EIGHTH REPORT

OF

THE MALAYSIAN

DIALYSIS AND TRANSPLANT

REGISTRY

2000

edited by

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49	Woh Peng Cheang Seah Dialysis Centre
50	Yayasan Dialisis Pertubohan Pendidikan Akhlak-NKF, Taiping
51	Yayasan Kebajikan SSL Heamodialisis

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INTRODUCTION

The Eighth Report of the National Renal Registry (NRR) showed upward trend in patients being taken in for Renal Replacement Therapy (RRT). As in the past years, haemodialysis was the most popular RRT modality chosen. The renal transplant rate has not improved significantly over the years. Of interest and a portend of a better future in transplantation is the number of locally done cadaveric renal transplantation which was the best ever in the year 2000 at 26 transplants. The number of local cadaveric renal transplants though small by comparison to other countries have been increasing over the last few years as a result of concerted efforts by many parties to increase the awareness level amongst the public and medical staff.

The outcomes of RRT particularly haemodialysis have remained the same over the last few years. Whilst the Registry have been able to provide a fairly detailed outcome results for haemodialysis and to a lesser extent CAPD, the same cannot be said for renal transplantation. The data collected for renal transplantation is minimal and catered only at gross outcomes. Detailed data such as incidence of acute rejection, chronic graft nephropathy, serious infections and others are difficult to collect as the process would depend a lot on the doctors' input. The Registry will have to look into ways to overcome this.

This year saw a major change in the way the Registry is being managed. The organisational structure has gone a full cycle and now the NRR is back in the hands of a government agency. We started with the Registry being run by a government department i.e. the Department of Nephrology, Hospital Kuala Lumpur and then it was transferred to the Malaysian Society of Nephrology. In September 2001, an agreement was reached for the Registry to be managed by the Clinical Research Centre (CRC), Ministry of Health (MOH). The running of it will be done by the CRC. The reason for this is that the CRC has interests in doing Health Outcome Studies and they do this through the development of registries. It has excellent facilities to manage large databases including dedicated soft wares, IT experts and statisticians. More importantly it receives funding from the MOH for developing and running registries and thus is able to share its resources with the NRR.

I hope this new arrangement will bring the NRR to greater heights and serve the Nephrology community even better.

DR. ZAKI MORAD MOHD ZAHER
Chairman
Malaysian Organ Sharing System/National Renal Registry Committee
Malaysian Society Of Nephrology

REPORT SUMMARY

1 ALL RENAL REPLACEMENT THERAPIES

1.1 At 31st December 2000, 7539 patients were on renal replacement therapy, comprising 6368 on dialysis and 1171 with functioning transplants. 1617 new dialysis patients were accepted in 2000 compared to 1466 in 1999.

1.2 The new renal transplant rate was 5 per million population. The overall dialysis acceptance rate has increased to 70 per million population and dialysis prevalence rate 274 per million population.

2 DIALYSIS IN MALAYSIA

2.1 Dialysis acceptance rate by state varied between 116 per million state population for Johor Darul Takzim to 25 per million per state population in Sabah.

By age group, dialysis acceptance rate varied between a low of 4 per million child population to a high of 379 per million population for age group 55 to 64 years. Dialysis provision rate for patients older than 65 years was 379 per million population for age. A dramatic increase in dialysis treatment rate was seen in those more than 45 years of age and static for those below 45 years old.

2.2 Males made up 57% of all new dialysis patients

2.3 Haemodialysis (HD) accounted for 88% of new dialysis acceptance in 2000 of which 87% were accepted in centre HD, and only 1% in office HD. No new patients had been accepted into home HD programme from 1997. 12% of new dialysis patients were accepted into the CAPD programme.

2.4 The proportion of patients with unknown primary disease decreased to 29% in 2000. Diabetic nephropathy remained the commonest cause of ESRD accounting for 44%, chronic glomerulonephritis 10% and obstructive uropathy 3 %.

2.5 Overall death rate on dialysis remained at 9%; HD death rate was 9%, and CAPD death rate was at its lowest at 12%. 35% of deaths were attributed to cardiovascular causes and 16% to sepsis unrelated to peritonitis. 23% died at home.

3 HAEMODIALYSIS

3.1 Haemodialysis in Government Centres

3.1.1 At 31st December 2000, 2077 patients were on HD in government centres. There was a steady increase of centre HD patients with a corresponding decrease in home and office HD.

3.1.2 96% of new patients were accepted into centre HD. 99% of new patients were financed by the government.

3.1.3 Death rate was 10% per year. Cardiovascular disorders, infections and deaths at home were the 3 commonest causes of death at 37%, 22% and 16% respectively

3.1.4 In 2000, there was a total of 65 government HD centres, 8 run by Ministry of Defence, 3 university hospital centres and the rest under the Ministry of Health.

3.1.5 New HD patients in 2000: Modal age-group 45 – 64 years; 59% males, 30% were diabetics, 8% had HBsAg, and 5% had anti-HCV antibodies.

3.1.6 Both HD patient and technique survival in government centres at 6 months for 1999 were similar at 91%.

3.1.7 Overall, 44% of HD patients were able to work part or full time. 67% had normal quality of life index.

3.1.8 ***Haemodialysis Practices***: In 2000, 79% were dialysed via wrist AVF, 17% via brachiocephalic fistula. 92% reported no difficulties with their vascular access; only 16% had vascular access complications. Proportion of patients with higher blood flow rates of 300-349 increased from 12% in 1997 to 30% in 2000. Almost all were on thrice-weekly dialysis, 95% on 4 hours per session. Use of cellulosic membrane dialysers decreased further to 31% and synthetic membrane dialyser usage increased to 50%; 83% reused their dialysers six times or more, 14%% reused 12 times. Usage of bicarbonate buffer increased to 86%. Median prescribed KT/V increased to 1.5; and a higher proportion of patients (79%) achieved a KT/V of more than 1.3.

3.1.9 ***Dyslipidaemia in haemodialysis patients***: In 2000, 69% of HD patients had serum cholesterol concentration < 5.3 mmol/l with median at 4.9 mmol/l. 88% had serum triglyceride concentration <3.5 mmol/l with median at 1.7 mmol/l; 94% had serum LDL concentration <5 mmol/l with median at 2.9 mmol/l; and 93% had serum HDL concentration of < 2 mmol/l with median at 1.1 mmol/l.

3.1.10 ***Renal bone disease***: In 2000, 92% of HD patients were on oral calcium carbonate, only 8% remained on aluminium hydroxide. Use of vitamin D remained at 24%. 36% achieved serum phosphate concentration <1.6 mmol/l; 56% had serum calcium concentration between 2.2 and 2.6 mmol/l, and 18% with iPTH between 100 – 250 ng/l. Median PTH concentration was 77 ng/L.

3.1.11 ***Blood pressure control***: In 2000, 67% required anti-hypertensive therapy. Of these, 63% achieved systolic blood pressure(BP) < 160 mmHg, and 59% a

diastolic blood pressure (BP)< 90 mmHg. Of the 33% not on anti-hypertensive therapy, 87% had systolic BP < 160 mmHg and 78% diastolic BP < 90 mmHg.

3.1.12 ***Management of anaemia****:* In 2000, 92% of patients were on oral iron supplements, IV iron use usage has slightly increased to 7%. 54% of HD patients were on recombinant erythropoietin with 57% on 2000-4000 units weekly. 70% of those without erythropoietin and 69% on erythropoietin injections had serum iron > 10 umol/l. 79% of patients without erythropoietin and 89 % of those on erythropoietin supplements had serum ferritin > 100 ng/l. Only 10% of patients on erythropoietin injections had haemoglobin concentration >12 g/dl, 45% with haemoglobin concentration >10g/dl.

3.1.13 ***Nutritional status:*** 57% of HD patients had serum albumin > 40 g/l with 61% with body mass index of between 18.5 and 25kg/m^2. 20% had BMI <18.5 kg/m^2.

3.1.14 ***Anti-HCV and HBsAg status***: In 2000, patients with anti-HCV antibodies increased to 29%. Proportion with HbsAg remained at 6%.

3.2 *Haemodialysis in Non-Governmental Organisation (NGO) Centres*

3.2.1 At 31st December 2000, 2140 patients were on HD in centres managed by NGOs. 598 new patients were accepted into the programme.

3.2.3 Death rate in NGO HD centres was 7% for 3 years to 2000. Cardiovascular disorders, deaths at home and infections were the 3 commonest causes of death at 35%, 26% and 10% respectively.

3.2.4 In 2000, there was a total of 59 NGO dialysis centres.

3.2.5 New HD patients in 2000: Modal age-group 45-54 years; 58% were males, 46% were diabetics, 5% had HBsAg and 4% had anti-HCV antibodies.

3.2.6 HD patient and technique survival in NGO centres at 6 months for 1999 were similar at 96%

3.2.7 Overall, 32% of HD patients were able to work part or full time, 26% were homemakers and 11% pensioners. 59% had normal quality of life index.

3.2.8 ***Haemodialysis Practices***: In 2000, 86% were dialysed via wrist AVF. 94% reported no difficulties with their vascular access; only 11% had vascular access complications. 87% had blood flow rates between 200 and 299 ml/min, 93% were on thrice-weekly and 6% on twice weekly HD. 98% had HD for 4 hours per session. Synthetic membrane usage increased rapidly to 45% in 2000. 41% reused their dialysers six times, 11% reused ten time. Usage of bicarbonate buffer was 99%. Median prescribed KT/V was 1.5; 71% had KT/V more than 1.3.

3.2.9 ***Dyslipidaemia in haemodialysis patients***: In 2000, 65% of HD patients had serum cholesterol concentration < 5.3 mmol/l with median at 5 mmol/l. 86% had serum triglyceride concentration <3.5 mmol/l with median at 1.9 mmol/l.

3.2.10 ***Renal bone disease***: In 2000, 92% of HD patients were on oral calcium carbonate, only 3% were on aluminium hydroxide. Proportion on active vitamin D supplements dropped to 22%. 32% achieved serum phosphate concentration <1.6 mmol/l; 61% had serum calcium concentration between 2.2 and 2.6 mmol/l and only 10% with iPTH between 100 – 250 ng/l. Median

PTH concentration was 27 ng/L.

3.2.11 ***Blood pressure control***: In 2000, 67% required anti-hypertensive therapy. Of these, 55% achieved systolic BP < 160 mmHg, and 59% diastolic BP < 90 mmHg. Of the 31% not on any anti-hypertensive therapy, 75% had systolic BP <160 mmHg and 77% diastolic BP < 90 mmHg.

3.2.12 ***Management of anaemia****:* In 2000, 56% were on recombinant erythropoietin with 58% on 2000 units weekly and 37% on 2000 – 4000 units weekly. 76% without erythropoietin and 67% on erythropoietin injections had serum iron > 10 umol/l. 91% of those on erythropoietin had serum ferritin of > 100 ug/l. 32% of patients on erythropoietin had haemoglobin concentration >10 g/dl with only 6% > 12 g/dl.

3.2.13 ***Nutritional status:*** Proportion of patients with serum albumin concentration of >40 g/l was 39% in 2000. 59% had body mass index of between 18.5 and 25 kg/m^2 with 19% with BMI <18.5 kg/m^2.

3.2.14 ***Anti-HCV and HBsAg status***: In 2000, 20 had anti-HCV antibodies, 6% were positive for HBsAg.

3.3 Haemodialysis In Private Centres

3.3.1 At 31st December 2000, 1513 patients were dialysing in private dialysis centres. 518 new patients were accepted for HD in private centres.

3.3.3 Death rate in private centres was 9% in 2000. Cardiovascular disorders, deaths at home and infections were the 3 commonest causes of death at 36%, 28% and 10% each respectively.

3.3.5 New HD patients in 2000: Modal age-group > 54 years; 56% were males, 52% were diabetics, 4% had HBsAg, 4% had anti-HCV antibody

3.3.6 HD patient survival in private centres at 6 months for 2000 was 97%, technique survival 96%.

3.3.7 In 2000, 28% were able to work full or part time, 26% were homemakers. 53% had a normal quality of life.

3.3.8 ***Haemodialysis Practices***: In 2000, 80% were dialysed via wrist AVF, 15% via brachiocephalic fistula. 93% reported no difficulties with their vascular access; only 12% had vascular access complications. 87% had blood flow rates between 200 and 299 ml/min. Only 67% were on thrice-weekly dialysis, 32% only had twice weekly dialysis. 79% had 4 hours for session, 10% 4.5 hours. The majority – 78% used cellulosic membrane dialysers; only 19% used synthetic membrane dialysers. 8% did not reuse dialysers, 88% reused their dialysers at least three times. Usage of bicarbonate buffer was 89%. Median prescribed KT/V was 1.4; 67% had KT/V more than 1.3.

3.3.9 ***Dyslipidaemia in haemodialysis patients***: In 2000, 66% of HD patients had serum cholesterol concentration < 5.3 mmol/l with median at 4.9 mmol/l. 86% had serum triglyceride concentration <3.5 mmol/l with median at 1.7 mmol/l.

3.3.10 ***Renal bone disease***: In 2000, 84% of HD patients were on oral calcium

carbonate, only 3% were on aluminium hydroxide and 33% on active vitamin D supplements. 31% achieved serum phosphate concentration <1.6 mmol/l; 56% had serum calcium concentration between 2.2 and 2.6 mmol/l and 23% with iPTH between 100 – 250 ng/l.

3.3.11 ***Blood pressure control***: In 2000, 68% required anti-hypertensive therapy. Of these, 52% achieved systolic BP < 160 mmHg, and 59% diastolic BP < 90 mmHg.

3.3.12 ***Management of anaemia****:* In 2000, 63% were on recombinant erythropoietin with 30% on 2000 units weekly and 59% on 2000 – 4000 units weekly. 34% of patients on erythropoietin had haemoglobin concentration >10 g/dl with only 6% with haemoglobin concentration $\geq$12 g/dl.

3.3.13 ***Nutritional status:*** Proportion of patients with serum albumin concentration of >40 g/l was 30% in 2000. 61% had body mass index of between 18.5 and 25 kg/m^2 with 17% with BMI <18.5 kg/m^2.

3.3.14 ***Anti-HCV and HBsAg status***: In 2000, 23% of patients had anti-HCV antibodies, 5% were positive for HbsAg.

4. CONTINUOUS AMBULATORY PERITONEAL DIALYSIS (CAPD)

4.1 At 31st December 2000, 638 patients were on CAPD. There were 204 new CAPD patients of which 94% were funded by the government.

4.3 In 2000, death rate on CAPD was low at 12%; transfer to HD 10%. Death at home, cardiovascular disorders and sepsis were the main causes of death accounting for 28%, 27% and 21% respectively. CAPD peritonitis accounted for 13% of deaths. The main cause of transfer was peritonitis at 62% followed by membrane failure.

4.4 There were 15 CAPD centres all within the government sector.

4.5 New CAPD patients in 2000: Modal age-group 45-54 years; 47% males, 36% were diabetics, 3% had HBsAg, 4% were anti-HCV antibody positive.

4.6 CAPD patient and technique survival at 6 months for year 2000 were 95% and 92% respectively.

4.7 Overall, 22% of CAPD patients were able to work part or full time. 31% were homemakers and 15% full time students. Only 5% had normal quality of life index.

4.8 ***CAPD Practices***: In 2000, 98% were on standard CAPD dialysis regime; 39% used the usual Baxter disconnect system; 61% on a disconnect system by Braun. 96% had 4 exchanges per day and 95% were on 2-litre exchanges

4.9 ***Dyslipidaemia in CAPD patients***: In 2000, 40% of CAPD patients had serum cholesterol concentration < 5.3 mmol/l with median at 5.8 mmol/l. 79% had serum triglyceride concentration <3.5 mmol/l with median at 2.1 mmol/l.

4.10 ***Renal bone disease***: In 2000, 79% of CAPD patients were on oral calcium carbonate, only 2% were on aluminium hydroxide and 15% on active vitamin

D supplements. 51% achieved serum phosphate concentration < 1.6 mmol/l; 58% had serum calcium concentration between 2.2 and 2.6 mmol/l and 18% with iPTH between 100 – 250 ng/l. Median PTH values were lower than government HD patients at 43 ng/L.

4.11 ***Blood pressure control***: In 2000, 78% of CAPD patients required anti-hypertensive therapy. Of these, 76% achieved systolic BP < 160 mmHg, and 56% diastolic blood pressure < 90 mmHg. Of the 22% not on anti-hypertensive therapy, 91% had systolic BP < 160 mmHg and 76% a diastolic BP < 90 mmHg.

4.12 ***Management of anaemia****:* In 2000, 63% of patients on CAPD were on recombinant erythropoietin with 53% on 2000-4000 units weekly and 35% on 2000 units weekly. 21% still received blood transfusions. 75% of patients without erythropoietin and 73% on erythropoietin injections had serum iron concentration of >10 umol/l. 80% of those without erythropoietin and 82% on erythropoietin had transferrin saturation > 20%. 86% of those with and 90% without erythropoietin had serum ferritin concentration > 100 ng/l. 37% of CAPD patients not on erythropoietin had haemoglobin concentration >10 g/l and 12% had haemoglobin concentration of >12% compared to 39% and 9% respectively for those on erythropoietin. Generally haemoglobin concentrations for both groups of patients have improved over the years.

4.13 ***Nutritional status:*** 19% of CAPD patients had serum albumin > 40 g/l compared to 57% of government HD patients. 53% had body mass index of between 18.5 and 25 kg/m^2. 24% had body mass index <18.5 kg/m^2.

4.14 ***Anti-HCV and HBsAg status***: The viral hepatitis serological status of CAPD patients were constant over the years at 2-3% for positive HbsAg and 5-6% for antiHCV antibodies.

5. RENAL TRANSPLANTATION

5.1 At 31st December 2000, there were 1171 functioning renal transplants

5.2 Of 111 new renal transplants in 2000, 14 were from living related donors, 26 from cadaveric donors done locally- the highest ever; 8 from commercial living non-related donors; and 58 from commercial cadaveric donors.

5.3 In 2000, 2% of transplant recipients died and 2% lost their grafts. Sepsis and cardiovascular diseases were the commonest cause of death. Rejection accounted for 68% of graft loss.

5.4 There were 41 centres of follow-up for renal transplant recipients.

5.5 Modal age group for new transplant recipients in 2000 was slightly older at 45-54 years; 66% were males, 14% diabetics; 4% were HBsAg positive and 6% had anti-HCV antibodies at the time of transplantation.

5.6 Six month patient survival in 2000 was 98% and graft survival was 91%.

5.7 Overall, 73% of transplant recipients were able to work part or full time, and 17% were homemakers. 95% had normal quality of life index.

METHODS

1. COVERAGE

There were 198 dialysis centres in Malaysia as at 15th November 2000, of which 181 reported data to the Registry. Thus, centre coverage has increased to 91%. We assessed completeness of patient ascertainment by comparing the number of patients registered on the Registry patient database at end of year 2000 and patient census data obtained independently from the annual centre survey at 15th November 2000. Based on the patient prevalence estimates calculated from these 2 independent sources of data (274 versus 316 patients/million population), we estimated the patient ascertainment rate by the Registry to be 87%.

2. STATISTICAL ANALYSIS

Kaplan Meier method[1] was used to estimate probability of survival and log rank test used to compare survival function. Technique failure is defined as occurrence of death or transfer to another modality of dialysis. Similarly, graft failure is defined as occurrence of death or returned to dialysis.

Annual death rates were calculated by dividing the number of deaths in a year by the estimated mid-year patient population.

For summarising continuous laboratory data, we have moved away from calculating summary statistics like mean, standard deviation and instead plot the cumulative frequency distribution graph. We are following the approach used by the UK Renal Registry[2]. Cumulative distribution plot shows a listing of the sample values of a variable on the X axis and the proportion of the observations less than or greater than each value on the Y axis. An accompanying table gives the Median (50% of values are above or below it), upper quartile (UQ, 25% of values above and 75% below it) and lower quartile (LQ, 75% of values above and 25% below it). Other percentiles can be read directly off the cumulative distribution plot. The table also shows percent of observations above or below a target value, or with an interval of values; the target value or interval obviously vary with the type of laboratory data.. For example, target value for prescribed KT/V is $\geq$1.3 and that for haemoglobin is $\geq$10 and $\leq$12 g/l. The choice of target value is guided by published clinical practice guidelines, for example, the DOQI guideline; or otherwise they represent consensus of the local dialysis community.

In contrast to other results reported in this report, Tables 2.12 and 2.13 are based on centre survey data rather than individual patient data reported to the Registry. This is to provide an up to date information on patient and centre census in the country and thus overcome the inevitable time lag between processing individual patient data and subsequent reporting of results. The survey was conducted between 20th November and 20th December 2000. Centre response rate to the survey was 99.5% (197/198 responded). Standard error estimates are not reported because no sample was taken. Results on distribution by state are also expressed in per million-population since states obviously vary in their population sizes. State population data are based on 2000 census population projection. It is very difficult to estimate the amount of cross boundary patient flow; this source of error is therefore not accounted for in computing state estimates. However, we minimise the bias by combining states (Selangor and Wilayah

Persekutuan, Kedah and Perlis) based on geographical considerations. HD treatment capacity is derived by assuming on average patients underwent 3 HD sessions per week and a centre can maximally operate 2.5 shifts per day. A single HD machine can therefore support 5 patients' treatment. Obviously HD treatment capacity is calculated only for centre HD. The ratio of the number of centre HD capacity to number of centre HD patients is a useful measure of utilisation of available capacity. Only 1 centre did not respond. As the objective of this analysis is to estimate the total amount of dialysis provision in the country, we obviously cannot simply ignore the missing data and confine the analysis to available data. We therefore imputed the missing data based on regression imputation model and guided by the imputation principles described by Little[3]. The imputation model included sector (public, NGO or private), state, year of operation, number of dialysis personnel. These are well known correlates of level of dialysis provision in a centre. The imputations are then drawn by predictive mean matching[3]. Each centre with missing data was match with each respondent on its predicted values. We then use the data of the centre with the closest match to impute the missing data.

