

## **Chapter 3 Section 2**

### **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 antibodies and HBsAg

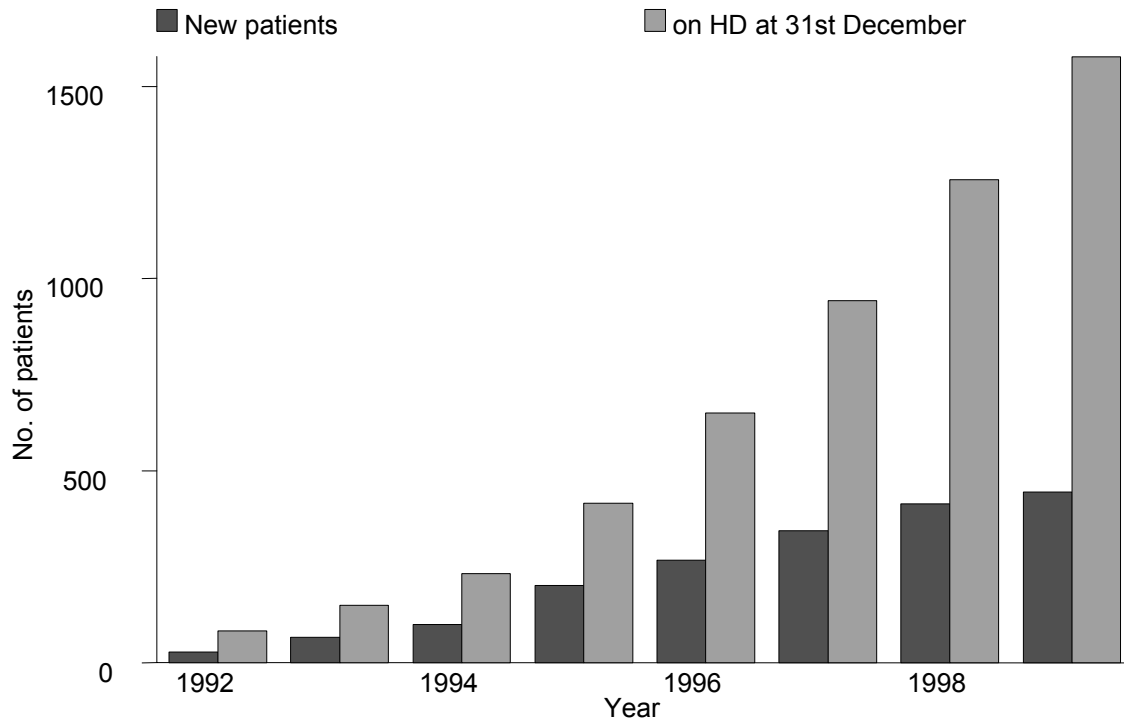
## 3.2: HAEMODIALYSIS IN NON-GOVERNMENTAL ORGANISATION (NGO) CENTRES

### 3.2.1 STOCK AND FLOW

**Table 3.2.01: Stock and Flow: NGO Centres 1996 - 1999**

Year	1996	1997	1998	1999
New patients	268	343	413	445
Died	20	40	81	102
Transferred to PD	0	0	1	4
Transplanted	5	8	13	14
Lost to follow up	8	2	3	4
Dialysing at 31st December	650	943	1258	1579

**Figure 3.2.01: Stock and Flow, HD patients, NGO Centres 1992 - 1999**

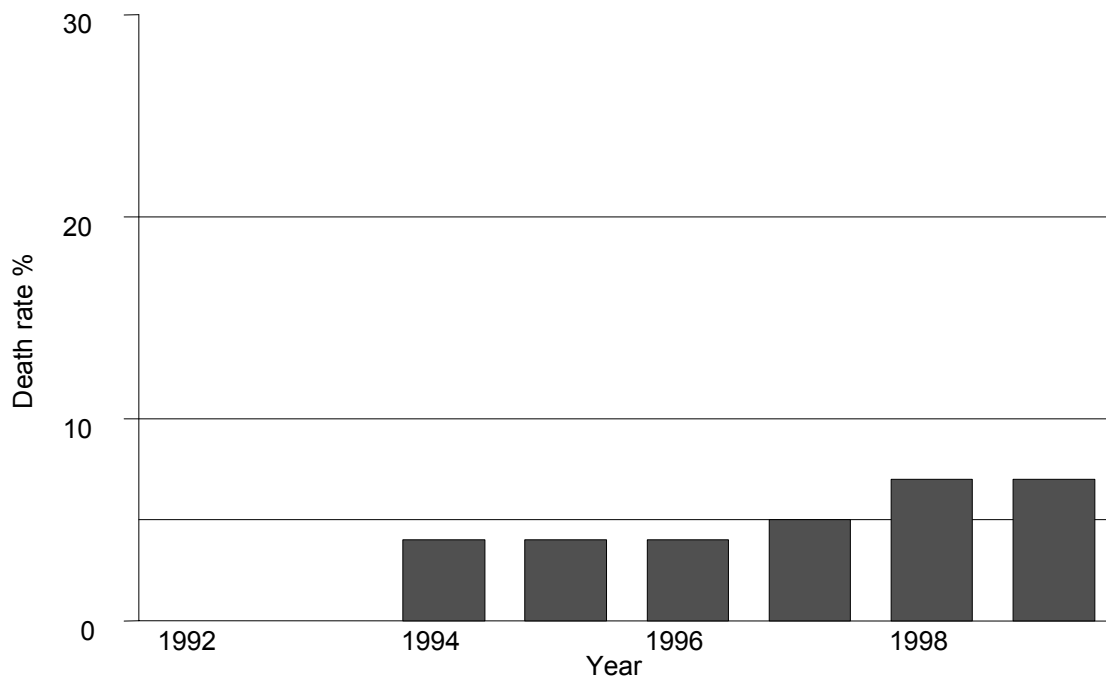


### 3.2 2 DEATH ON HAEMODIALYSIS, NGO CENTRES

**Table 3.2.04: Death Rate on HD: NGO Centres 1996 – 1999**

Year	1996	1997	1998	1999
No. at risk	533	797	1101	1419
Deaths	20	40	81	102
Death rate %	4	5	7	7
Transfer to PD	0	0	1	4
Transfer to PD rate %	0	0	0	0
All Losses	20	40	82	106
All Losses rate %	4	5	7	7

**Figure 3.2.04: Death Rate on HD, NGO Centres to 1999**



**Table 3.2.05: Causes of Death: NGO Centres 1996 – 1999**

Causes of death	1996		1997		1998		1999	
	No.	%	No.	%	No.	%	No.	%
Cardiovascular	7	35	9	23	35	43	28	27
Died at home	0	0	5	13	6	7	13	13
Sepsis	1	5	2	5	6	7	9	9
GIT bleed	0	0	0	0	2	2	3	3
Cancer	0	0	0	0	1	1	2	2
Liver disease	0	0	0	0	1	1	4	4
Others	12	60	18	45	27	33	34	33
Unknown	0	0	6	15	3	4	9	9
Total	20	100	40	100	81	100	102	100

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### 3.2.3 NGO HAEMODIALYSIS CENTRES

**Table 3.2.07: Centre Distribution of HD patients, NGO Centres**

n	Centre	No	percent
0	No.on RRT at 31st December	1579	100
1	Amitabha Centre	3	0
2	Association Klang	37	2
3	Buddhist Pahang	20	1
4	Buddhist Tzu Chi	26	2
5	CHKMUS-MAA	40	3
6	Che Eng Khor	13	1
7	Fo En Haemodialysis	2	0
8	Islam PJ	4	0
9	KAS-Rotary/NKF Sarawak	15	1
10	Kidney SibU	26	2
11	Kiwanis Dialysis	8	1
12	Lions Muar	61	4
13	MAA Cheras	16	1
14	MAA Butterworth	39	2
15	MAA KL	105	7
16	MAA Lions JB	66	4
17	MAA Teluk Intan	25	2
18	MMA Kajang	15	1
19	Mawar N. Sembilan (Bahau)	11	1
20	Mawar N. Sembilan (Lukut)	12	1
21	Mawar N. Sembilan (Seremban)	82	5
22	NKF Charis (Cheras)	60	4
23	NKF Alor Setar	33	2
24	NKF Bakti (Kelang)	56	4
25	NKF Berjaya (PJ)	56	4
26	NKF Hang Lekiu	55	3
27	NKF Ipoh	59	4
28	NKF Manjong (Setiawan)	37	2
29	NKF Rotary Damansara (Kepong)	57	4
30	NKF Trengganu	19	1
31	Penang Community	27	2
32	Persatuan Buah Pinggang Sabah	24	2
33	Persatuan Bulan Sabit Merah (Miri)	20	1
34	Persatuan MembaiKi Akhlak Che Luan Khor	10	1
35	Pertubuhan Hemodialisis SPS	2	0
36	Pusat Darul Iltizam	16	1
37	Pusat Hemodialisis (MCA Cawangan Pasar Meru)	1	0

n	Centre	No	percent
38	Pusat Muhibah	52	3
39	Pusat Yayasan Felda	1	0
40	Rotary AMD	9	1
41	Rotary Batu Pahat	57	4
42	Rotary JB	44	3
43	Rotary Kluang	4	0
44	Rotary Kota Tinggi	4	0
45	Rotary Kulai	45	3
46	Rotary MAA (KB), HD	2	0
47	Rotary Pontian	40	3
48	SJAM Bacang	82	5
49	SJAM-KPS ( Kelang)	19	1
50	Woh Peng Cheang Seah	3	0
51	Yayasan Kebajikan SSL Heamodialisis	59	4

### 3.2.4 HAEMODIALYSIS PATIENTS' CHARACTERISTICS, NGO CENTRES

**Table 3.2.08: Age Distribution of Dialysis Patients, NGO Centres 1996 – 1999**

Year	1996	1997	1998	1999
New Dialysis patients	268	343	413	445
1-14 years	0	0	0	0
15-24 years	4	6	3	2
25-34 years	12	10	11	12
35-44 years	18	22	18	16
45-54 years	32	25	28	31
55-64 years	21	26	26	26
≥65 years	14	11	13	13
Dialysing at 31 <sup>st</sup> December	650	943	1258	1579
1-14 years	0	0	0	0
15-24 years	4	4	4	3
25-34 years	16	15	14	13
35-44 years	24	24	23	22
45-54 years	29	28	28	29
55-64 years	18	21	22	23
≥65 years	9	9	9	10

**Table 3.2.09: Patients' Characteristics , NGO Centres 1996 – 1999**

Year	1996	1997	1998	1999
New Dialysis patients	268	343	413	445
Mean age±sd	49±13	49±13	50±13	50±13
% male	58	57	52	58
% Diabetic	34	33	45	41
% HBsAg+	5	5	4	5
% Anti-HCV+	9	6	4	6

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### 3.2.5 SURVIVAL ANALYSIS, NGO CENTRES

**Table 3.2.10: HD Patient Survival, NGO Centres 1994-1999**

Year Interval (months)	1994			1995			1996		
	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	98	1	90	97	1	192	97	1	257
12	95	2	86	94	2	183	95	1	247
24	95	2	85	92	2	174	90	2	232
36	91	3	82	89	2	166	78	3	198
48	88	3	79	85	3	156			
60	83	4	68						

