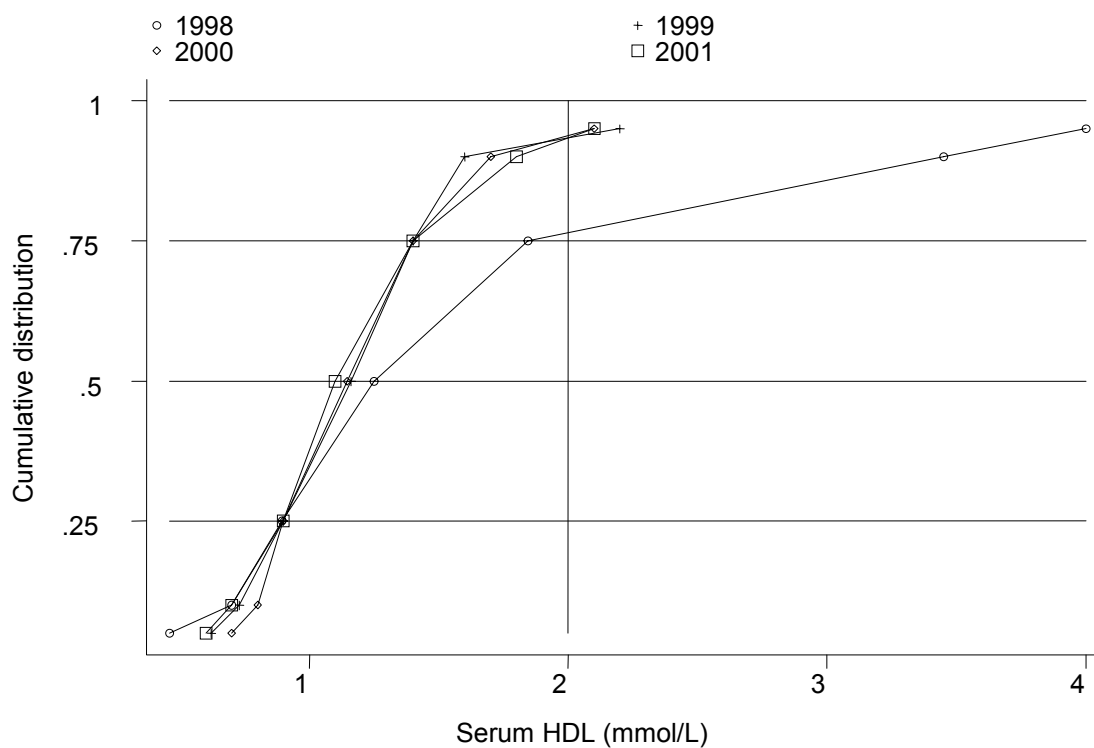
Figure 3.3.26: Cumulative distribution of serum LDL by year



**Table 3.3.27: Distribution of serum HDL (mmol/l), HD patient, Private Centres
1999 –2001**

year	No of subjects	No of observations	median	LQ	UQ	% patients < 2mmol/l
1999	75	96	1.2	.9	1.4	95
2000	223	342	1.1	.9	1.4	94
2001	283	406	1.1	.9	1.4	94

Figure 3.3.27: Cumulative distribution of serum HDL by year



3.3.10 MANAGEMENT OF RENAL BONE DISEASE, PRIVATECENTRES

Table 3.3.28: Treatment for Renal Bone Disease, HD patients, Private Centres 1999–2001

year	No of subjects	% on CaCO ₃	% on Al(OH) ₃	% on Vit D
1999	395	82	6	28
2000	762	84	3	33
2001	966	89	2	27

Table 3.3.29: Distribution of serum Phosphate (mmol/l), HD patients, Private Centres 1999 –2001

year	No of subjects	No of observations	median	LQ	UQ	% patients <1.6 mmol/l
1999	355	954	1.9	1.6	2.3	26
2000	657	1653	1.9	1.5	2.3	31
2001	808	1956	1.8	1.4	2.3	33

Figure 3.3.29: Cumulative distribution of serum Phosphate by year

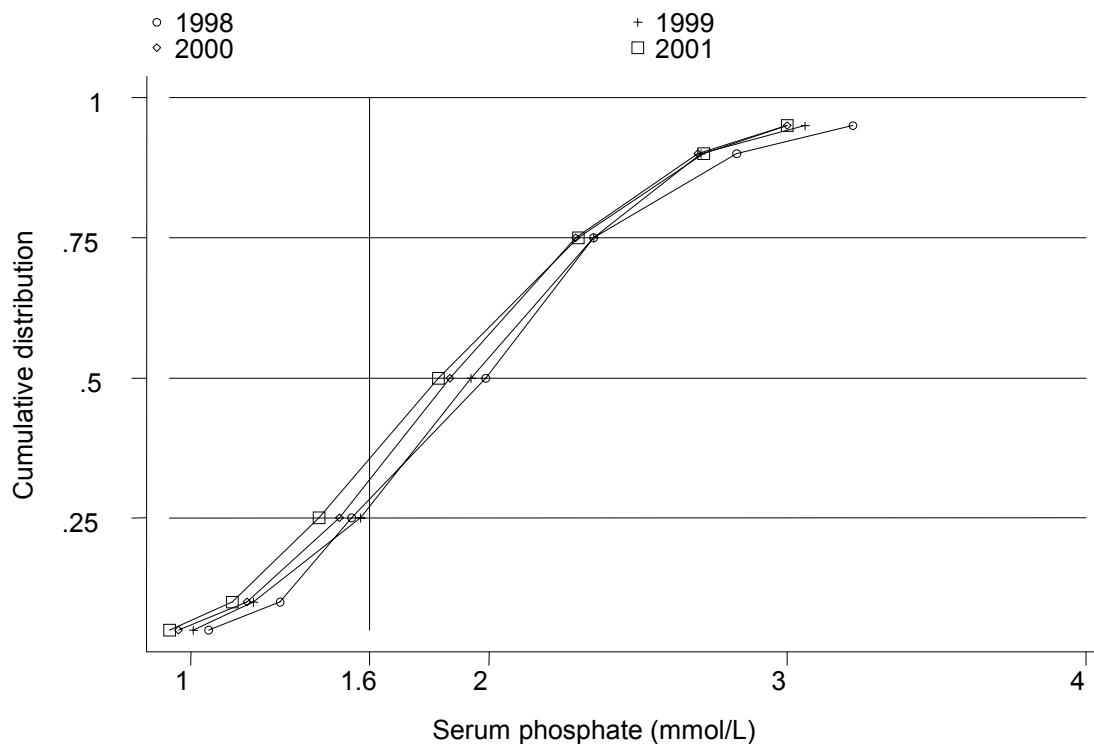


Table 3.3.30: Distribution of serum Calcium (mmol/l), HD patients, Private Centres 1999-2001

year	No of subjects	No of observations	median	LQ	UQ	% patients ≥ 2.2 & ≤ 2.6 mmol/l
1999	357	979	2.3	2.1	2.5	52
2000	665	1687	2.3	2.2	2.5	56
2001	818	1995	2.3	2.2	2.5	60