***References*:**

1. Kaplan EL, Meier P. Non-parametric estimation from incomplete observations. *J Am Stat Assoc* 1958; 53:457-81
2. UKRENALREG 1998 UK Renal Registry, Bristol, UK.
3. Little RJ. Missing data adjustments in large surveys. J Business Econ statistics 1988;6:287-301

RENAL REPLACEMENT THERAPY

IN

MALAYSIA

Stock and Flow

Treatment Provision Rate

RENAL REPLACEMENT THERAPY IN MALAYSIA

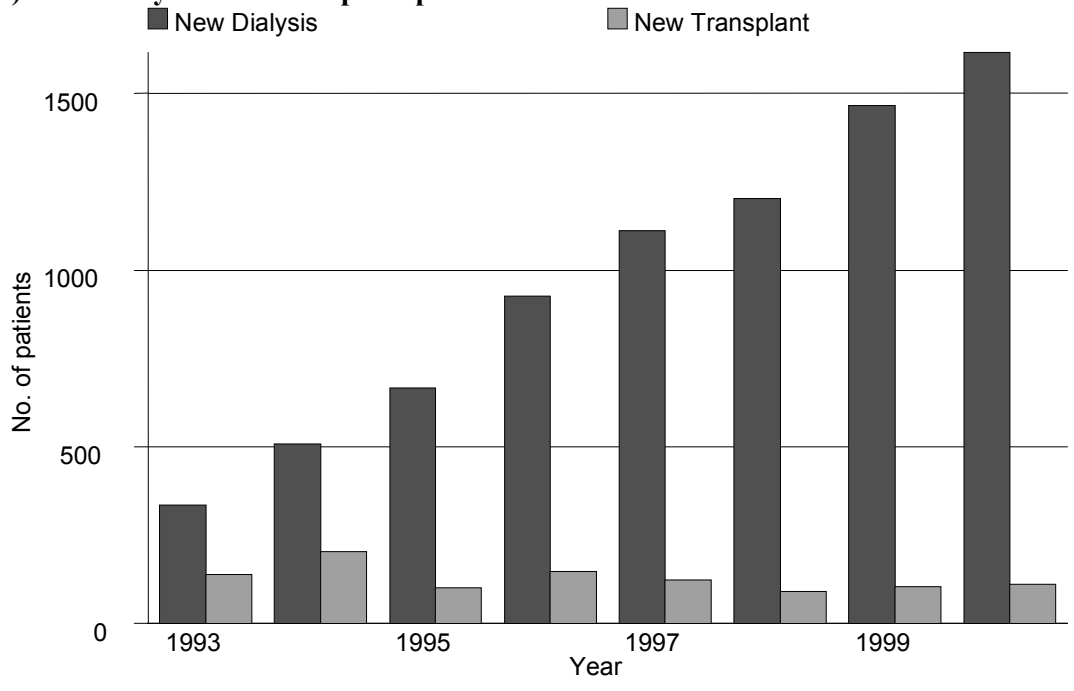
1.1 STOCK AND FLOW

Table 1.01: Stock and Flow of RRT, Malaysia 1993 - 2000

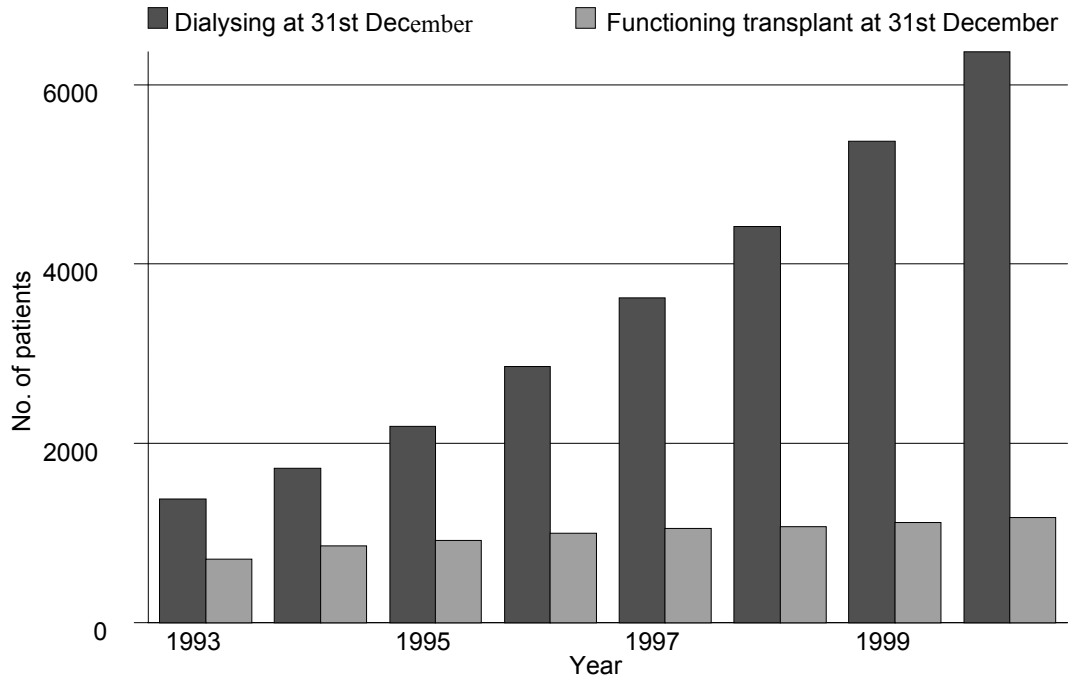
Year	1993	1994	1995	1996	1997	1998	1999	2000
New Dalysis patients	335	508	667	927	1112	1203	1466	1617
New Transplants	137	202	101	146	122	91	104	111
Dialysis deaths	102	145	178	220	301	364	463	524
Transplant deaths	20	28	16	31	29	24	24	26
Dialysing at 31st December	1382	1722	2191	2858	3623	4418	5370	6368
Functioning transplant at 31st December	708	858	914	1000	1052	1071	1116	1171

Figure 1.01: Stock and Flow of RRT, Malaysia 1993 - 2000

(a) New Dialysis and Transplant patients



(b) Patients Dialysing and with Functioning Transplant at 31st December 1993 – 2000



1.2 TREATMENT PROVISION RATE

Table 1.02: New Dialysis Acceptance Rate and New Transplant Rate per million population 1993 - 2000

Acceptance rate	1993	1994	1995	1996	1997	1998	1999	2000
New Dialysis	17	26	32	44	51	54	65	70
New Transplant	7	10	5	7	6	4	5	5

Figure 1.02: New Dialysis Acceptance and New Transplant Rate 1994 - 2000

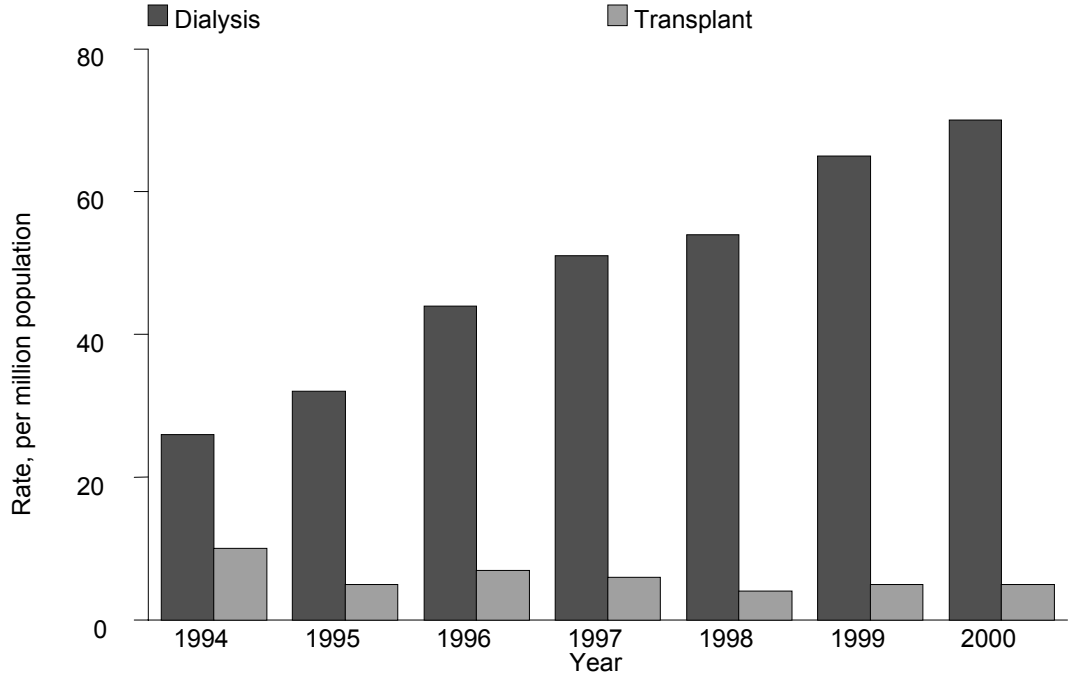
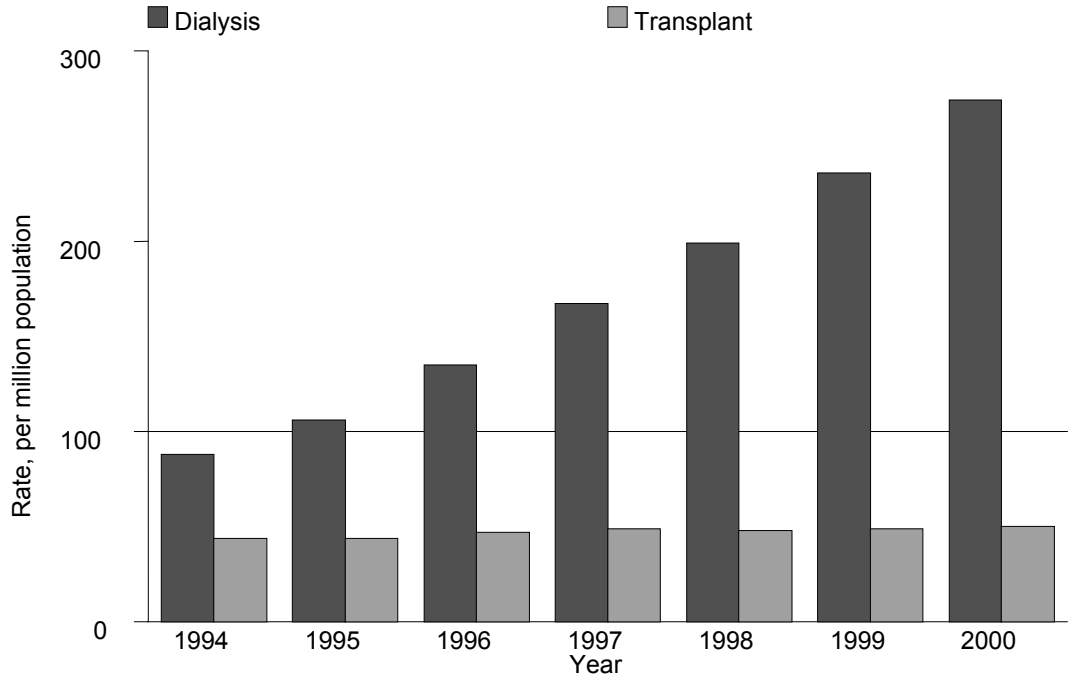


Table 1.03: RRT Prevalence Rate per million population 1993 – 2000

Prevalence rate	1993	1994	1995	1996	1997	1998	1999	2000
Dialysis	72	88	106	135	167	199	236	274
Transplant	37	44	44	47	49	48	49	50

Figure 1.03: Dialysis and Transplant Prevalence Rate per million population 1994 - 2000



DIALYSIS IN MALAYSIA

Dialysis Treatment Provision

Patient Demographics

Method and Location

Primary Renal Disease

Death on Dialysis

2. DIALYSIS IN MALAYSIA

2.1 DIALYSIS TREATMENT PROVISION

Table 2.01: Stock and flow – Dialysis Patients 1993 – 2000

Year	1993	1994	1995	1996	1997	1998	1999	2000
New Dialysis patients	335	508	667	927	1112	1203	1466	1617
Died	102	145	178	220	301	364	463	524
Transplanted	36	45	37	56	58	60	66	91
Lost to Follow-up	3	2	10	9	12	13	10	17
Dialysing at 31st December	1382	1722	2191	2858	3623	4418	5370	6368

Table 2.02: Dialysis Treatment Rate per million population 1993 – 2000

Year	1993	1994	1995	1996	1997	1998	1999	2000
Acceptance rate	17	26	32	44	51	54	65	70
Prevalence rate	72	88	106	135	167	199	236	274

Table 2.03: Dialysis Treatment Rate by State, per million state population 2000

State	Acceptance rate
Johor Darul Takzim	116
Negeri Sembilan Darul Khusus	111
Selangor & W.Persekutuan	106
Negeri Melaka	99
Perak Darul Redzuan	97
Pulau Pinang	91
Kedah & Perlis	59
Sarawak	49
Pahang Darul Makmur	41
Trengganu Darul Iman	36
Kelantan Darul Naim	29
Sabah	25

Table 2.04: Dialysis Treatment Rate by Gender, per million male or female population 1997– 2000

Gender	1997	1998	1999	2000
Male	61	60	78	81
Female	49	54	58	66

Figure 2.04: Dialysis Treatment by Gender 1997 - 2000

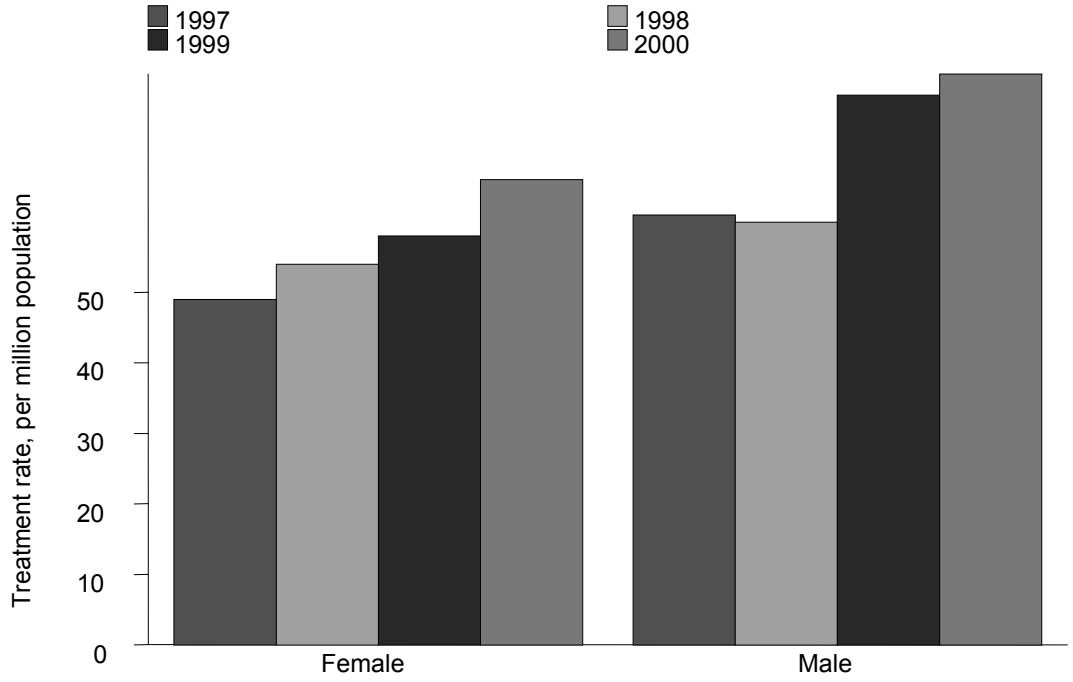
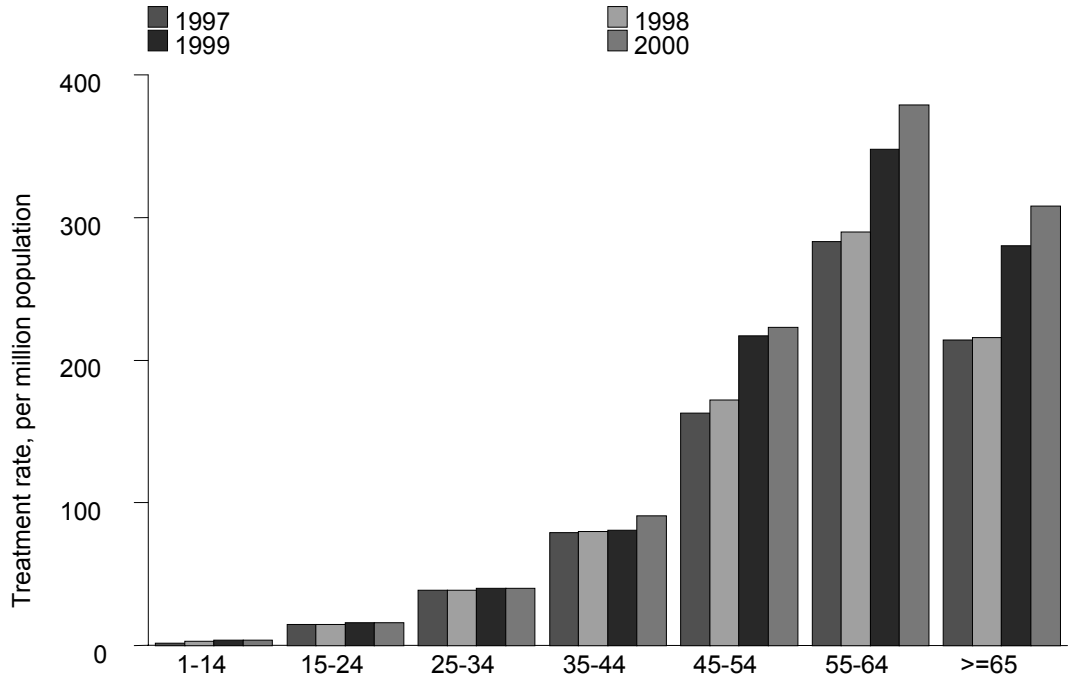


Table 2.05: Dialysis Treatment Rate by Age Group, per million age group population 1997 – 2000

Age groups (years)	1997	1998	1999	2000
1-14	2	3	4	4
15-24	15	15	16	16
25-34	39	39	40	40
35-44	79	80	81	91
45-54	163	172	217	223
55-64	283	290	348	379
≥ 65	214	216	280	308

Figure 2.05: Dialysis Acceptance Rate by Age Group 1997 - 2000



2.2 PATIENT DEMOGRAPHICS

Table 2.06: Percentage Age Distribution of Dialysis Patients 1997 – 2000

Year	1997	1998	1999	2000
New dialysis patients	1112	1203	1466	1617
% 1-14 years	1	2	2	1
% 15-24 years	5	5	5	4
% 25-34 years	10	11	9	9
% 35-44 years	17	17	16	16
% 45-54 years	24	25	27	27
% 55-64 years	26	26	26	26
% ≥ 65 years	15	15	16	17
Dialysing at 31st December	3623	4418	5370	6368
% 1-14 years	2	2	2	1
% 15-24 years	5	5	5	5
% 25-34 years	17	16	15	14
% 35-44 years	23	23	21	21
% 45-54 years	24	24	25	25
% 55-64 years	20	21	21	22
% ≥65 years	9	10	11	12

Figure 2.06: Age Distribution of New Dialysis patients 1997 – 2000

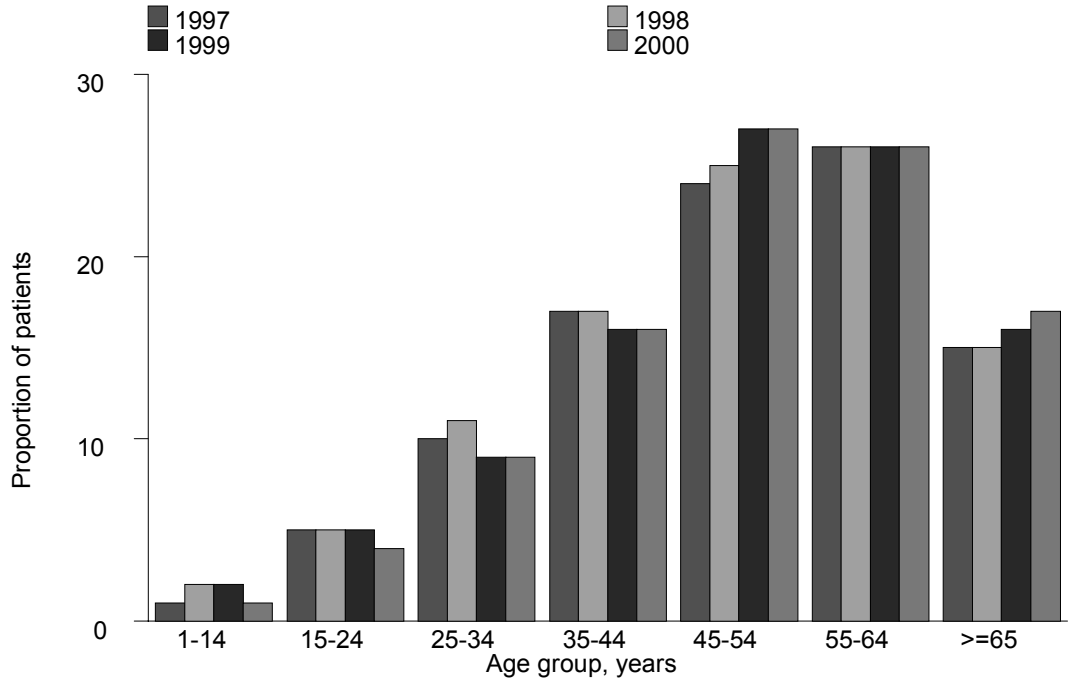
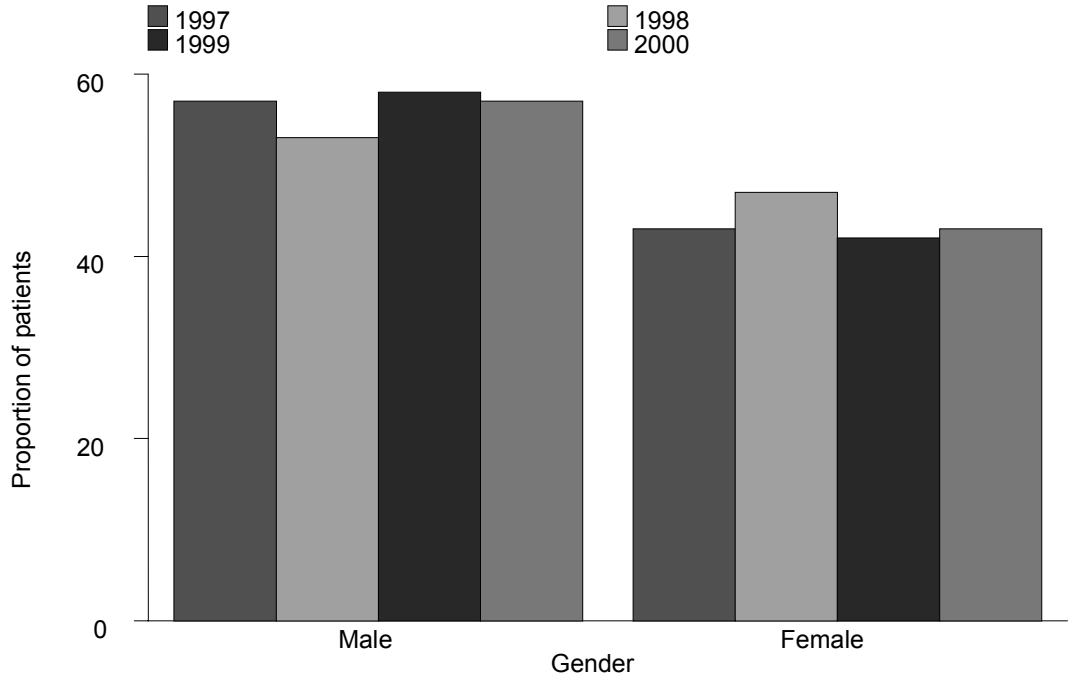


Table 2.07: Gender distribution of Dialysis Patients 1997 – 2000

Year	1997	1998	1999	2000
New Dialysis patients	1112	1203	1466	1617
% Male	57	53	58	57
% Female	43	47	42	43
Dialysing at 31st December	3623	4418	5370	6368
% Male	57	56	56	56
% Female	43	44	44	44

Figure 2.07: Gender Distribution of New Dialysis patients 1997 – 2000

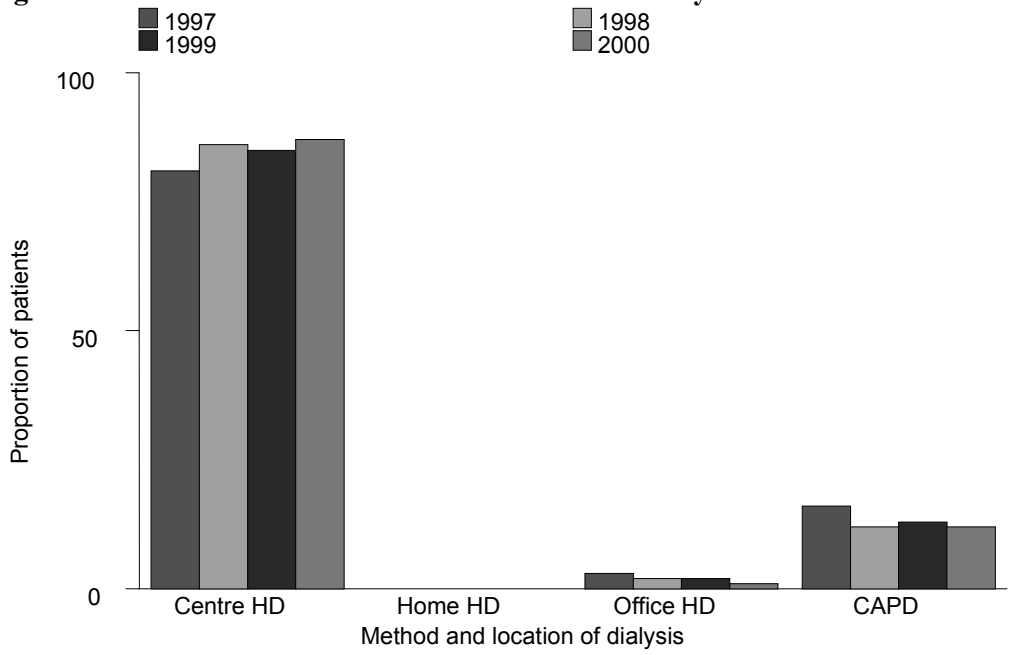


2.3 *METHOD AND LOCATION*

Table 2.08: Method and Location of Dialysis

Year	1997	1998	1999	2000
New Dialysis patients	1112	1203	1466	1617
% Centre HD	81	86	85	87
% Home HD	0	0	0	0
% Office HD	3	2	2	1
% CAPD	16	12	13	12
Dialysing at 31st December	3623	4418	5370	6368
% Centre HD	78	81	84	85
% Home HD	3	2	2	1
% Office HD	6	5	4	3
% CAPD	14	12	11	10

Figure 2.08: Method and Location of New Dialysis Patients



2.4 PRIMARY RENAL DISEASE

Table 2.09: Primary Renal Disease 1997 – 2000

Year	1997	1998	1999	2000
New Dialysis patients	1112	1203	1466	1617
% Unknown cause	34	33	30	29
% Diabetic Nephropathy	36	40	40	44
% Glomerulonephritis	14	12	11	10
% Polycystic kidney	2	1	1	1
% Obstructive Uropathy	4	4	4	3
% Gouty Nephropathy	1	0	0	0
% Toxic Nephropathy	0	0	1	0
% Miscellaneous	9	9	12	13