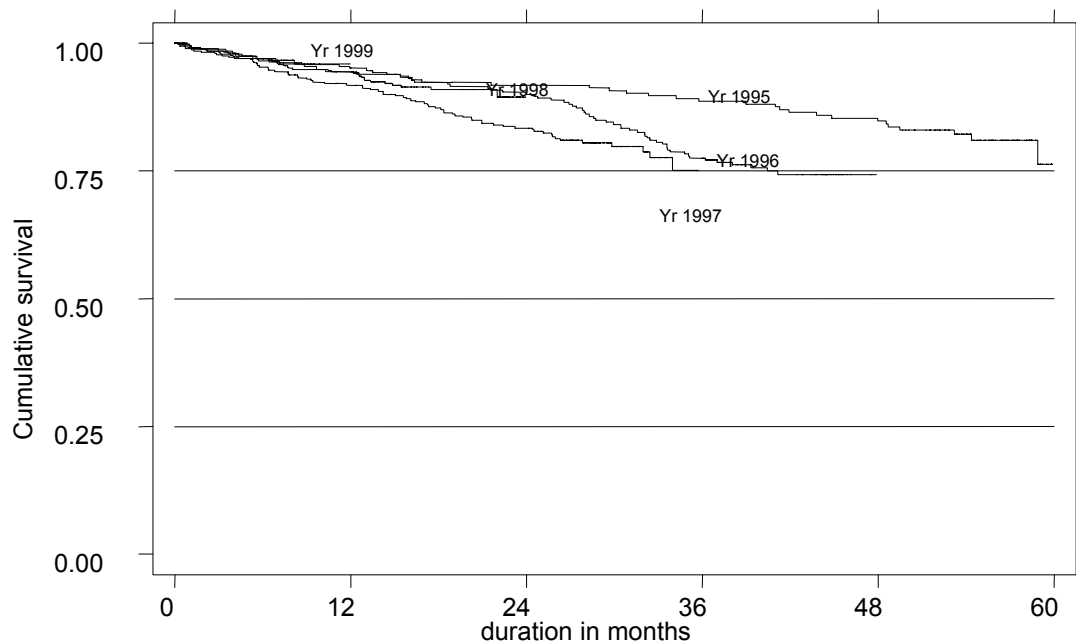
Year Interval (months)	1997			1998			1999		
	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	95	1	327	96	1	396	97	1	225
12	92	1	309	94	1	371			
24	83	2	271						

*No.* = number at risk

*SE* = standard error

**Figure 3.2.10: HD Patient Survival, NGO Centres 1995-1999**

Kaplan-Meier survival estimates, by Year



**Table 3.2.11: HD Technique Survival, NGO Centres 1994-1999**

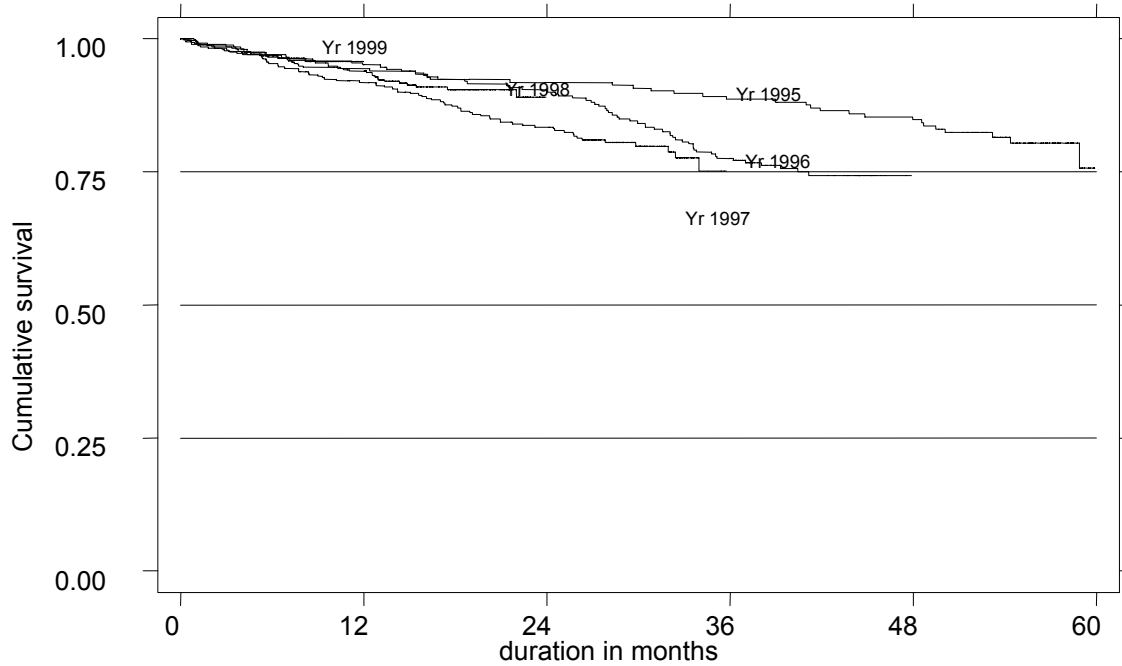
Year	1994			1995			1996		
Interval (months)	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	98	1	90	97	1	192	97	1	257
12	95	2	86	94	2	183	95	1	247
24	95	2	85	92	2	174	90	2	232
36	91	3	82	89	2	166	78	3	198
48	88	3	79	85	3	156			
60	83	4	68						

Year	1997			1998			1999		
Interval (months)	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	95	1	327	96	1	396	97	1	225
12	92	1	309	94	1	371			
24	83	2	271						

*No.* = number at risk  
*SE* = standard error

**Figure 3.2.11 HD Technique Survival by year of entry, NGO centres**  
 Kaplan-Meier survival estimates, by Year



**3.2.6 WORK RELATED REHABILITATION AND QUALITY OF LIFE ON HAEMODIALYSIS, NGO CENTRES**

**Table 3.2.12: Work Related Rehabilitation on HD, NGO centres 1997-1999**

REHABILITATION STATUS	1997		1998		1999	
	No.	%	No.	%	No.	%
Full time work for pay	88	28	69	19	102	16
Part time work for pay	54	17	55	15	110	17
Able to work but unable to get a job	15	5	15	4	33	5
Able to work but not yet due to dialysis schedule	7	2	10	3	37	6
Able but disinclined to work	10	3	3	1	21	3
Home maker	70	22	111	31	181	28
Full time student	1	0	0	0	1	0
Age<15 years	1	0	0	0	0	0
Retired	16	5	24	7	45	7
Age>65 years	17	5	23	6	34	5
Unable to work due to poor health	38	12	47	13	73	11
Total	317	100	357	100	637	100

**Table 3.2.13: Quality of Life on Haemodialysis, NGO Centres, 1997 – 1999**

QOL Index Summated Score	1997		1998		1999	
	No.	%	No.	%	No.	%
0 (Worst QOL)	0	0	0	0	0	0
1	0	0	0	0	0	0
2	0	0	0	0	2	0
3	4	1	4	1	4	1
4	14	4	11	3	15	2
5	13	4	9	3	24	4
6	25	8	21	6	32	5
7	31	10	19	6	56	9
8	43	13	35	10	76	12
9	43	13	29	8	73	12
10 (Best QOL)	150	46	216	63	350	55
Total	323	100	344	100	632	100

### 3.2.7 HAEMODIALYSIS PRACTICES IN NGO CENTRES

**Table 3.2.14: Vascular Access on Haemodialysis, NGO Centres, 1997 -1999**

Access types	1997		1998		1999	
	No.	%	No.	%	No.	%
Wrist AVF	287	89	355	87	589	85
BCF*	28	9	41	10	90	13
venous graft	2	1	3	1	2	0
artificial graft	3	1	3	1	5	1
PERMCATH	0	0	0	0	2	0
temporary CVC	3	1	5	1	9	1
<b>Total</b>	<b>323</b>	<b>100</b>	<b>407</b>	<b>100</b>	<b>697</b>	<b>100</b>

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

**Table 3.2.15: Difficulties reported with Vascular Access, NGO Centres 1997 – 1999**

Access difficulty	1997		1998		1999	
	No.	%	No.	%	No.	%
Difficulty with needle placement	14	4	12	3	23	3
Difficulty in obtaining desired blood flow rate	6	2	11	3	18	3
Other difficulty	3	1	4	1	12	2
No difficulty	300	93	391	94	648	92
<b>Total</b>	<b>323</b>	<b>100</b>	<b>418</b>	<b>100</b>	<b>701</b>	<b>100</b>

**Table 3.2.16: Complications reported with Vascular Access, NGO Centres 1997 – 1999**

Complication	1997		1998		1999	
	No.	%	No.	%	No.	%
thrombosis	19	6	9	2	27	4
bleed	6	2	7	2	2	0
aneurysmal dilatation	11	3	3	1	15	2
swollen limb	3	1	1	0	7	1
access related infection, local/systemic	1	0	3	1	3	0
distal limb ischaemia	0	0	2	0	0	0
venous outflow obstruction	7	2	8	2	17	2
carpal tunnel	1	0	0	0	0	0
other	3	1	8	2	13	2
no complication	272	84	377	90	617	88
<b>Total</b>	<b>323</b>	<b>100</b>	<b>418</b>	<b>100</b>	<b>701</b>	<b>100</b>

**Table 3.2.17: Blood Flow Rates in NGO HD Units, 1997 – 1999**

Blood flow rates	1997		1998		1999	
	No.	%	No.	%	No.	%
<150 ml/min	0	0	0	0	0	0
150-199 ml/min	7	2	8	2	13	2
200-249 ml/min	186	62	208	53	327	48
250-299 ml/min	83	28	146	37	282	42
300-349 ml/min	24	8	28	7	54	8
≥350 ml/min	0	0	2	1	1	0
<b>Total</b>	<b>300</b>	<b>100</b>	<b>392</b>	<b>100</b>	<b>677</b>	<b>100</b>

**Table 3.2.18: Number of HD Sessions per week, NGO HD Units, 1997 – 1999**

HD sessions per week	1997		1998		1999	
	No.	%	No.	%	No.	%
1	0	0	0	0	1	0
2	2	1	3	1	11	2
3	317	99	407	99	686	98
4	2	1	0	0	1	0
Total	321	100	410	100	699	100

**Table 3.2.19 Duration of HD in NGO Units, 1997 – 1999**

Duration of HD per session	1997		1998		1999	
	No.	%	No.	%	No.	%
≤3 hours	0	0	0	0	1	0
3.5 hours	0	0	0	0	1	0
4 hours	319	99	408	99	692	99
4.5 hours	2	1	3	1	2	0
5 hours	1	0	0	0	2	0
≥5 hours	0	0	0	0	0	0
Total	322	100	411	100	698	100

**Table 3.2.20: Dialyser membrane types in NGO HD Units, 1997 – 1999**

Dialyser membrane	1997		1998		1999	
	No.	%	No.	%	No.	%
Cellulosic	219	74	252	68	327	56
Cellulose acetate	70	24	85	23	157	27
Synthetic	8	3	36	10	102	17
Total	297	100	373	100	586	100

**Table 3.2.21: Dialyser Reuse Frequency in NGO HD Units, 1997 – 1999**

Dialyser reuse frequency	1997		1998		1999	
	No.	%	No.	%	No.	%
1*	3	1	1	0	5	1
2	2	1	0	0	2	0
3	39	13	28	7	40	6
4	47	16	8	2	21	3
5	143	48	28	7	94	15
6	57	19	303	79	396	61
7	0	0	1	0	3	0
8	0	0	1	0	37	6
9	5	2	0	0	4	1
10	0	0	15	4	30	5
11	0	0	0	0	0	0
12	0	0	0	0	12	2
≥13	0	0	0	0	0	0
<b>Total</b>	<b>296</b>	<b>100</b>	<b>385</b>	<b>100</b>	<b>644</b>	<b>100</b>