Figure 3.3.30: Cumulative distribution of serum Calcium by year

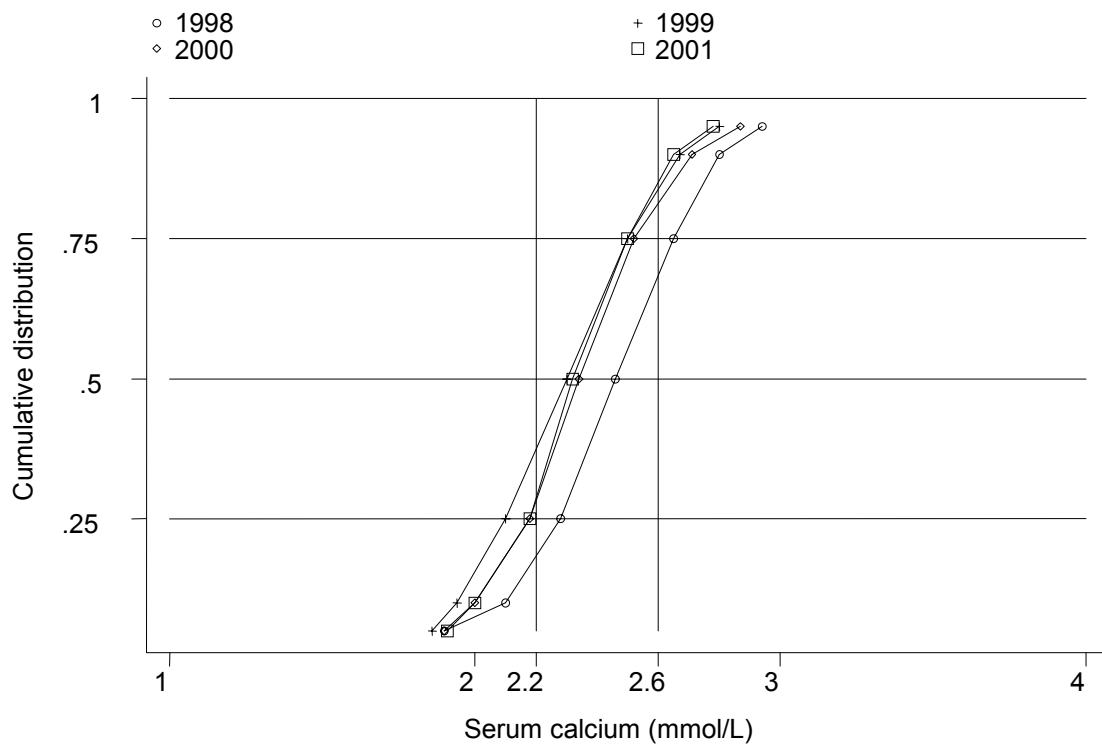
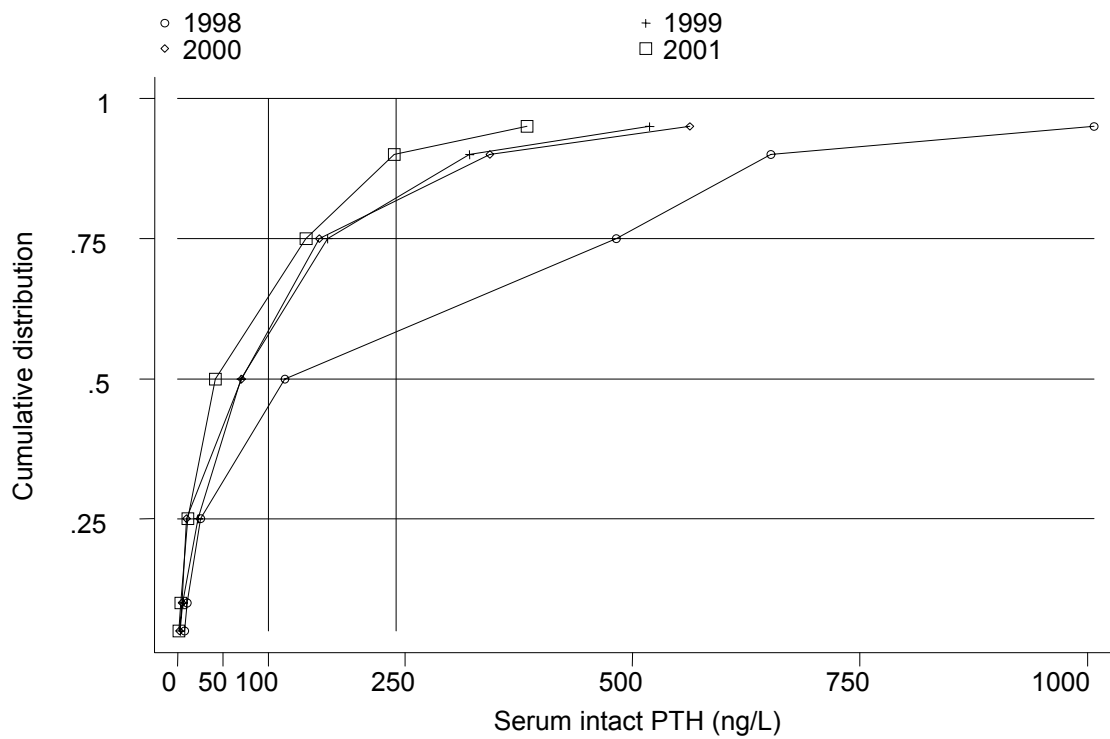


Table 3.3.31: Distribution of serum iPTH (ng/L), HD patients, Private Centres 1999-2001

year	No of subjects	No of observations	median	LQ	UQ	% patients ≥ 100 & ≤ 250 ng/l
1999	57	76	69.5	22.6	164.9	25
2000	86	107	70	9.9	156	22
2001	94	128	41.7	10.9	141	23

Figure 3.3.31: Cumulative distribution of serum iPTH by year,



3.3.11 MANAGEMENT OF BLOOD PRESSURE, PRIVATE CENTRES

Table 3.3.32: Treatment for hypertension, HD patients, Private Centres 1999-2001

year	No.	% on anti-hypertensives	% on 1 anti-hypertensives	% on 2 anti-hypertensives	% on 3 anti-hypertensives
1999	395	64	39	20	5
2000	762	67	42	21	4
2001	966	68	40	23	5

Table 3.3.33: Distribution of Systolic BP without anti-hypertensives, HD patients Private Centres 1999-2001

year	No of subjects	No of observations	median	LQ	UQ	% patients < 160 mmHg
1999	135	836	142	130	160	68
2000	239	2228	140	128	160	72
2001	301	2702	140	120	151	80

Figure 3.3.33: Cumulative distribution of Systolic BP without anti-hypertensives by year