2.5. *DEATH ON DIALYSIS*

Table 2.10: Deaths on Dialysis 1993 – 2000

Year	1993	1994	1995	1996	1997	1998	1999	2000
No. of dialysis patients at risk	1275	1552	1957	2525	3241	4021	4894	5869
Dialysis deaths	102	145	178	220	301	364	463	524
Dialysis death rate %	8	9	9	9	9	9	9	9
No. of HD patients at risk	1098	1334	1671	2142	2774	3510	4343	5261
HD deaths	79	103	120	159	228	290	365	453
HD death rate %	7	8	7	7	8	8	8	9
No. of CAPD patients at risk	177	218	286	383	467	511	552	608
CAPD deaths	23	42	58	61	73	74	98	71
CAPD death rate %	13	19	20	16	16	14	18	12

Figure 2.10: Death Rates on Dialysis 1993 – 2000

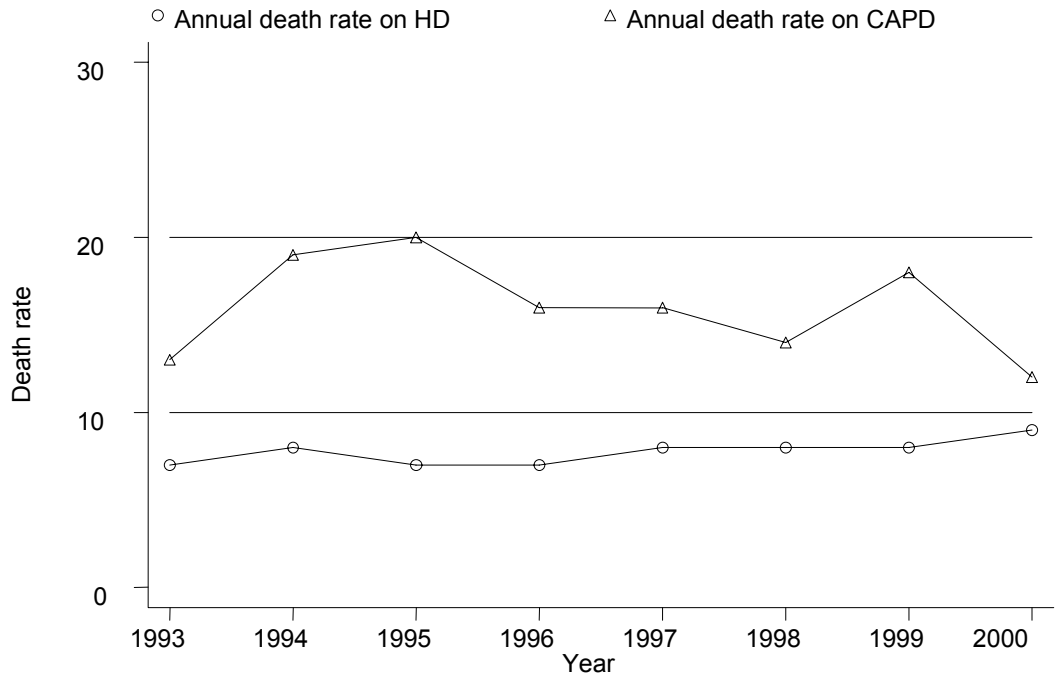


Table 2.11: Causes of Death on Dialysis 1997 - 2000

Year	1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%
Cardiovascular	83	28	121	33	149	32	182	35
Died at home	53	18	61	17	105	23	122	23
Sepsis	55	18	60	16	71	15	84	16
CAPD peritonitis	4	1	1	0	7	2	9	2
GIT bleed	2	1	8	2	13	3	10	2
Cancer	9	3	8	2	6	1	9	2
Liver disease	3	1	2	1	8	2	6	1
Others	62	21	78	21	86	19	97	19
Unknown	30	10	25	7	18	4	5	1
Total	301	100	364	100	463	100	524	100

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

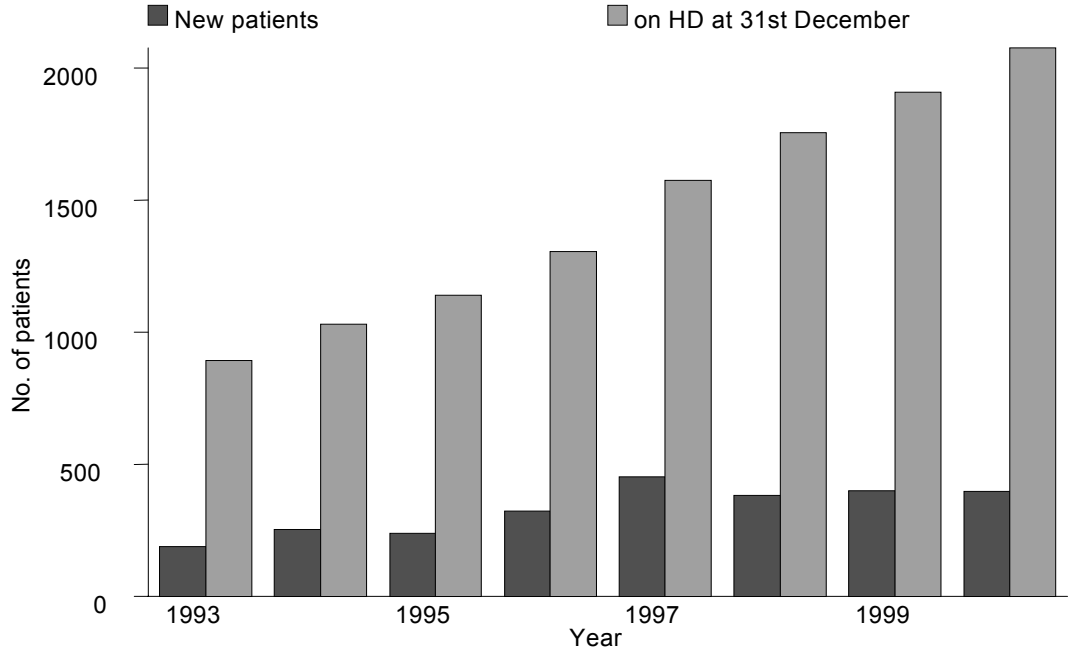
3.1 HAEMODIALYSIS IN GOVERNMENT CENTRES

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 31st 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

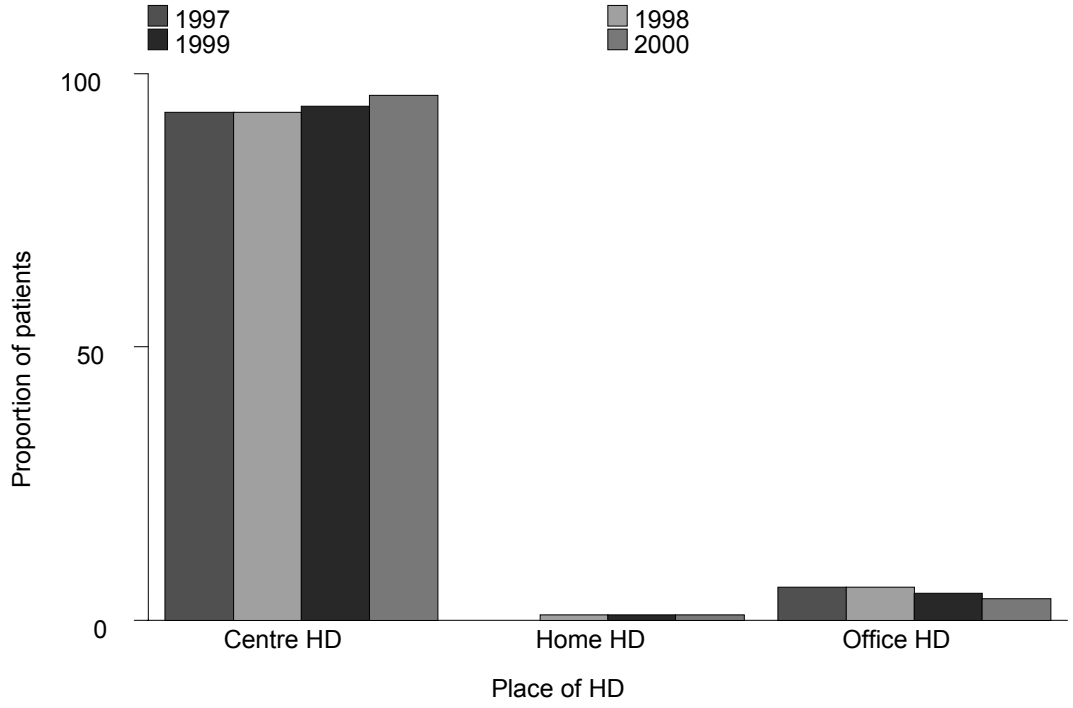
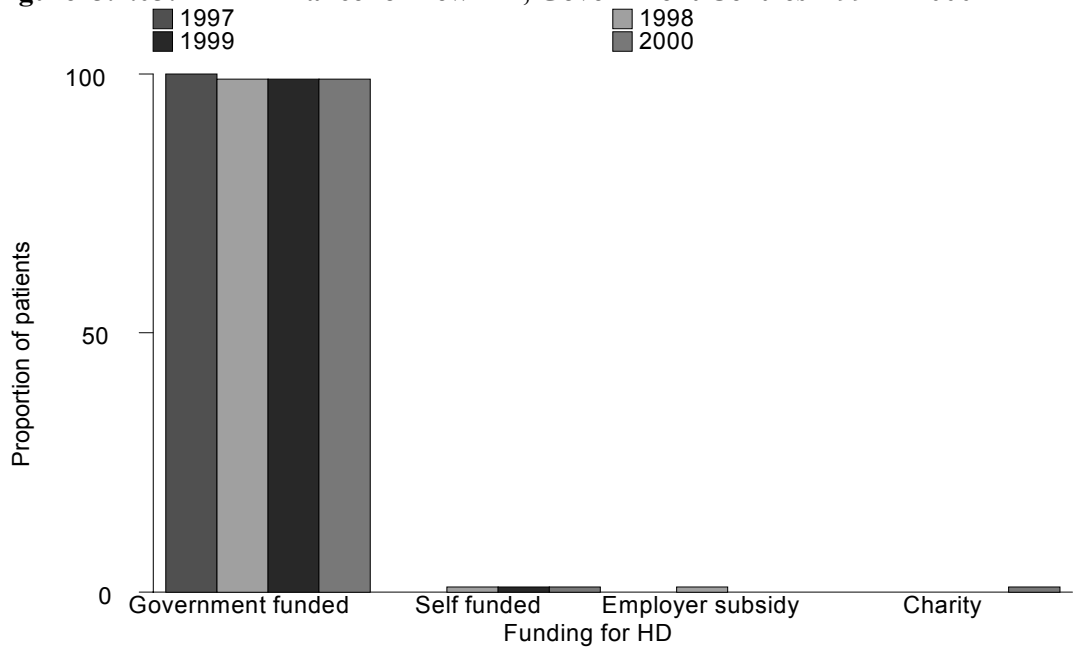


Table 3.1.03: Finance for HD, Government Centres 1997 – 2000

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

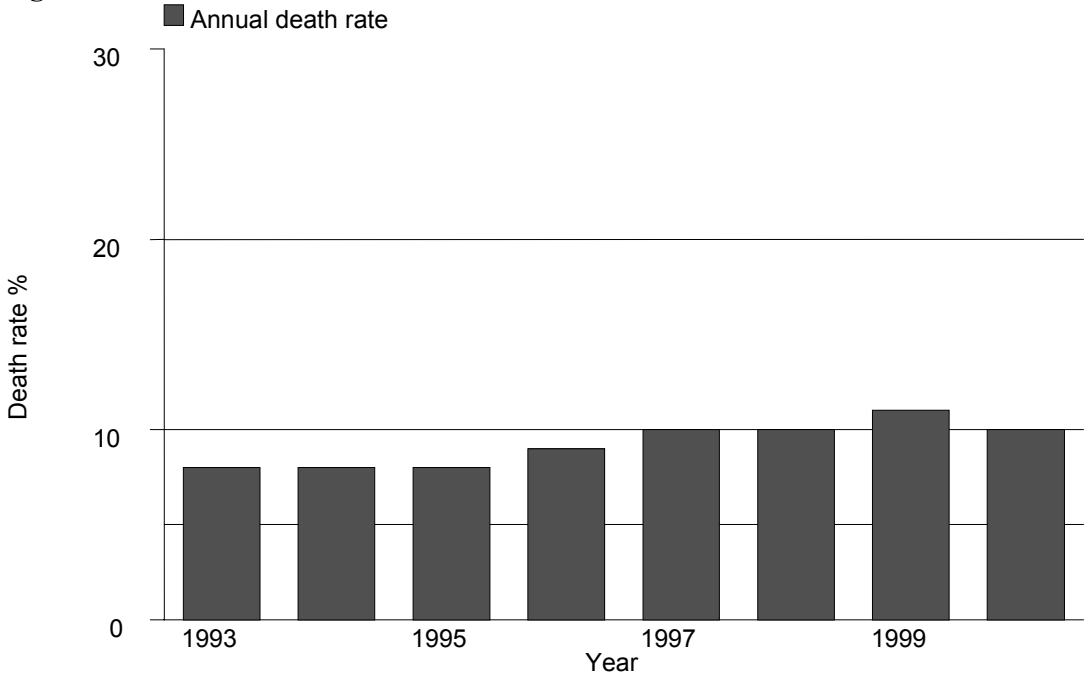


Table 3.1.05: Causes of Death on HD, Government Centres 1997 – 2000

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 ± sd	47±14	46±14	46±14	46±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

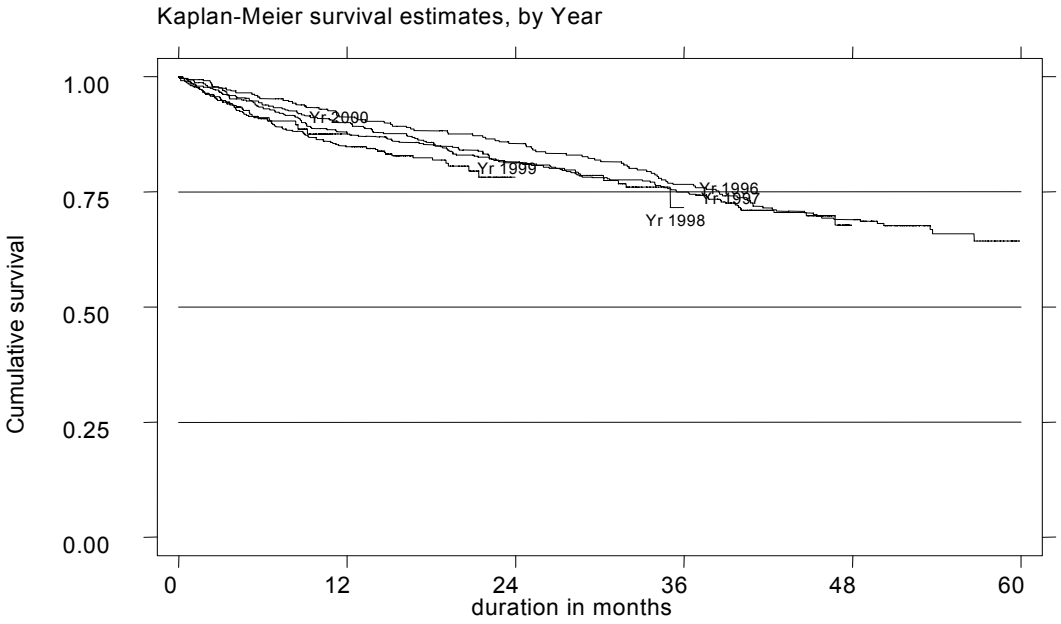


Table 3.1.11: HD Technique Survival related to Year of Entry, Government Centres 1995– 2000

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

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
Total	1218	100	1302	100	1723	100	1889	100

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
Total	1320	100	1662	100	1873	100	2080	100

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

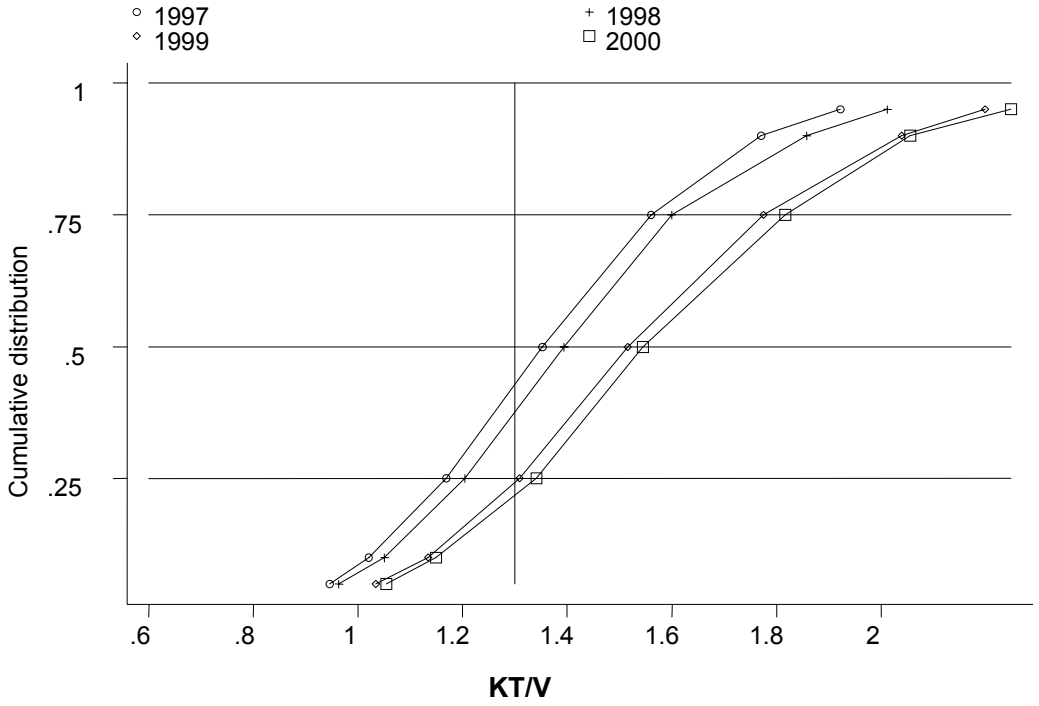
Table 3.1.22: Dialysate Buffer used in Government HD Units, 1997 - 2000

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

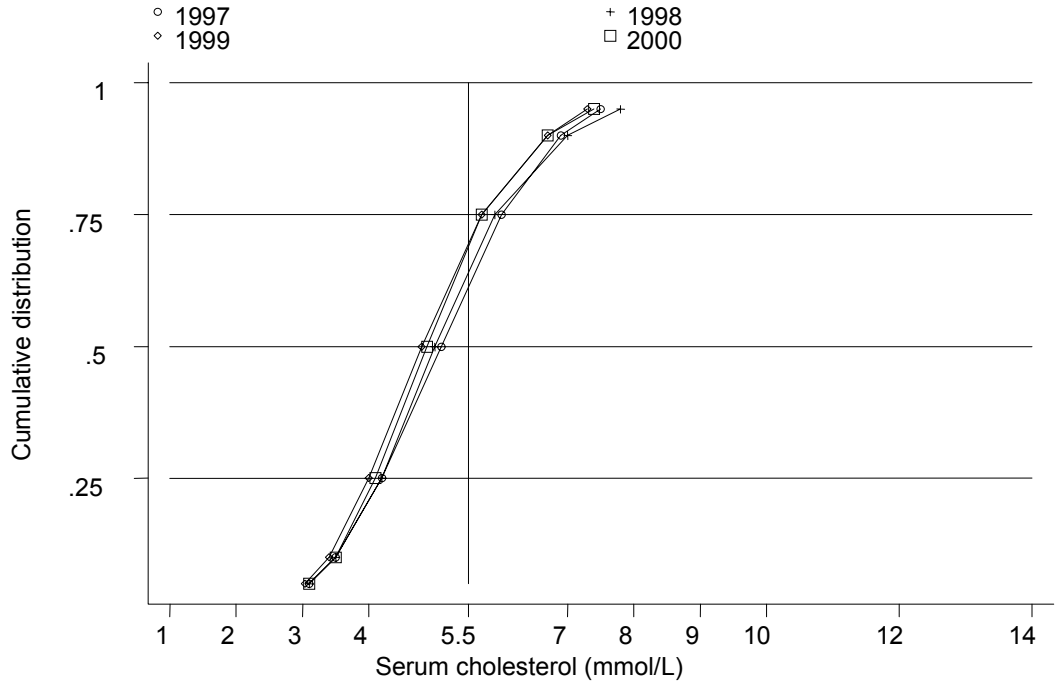


Table 3.1.25: Distribution of serum Triglyceride (mmol/l), HD patients, Government Centres 1997 - 2000

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

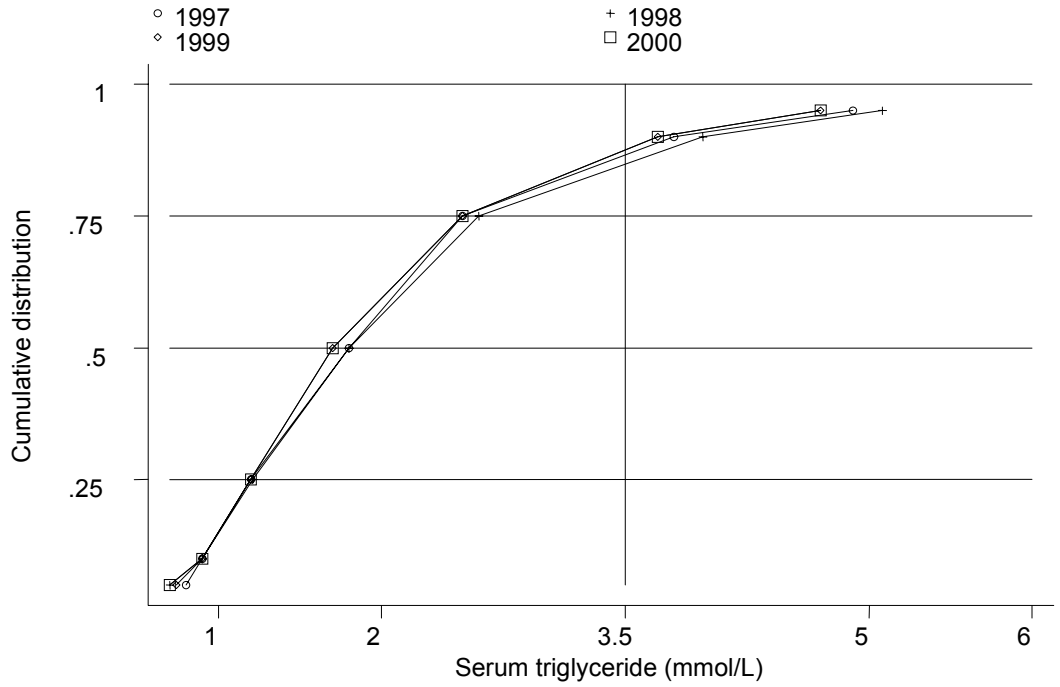


Table 3.1.26: Distribution of serum LDL (mmol/l), HD patient, Government Centres 1997 – 2000