\* 1 is single use ie no reuse

**Table 3.2.22 Dialysate Buffer used in NGO HD Units, 1997 – 1999**

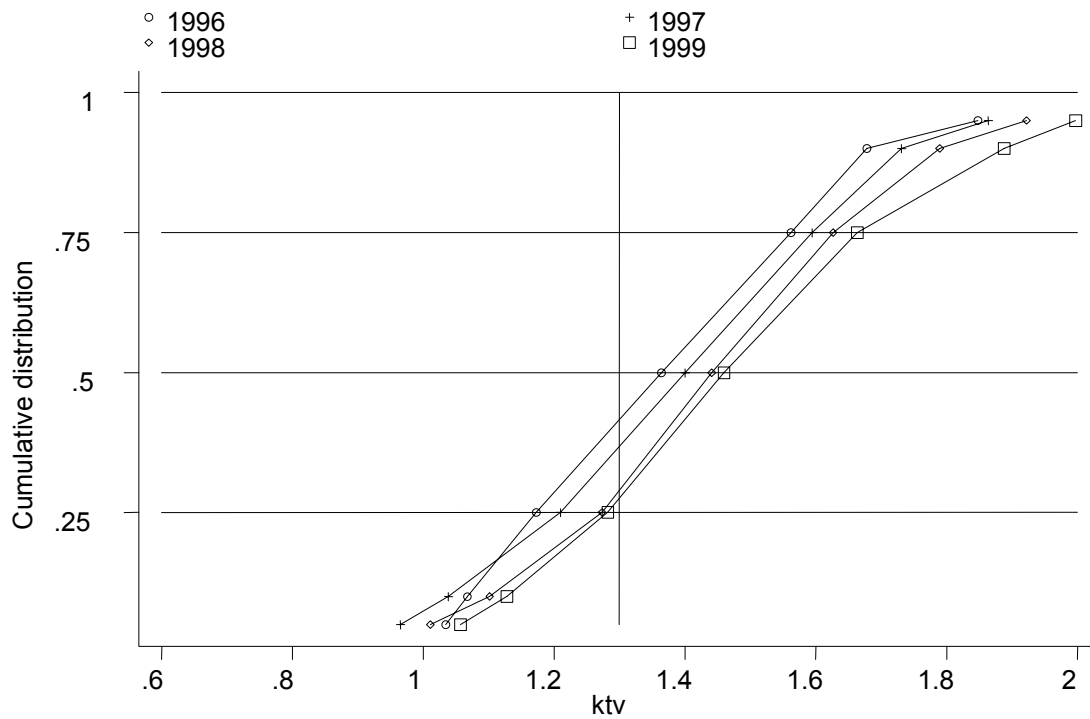
Dialysate buffer	1997		1998		1999	
	No.	%	No.	%	No.	%
Acetate	26	8	34	8	27	4
Bicarbonate	296	92	368	92	660	96
<b>Total</b>	<b>322</b>	<b>100</b>	<b>402</b>	<b>100</b>	<b>687</b>	<b>100</b>



**Table 3.2.23: Distribution of Prescribed KT/V, NGO Centres  
1996 – 1999**

year	No of subjects	No of observations	median	LQ	UQ	% > 1.3
1996	148	1002	1.4	1.2	1.6	61
1997	286	2351	1.4	1.2	1.6	63
1998	376	3701	1.4	1.3	1.6	72
1999	669	6691	1.5	1.3	1.7	73

**Figure 3.2.23: Cumulative Distribution of Prescribed KT/V by Year**

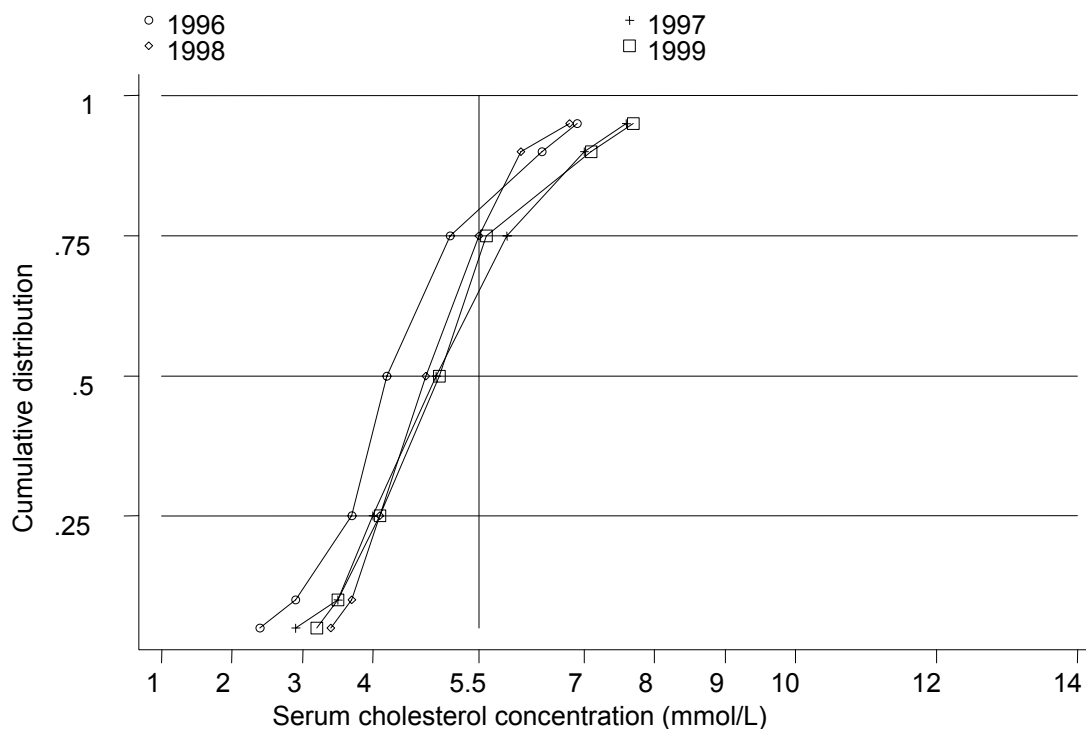


### 3.2.8 DYSLIPIDAEMIA IN HD PATIENTS, NGO CENTRES

**Table 3.2.24: Distribution of Serum Cholesterol Concentrations (mmol/l), HD patients, NGO Centres 1996 – 1999**

year	No of subjects	No of observations	median	LQ	UQ	% patients < 5.3 mmol/l
1996	30	53	4.2	3.7	5.1	85
1997	290	465	4.9	4	5.9	65
1998	84	136	4.8	4.1	5.5	74
1999	124	202	4.9	4.1	5.6	67

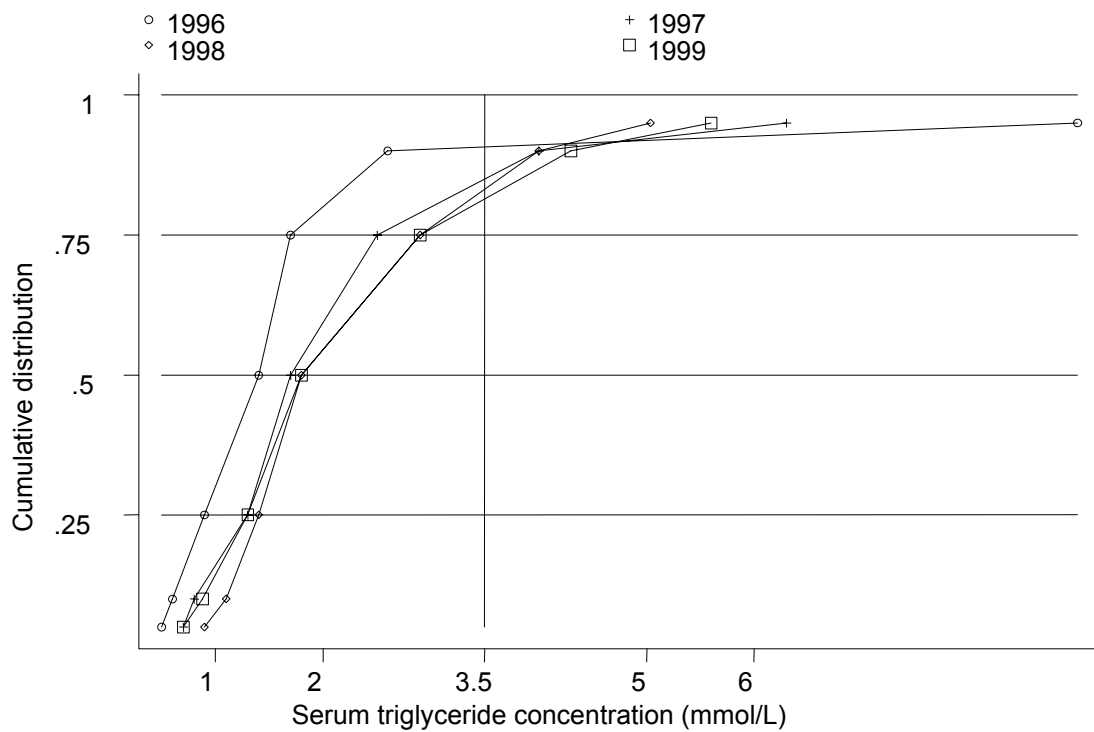
**Figure 3.2.24: Cumulative distribution of serum cholesterol concentration by year**



**Table 3.2.25: Distribution of Serum Triglyceride (mmol/l), HD patients, NGO Centres 1996 – 1999**

year	No of subjects	No of observations	median	LQ	UQ	% patients < 3.5 mmol/l
1996	1	1	2.4	2.4	2.4	100
1997	7	10	2.4	2	3.3	80
1998	15	18	1.9	1.1	2.4	89
1999	74	96	1.7	1.2	2.7	88

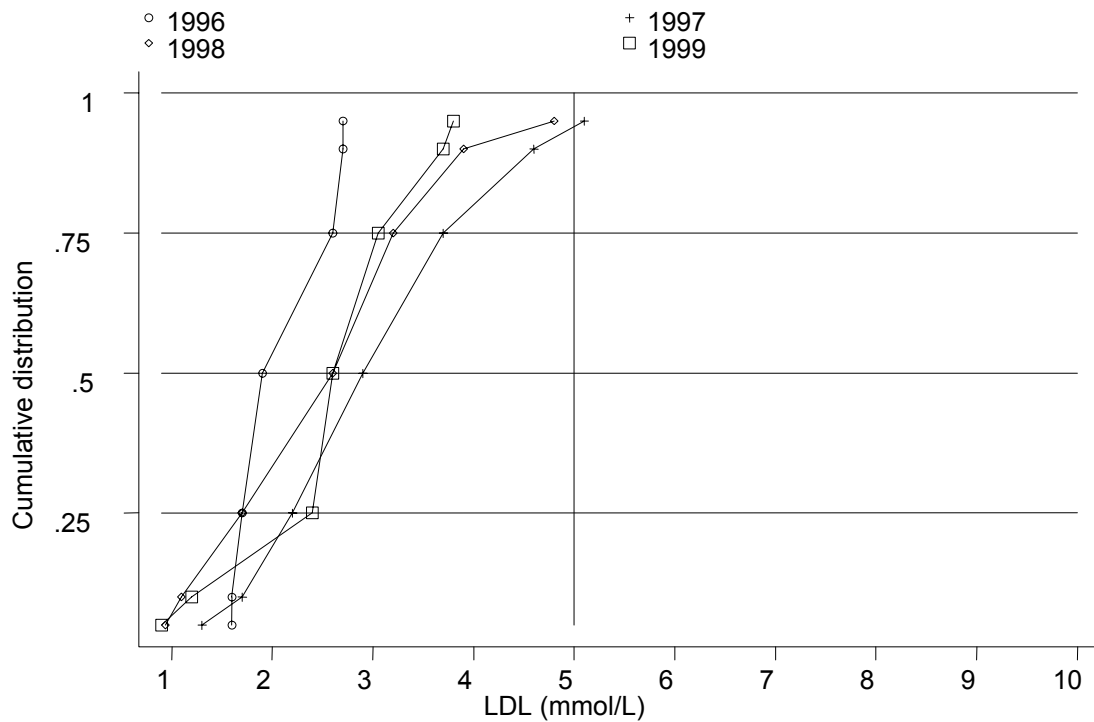
**Figure 3.2.25: Cumulative distribution of serum triglyceride concentration by year**