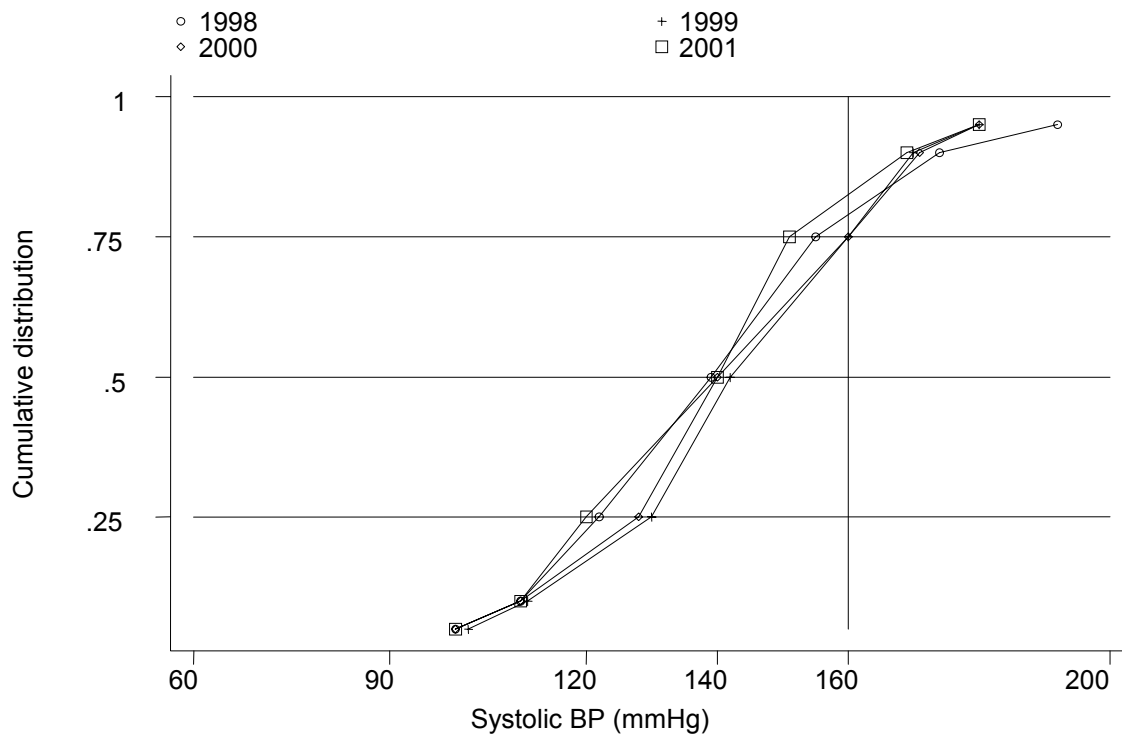


Table 3.3.34: Distribution of Diastolic BP without anti-hypertensives, HD patients, Private Centres 1999-2001

Year	No of subjects	No of observations	median	LQ	UQ	% patients < 90 mmHg
1999	135	838	80	73	90	67
2000	239	2228	80	70	88	76
2001	301	2708	80	70	84	80

Figure 3.3.34: Cumulative distribution of Diastolic BP without anti-hypertensives by year

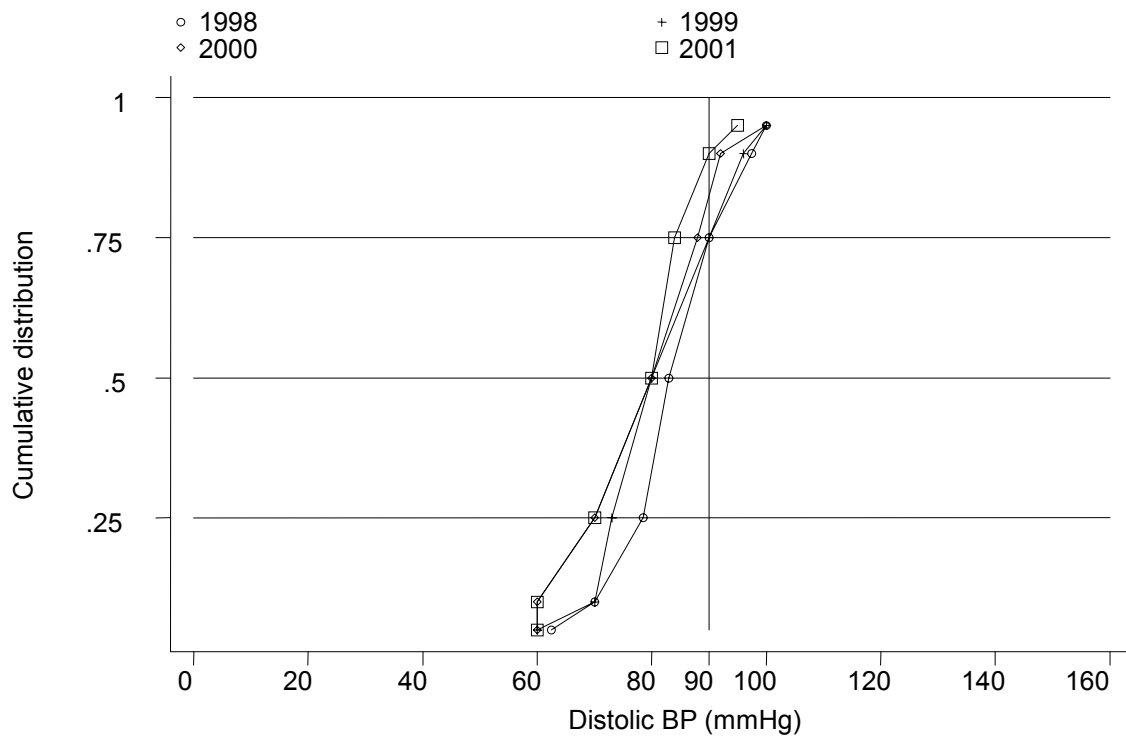


Table 3.3.35: Distribution of systolic BP on anti-hypertensives, HD patients, Private Centres 1999-2001

Year	No of subjects	No of observations	median	LQ	UQ	% patients < 160 mmHg
1999	248	1856	154	140	170	52
2000	497	4483	155	140	170	53
2001	649	5951	155	140	171	53

Figure 3.3.35: Cumulative distribution of systolic BP on anti-hypertensives by year