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

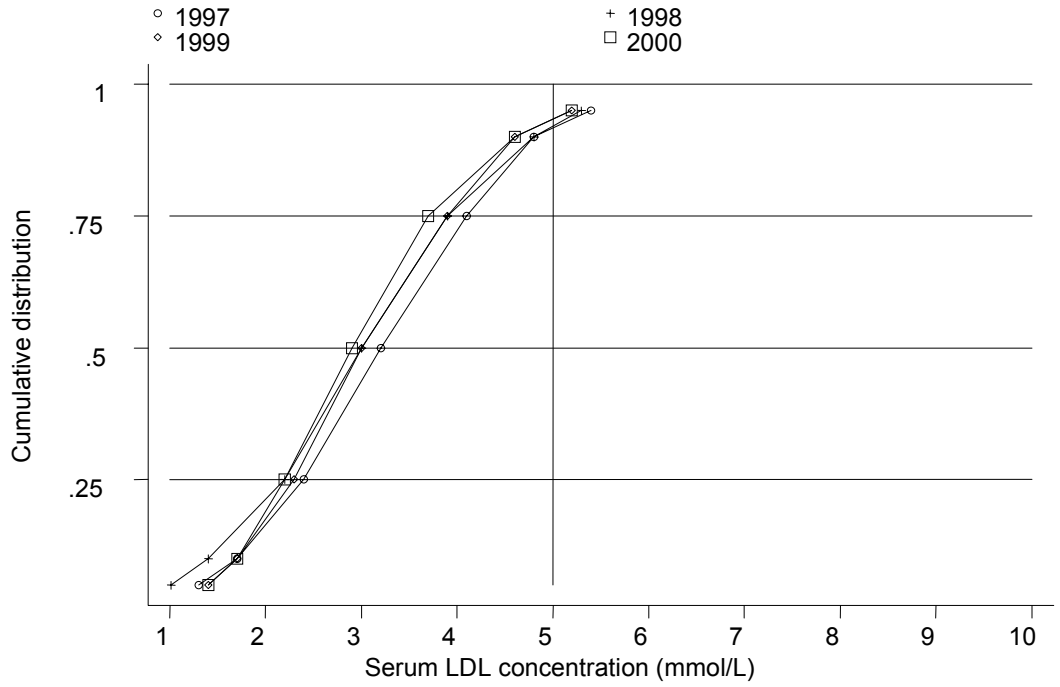
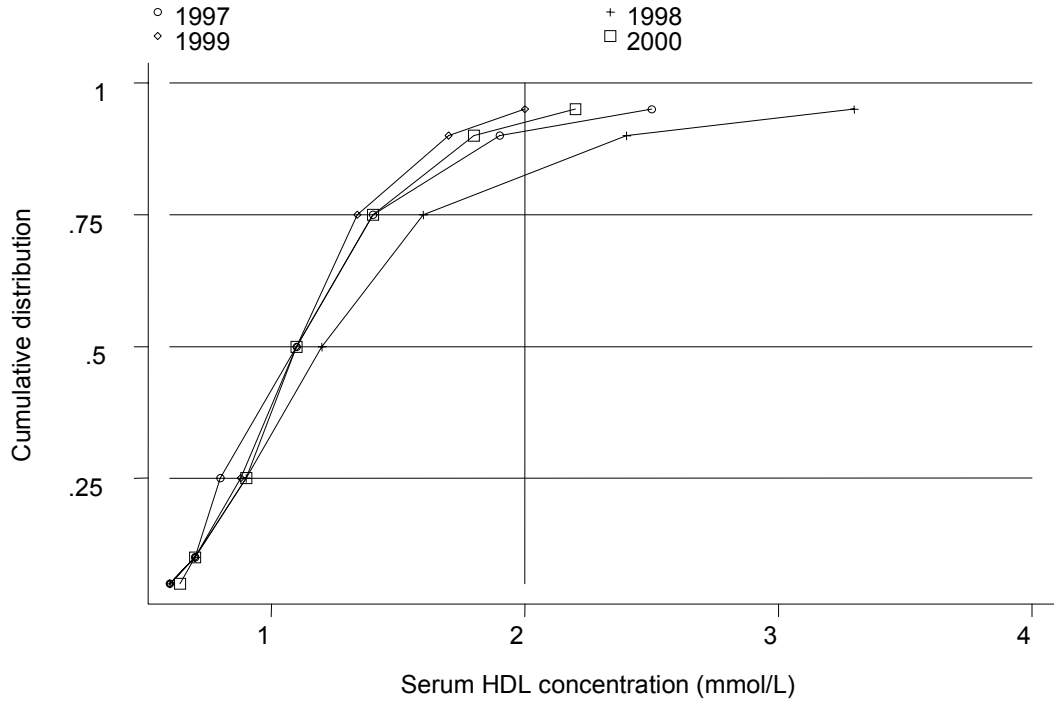


Table 3.1.27: Distribution of serum HDL (mmol/l), HD patient, Government Centres 1997- 2000

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 CaCO3	% on Al(OH)3	% 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

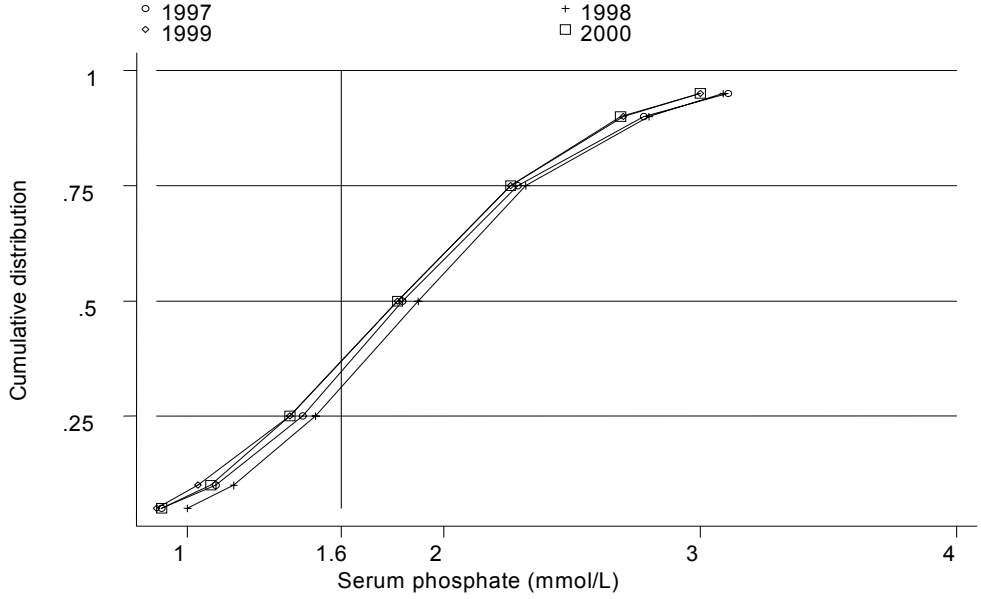


Table 3.1.30: Distribution of serum Calcium (mmol/l), HD patients, Government Centres 1997– 2000

year	No of subjects	No of observations	median	LQ	UQ	% patients ≥ 2.2 & ≤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

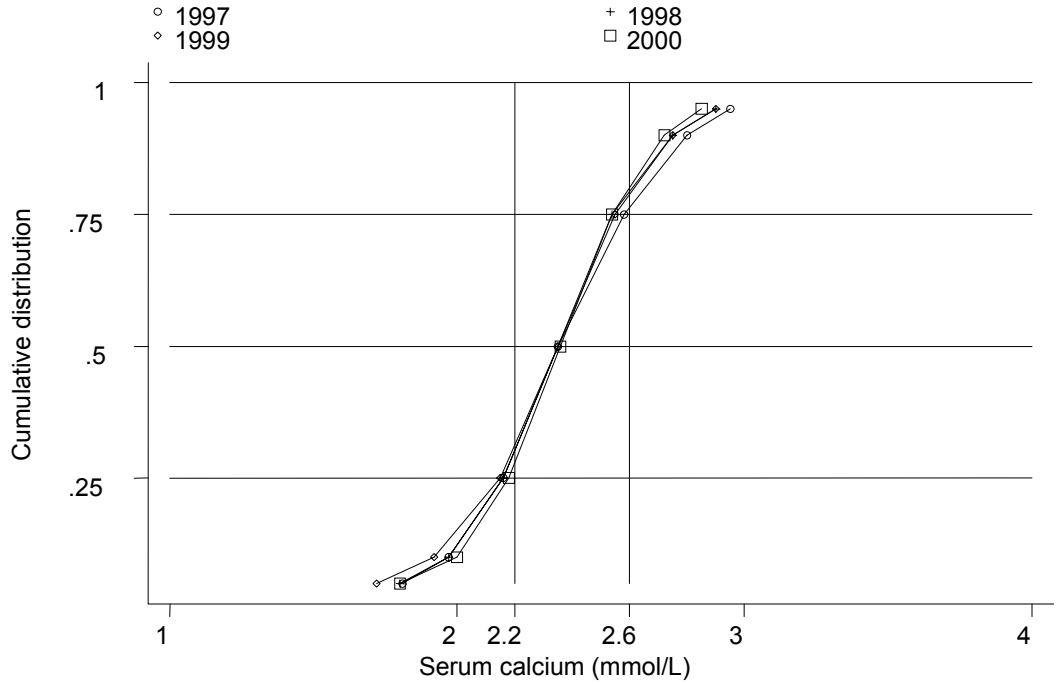
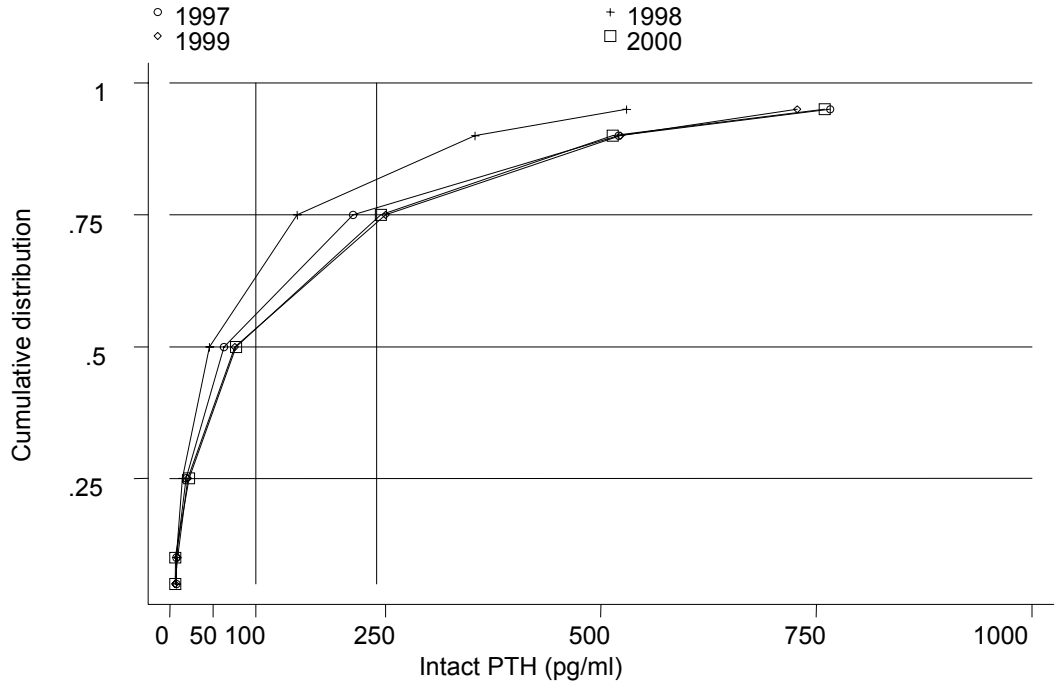


Table 3.1.31: Distribution of serum iPTH(ng/L), HD patients, Government Centres 1997 – 2000

year	No of subjects	No of observations	median	LQ	UQ	% patients ≥ 100 & ≤ 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

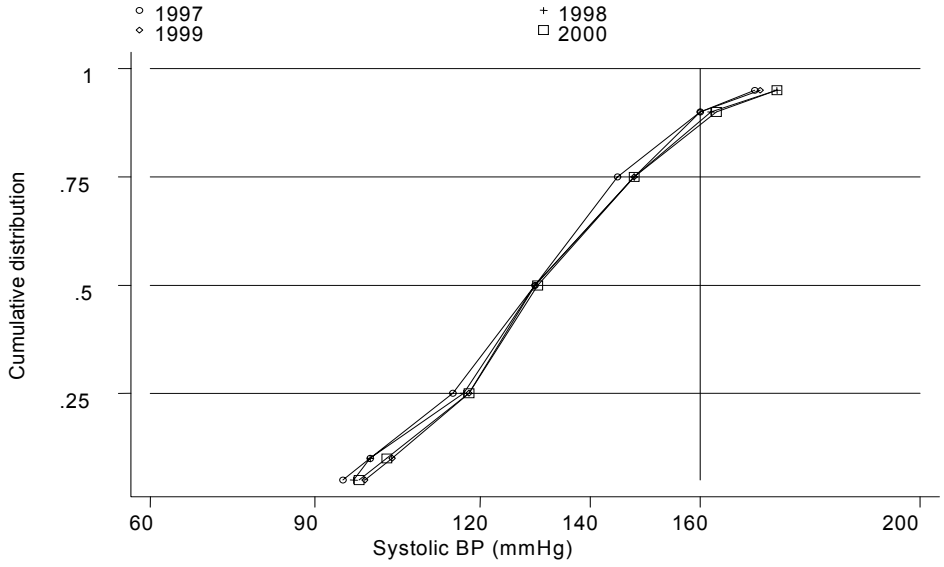


Table 3.1.34: Distribution of Diastolic BP without anti-hypertensives, HD patients, Government Centres 1997– 2000

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

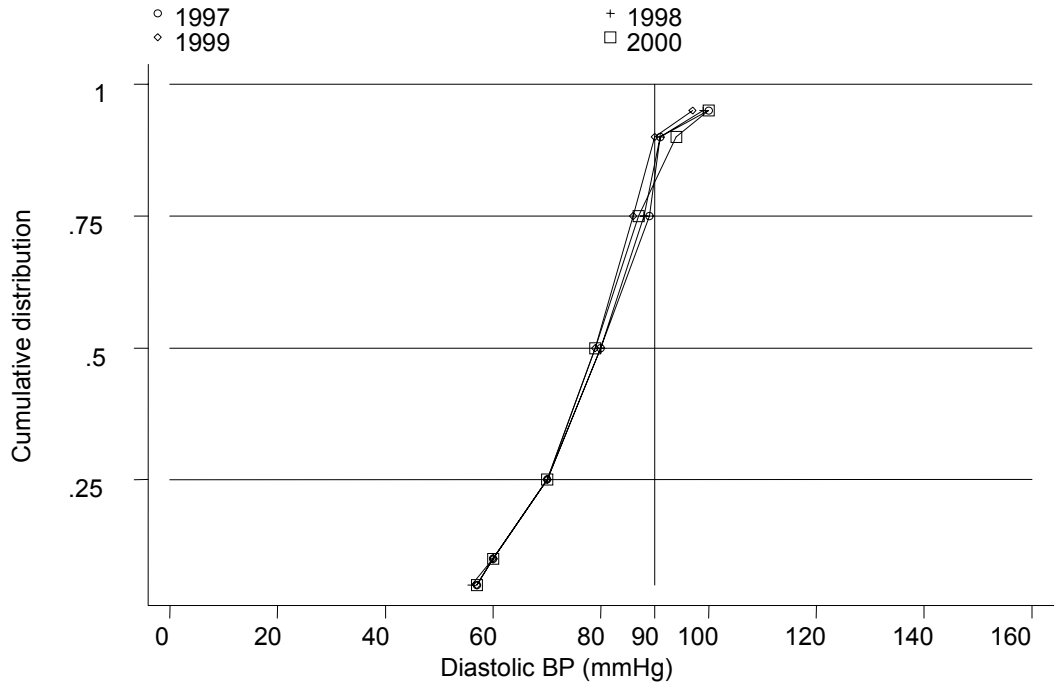


Table 3.1.35: Distribution of systolic BP on anti-hypertensives, HD patients, Government Centres 1997 – 2000

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

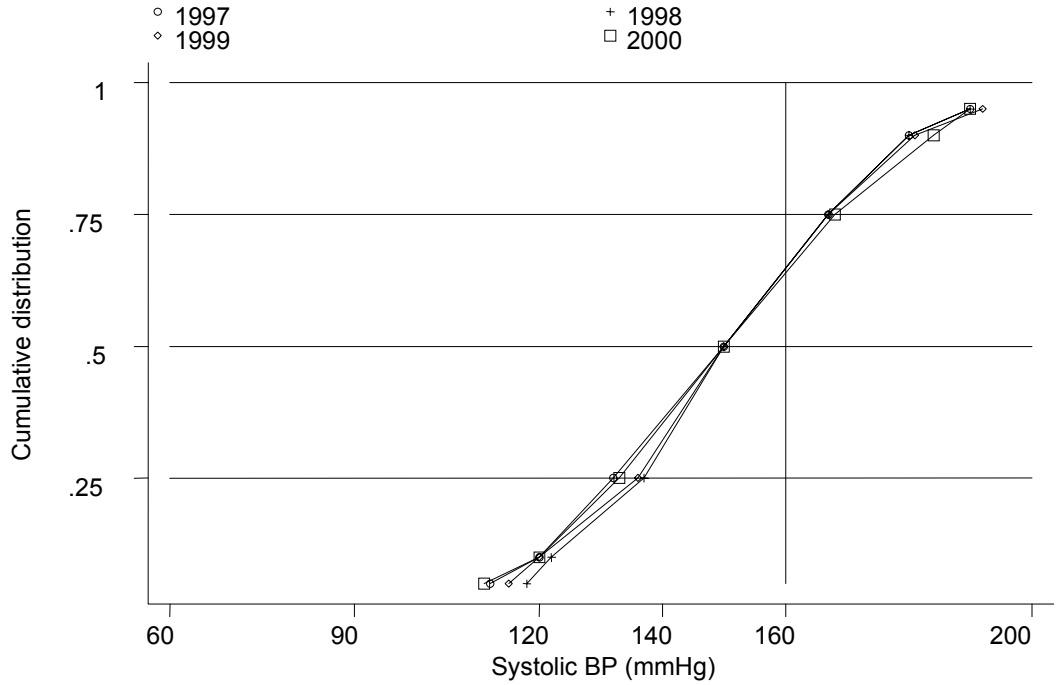
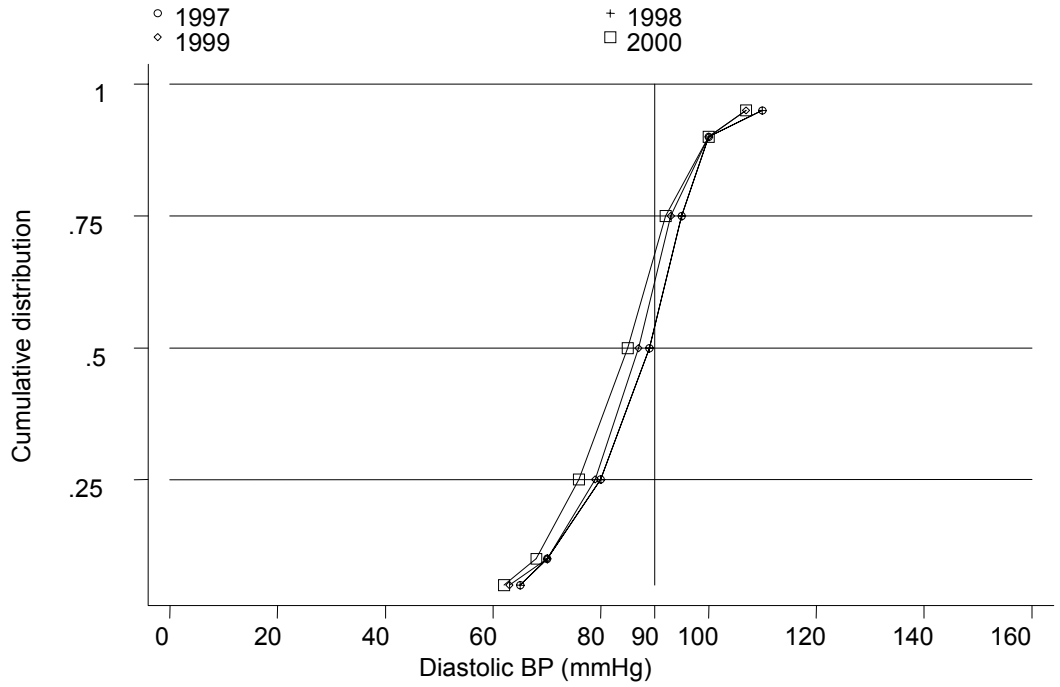


Table 3.1.36: Distribution of diastolic BP on anti-hypertensives, HD patients, Government Centres 1997 – 2000

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

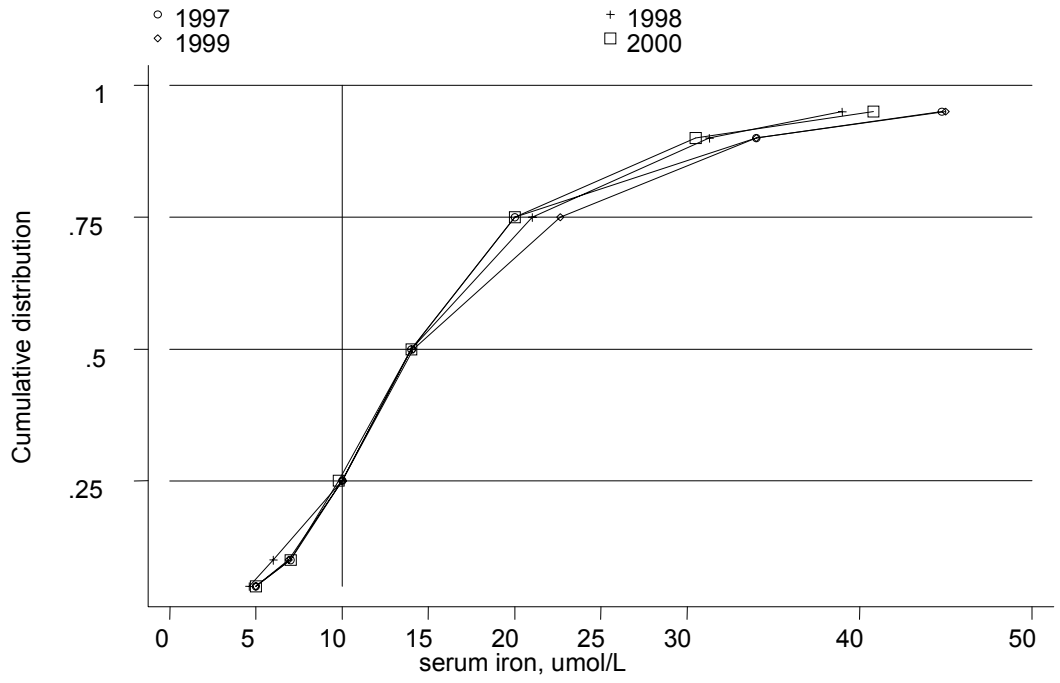


Table 3.1.40: Distribution of serum Iron on rHuEpo,HD patients, Government Centres 1997 – 2000

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

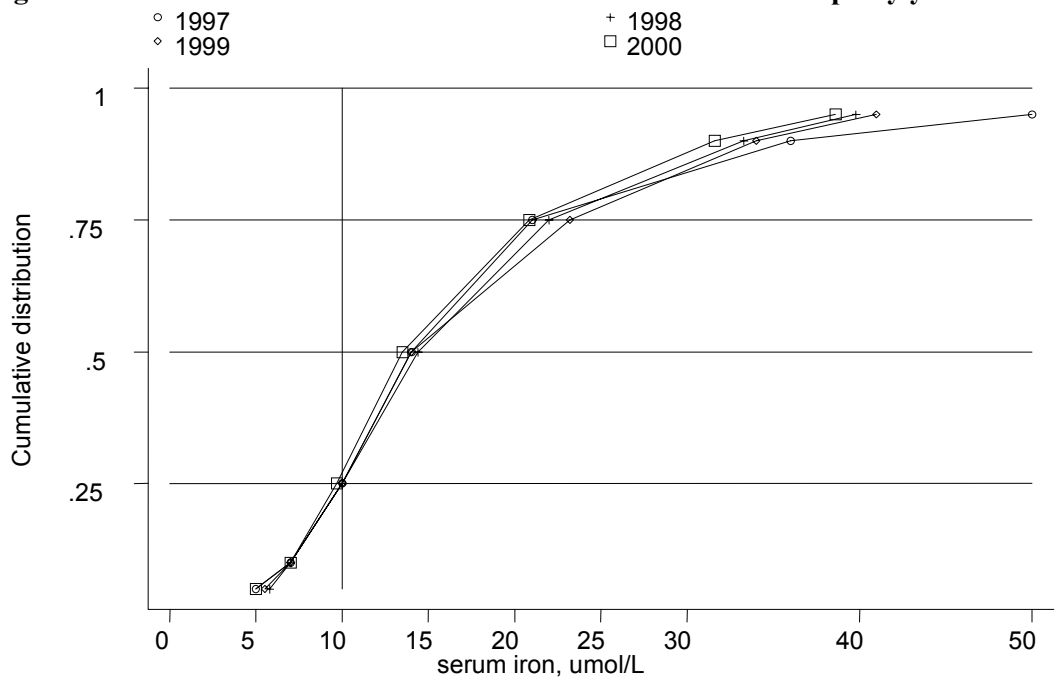


Table 3.1.41: Distribution of Transferrin Saturation without rHuEpo, HD patients, Government Centres 1997 – 2000