**Table 3.2.26: Distribution of serum LDL (mmol/l), HD patients, NGO Centres 1996 – 1999**

year	No of subjects	No of observations	median	LQ	UQ	% patients <5 mmol/l
1996	3	5	1.9	1.7	2.6	100
1997	228	341	2.9	2.2	3.7	94
1998	29	41	2.6	1.7	3.2	98
1999	23	28	2.6	2.4	3	100

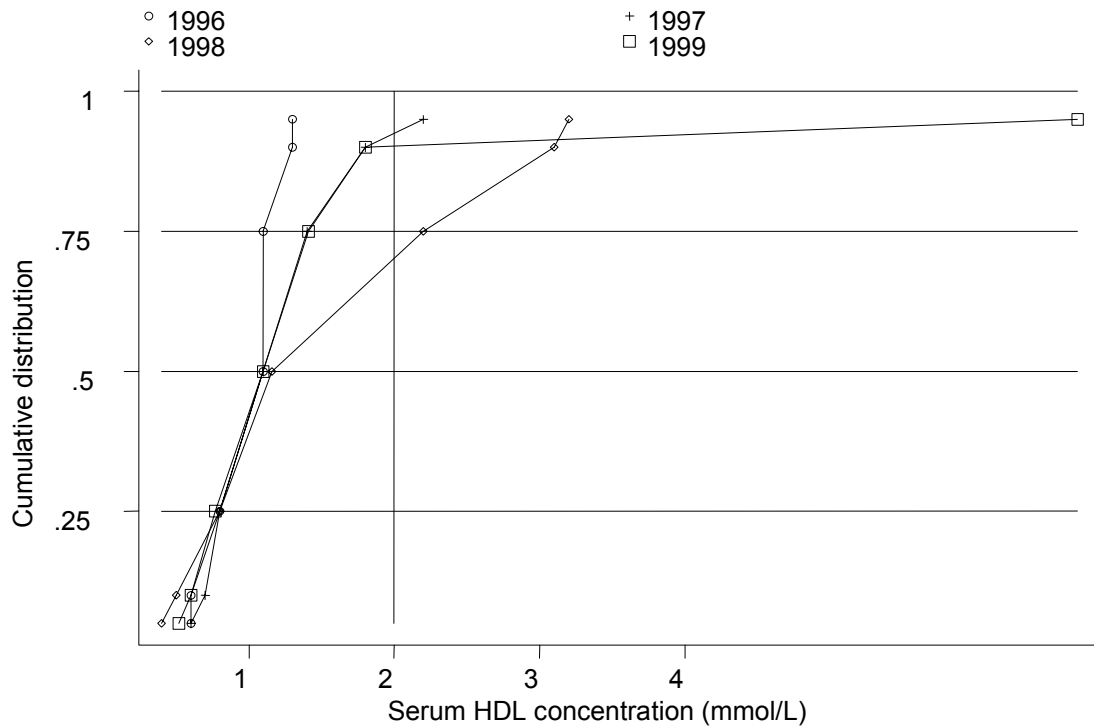
**Figure 3.2.26 : Cumulative distribution of serum LDL by year**



**Table 3.2.27: Distribution of serum HDL (mmol/l), HD patients, NGO Centres 1996 – 1999**

year	No of subjects	No of observations	median	LQ	UQ	% patients < 2mmol/l
1996	3	5	1.1	.8	1.1	100
1997	243	370	1.1	.8	1.4	91
1998	30	43	1.2	.8	2.2	72
1999	25	29	1.1	.8	1.4	93

**Figure 3.2.27: Cumulative distribution of serum HDL by year**



### 3.2.9 MANAGEMENT OF RENAL BONE DISEASE, NGO CENTRES

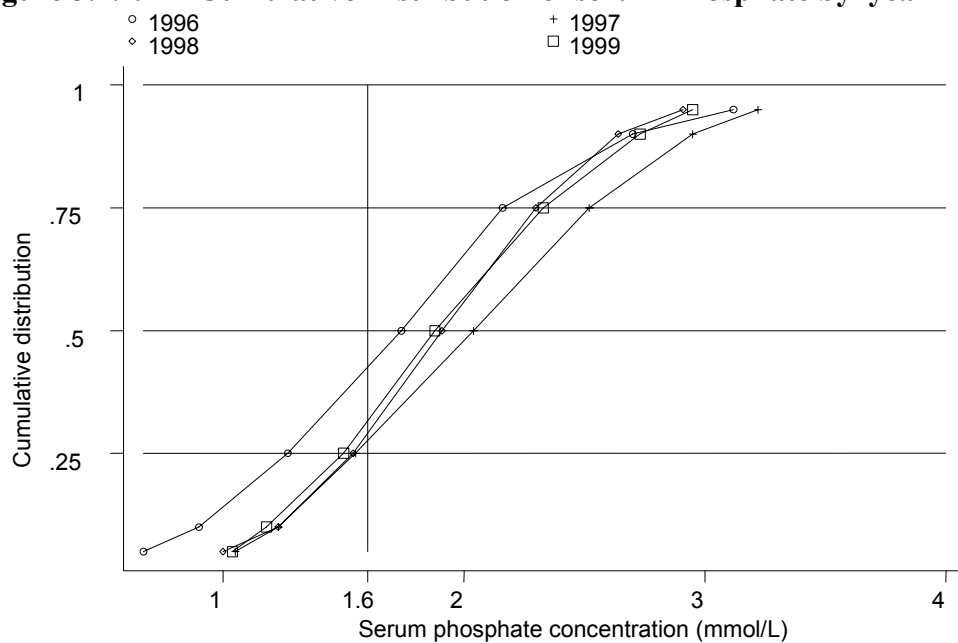
**Table 3.2.28: Treatment for Renal Bone Disease, HD patients, NGO Centres 1996- 1999**

year	No of subjects	% on CaCO <sub>3</sub>	% on Al(OH) <sub>3</sub>	% on Vitamin D
1996	157	88	39	32
1997	325	96	17	41
1998	419	97	8	39
1999	703	92	6	30

**Table 3.2.29: Distribution of serum Phosphate (mmol/l), HD patients, NGO Centres 1996 – 1999**

year	No of subjects	No of observations	median	LQ	UQ	% patients < 1.6 mmol/l
1996	97	237	1.7	1.3	2.2	41
1997	315	947	2	1.5	2.5	28
1998	396	1081	1.9	1.5	2.3	28
1999	667	1831	1.9	1.5	2.3	31

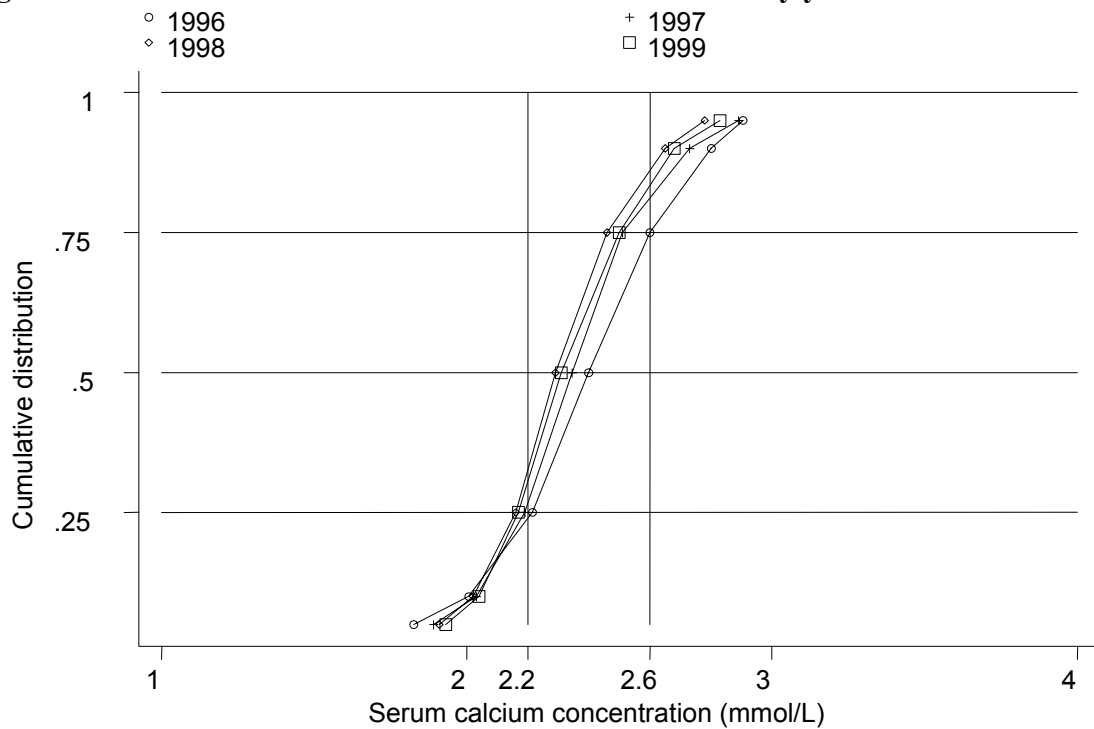
**Figure 3.2.29 Cumulative Distribution of serum Phosphate by year**



**Table 3.2.30: Distribution of serum Calcium (mmol/l), HD patients, NGO Centres 1996 – 1999**

year	No of subjects	No of observations	median	LQ	UQ	% patients $\geq 2.2$ & $\leq 2.6$ mmol/l
1996	105	260	2.4	2.2	2.6	56
1997	316	946	2.3	2.2	2.5	57
1998	401	1093	2.3	2.2	2.5	56
1999	675	1847	2.3	2.2	2.5	57