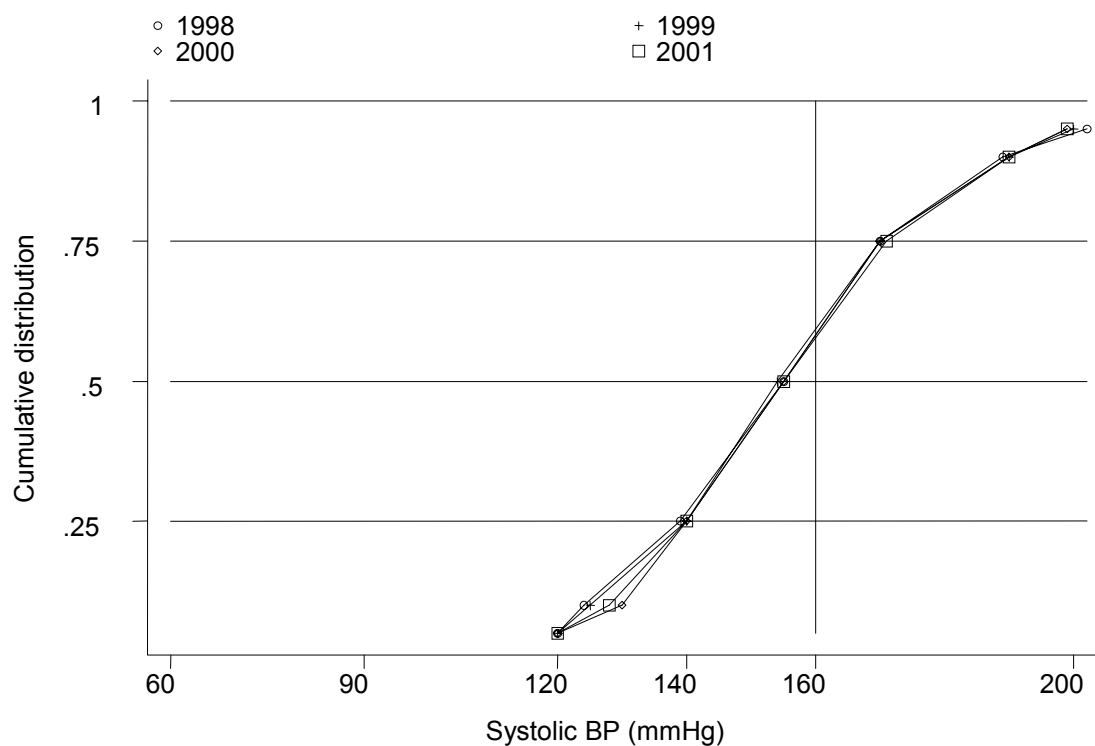
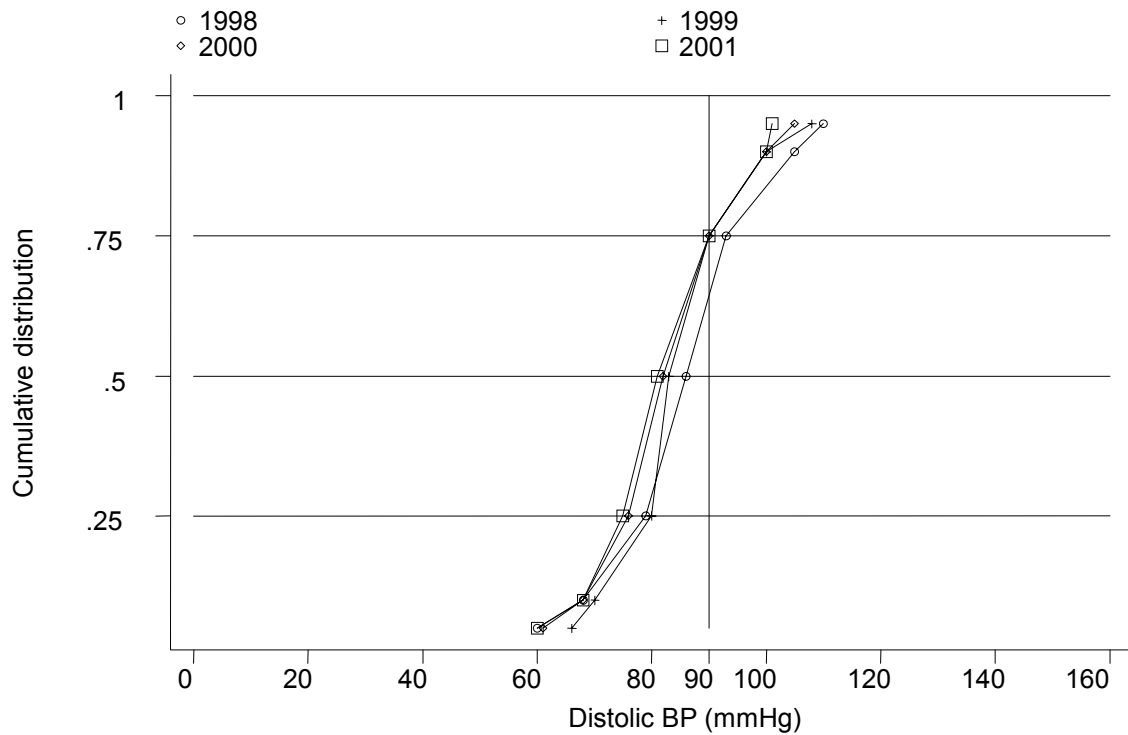


Table 3.3.36: Distribution of diastolic BP on anti-hypertensives, HD patients, Private Centres 1999-2001

year	No of subjects	No of observations	median	LQ	UQ	% patients < 90 mmHg
1999	248	1856	83	80	90	56
2000	497	4485	82	76	90	60
2001	649	5952	81	75	90	60

Figure 3.3.36: Cumulative distribution of diastolic BP on anti-hypertensives by year



3.3.12 TREATMENT OF ANAEMIA, PRIVATE HD CENTRES

Table 3.3.37: Treatment for Anaemia, HD patients, Private Centres 1999-2001

year	No	% on rHuEpo	% received blood transfusion	% on oral Iron	% received parenteral Iron
1999	395	61	23	81	13
2000	762	63	21	75	3
2001	966	65	19	80	5

Table 3.3.38: Distribution of rHuEpo dose per week, HD patients, Private Centres 1999-2001

Year	1999	2000	2001
No. of patients	231	468	613
% on 2000 u/week	28	30	30
% on 2-4000 u/week	63	58	53
% on 4-6000 u/week	4	7	11
% on 6-8000 u/week	2	1	2
% on 8-12000 u/week	2	2	3
% on >12000 u/week	0	0	1

Table 3.3.39: Distribution of serum Iron without rHuEpo, HD patients, PrivateCentres 1999-2001

year	No of subjects	No of observations	median	LQ	UQ	% patients > 10 umol/l
1999	14	21	11	9.1	14.4	62
2000	22	32	13.8	9.8	17.5	72
2001	27	39	15	11.5	20.8	85

Figure 3.3.39: Cumulative distribution of serum Iron without rHuEpo by year

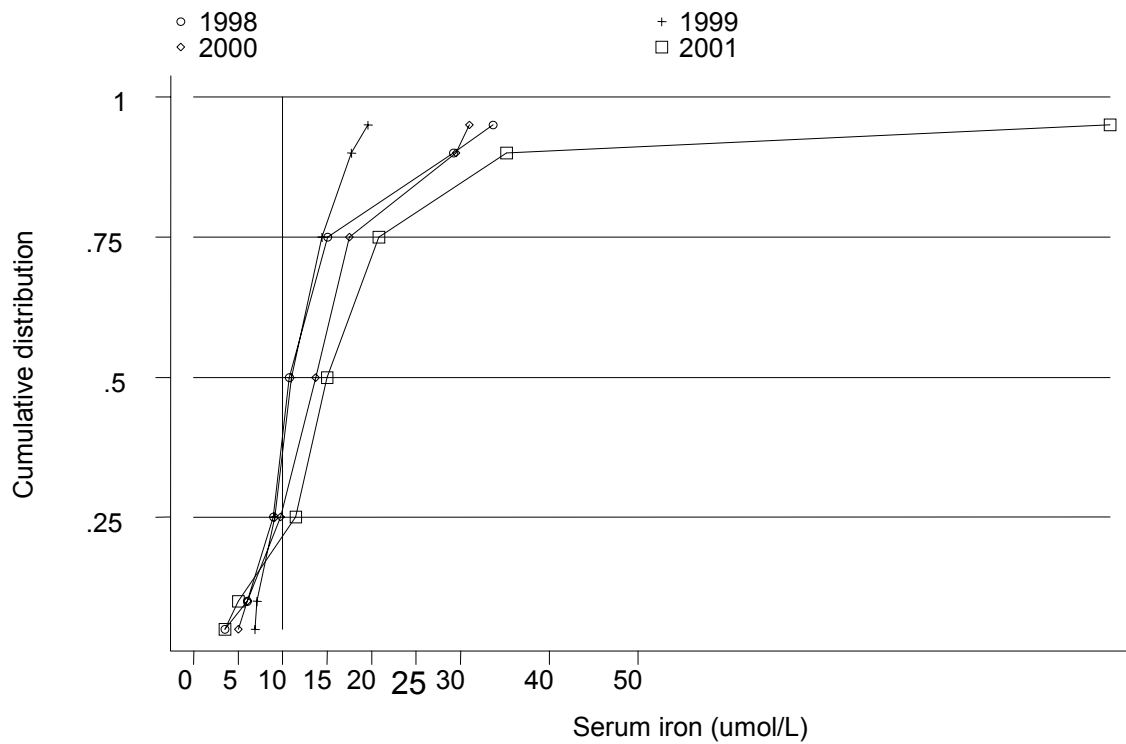


Table 3.3.40: Distribution of serum Iron on rHuEpo,HD patients, Private Centres 1999-2001