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

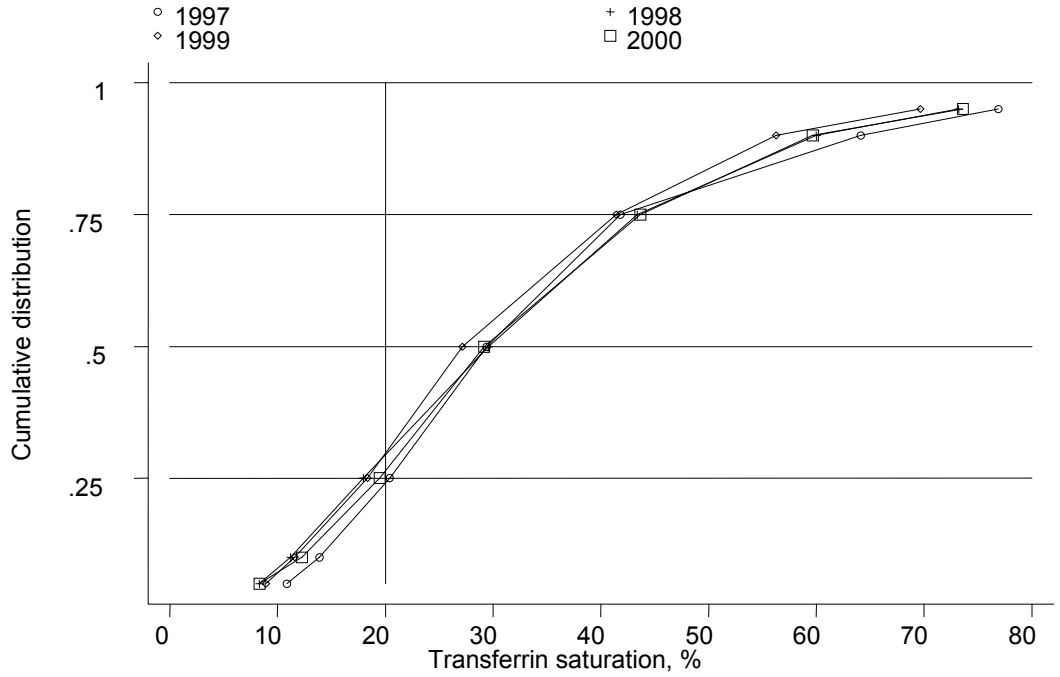


Table 3.1.42: Distribution of Transferrin Saturation on rHuEpo, HD patients, Government Centres 1997 – 2000

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

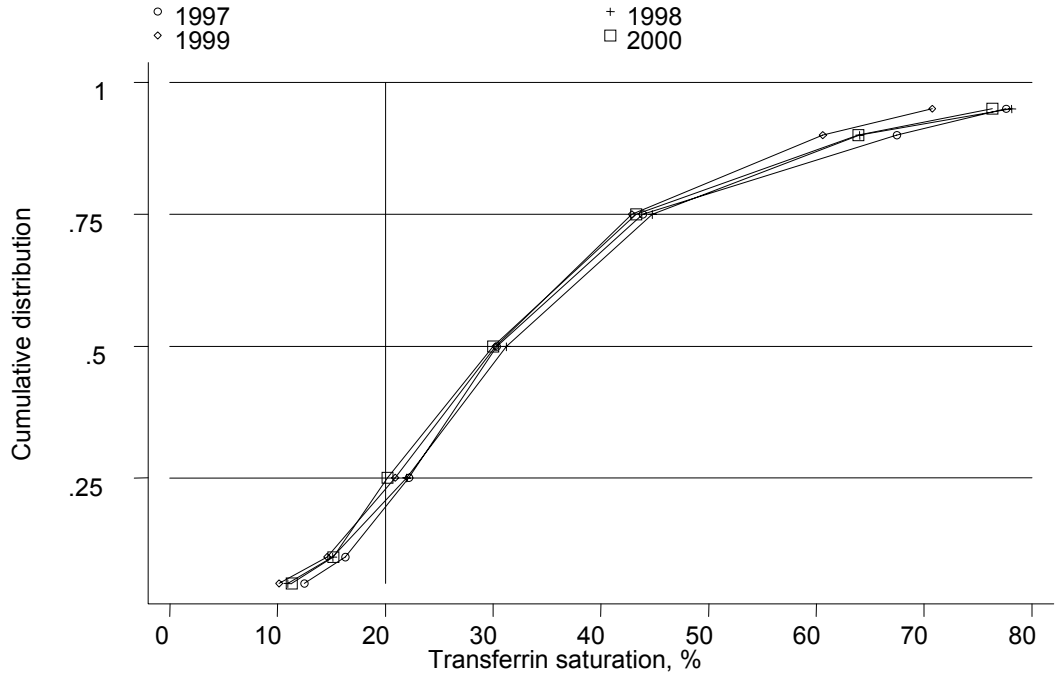


Table 3.1.43: Distribution of serum Ferritin without rHuEpo, HD patients, Government Centres 1997 – 2000

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

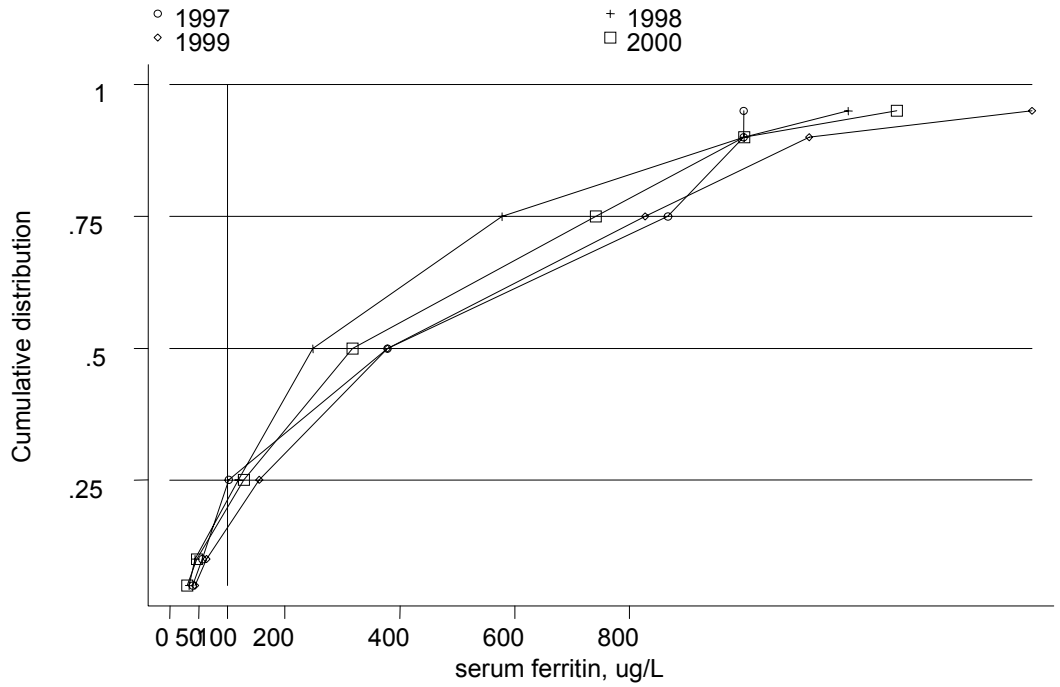


Table 3.1.44: Distribution of serum Ferritin on rHuEpo, HD patients, Government Centres 1997 – 2000

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

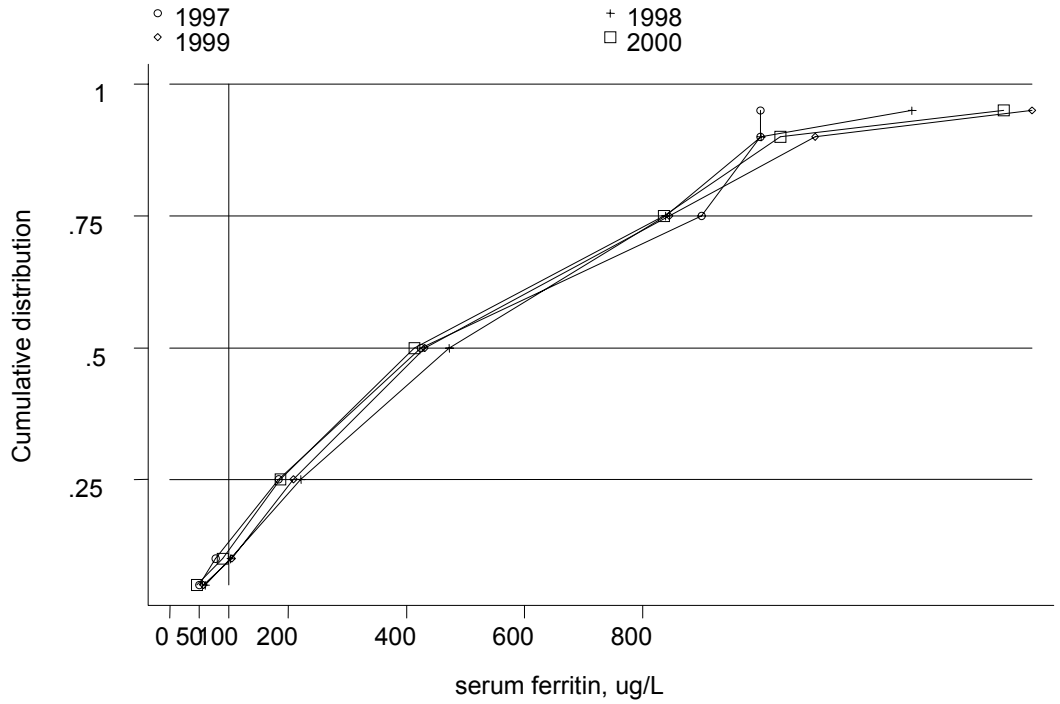


Table 3.1.45: Distribution of Haemoglobin concentration without rHuEpo, HD patients, Government Centres 1997 – 2000

year	No of subjects	No of observations	median	LQ	UQ	% patients <10 g/dl	% patients ≥10 & ≤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

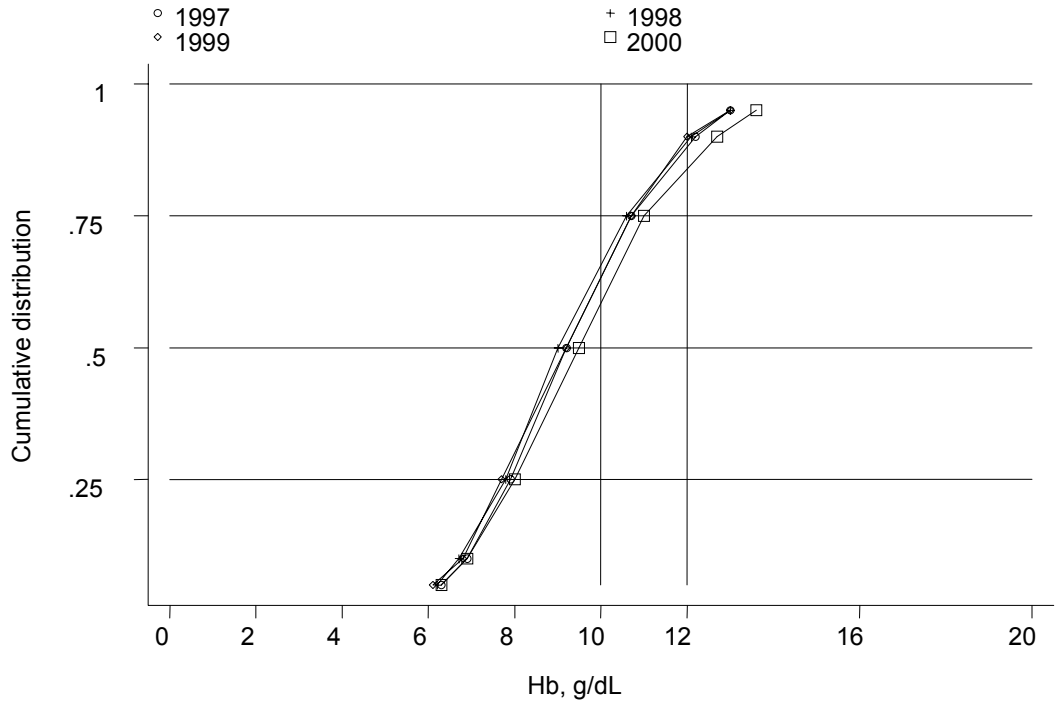
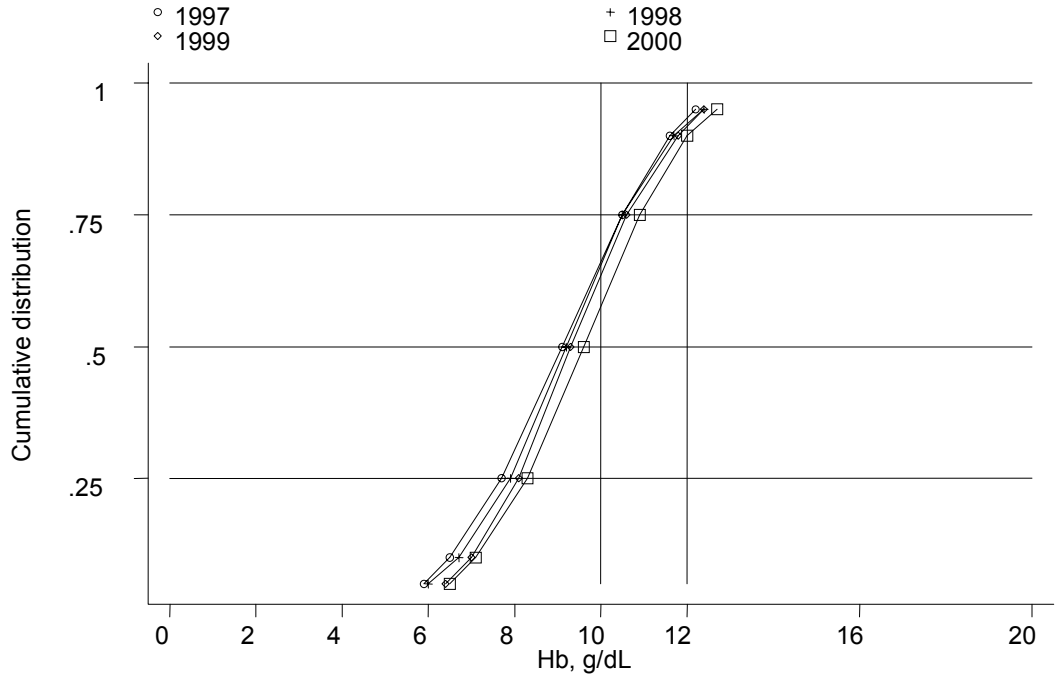


Table 3.1.46: Distribution of Haemoglobin concentrationon rHuEpo, HD patients, Government Centres 1997 - 2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients <10 g/dl	% patients ≥10 & ≤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

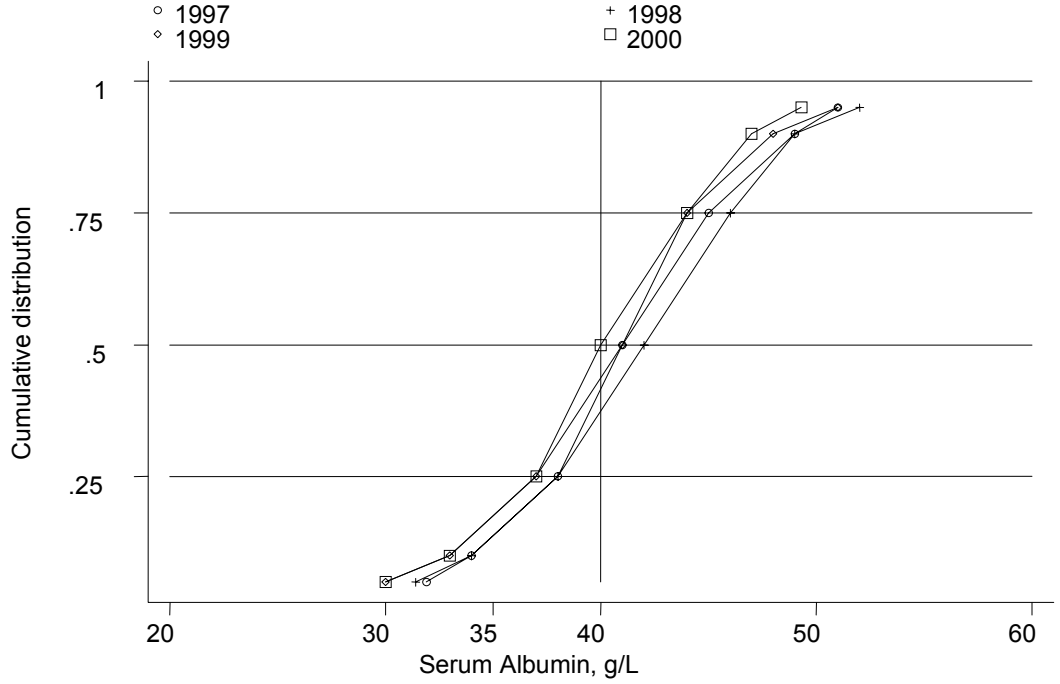
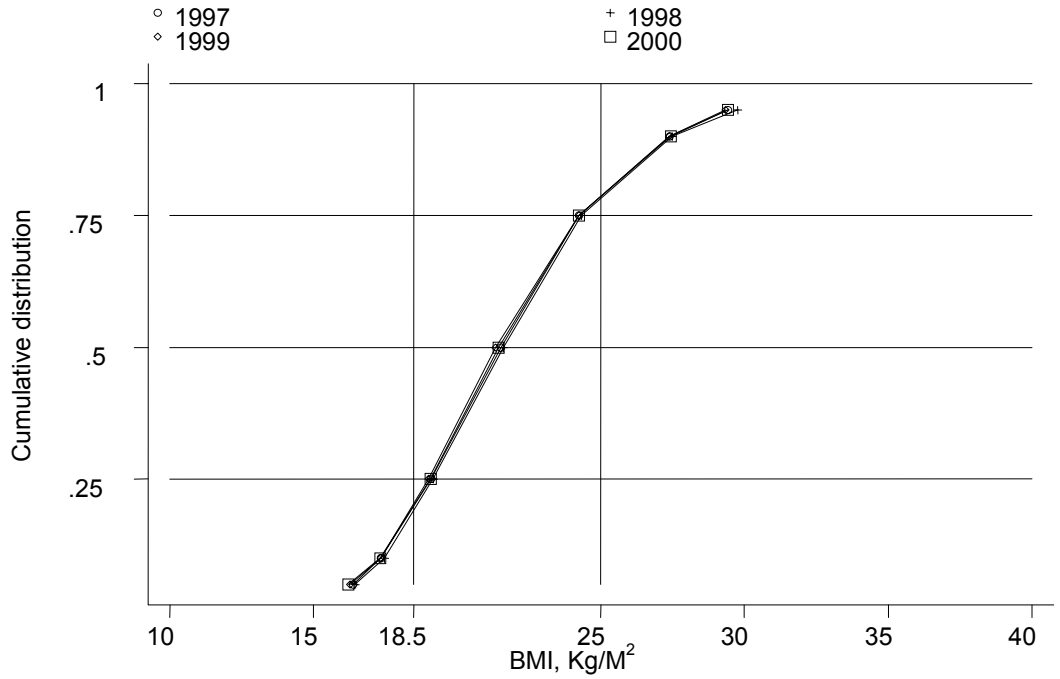


Table 3.1.48: Distribution of Body Mass Index, HD patients, Government Centres 1997 – 2000

year	No of subjects	No of observations	median	LQ	UQ	% patients <18.5	% patients ≥18.5 & ≤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

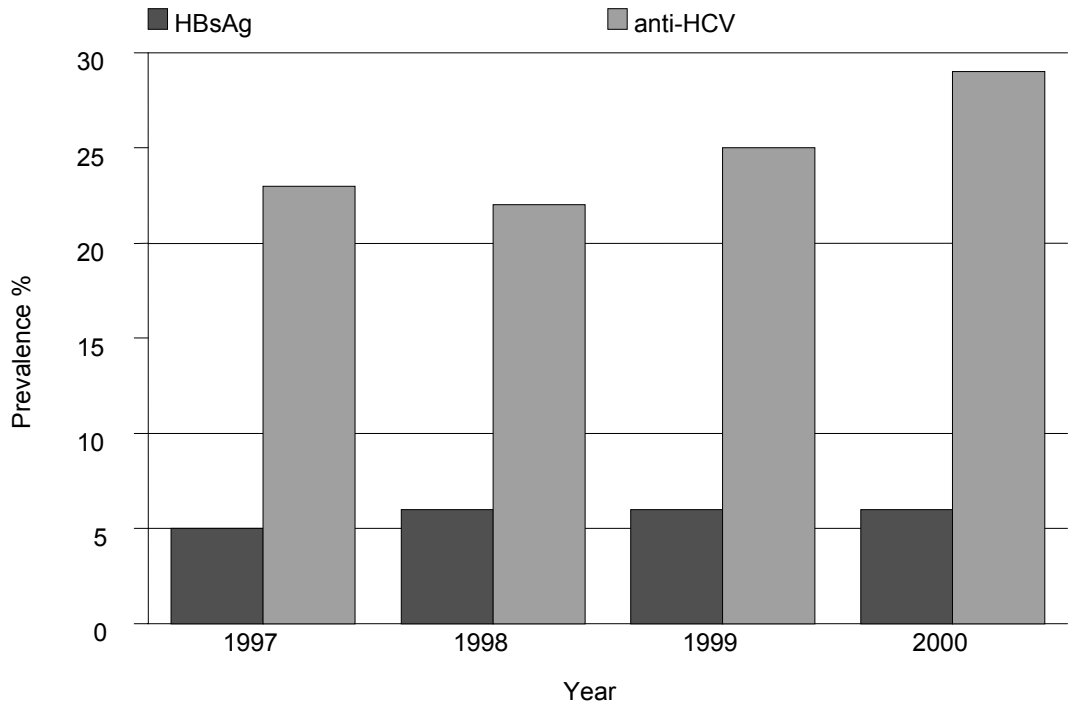


3.1.14 SEROLOGICAL STATUS, HD PATIENTS GOVERNMENT CENTRES

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



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

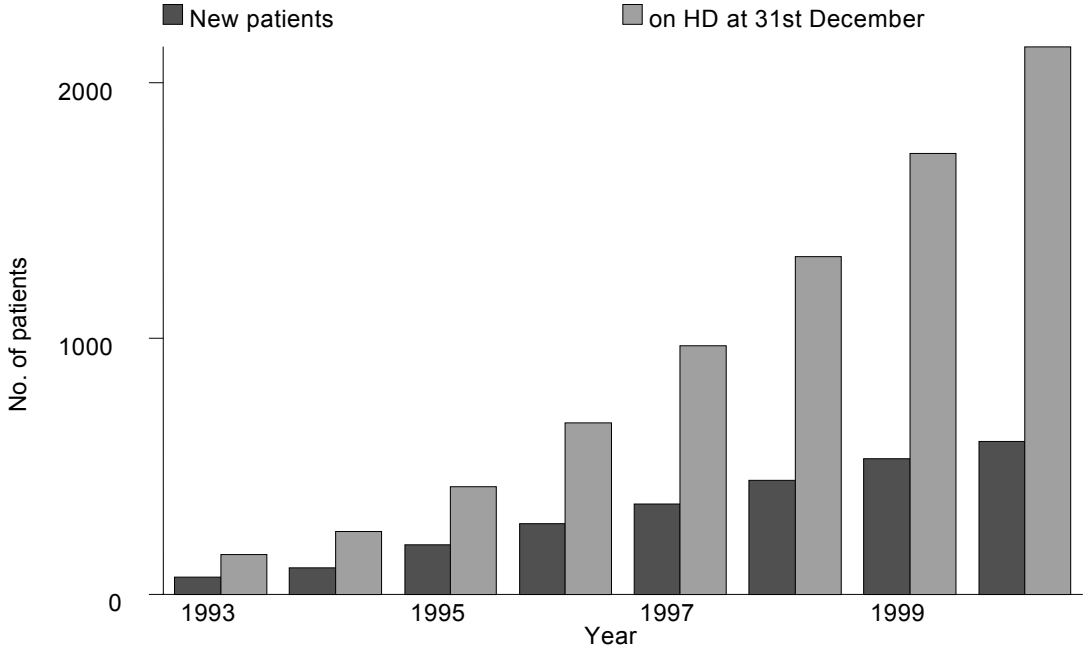
3.2: HAEMODIALYSIS IN NON-GOVERNMENTAL ORGANISATION (NGO) CENTRES

3.2.1 STOCK AND FLOW

Table 3.2.01: Stock and Flow HD patients, NGO Centres 1993 - 2000

Year	1993	1994	1995	1996	1997	1998	1999	2000
New patients	68	104	193	277	353	445	530	598
Died	0	8	15	20	42	81	108	144
Transferred to PD	0	0	0	0	0	1	4	8
Transplanted	0	6	2	5	8	13	15	24
Lost to Follow up	0	0	1	2	1	1	2	4
On HD at 31st December	155	245	420	670	972	1321	1722	2140