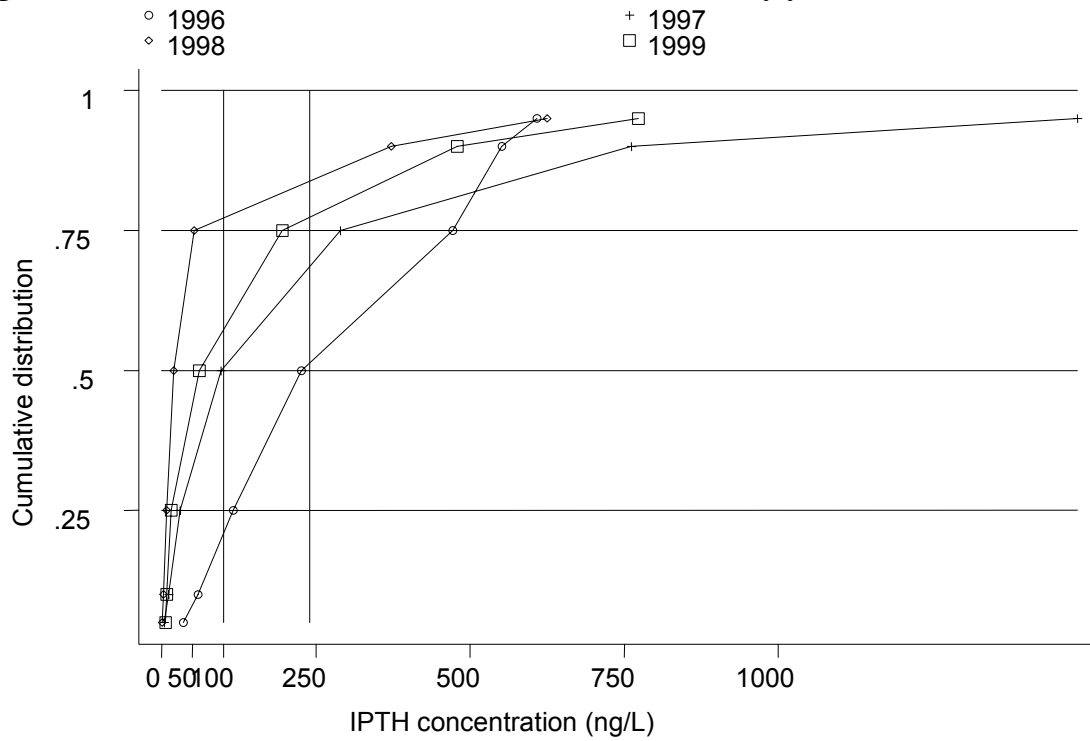
**Figure 3.2.30: Cumulative distribution of Serum Calcium by year**



**Table 3.2.31: Distribution of serum iPTH (ng/L), HD patients, NGO Centres 1996 – 1999**

year	No of subjects	No of observations	median	LQ	UQ	% patients $\geq 100$ & $\leq 250$ ng/l
1996	8	10	226.5	116	472	30
1997	249	369	96	30	290	19
1998	163	169	19.7	8	52.5	7
1999	259	289	61.6	16	195.6	19

**Figure 3.2.31: Cumulative Distribution of serum iPTH by year,**





### 3.2.10 MANAGEMENT OF BLOOD PRESSURE, NGO CENTRES

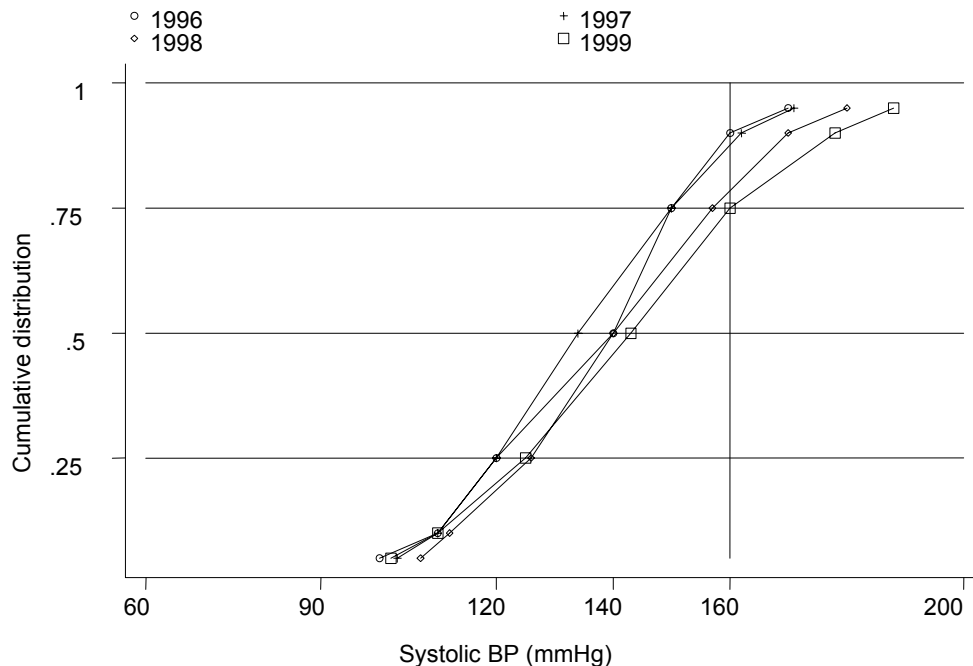
**Table 3.2.32: Treatment for hypertension, HD patients, NGO Centres 1996 - 1999**

year	No.	% on anti-hypertensives	% on 1 anti-hypertensives	% on 2 anti-hypertensives	% on 3 anti-hypertensives
1996	157	62	41	15	6
1997	325	59	30	20	9
1998	419	61	33	21	7
1999	703	69	38	22	9

**Table 3.2.33: Distribution of Systolic BP without anti-hypertensives, HD patients, NGO Centres 1996 – 1999**

year	No of subjects	No of observations	median	LQ	UQ	% patients < 160 mmHg
1996	58	388	140	120	150	84
1997	122	1015	134	120	150	85
1998	160	1631	140	126	157	77
1999	215	2242	143	125	160	74

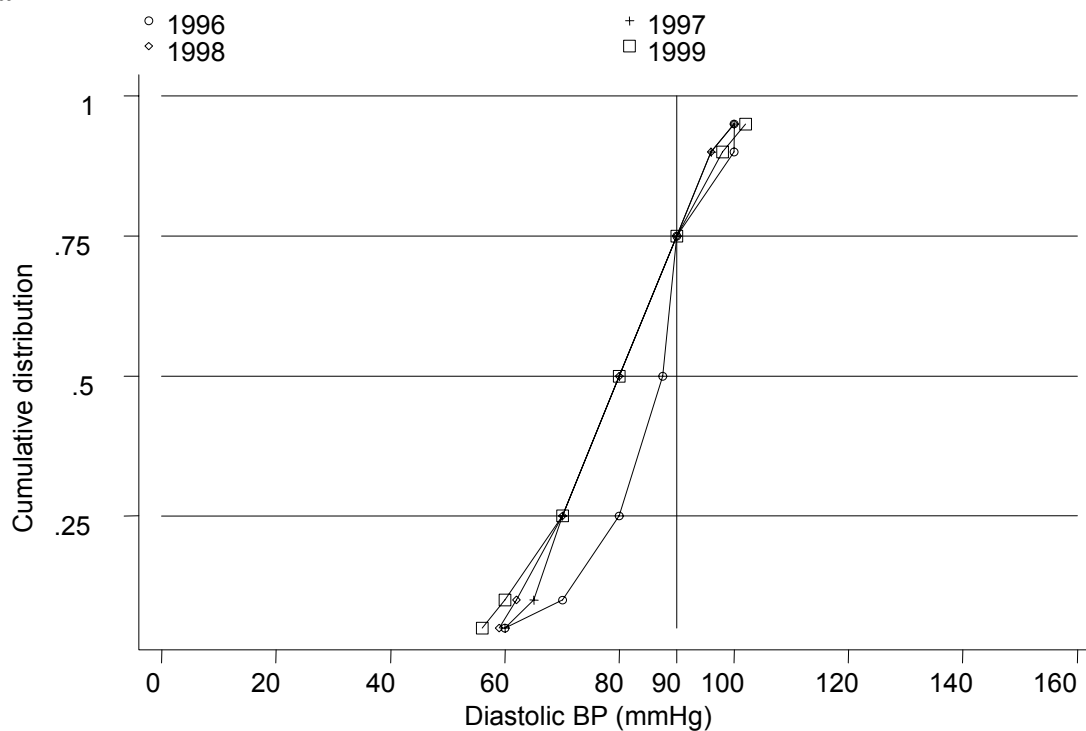
**Figure 3.2.33: Cumulative Distribution of Systolic BP without anti-hypertensives by year**



**Table 3.2.34: Distribution of Diastolic BP without anti-hypertensives, HD patients, NGO Centres 1996– 1999**

Year	No of subjects	No of observations	median	LQ	UQ	% patients < 90 mmHg
1996	58	388	87.5	80	90	51
1997	123	1016	80	70	90	70
1998	160	1632	80	70	90	72
1999	215	2239	80	70	90	73

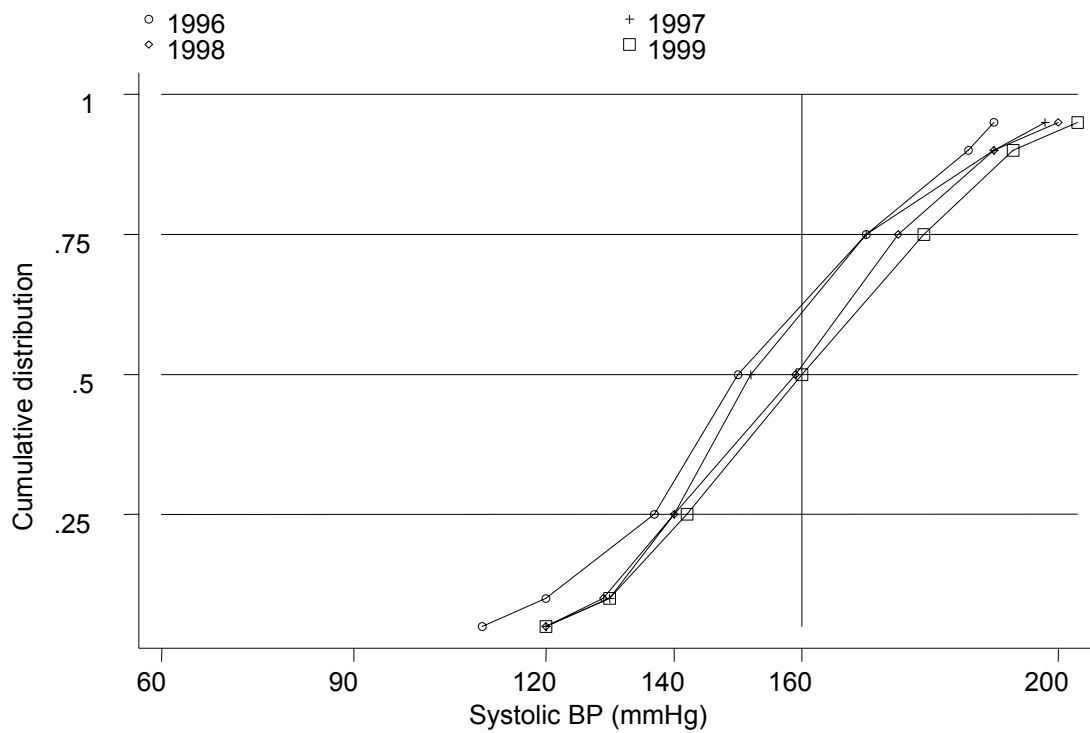
**Figure 3.2.34: Cumulative Distribution of Diastolic BP without anti-hypertensives by year**



**Table 3.2.35: Distribution of systolic BP on anti-hypertensives, HD patients, NGO Centres 1996 – 1999**

Year	No of subjects	No of observations	median	LQ	UQ	% patients < 160 mmHg
1996	93	646	150	137	170	56
1997	191	1509	152	140	170	56
1998	248	2409	159	140	175	51
1999	485	4798	160	142	179	49