Year	No of subjects	No of observations	median	LQ	UQ	% patients > 10 umol/l
1999	70	88	12.8	9	18.8	69
2000	62	85	13.1	9.3	21	67
2001	95	108	13.9	9.3	17.3	71

Figure 3.3.40: Cumulative distribution of serum Iron on rHuEpo by year

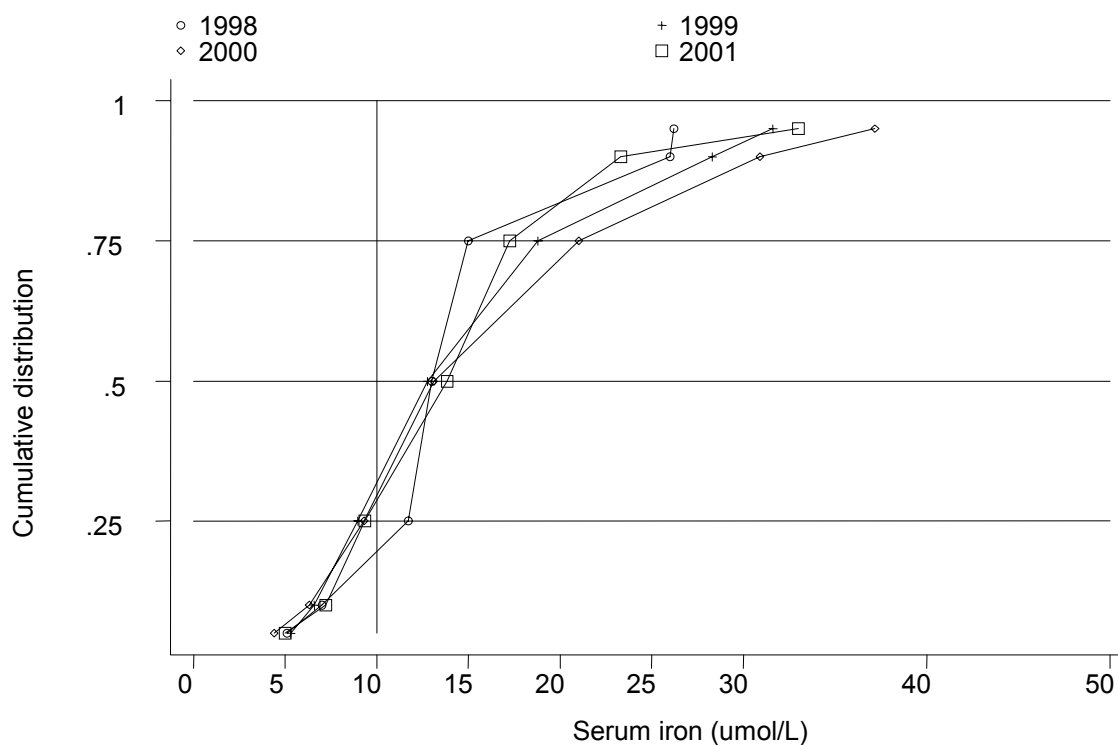


Table 3.3.41: Distribution of serum Transferrin Saturation without rHuEpo, HD patients, Private Centres 1999-2001

Year	No of subjects	No of observations	median	LQ	UQ	% patients > 20%
1999	7	28	25.1	19.1	29.7	71
2000	19	76	24	16.2	34.6	68
2001	22	88	38.7	31.5	61.5	86

Figure 3.3.41: Cumulative distribution of serum Transferrin Saturation without rHuEpo by year

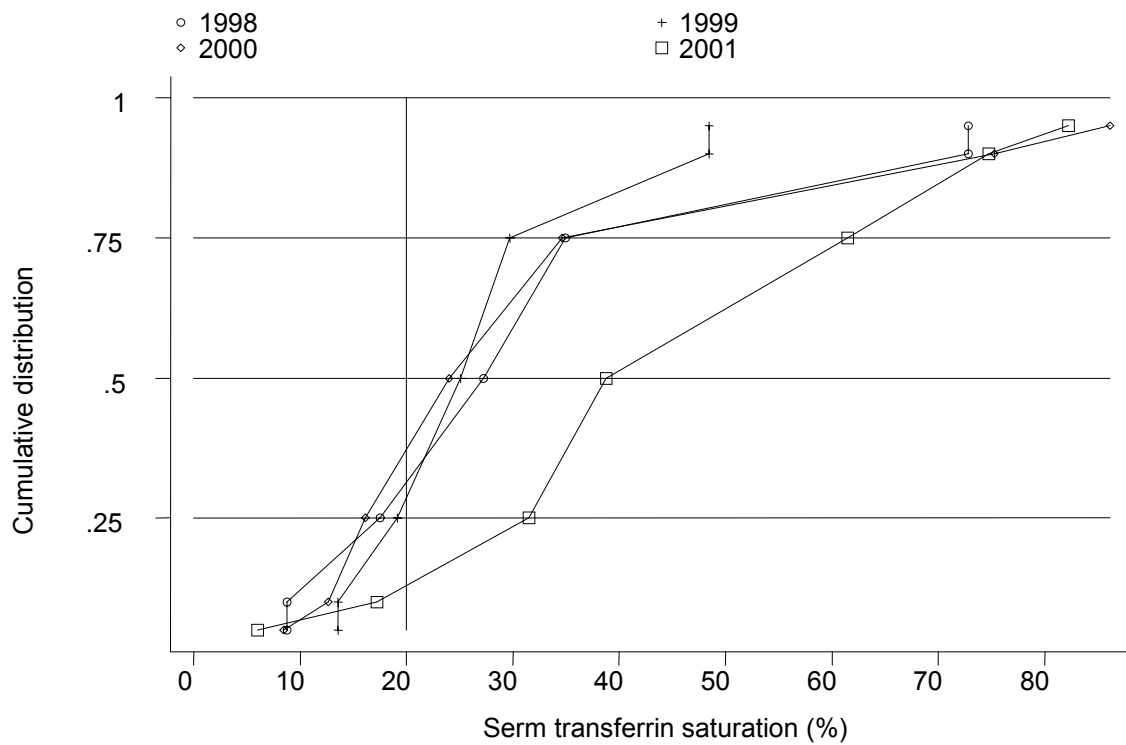


Table 3.3.42: Distribution of serum Transferrin Saturation on rHuEpo, HD patients, Private Centres 1999-2001

Year	No of subjects	No of observations	median	LQ	UQ	% patients > 20%
1999	44	176	31.5	22.5	49.2	84
2000	52	208	36.2	23.8	52.1	85
2001	88	352	32.6	21.5	46.6	77

Figure 3.3.42: Cumulative distribution of serum Transferrin Saturation on rHuEpo by year