Figure 3.2.01: Stock and Flow HD patients, NGO Centres 1993 - 2000



3.2 3 DEATH ON HAEMODIALYSIS, NGO CENTRES

Table 3.2.04: Death Rate on HD and Transfer to PD, NGO Centres 1993 – 2000

Year	1993	1994	1995	1996	1997	1998	1999	2000
No. of patients at risk	155	200	333	545	821	1147	1522	1931
Deaths	0	8	15	20	42	81	108	144
Death rate %	0	4	5	4	5	7	7	7
Transfer to PD	0	0	0	0	0	1	4	8
Transfer to PD rate %	0	0	0	0	0	0	0	0
All Losses	0	8	15	20	42	82	112	152
All Losses rate %	0	4	5	4	5	7	7	8

Figure 3.2.04: Death Rate on HD, NGO Centres, 1993 - 2000

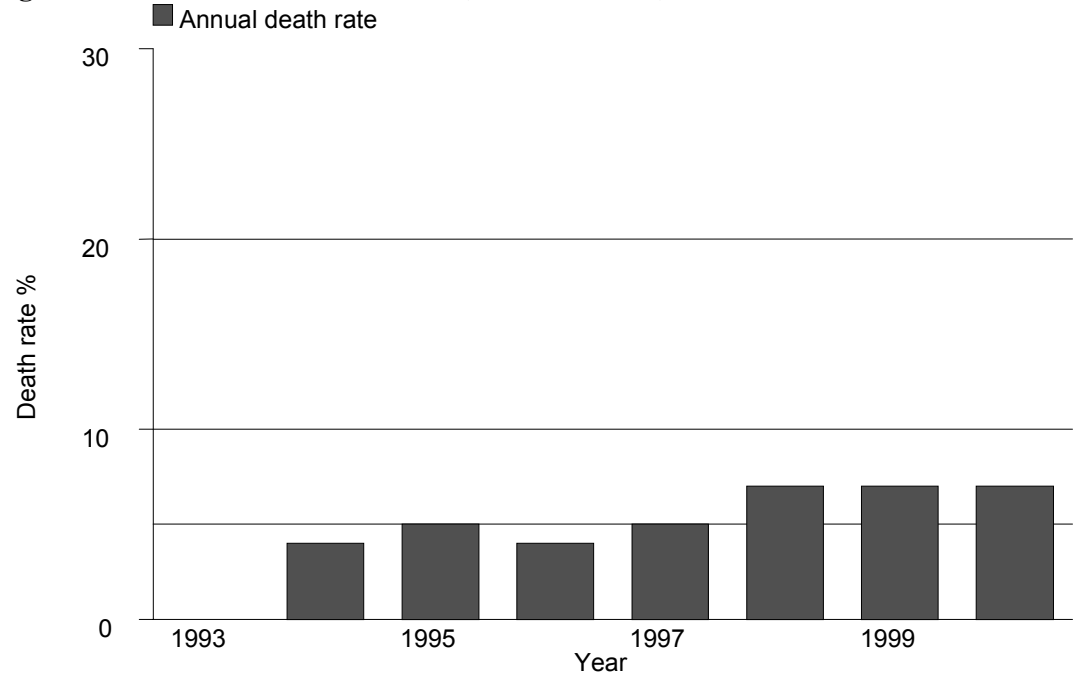


Table 3.2.05: Causes of Death, NGO Centres 1997 – 2000

	1997		1998		1999		2000	
Causes of death	No.	%	No.	%	No.	%	No.	%
Cardiovascular	10	24	37	46	33	31	51	35
Died at home	5	12	6	7	16	15	38	26
Sepsis	4	10	6	7	11	10	15	10
GIT bleed	0	0	2	2	3	3	1	1
Cancer	1	2	1	1	2	2	1	1
Liver disease	0	0	1	1	4	4	3	2
Others	16	38	25	31	30	28	35	24
Unknown	6	14	3	4	9	8	0	0
Total	42	100	81	100	108	100	144	100

3.2.4 NGO HAEMODIALYSIS CENTRES

Table 3.2.07: Centre Distribution of HD patients, NGO Centres, 2000

	Centre	No	percent
	No.on HD at 31st December	2140	100
1	AMD Rotary Dialysis Centre, Penang	7	0
2	Amitabha Haemodialysis Centre	17	1
3	Bakti-NKF Dialysis Centre, Kelang	52	2
4	Batu Pahat Rotary Haemodialysis Centre	52	2
5	Berjaya NKF Dialysis Centre, Petaling Jaya	53	2
6	Buddhist Tzu-Chi Dialysis Centre	35	2
7	Charis-NKF Dialysis Centre, Cheras	63	3
8	Che Eng Khor Haemodialysis Centre	27	1
9	CHKMUS-MAA Medical Charity Dialysis Centre, Kuching	50	2
10	Haemodialysis Association Klang	36	2
11	JB Lion MAA-Medicare Charity Dialysis	78	4
12	KAS-Rotary/NKF Dialysis Centre, Sarawak	19	1
13	KB Rotary-MAA Dialysis Centre	19	1
14	Kiwanis Dialysis Centre	1	0
15	Kluang Rotary Haemodialysis Centre	31	1
16	Kulai Rotary Haemodialysis Centre	71	3
17	Lion Club of Alor Setar-NKF Dialysis Centre	49	2
18	MAA Medicalre Charity Dialysis Centre, Butterworth	58	3
19	MAA Medicare Charity Dialysis Centre, Cheras	60	3
20	MAA Medicare Charity Dialysis Centre, Kajang	37	2
21	MAA Medicare Charity Dialysis Centre, Kuala Lumpur	97	5
22	MAA Medicare Charity Dialysis Centre, Teluk Intan	43	2
23	Mersing Rotary Haemodialysis Centre	3	0
24	Moral Uplifting-NKF Dialysis Centre, Ipoh	64	3
25	Muar Lions Renal Centre	77	4
26	NKF Dialysis Centre, Kuala Lumpur	56	3
27	Pahang Buddhist Association Haemodialysis Centre	29	1
28	Persatuan Buah Pinggang Sabah	23	1
29	Persatuan Bulan Sabit Merah Cawangan Miri	21	1
30	Persatuan Membaiki Akhlak Che Luan Khor	24	1
31	Pertubuhan Bakti Fo En Bandar Kulim	3	0
32	Pertubuhan Hemodialisis Seberang Perai Selatan	23	1
33	Pontian Rotary Haemodialysis Centre	47	2
34	Pusat Dialisis Klinik Waqaf An-nur	9	0
35	Pusat Hemodialisis Darul Iltizam	38	2
36	Pusat Hemodialisis Manjung_NKF	41	2

37	Pusat Hemodialisis Mawar N. Sembilan, Bahau	11	1
38	Pusat Hemodialisis Mawar N. Sembilan, Lukut	14	1
39	Pusat Hemodialisis Mawar N. Sembilan, Seremban	117	5
40	Pusat Hemodialisis MCA Pasar Meru	2	0
41	Pusat Hemodialisis Rotary Kota Tinggi	12	1
42	Pusat Hemodialisis SJAM Bacang Melaka	78	4
43	Pusat Hemodialisis Yayasan Felda	44	2
44	Pusat Muhibah Hemodialisis Pesatuan Tionghua Segamat	66	3
45	Pusat Rawatan Islam, Kuala Lumpur	26	1
46	Pusat Rawatan Islam, Petaling Jaya	3	0
47	Rotary Club Damansara-NKF Dialysis Centre, Kepong	55	3
48	Rotary Club Tawau Tanjung Haemodialysis Centre	3	0
49	Rotary Haemodialysis Centre, Johor Bahru	36	2
50	Sibu Kidney Foundation Haemodialysis Centre	35	2
51	SJAM-KPS Haemodialysis, Kelang	45	2
52	Superkids Trinity-NKF Dialysis Centre, Alor Setar	1	0
53	TDC-NKF Trengganu Dialysis Centre	24	1
54	The Nayang-NKF Dialysis Centre, Kuala Lumpur	5	0
55	The Penang Community Haemodialysis Society	28	1
56	Woh Peng Cheang Seah Dialysis Centre	32	1
57	Yayasan Dialisis Pertubohan Pendidikan Akhlak-NKF, Taiping	15	1
58	Yayasan Kebajikan SSL Heamodialisis	73	3
59	Yayasan Pembangunan Keluarga Johor-NKF	2	0

3.2.5 HAEMODIALYSIS PATIENTS' CHARACTERISTICS, NGO CENTRES

Table 3.2.08: Age Distribution of Dialysis Patients, NGO Centres 1997 – 2000

Year	1997	1998	1999	2000
New Dialysis patients	353	445	530	598
1-14 years	0	0	0	0
15-24 years	5	3	2	2
25-34 years	10	11	11	10
35-44 years	22	19	16	18
45-54 years	25	28	31	31
55-64 years	26	25	26	25
≥65 years	12	13	13	15
Dialysing at 31st December	972	1321	1722	2140
1-14 years	0	0	0	0
15-24 years	4	4	4	3
25-34 years	15	14	13	12
35-44 years	23	23	22	21
45-54 years	27	28	28	29
55-64 years	21	22	23	23
≥65 years	9	10	10	11

Table 3.2.09: Patients' Characteristics, NGO Centres 1997 – 2000

Year	1997	1998	1999	2000
New Dialysis patients	353	445	530	598
Mean age±sd	49±13	50±13	50±13	51±13
% male	57	52	59	58
% Diabetic	33	45	42	46
% HbsAg+	5	4	4	5
% Anti-HCV+	6	5	7	4

3.2.6 SURVIVAL ANALYSIS, NGO CENTRES

Table 3.2.10: HD Patient Survival, NGO Centres 1995 - 2000

Year	1995			1996			1997		
Interval (months)	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	97	1	186	97	1	268	95	1	337
12	93	2	176	96	1	260	92	1	319
24	91	2	169	91	2	245	83	2	286
36	87	2	161	78	3	212	77	2	261
48	83	3	152	74	3	198			
60	77	3	131						

Year	1998			1999			2000		
Interval (months)	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	97	1	429	97	1	511	96	1	284
12	95	1	410	94	1	486			
24	88	2	365						

No. = number at risk SE = standard error

Figure 3.2.10: HD Patient Survival, NGO Centres 1996 -2000

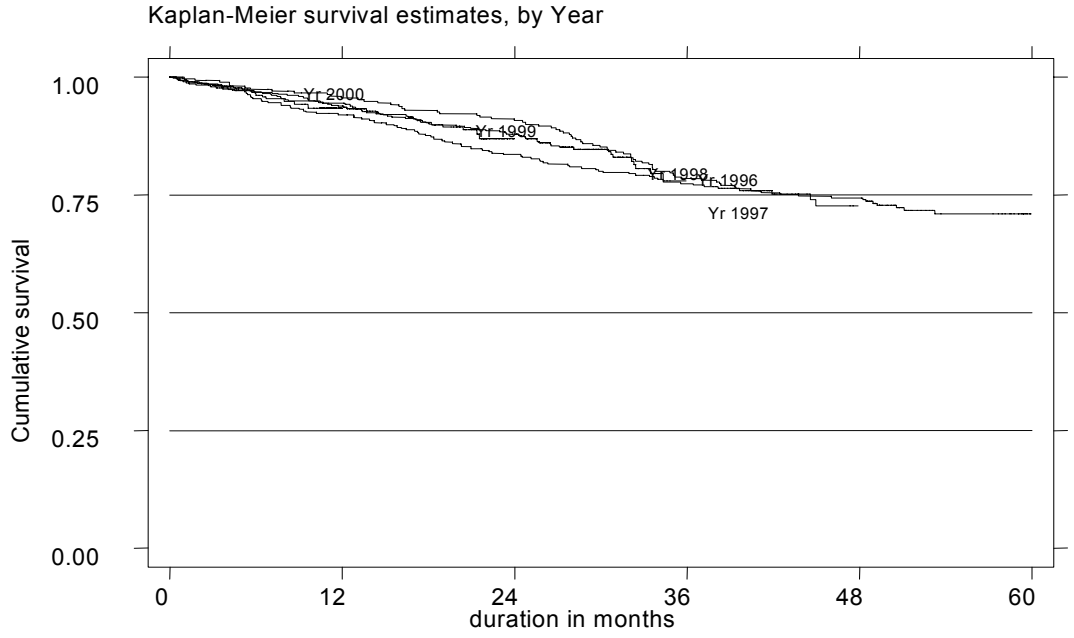


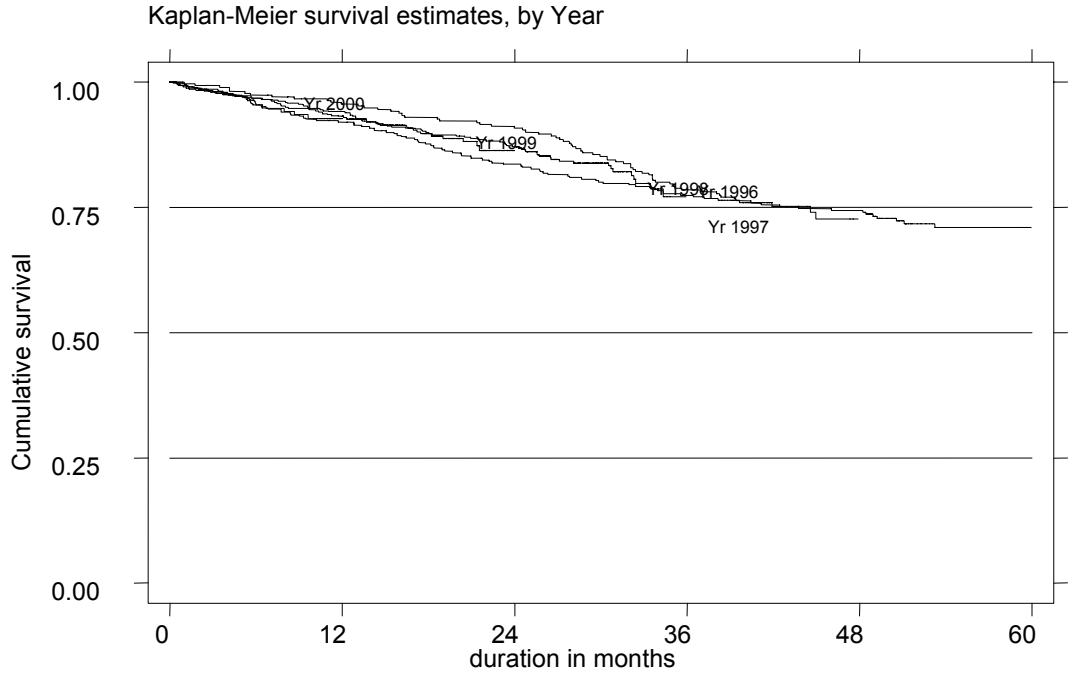
Table 3.2.11: HD Technique Survival, NGO Centres 1995-2000

Year	1995			1996			1997		
Interval (months)	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	97	1	186	97	1	268	95	1	337
12	93	2	176	96	1	260	92	1	319
24	91	2	169	91	2	245	83	2	286
36	87	2	161	78	3	212	77	2	261
48	83	3	152	74	3	198			
60	77	3	131						

Year	1998			1999			2000		
Interval (months)	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	97	1	429	97	1	511	96	1	284
12	94	1	409	93	1	486			
24	87	2	367						

No. = number at risk SE = standard error

Figure 3.2.11: HD Technique Survival by year of entry, NGO centres 1996 -2000



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

Table 3.2.12: Work Related Rehabilitation on HD, NGO centres 1997-2000

REHABILITATION STATUS	1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%
Full time work for pay	93	29	73	20	115	18	197	16
Part time work for pay	52	16	55	15	108	17	187	16
Able to work but unable to get a job	15	5	15	4	31	5	67	6
Able to work but not yet due to dialysis schedule	7	2	10	3	37	6	28	2
Able but disinclined to work	10	3	3	1	22	3	32	3
Home maker	70	22	111	31	183	28	317	26
Full time student	1	0	0	0	1	0	2	0
Age<15 years	1	0	0	0	0	0	0	0
Retired	17	5	24	7	46	7	107	9
Age>65 years	17	5	23	6	33	5	126	11
Unable to work due to poor health	39	12	48	13	77	12	135	11
Total	322	100	362	100	653	100	1198	100

Table 3.2.13: Quality of Life on Haemodialysis, NGO Centres 1997 – 2000

QOL Index Summated Score	1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%
0 (Worst QOL)	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	2	0
2	0	0	0	0	2	0	4	0
3	4	1	4	1	4	1	21	2
4	15	5	12	3	16	2	26	2
5	13	4	9	3	25	4	40	3
6	25	8	22	6	30	5	74	6
7	31	9	19	5	58	9	85	7
8	43	13	36	10	73	11	100	8
9	42	13	30	9	73	11	142	12
10 (Best QOL)	154	47	217	62	368	57	718	59
Total	327	100	349	100	649	100	1212	100

3.2.8 HAEMODIALYSIS PRACTICES IN NGO CENTRES

Table 3.2.14: Vascular Access on Haemodialysis, NGO Centres 1997 – 2000

Access types	1997		1998		1999		2000	
	No	%	No	%	No	%	No	%
Wrist AVF	291	89	356	87	602	84	1310	86
BCF*	29	9	43	10	91	13	180	12
Venous graft	2	1	3	1	2	0	3	0
Artificial graft	3	1	3	1	5	1	11	1
PERMCATH	0	0	0	0	2	0	2	0
Temporary CVC*	3	1	5	1	11	2	15	1
Total	328	100	410	100	713	100	1521	100

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

Table 3.2.15: Difficulties reported with Vascular Access, NGO Centres 1997 – 2000

Access difficulty	1997		1998		1999		2000	
	No	%	No	%	No	%	No	%
Difficulty with needle placement	14	4	12	3	23	3	41	3
Difficulty in obtaining desired blood flow rate	6	2	11	3	18	3	37	2
Other difficulty	4	1	4	1	11	2	9	1
No difficulty	304	93	394	94	665	93	1440	94
Total	328	100	421	100	717	100	1527	100

Table 3.2.16: Complications reported with Vascular Access, NGO Centres 1997 – 2000

Complication	1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%
Thrombosis	19	6	9	2	24	3	47	3
Bleed	6	2	8	2	3	0	5	0
Aneurysmal dilatation	14	4	4	1	15	2	42	3
Swollen limb	3	1	1	0	8	1	14	1
Access related infection, local/Systemic	1	0	3	1	3	0	8	1
Distal Limb ischaemia	0	0	2	0	0	0	15	1
Venous outflow obstruction	7	2	8	2	17	2	19	1
Carpal tunnel	1	0	0	0	1	0	4	0
Other	3	1	8	2	13	2	9	1
No complication	274	84	378	90	633	88	1368	89
Total	328	100	421	100	717	100	1531	100

Table 3.2.17: Blood Flow Rates in NGO HD Units 1997 – 2000

Blood flow rates	1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%
<150 ml/min	0	0	0	0	0	0	3	0
150-199 ml/min	7	2	8	2	12	2	31	2
200-249 ml/min	189	62	212	54	342	49	522	35
250-299 ml/min	86	28	145	37	282	41	765	52
300-349 ml/min	24	8	28	7	57	8	139	9
> 350 ml/min	0	0	1	0	1	0	12	1
Total	306	100	394	100	694	100	1472	100

Table 3.2.18: Number of HD Sessions per week, NGO HD Units 1997 – 2000

HD sessions Per week	1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%
1	0	0	0	0	1	0	3	0
2	2	1	3	1	20	3	86	6
3	322	99	410	99	693	97	1418	93
4	2	1	0	0	1	0	5	0
Total	326	100	413	100	715	100	1521	100

Table 3.2.19: Duration of HD in NGO HD Units 1997 – 2000

Duration of HD per session	1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%
≤3 hours	0	0	0	0	1	0	2	0
3.5 hours	0	0	0	0	1	0	2	0
4 hours	324	99	411	99	708	99	1491	98
4.5 hours	2	1	3	1	2	0	17	1
5 hours	1	0	0	0	2	0	7	0
≥5 hours	0	0	0	0	0	0	3	0
Total	327	100	414	100	714	100	1522	100

Table 3.2.20: Dialyser membrane types in NGO HD Units 1997 – 2000

Dialyser membrane	1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%
Cellulosic	225	74	257	68	332	56	457	39
Cellulose acetate	70	23	84	22	156	26	188	16
Synthetic	8	3	37	10	105	18	532	45
Total	303	100	378	100	593	100	1177	100

Table 3.2.21: Dialyser Reuse Frequency in NGO HD Units 1997 – 2000

Dialyser reuse frequency	1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%
1*	3	1	1	0	6	1	44	3
2	2	1	0	0	2	0	4	0
3	46	15	29	7	43	7	74	5
4	47	16	11	3	24	4	58	4
5	141	47	29	7	98	15	166	12
6	57	19	300	77	399	60	578	41
7	0	0	1	0	3	0	2	0
8	0	0	2	1	40	6	196	14
9	5	2	0	0	5	1	38	3
10	0	0	15	4	30	5	161	11
11	0	0	0	0	0	0	0	0
12	0	0	0	0	11	2	51	4
≥13	0	0	0	0	0	0	49	3
Total	301	100	388	100	661	100	1421	100

1* is single use i.e. no reuse

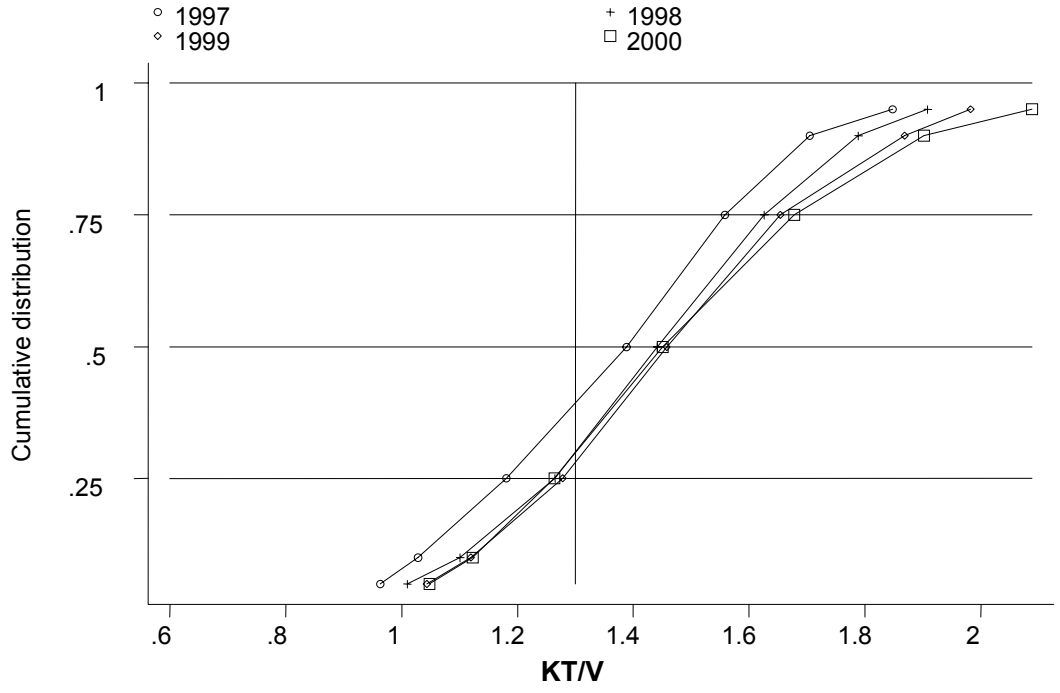
Table 3.2.22: Dialysate Buffer used in NGO HD Units 1997 – 2000

Dialysate buffer	1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%
Acetate	33	10	41	10	37	5	13	1
Bicarbonate	294	90	366	90	666	95	1502	99
Total	327	100	407	100	703	100	1515	100

Table 3.2.23: Distribution of Prescribed KT/V, NGO Centres 1997 – 2000

Year	No of subjects	No of observations	median	LQ	UQ	% > 1.3
1997	288	2378	1.4	1.2	1.6	60
1998	373	3661	1.4	1.3	1.6	71
1999	663	6584	1.5	1.3	1.7	72
2000	1327	13313	1.5	1.3	1.7	71

Figure 3.2.23: Cumulative distribution of Prescribed KT/V by year



3.2.9 DYSLIPIDAEMIA IN HD PATIENTS, NGO CENTRES

Table 3.2.24: Distribution of serum Cholesterol Concentrations (mmol/l), HD patients, NGO Centres 1997 - 2000

year	No of subjects	No of observations	median	LQ	UQ	% patients < 5.3 mmol/l
1997	293	471	4.9	4	5.9	65
1998	88	143	4.7	4.1	5.6	73
1999	142	230	4.9	4.1	5.6	69
2000	932	1459	5	4.2	5.9	65

Figure 3.2.24: Cumulative distribution of serum cholesterol concentration by year