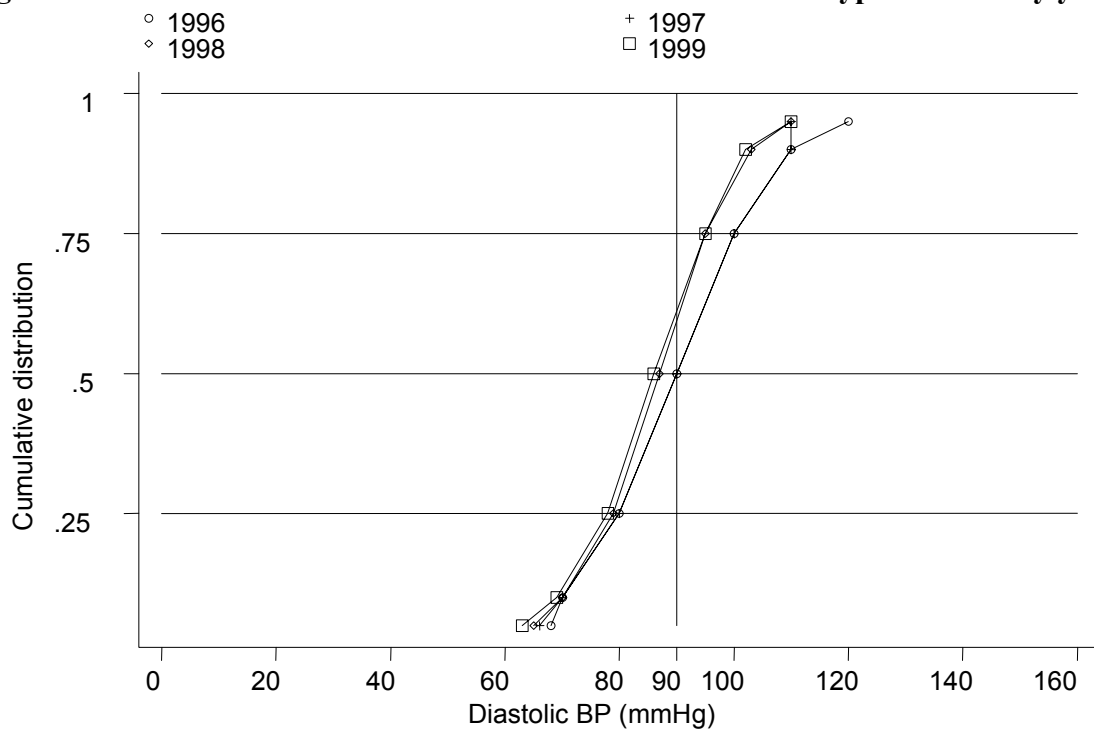
**Table 3.2.35: Cumulative Distribution of systolic BP on anti-hypertensives, by year**



**Table 3.2.36: Distribution of diastolic BP on anti-hypertensives, HD patients, NGO Centres 1996 – 1999**

year	No of subjects	No of observations	median	LQ	UQ	% patients < 90 mmHg
1996	93	646	90	80	100	37
1997	191	1509	90	80	100	44
1998	248	2411	87	79	95	55
1999	485	4804	86	78	95	58

**Figure 3.2.36: Cumulative Distribution of diastolic BP on anti-hypertensives by year**



### 3.2.11 TREATMENT OF ANAEMIA, NGO HD CENTRES

**Table 3.2.37: Treatment for Anaemia, HD patients, NGO Centres 1996 - 1999**

year	No	% on rHuEpo	% received blood transfusion	% received parenteral iron	% received oral iron
1996	157	27	15	80	1
1997	325	52	9	88	1
1998	419	50	7	91	1
1999	703	54	9	87	1

**Table 3.2.38: Distribution of rHuEpo dose per week, HD patients, NGO Centres 1996 - 1999**

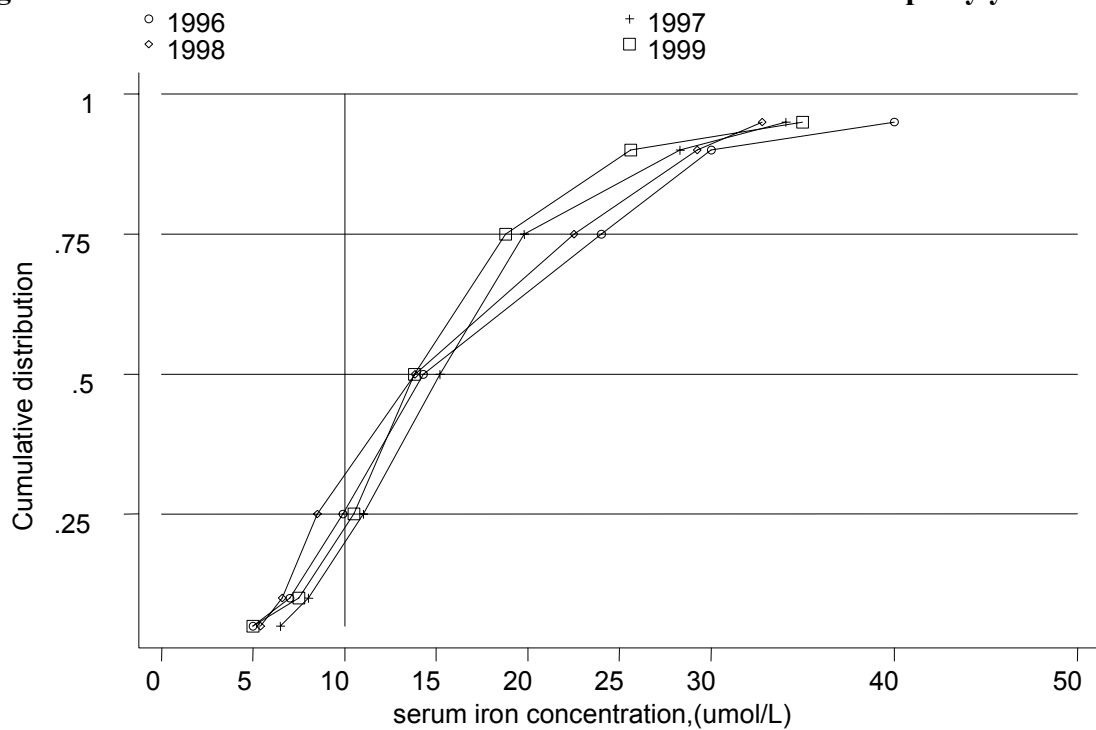
Year	1996	1997	1998	1999
No. of patients	41	164	201	365
% on 2000 u/week	49	55	63	70
% on 2-4000 u/week	41	40	32	24
% on 4-6000 u/week	2	2	3	4
% on 6-8000 u/week	5	1	1	1
% on 8-12000 u/week	0	1	0	0
% on >12000 u/week	2	1	0	0

"

**Table 3.2.39: Distribution of serum Iron without rHuEpo, HD patients, NGO Centres 1996– 1999**

year	No of subjects	No of observations	median	LQ	UQ	% patients > 10 umol/l
1996	20	53	14.3	9.9	24	72
1997	134	233	15.2	11	19.8	80
1998	20	50	13.9	8.5	22.5	68
1999	22	54	13.8	10.5	18.8	81

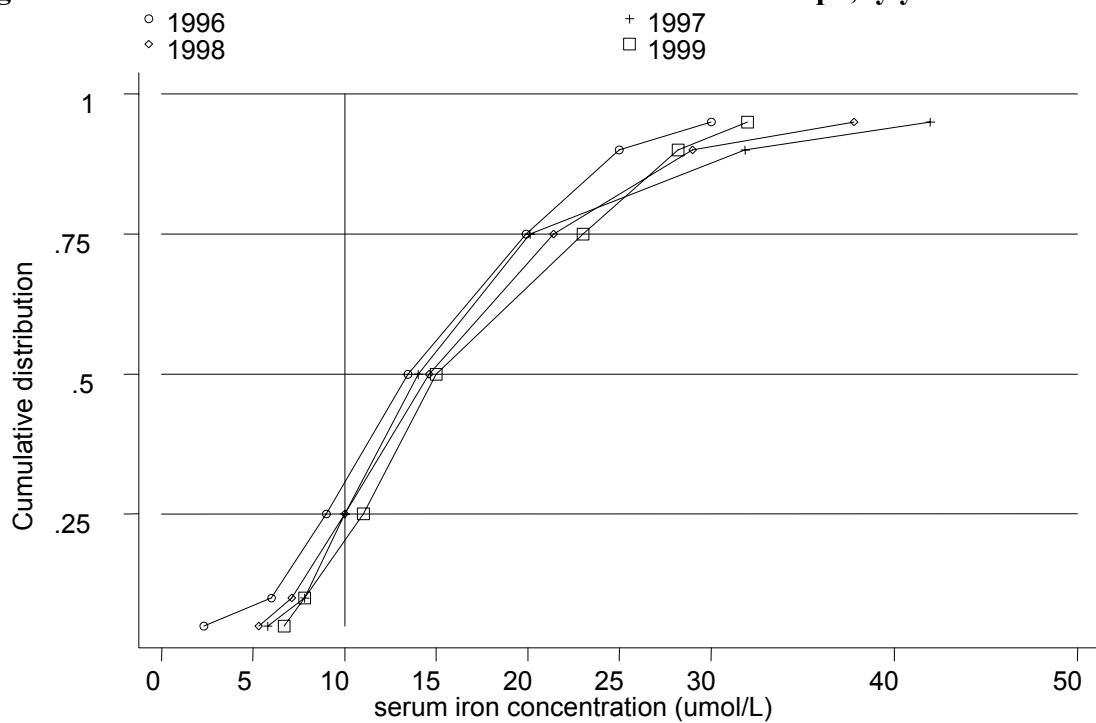
**Figure 3.2.39: Cumulative Distribution of serum Iron without rHuEpo by year**



**Table 3.2.40: Distribution of serum Iron on rHuEpo,HD patients, NGO Centres 1996 – 1999**

Year	No of subjects	No of observations	median	LQ	UQ	% patients > 10 umol/l
1996	14	22	13.4	9	19.9	68
1997	154	300	14	10	20.1	75
1998	42	113	14.6	10	21.4	72
1999	35	91	15	11	23	80

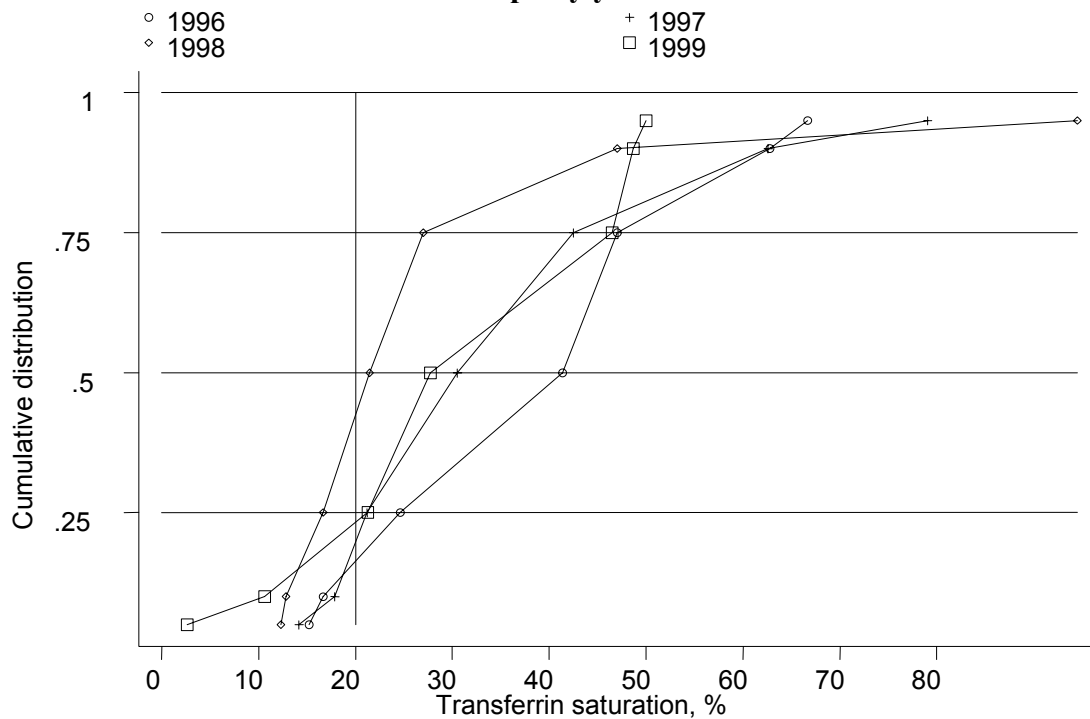
**Figure 3.2.40: Cumulative Distribution of serum Iron on rHuEpo, by year.**