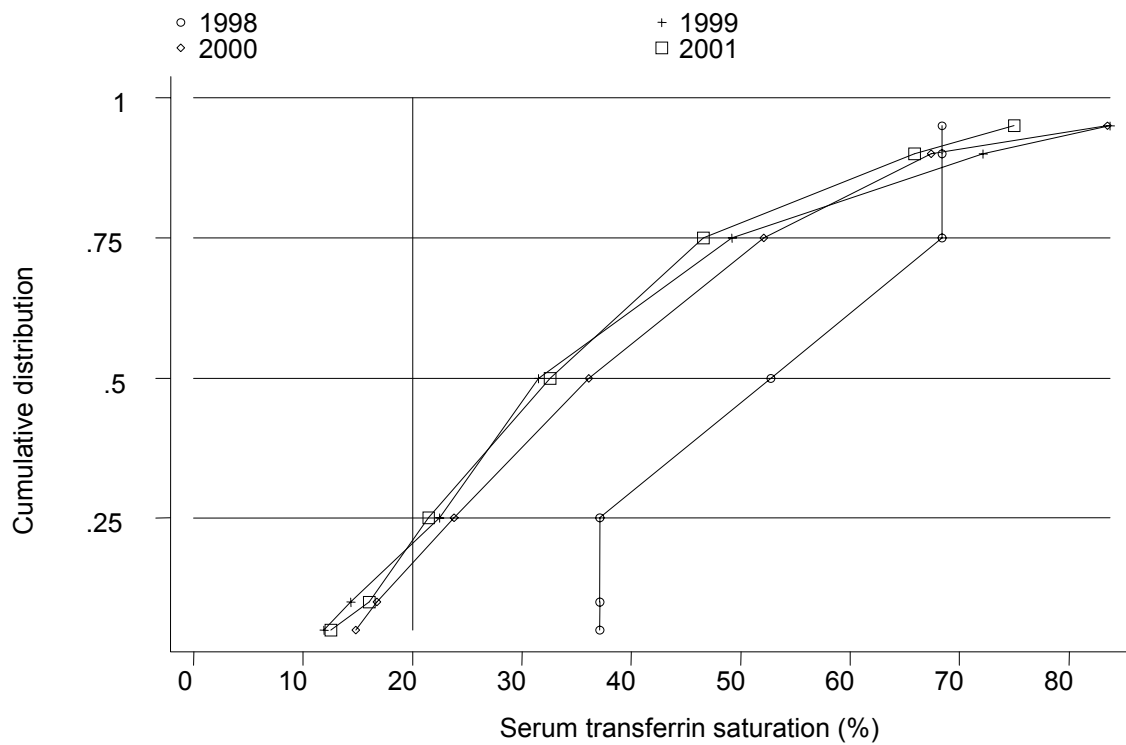


Table 3.3.43: Distribution of serum Ferritin without rHuEpo, HD patients, Private Centres 1999-2001

year	No of subjects	No of observations	median	LQ	UQ	% patients > 100 ug/l
1999	21	27	323	90	776	70
2000	32	44	273.1	124.3	455	84
2001	34	47	415.2	176	831	89

Figure 3.3.43: Cumulative distribution of serum Ferritin without rHuEpo by year

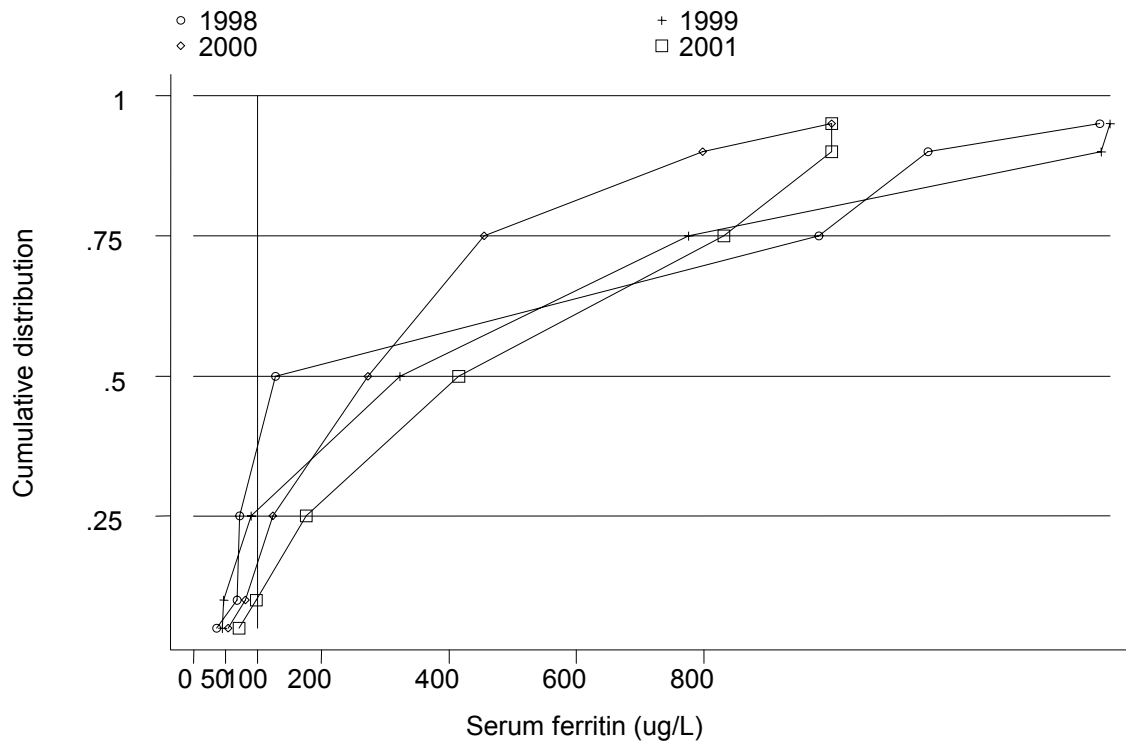


Table 3.3.44: Distribution of serum Ferritin on rHuEpo, HD patients, Private Centres 1999-2001

year	No of subjects	No of observations	median	LQ	UQ	% patients > 100 ug/l
1999	109	151	476.4	300	876	95
2000	104	140	508	227	970	91
2001	162	217	566	288	888	91