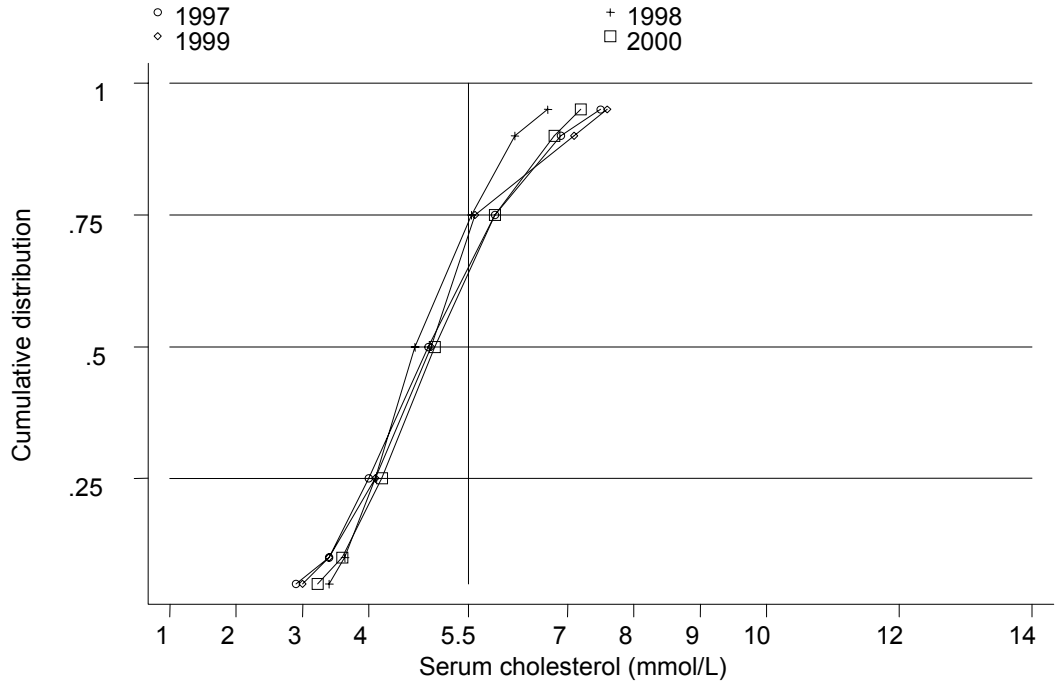


Table 3.2.25: Distribution of serum Triglyceride (mmol/l), HD patients, NGO Centres 1997 – 2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients < 3.5 mmol/l
1997	265	423	1.7	1.3	2.5	88
1998	75	118	1.8	1.3	2.8	87
1999	123	197	1.8	1.3	2.7	85
2000	583	887	1.9	1.3	2.7	86

Figure 3.2.25: Cumulative distribution of serum triglyceride concentration by year

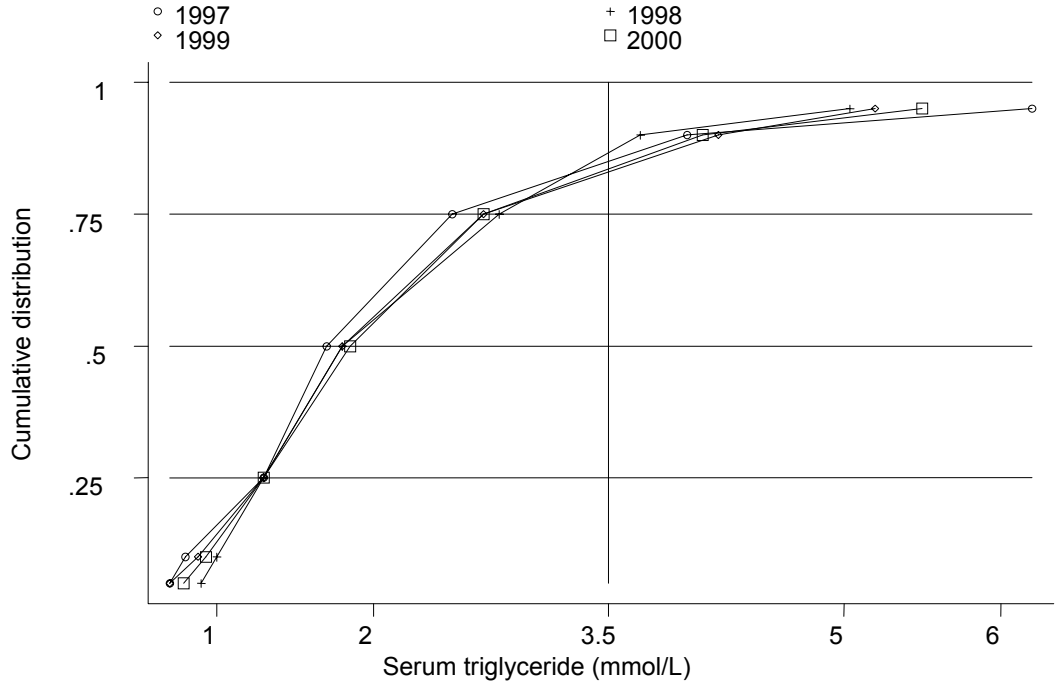


Table 3.2.26: Distribution of serum LDL (mmol/l), HD patients, NGO Centres 1997 – 2000

year	No of subjects	No of observations	median	LQ	UQ	% patients <5 mmol/l
1997	227	340	2.9	2.2	3.7	94
1998	29	42	2.7	1.7	3.2	98
1999	32	40	2.8	2.5	3.3	98
2000	442	620	2.8	2.2	3.6	97

Figure 3.2.26 : Cumulative distribution of serum LDL by year

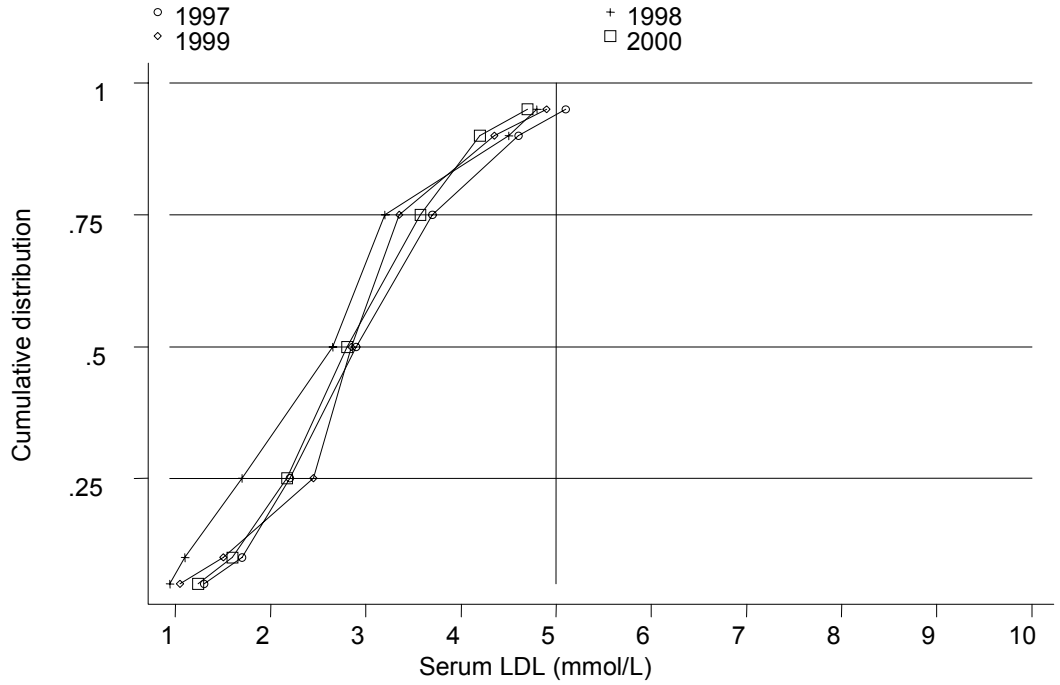
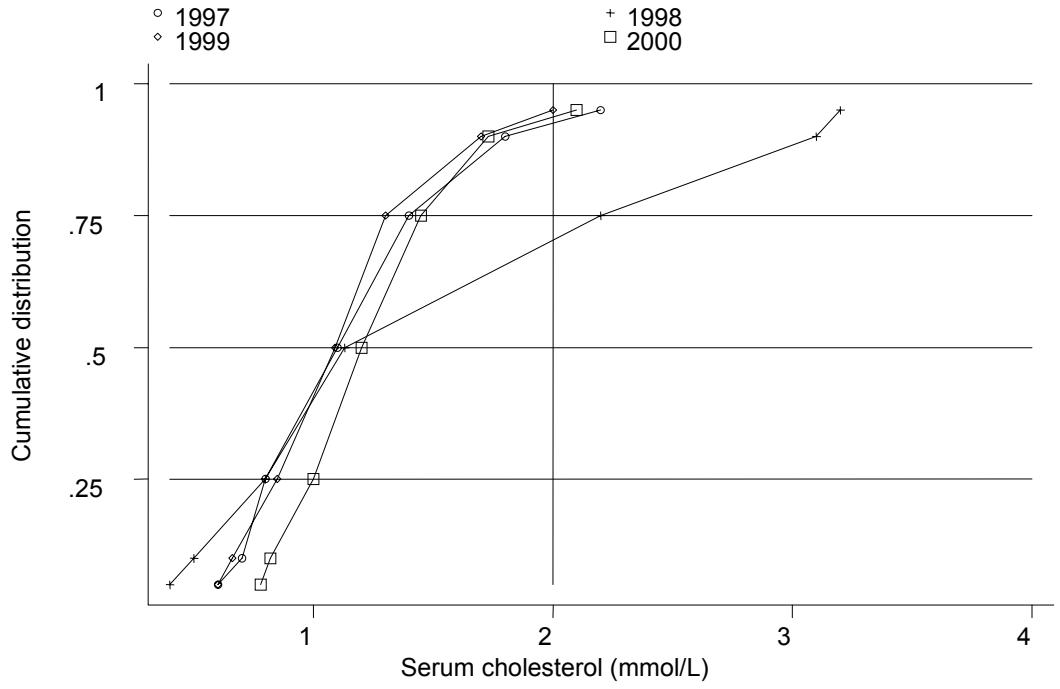


Table 3.2.27: Distribution of serum HDL (mmol/l), HD patients, NGO Centres 1997 – 2000

year	No of subjects	No of observations	median	LQ	UQ	% patients < 2mmol/l
1997	241	367	1.1	.8	1.4	91
1998	30	44	1.1	.8	2.2	73
1999	34	41	1.1	.9	1.3	93
2000	471	675	1.2	1	1.5	94

Figure 3.2.27: Cumulative distribution of serum HDL by year



3.2.10 MANAGEMENT OF RENAL BONE DISEASE, NGO CENTRES

Table 3.2.28: Treatment for Renal Bone Disease, HD patients, NGO Centres 1997 - 2000

year	No of subjects	% on CaCO3	% on Al(OH)3	% on Vitamin D
1997	330	95	17	40
1998	422	96	8	39
1999	719	91	6	30
2000	1543	92	3	22

Table 3.2.29: Distribution of serum Phosphate (mmol/l), HD patients, NGO Centres 1997 – 2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients < 1.6 mmol/l
1997	320	968	2	1.5	2.5	28
1998	399	1096	1.9	1.5	2.3	29
1999	683	1865	1.9	1.5	2.3	30
2000	1401	3697	1.8	1.5	2.2	32

Figure 3.2.29: Cumulative distribution of serum Phosphate by year

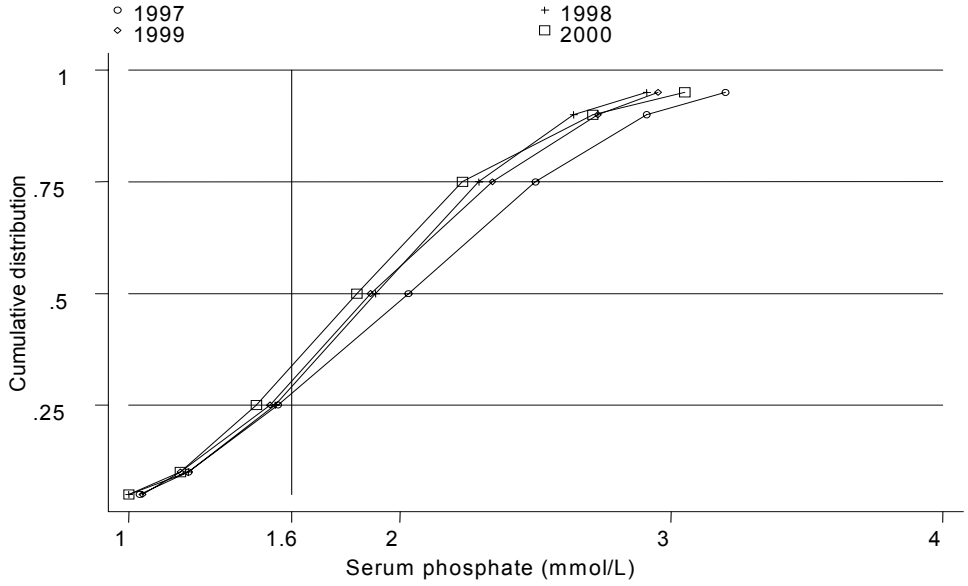


Table 3.2.30: Distribution of serum Calcium (mmol/l), HD patients, NGO Centres 1997 – 2000

year	No of subjects	No of observations	median	LQ	UQ	% patients ≥ 2.2 & ≤2.6 mmol/l
1997	321	967	2.3	2.2	2.5	57
1998	404	1107	2.3	2.2	2.5	56
1999	691	1884	2.3	2.2	2.5	57
2000	1394	3720	2.3	2.2	2.5	61

Figure 3.2.30: Cumulative distribution of serum Calcium by year

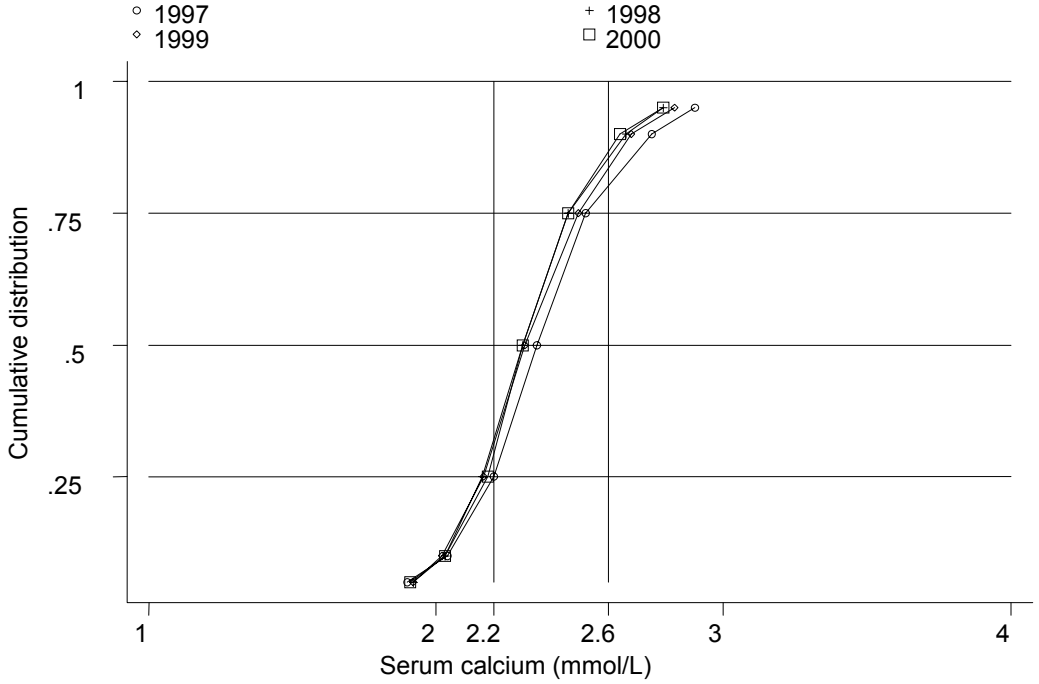
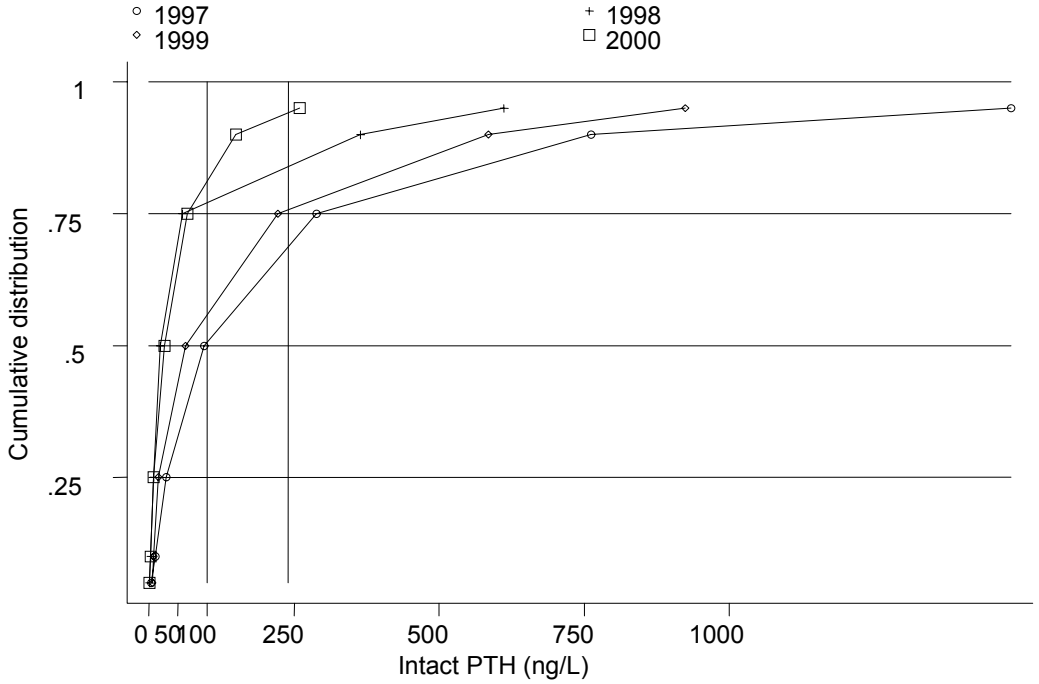


Table 3.2.31: Distribution of serum iPTH (ng/L), HD patients, NGO Centres 1997 – 2000

year	No of subjects	No of observations	median	LQ	UQ	% patients ≥ 100 & ≤ 250 ng/l
1997	249	369	95	30	289	18
1998	166	173	20	8	58.4	6
1999	263	299	62.7	16.4	223	19
2000	627	836	27.2	8.4	66	10

Figure 3.2.31: Cumulative distribution of serum iPTH by year



3.2.11 MANAGEMENT OF BLOOD PRESSURE, NGO CENTRES

Table 3.2.32: Treatment for hypertension, HD patients, NGO Centres 1997 - 2000

Year	No.	% on anti-hypertensives	% on 1 anti-hypertensives	% on 2 anti-hypertensives	% on 3 anti-hypertensives
1997	330	59	30	20	9
1998	422	62	34	21	7
1999	719	69	38	22	9
2000	1543	67	39	22	7

Table 3.2.33: Distribution of Systolic BP without anti-hypertensives, HD patients, NGO Centres 1997 – 2000

year	No of subjects	No of observations	median	LQ	UQ	% patients < 160 mmHg
1997	125	1042	134	120	150	84
1998	157	1603	140	125	157	77
1999	223	2285	142	125	160	74
2000	501	5041	140	123	160	75

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

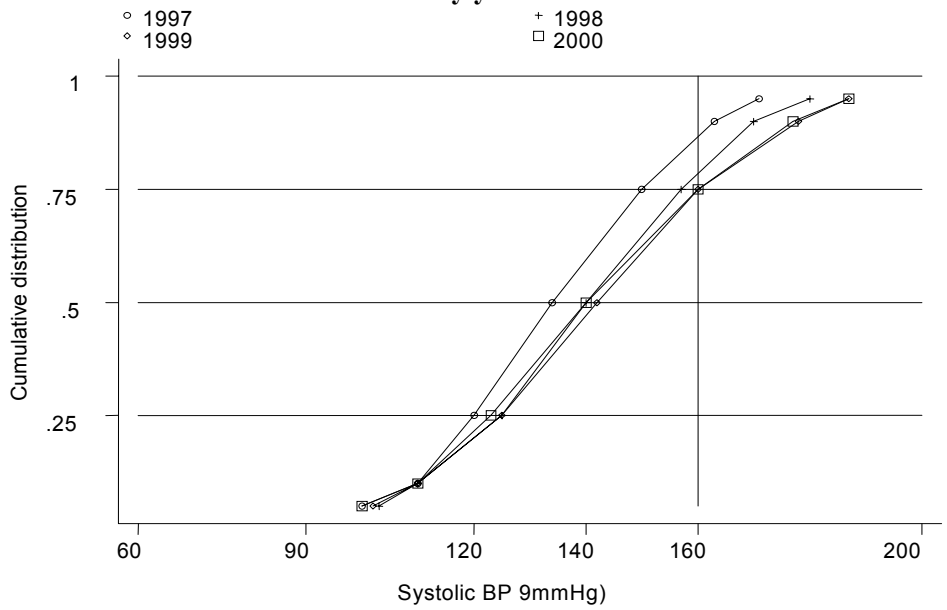


Table 3.2.34: Distribution of Diastolic BP without anti-hypertensives, HD patients, NGO Centres 1997 – 2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients < 90 mmHg
1997	126	1042	80	70	90	71
1998	157	1604	80	70	90	74
1999	223	2282	80	70	90	72
2000	501	5039	80	70	88	77

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

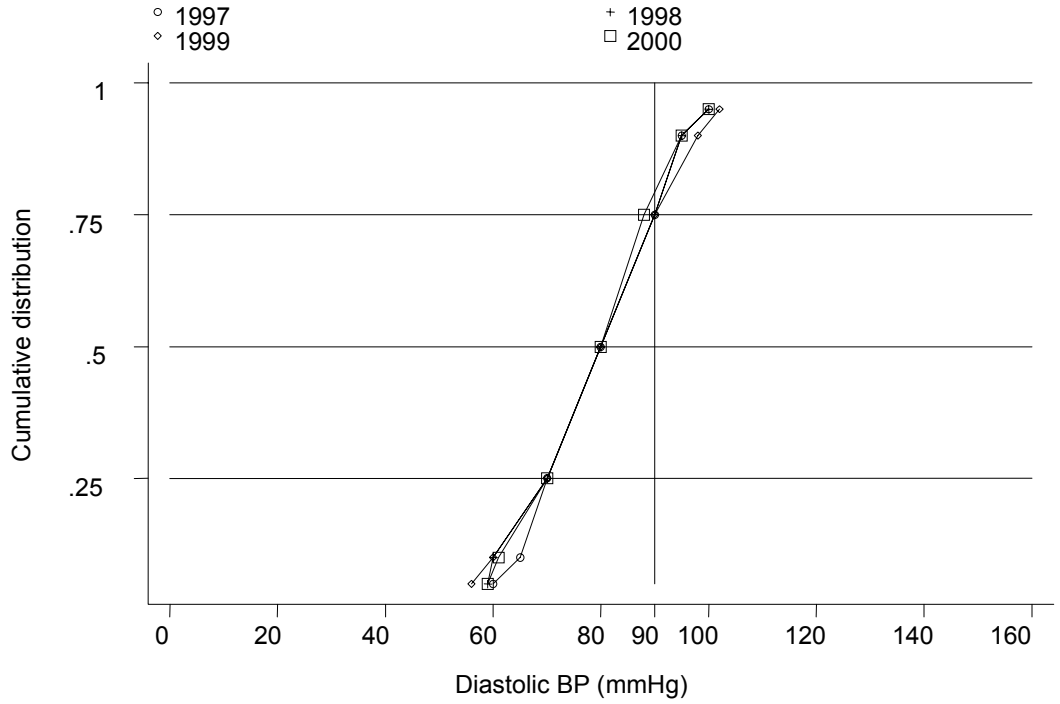


Table 3.2.35: Distribution of systolic BP on anti-hypertensives, HD patients, NGO Centres 1997 – 2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients < 160 mmHg
1997	193	1534	152	140	170	55
1998	253	2457	158	140	174	52
1999	493	4811	160	142	179	49
2000	1004	9927	153	140	172	55

Figure 3.2.35: Cumulative distribution of systolic BP on anti-hypertensives by year