**Table 3.2.41: Distribution of serum Transferrin Saturation without rHuEpo, HD patients, NGO Centres 1996– 1999**

Year	No of subjects	No of observations	median	LQ	UQ	% patients > 20%
1996	19	76	41.3	24.7	47.1	84
1997	110	440	30.5	21.2	42.5	79
1998	16	64	21.5	16.7	27	63
1999	16	64	27.7	21.3	46.5	81

**Figure 3.2.41: Cumulative Distribution of serum Transferrin Saturation without rHuEpo by year**

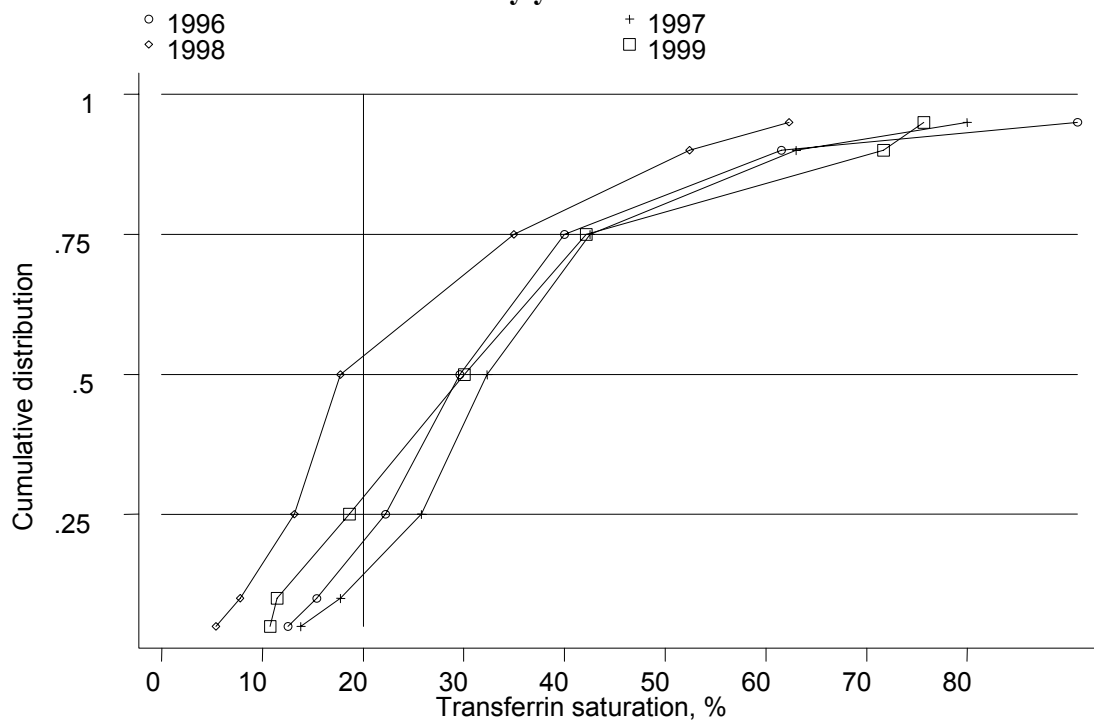




**Table 3.2.42: Distribution of serum Transferrin Saturation on rHuEpo, HD patients, NGO Centres 1996– 1999**

Year	No of subjects	No of observations	median	LQ	UQ	% patients > 20%
1996	13	52	29.6	22.2	40	85
1997	133	532	32.3	25.8	42.5	87
1998	21	84	17.7	13.2	35	43
1999	26	104	30	18.6	42.1	73

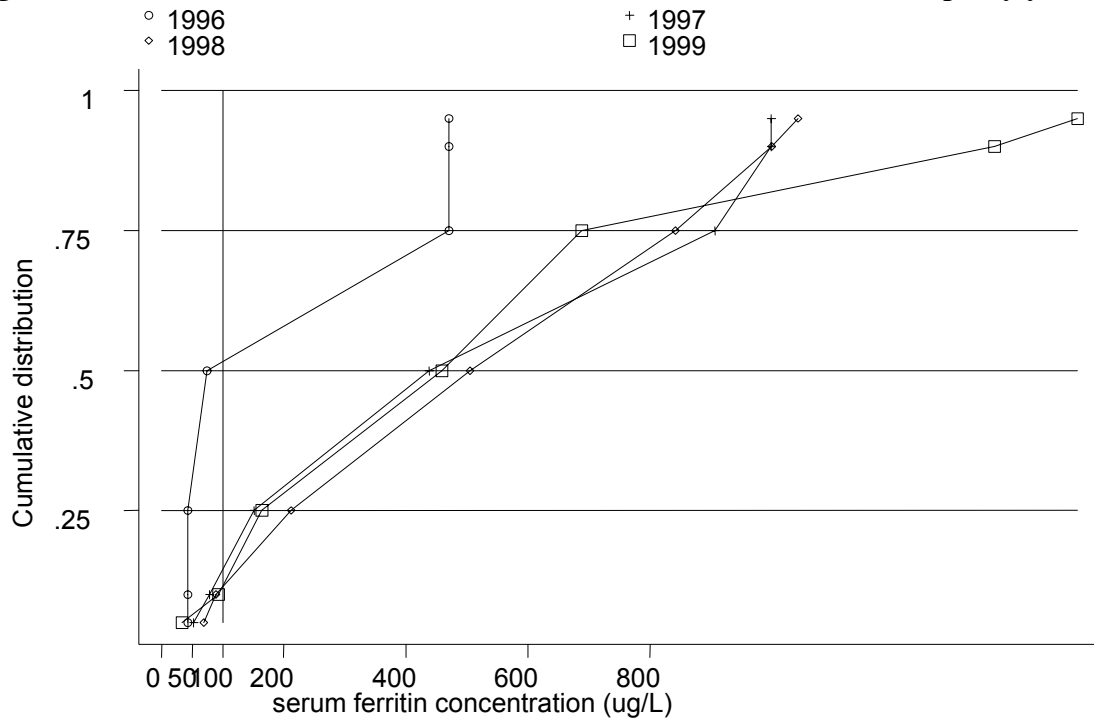
**Figure 3.2.42: Cumulative Distribution of serum Transferrin Saturation on rHuEpo by year**



**Table 3.2.43: Distribution of serum Ferritin without rHuEpo, HD patients, NGO Centres 1996 – 1999**

year	No of subjects	No of observations	median	LQ	UQ	% patients > 100 ug/l
1997	126	198	438.5	152	907	86
1998	28	47	505	212.6	842	89
1999	24	38	459	164.4	688	87

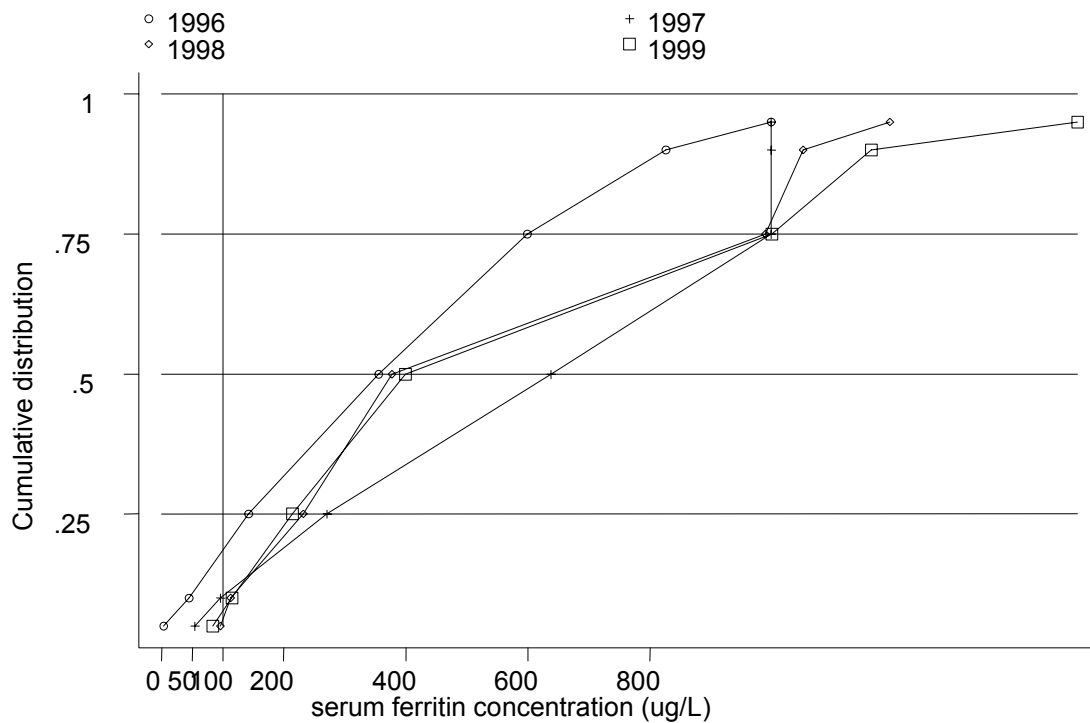
**Figure 3.2.43: Cumulative Distribution of serum Ferritin without rHuEpo by year**



**Table 3.2.44: Distribution of serum Ferritin on rHuEpo, HD patients, NGO Centres 1996 – 1999**

year	No of subjects	No of observations	median	LQ	UQ	% patients > 100 ug/l
1996	10	13	356	142	599	77
1997	149	219	638	271	999	90
1998	26	44	377.8	232	989	93
1999	32	52	399	214.6	1000	94

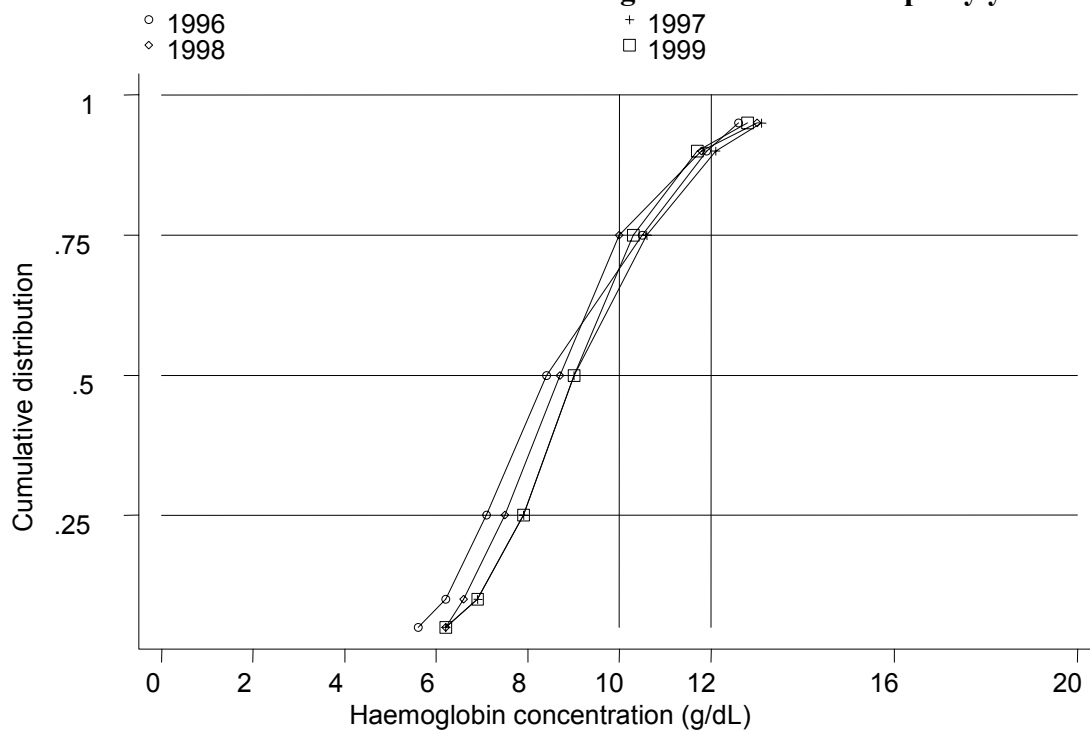
**Figure 3.2.44: Cumulative Distribution of serum Ferritin on rHuEpo, by year**