Figure 3.3.44: Cumulative distribution of serum Ferritin on rHuEpo by year

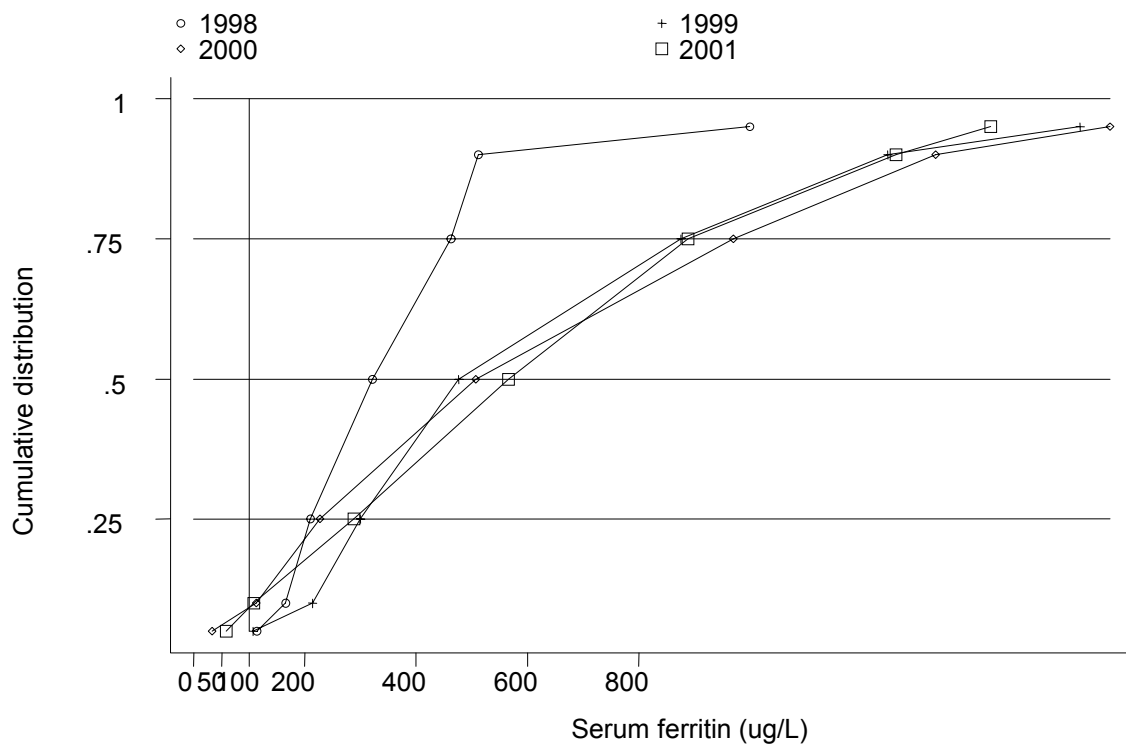


Table 3.3.45: Distribution of Haemoglobin concentration without rHuEpo, HD patients, Private Centres 1999-2001

year	No of subjects	No of observations	median	LQ	UQ	% patients <10 g/dl	% patients ≥ 10 & ≤ 12 g/dl	% patients >12 g/dl
1999	137	372	8.7	7.7	10.3	71	20	9
2000	244	626	8.7	7.6	10.2	72	21	7
2001	271	651	8.9	7.7	10.2	70	22	8

Figure 3.3.45: Cumulative distribution of Hb without rHuEpo by year

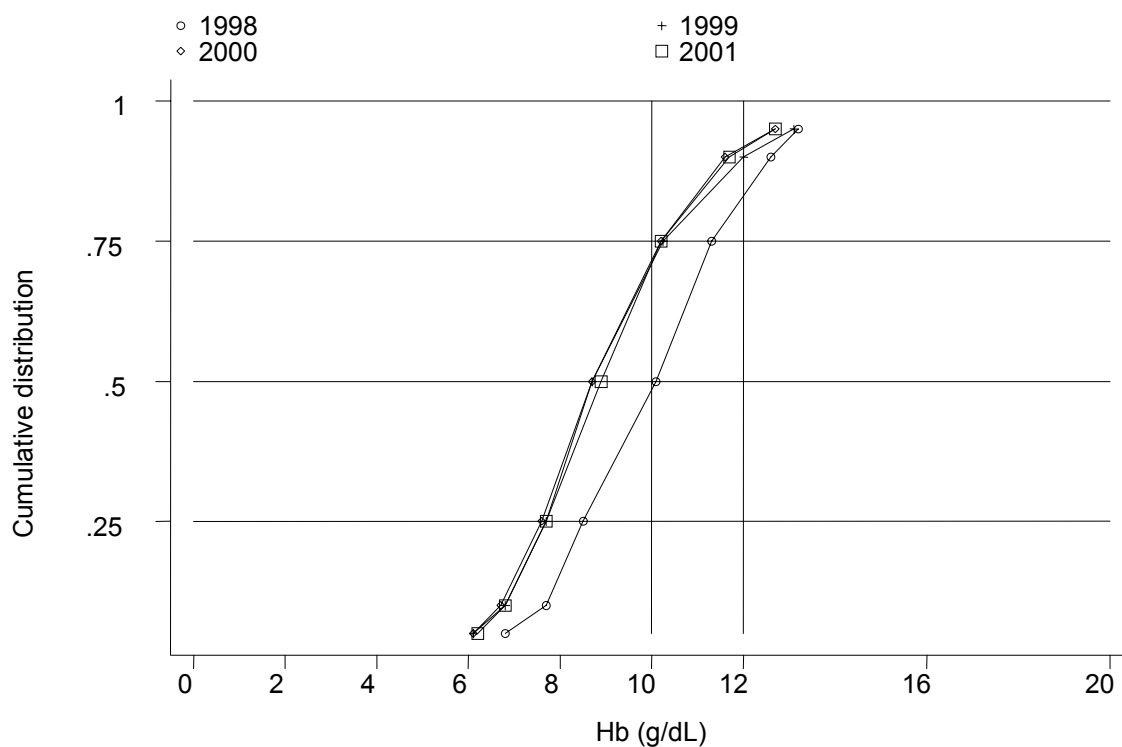
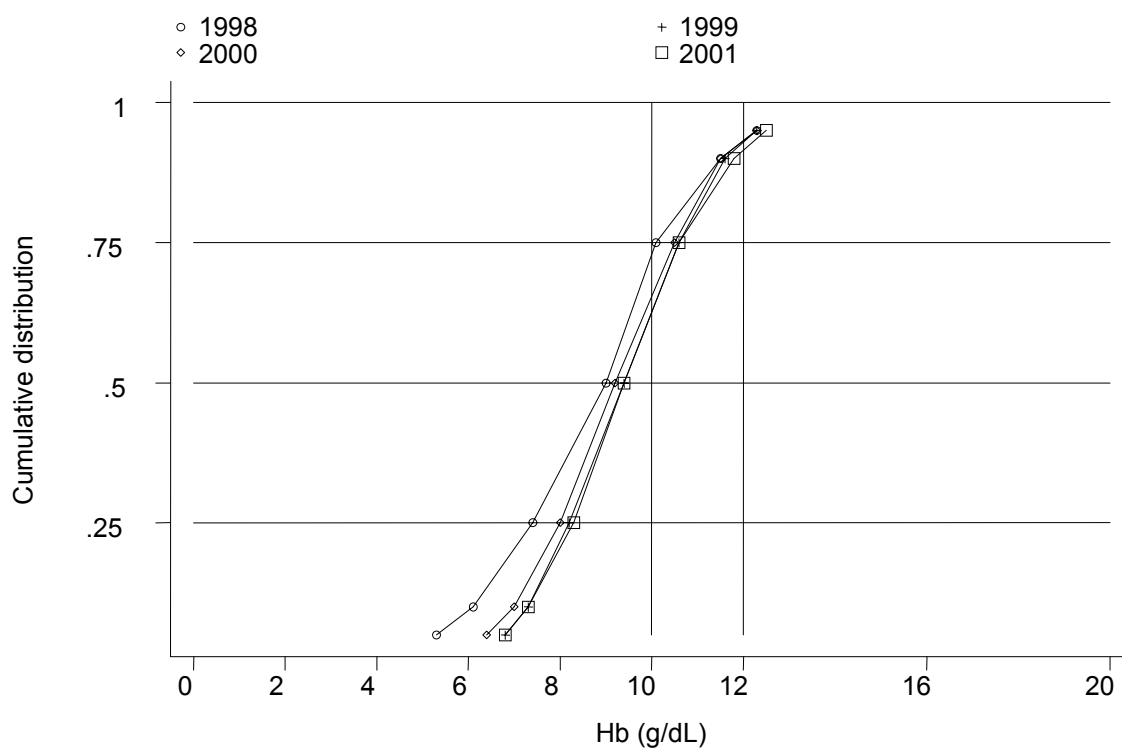


Table 3.3.46: Distribution of haemoglobin concentration on rHuEpo, HD patients, Private Centres 1999-2001

Year	No of subjects	No of observations	median	LQ	UQ	% patients <10 g/dl	% patients ≥ 10 & ≤ 12 g/dl	% patients >12 g/dl
1999	224	704	9.4	8.2	10.6	64	29	6
2000	453	1336	9.2	8	10.5	66	28	7
2001	581	1624	9.4	8.3	10.6	61	31	8

Figure 3.3.46: Cumulative distribution of Haemoglobin on rHuEpo by year

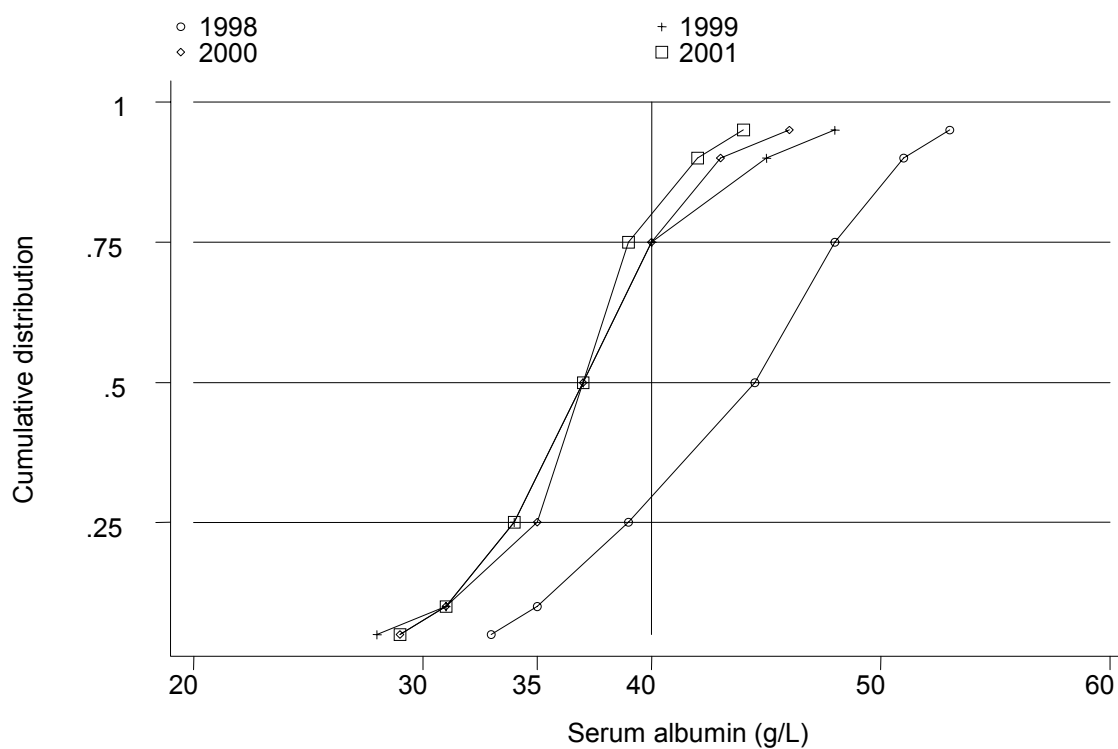


3.3.13 NUTRITIONAL STATUS OF HD PATIENTS PRIVATE CENTRES

Table 3.3.47: Distribution of serum Albumin (g/L), HD patients, Private Centres 1999-2001

year	No of subjects	No of observations	median	LQ	UQ	% patients >40g/l
1999	290	805	37	34	40	30
2000	507	1232	37	35	40	31
2001	682	1684	37	34	39	23

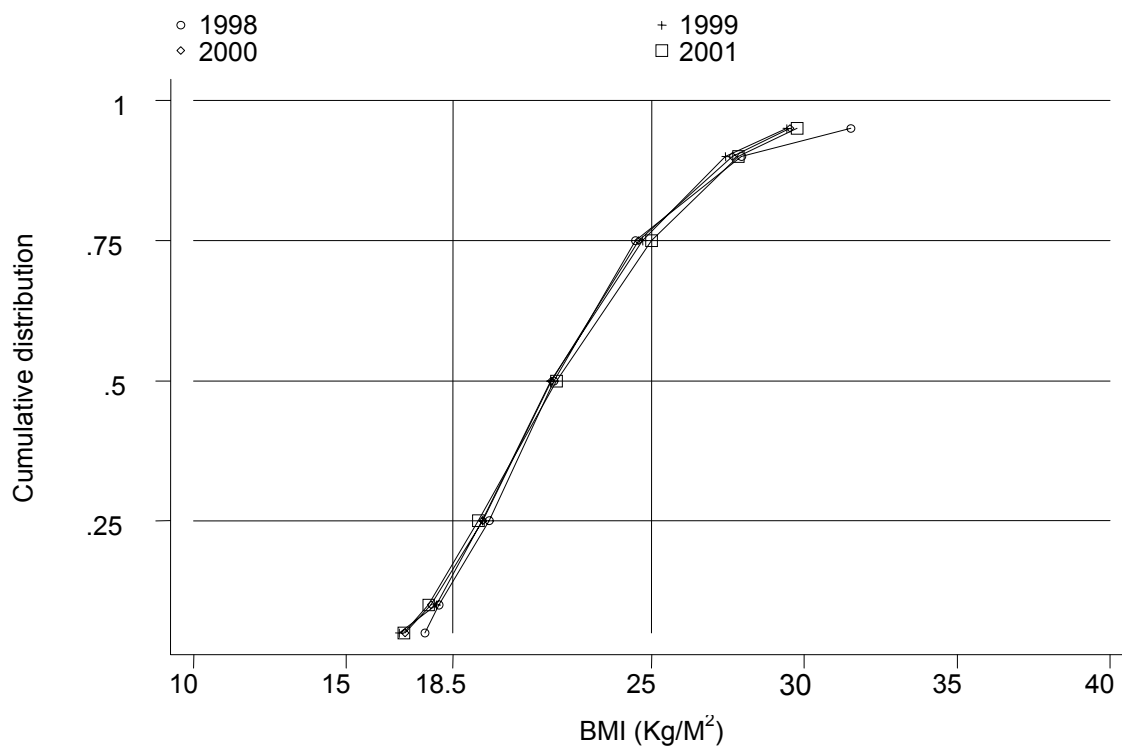
Figure 3.3.47: Cumulative distribution of serum Albumin by year



**Table 3.3.48: Distribution of Body Mass Index HD patients, Private Centres
1999-2001**

year	No of subjects	No of observations	median	LQ	UQ	% patients <18.5	% patients ≥ 18.5 & ≤ 25	% patients >25
1999	275	1916	21.7	19.4	24.7	14	63	23
2000	574	5461	21.7	19.5	24.6	17	61	22
2001	717	6821	21.9	19.3	25	17	57	25

Figure 3.3.48: Cumulative distribution of body mass index by year



3.3.14 SEROLOGICAL STATUS, HD PATIENTS PRIVATECENTRES

Table 3.3.49: Prevalence of positive anti-HCV antibody and HbsAg, HD patients, Private Centres 1999-2001

year	No	% HbsAg positive	% anti-HCV positive
1999	395	4	17
2000	762	4	23
2001	966	4	22

Figure 3.3.49: Prevalence of positive anti-HCV antibody and HbsAg HD patients, Private Centres 1998 – 2001