**Table 3.2.45: Distribution of Haemoglobin without rHuEpo, HD patients, NGO Centres 1996 – 1999**

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
1996	87	228	8.4	7.1	10.5	69	22	9
1997	152	450	9	7.9	10.6	68	22	11
1998	194	537	8.7	7.5	10	73	18	8
1999	302	799	9	7.9	10.3	68	25	7

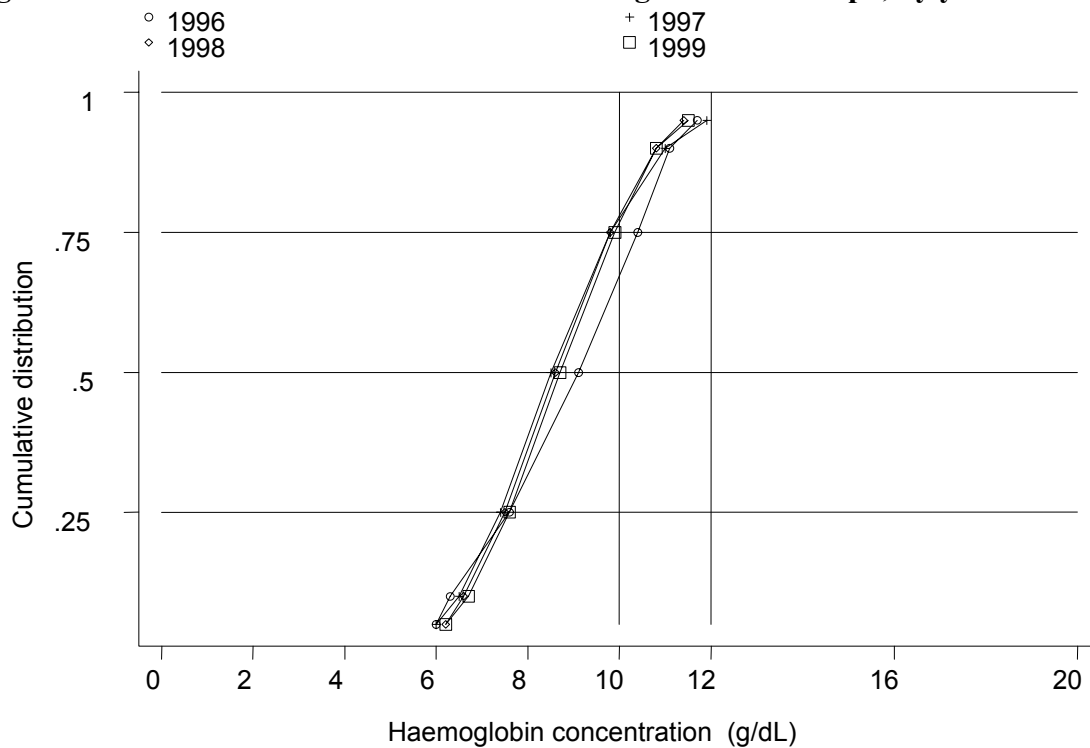
**Table 3.2.45: Cumulative Distribution of Haemoglobin without rHuEpo by year**



**Table 3.2.46: Distribution of Haemoglobin on rHuEpo, HD patients, NGO Centres 1996– 1999**

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
1996	36	103	9.1	7.6	10.4	69	27	4
1997	167	517	8.5	7.4	9.8	77	19	3
1998	202	574	8.6	7.5	9.8	78	18	3
1999	370	1074	8.7	7.6	9.9	76	21	3

**Figure 3.2.46: Cumulative Distribution of Haemoglobin on rHuEpo, by year**

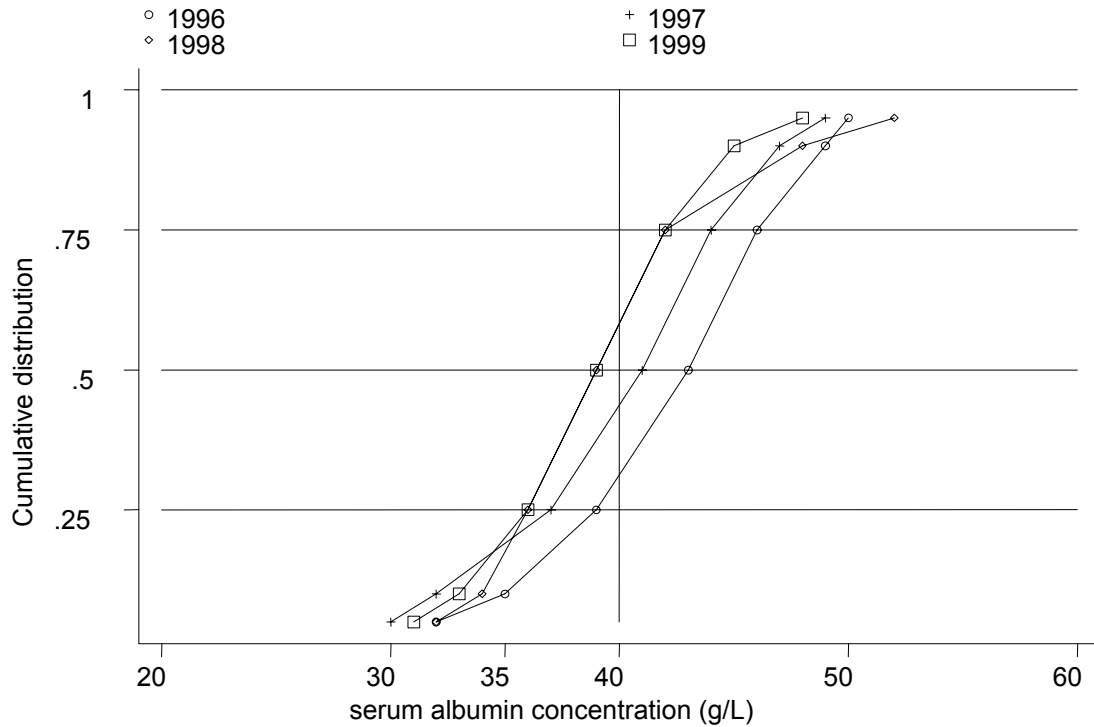


### 3.2.12 NUTRITIONAL STATUS OF HD PATIENTS, NGO CENTRES

**Table 3.2.47: Distribution of serum Albumin (g/L), HD patients, NGO Centres 1996– 1999**

year	No of subjects	No of observations	median	LQ	UQ	% patients >40g/l
1996	93	252	43	39	46	72
1997	315	939	41	37	44	58
1998	389	1006	39	36	42	45
1999	624	1373	39	36	42	42

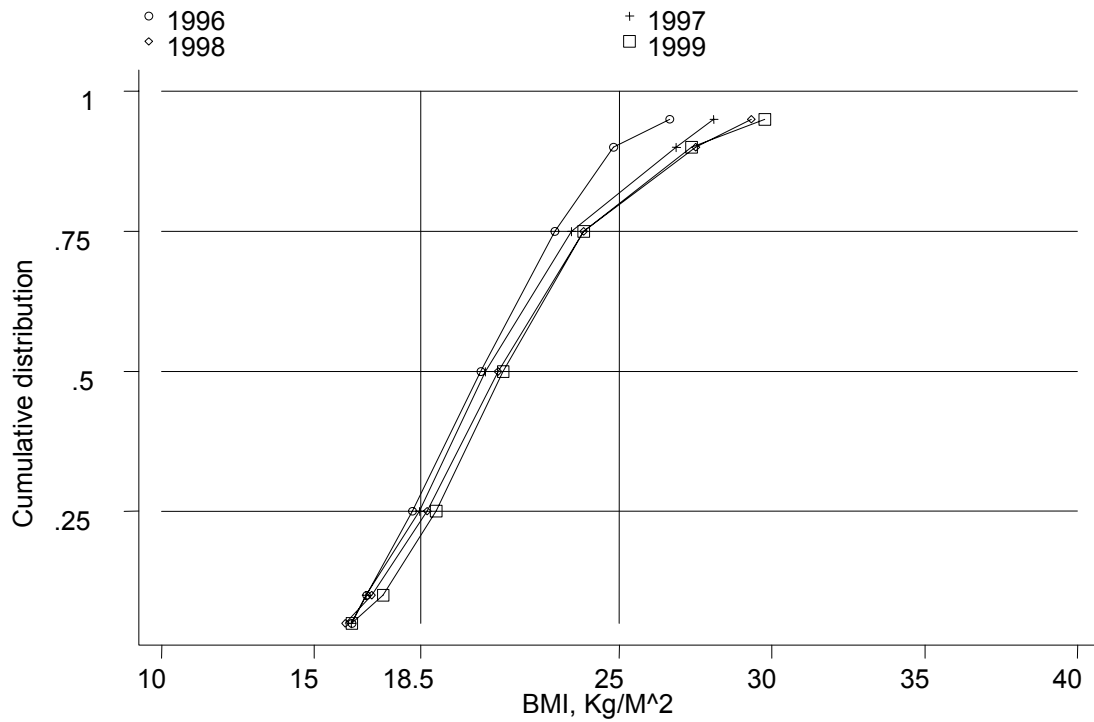
**Figure 3.2.47: Cumulative Distribution of serum Albumin by year**



**Table 3.2.48: Distribution of Body Mass Index  
HD patients, NGO Centres 1996 – 1999**

year	No of subjects	No of observations	median	LQ	UQ	% patients <18.5	% patients $\geq 18.5$ & $\leq 25$	% patients >25
1996	27	224	23.7	21	24.8	2	74	24
1997	22	229	22.8	21.3	26.6	4	63	32
1998	31	290	22.4	20.1	26.1	14	60	26
1999	280	1838	21.7	19.4	25	15	60	25

**Figure 3.2.48: Cumulative Distribution of BMI by year**



### 3.2.13 SEROLOGICAL STATUS, HD PATIENTS , NGO CENTRES

**Table 3.2.49: Prevalence of positive anti-HCV and HBsAg HD patients, NGO Centres 1995 – 1998**

year	No	% HBsAg positive	% anti-HCV positive
1996	157	15	23
1997	325	9	22
1998	419	9	22
1999	703	8	18

**Figure 3.2.49: Prevalence of positive anti-HCV and HBsAg HD patients, NGO Centres 1996 – 1999**