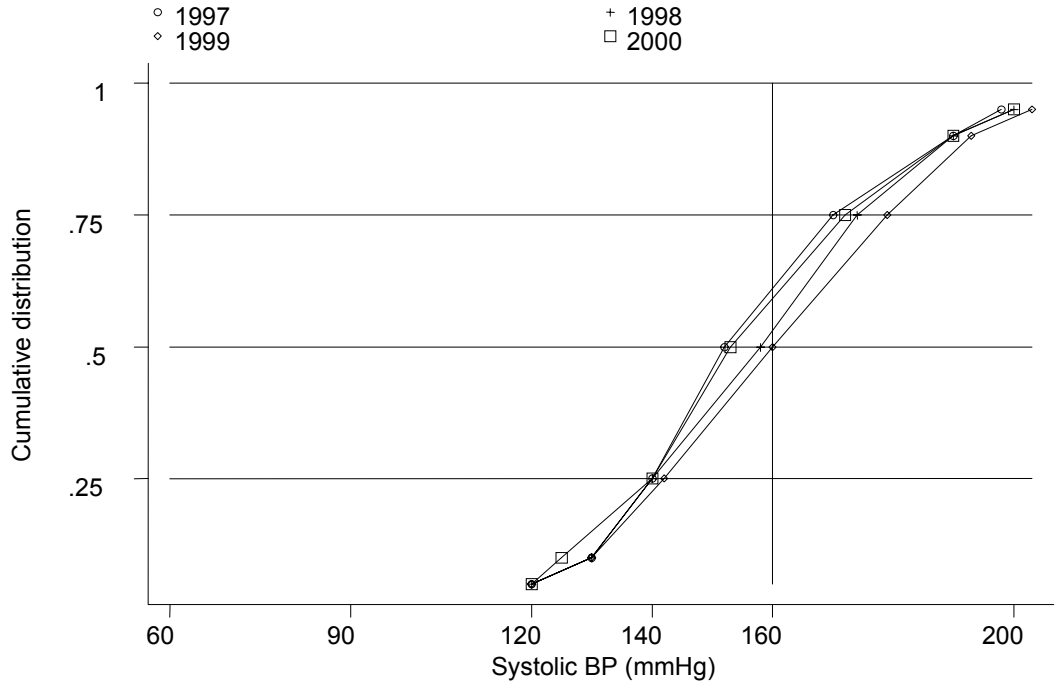
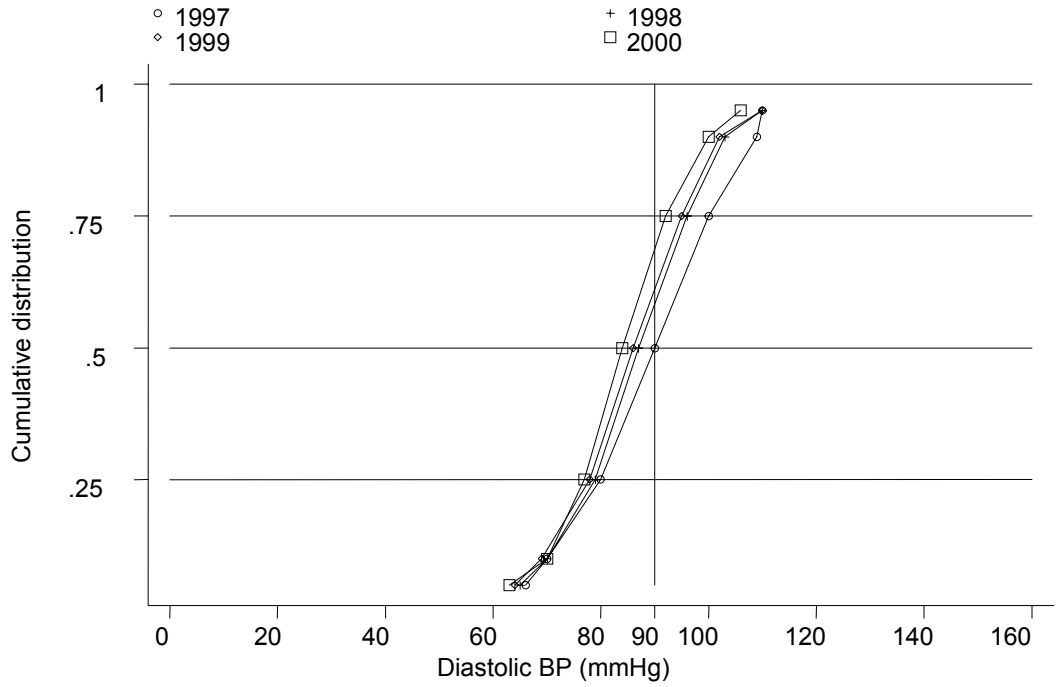


Table 3.2.36: Distribution of diastolic BP on anti-hypertensives, HD patients, NGO Centres 1997 – 2000

year	No of subjects	No of observations	median	LQ	UQ	% patients < 90 mmHg
1997	193	1534	90	80	100	44
1998	253	2459	87	79	96	55
1999	493	4816	86	78	95	57
2000	1003	9910	84	77	92	59

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



3.2.12 TREATMENT OF ANAEMIA, NGO HD CENTRES

Table 3.2.37: Treatment for Anaemia, HD patients, NGO Centres 1997 - 2000

year	No	% on rHuEpo	% received blood transfusion	% received oral iron	% received parenteral iron
1997	330	51	9	88	1
1998	422	50	7	92	1
1999	719	54	9	87	1
2000	1543	56	12	88	3

Table 3.2.38: Distribution of rHuEpo dose per week, HD patients, NGO Centres 1997 - 2000

Year	1997	1998	1999	2000
No. of patients	163	201	370	819
% on 2000 u/week	55	63	69	58
% on 2-4000 u/week	39	32	26	37
% on 4-6000 u/week	2	3	4	3
% on 6-8000 u/week	1	2	1	0
% on 8-12000 u/week	1	0	1	0
% on >12000 u/week	1	0	0	0

Table 3.2.39: Distribution of serum Iron without rHuEpo, HD patients, NGO Centres 1997 – 2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients > 10 umol/l
1997	140	252	15.1	10.7	19.6	79
1998	25	64	14.5	9	21.8	67
1999	28	72	14	10.6	17	81
2000	200	327	15.5	10.2	25.9	76

Figure 3.2.39: Cumulative distribution of serum Iron without rHuEpo by year

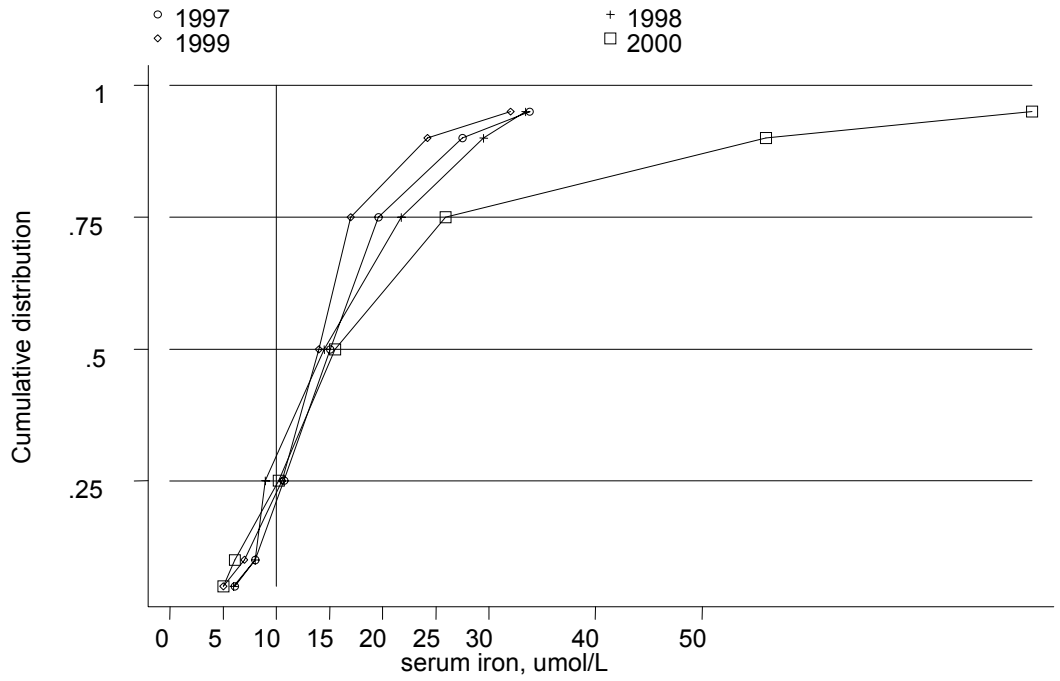


Table 3.2.40: Distribution of serum Iron on rHuEpo, HD patients, NGO Centres 1997 - 2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients > 10 umol/l
1997	6	13	10.6	9.7	12.2	54
1998	6	11	12	11	15	82
1999	74	99	12.4	9.1	18.3	67
2000	63	87	12.7	9.1	19.5	67

Figure 3.2.40: Cumulative distribution of serum Iron on rHuEpo by year

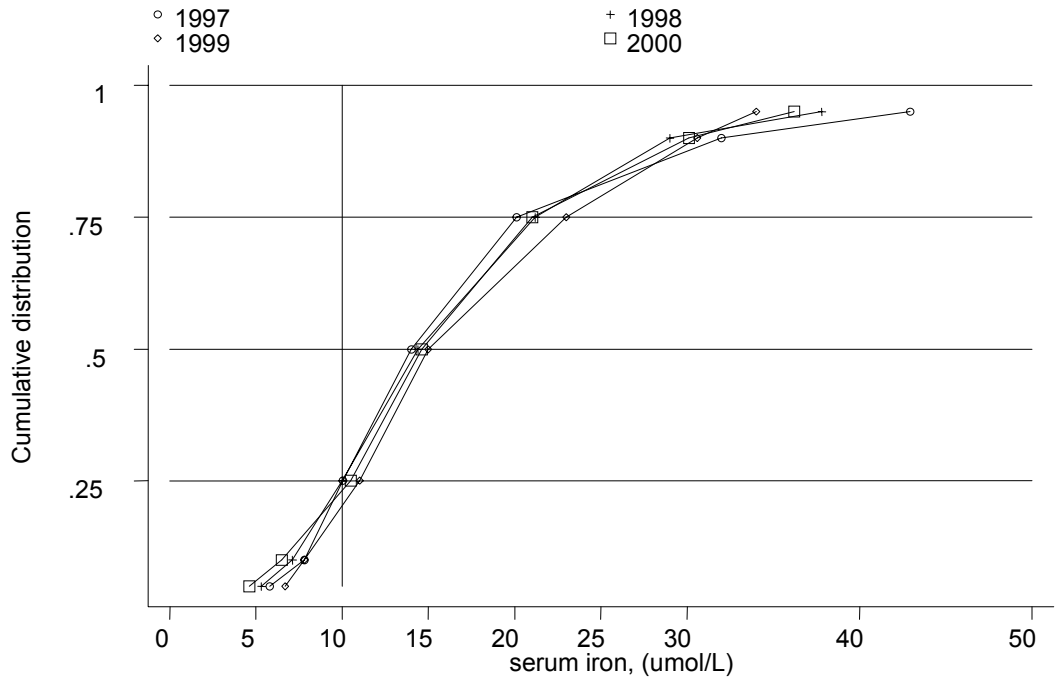


Table 3.2.41: Distribution of serum Transferrin Saturation without rHuEpo, HD patients, NGO Centres 1997 – 2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients > 20%
1997	116	464	30.5	21.4	42.7	79
1998	20	80	24.6	19.4	32	75
1999	20	80	27.7	21.3	39.4	80
2000	143	572	27.6	17.9	44.6	71

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

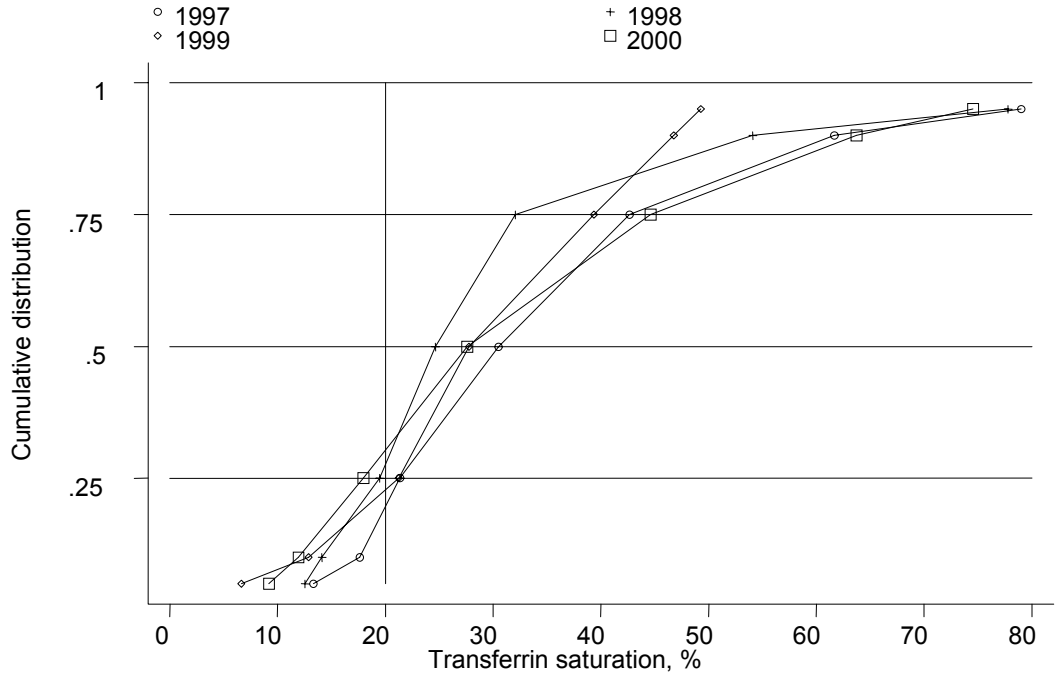


Table 3.2.42: Distribution of serum Transferrin Saturation on rHuEpo, HD patients, NGO Centres 1997 - 2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients > 20%
1997	133	532	32.2	25.7	42.5	87
1998	22	88	18.1	13.2	35	45
1999	27	108	31.1	18.6	42.1	74
2000	291	1164	30.5	21	45.1	77

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

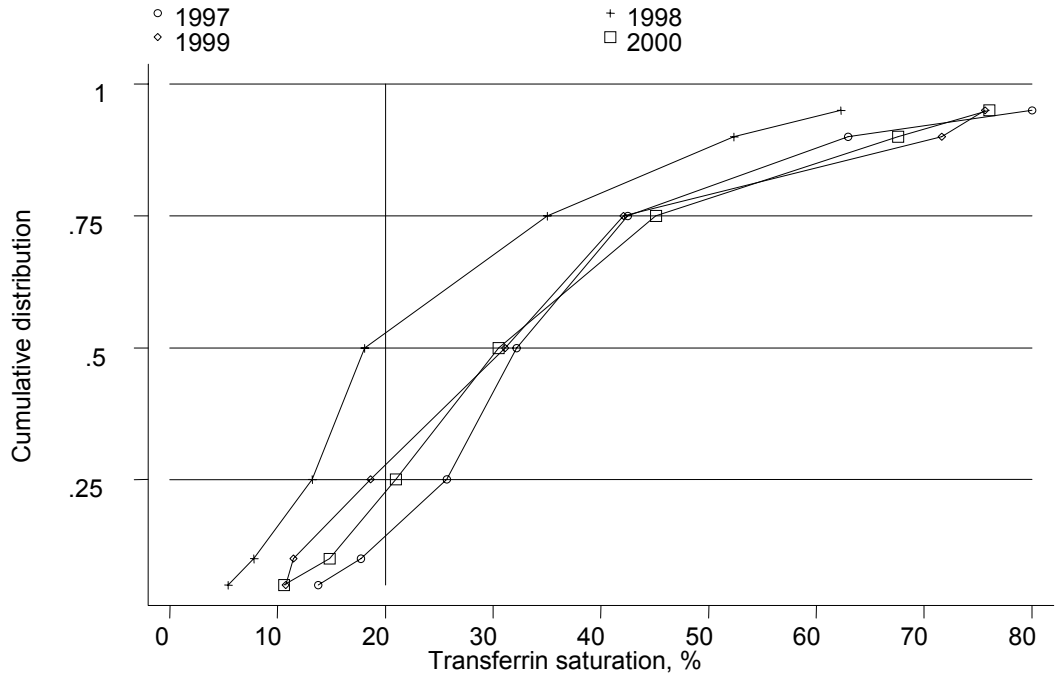


Table 3.2.43: Distribution of serum Ferritin without rHuEpo, HD patients, NGO Centres 1997 – 2000

year	No of subjects	No of observations	median	LQ	UQ	% patients > 100 ug/l
1997	127	198	438.5	157	907	86
1998	27	46	514.5	222.6	842	91
1999	22	35	520	200	782	86
2000	166	219	423	181	874	88

Figure 3.2.43:Cumulative distribution of serum Ferritin without rHuEpo by year

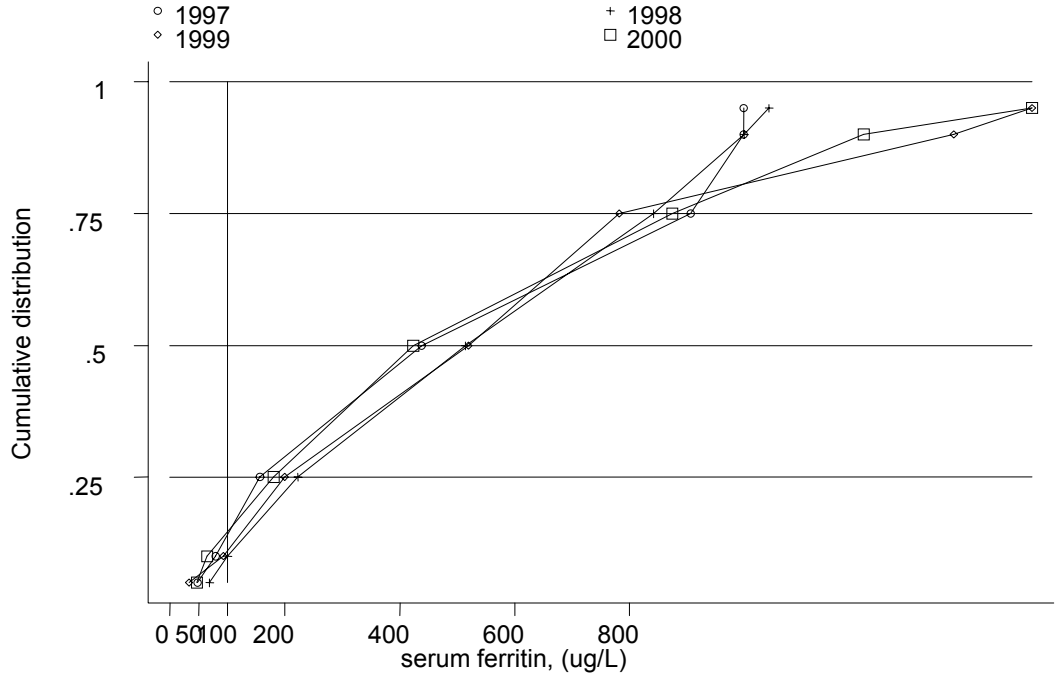


Table 3.2.44: Distribution of serum Ferritin on rHuEpo, HD patients, NGO Centres 1997 – 2000

year	No of subjects	No of observations	median	LQ	UQ	% patients > 100 ug/l
1997	147	216	630.5	270.5	999	90
1998	26	44	377.8	232	989	93
1999	33	53	406	217	1000	94
2000	364	516	499.5	238	975	91

Figure 3.2.44: Cumulative distribution of serum Ferritin on rHuEpo by year

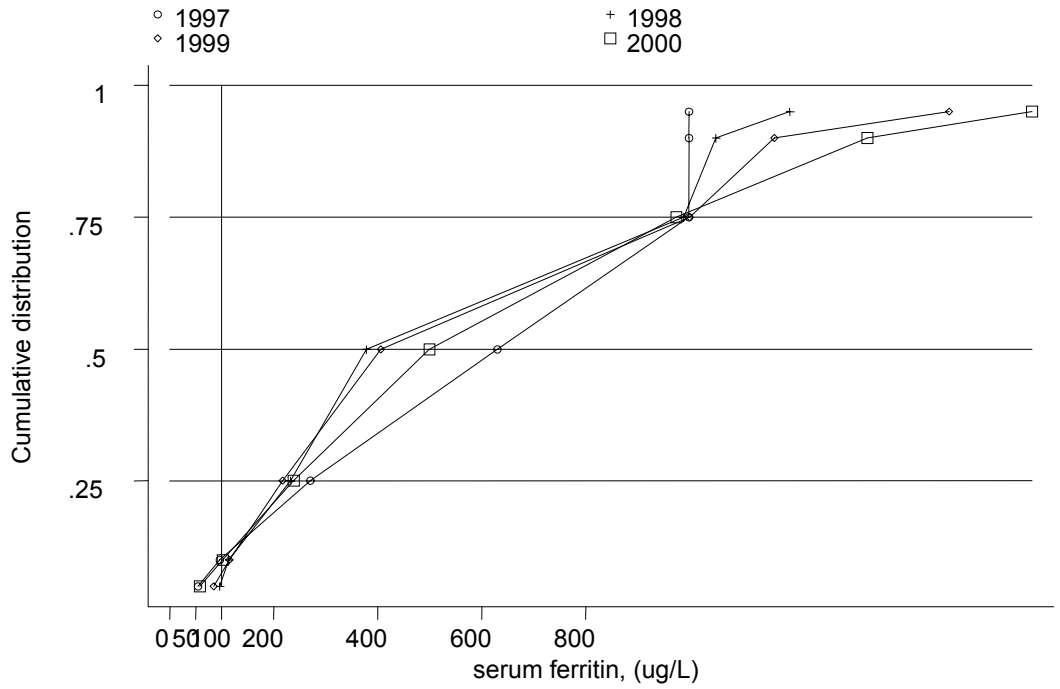


Table 3.2.45: Distribution of Haemoglobin without rHuEpo, HD patients, NGO Centres 1997 – 2000

year	No of subjects	No of observations	median	LQ	UQ	% patients <10 g/dl	% patients ≥10 & ≤12 g/dl	% patients >12 g/dl
1997	158	472	9.1	7.9	10.8	65	23	12
1998	198	552	8.8	7.5	10.1	71	19	10
1999	313	825	9.1	7.9	10.3	67	25	8
2000	582	1475	9.1	7.9	10.8	63	24	13

Figure 3.2.45: Cumulative Distribution of Haemoglobin without rHuEpo by year

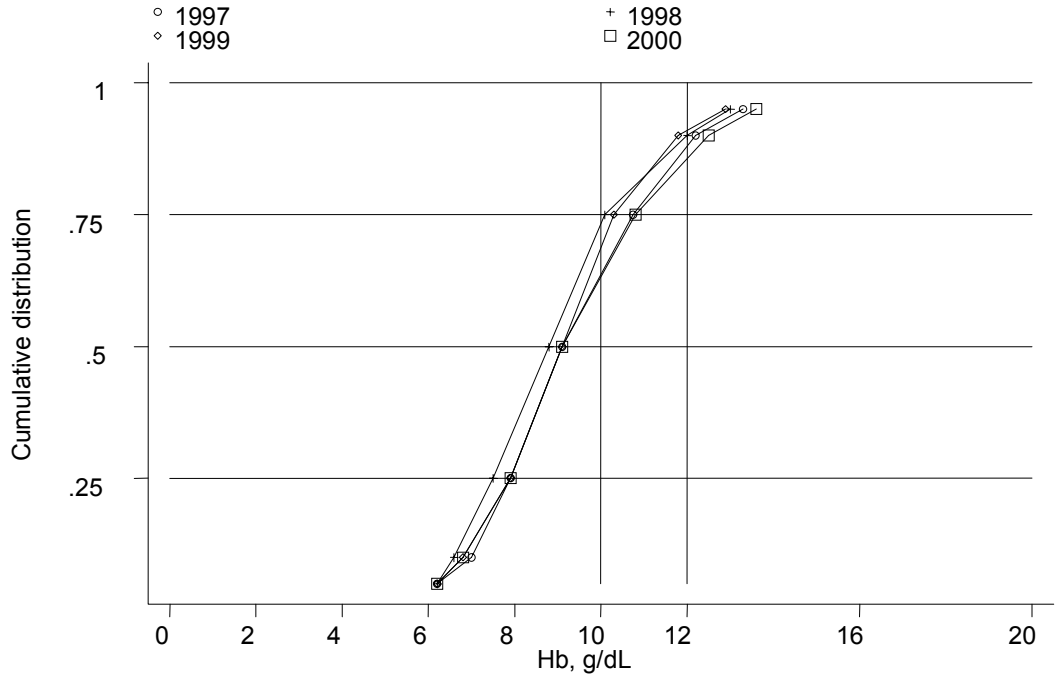
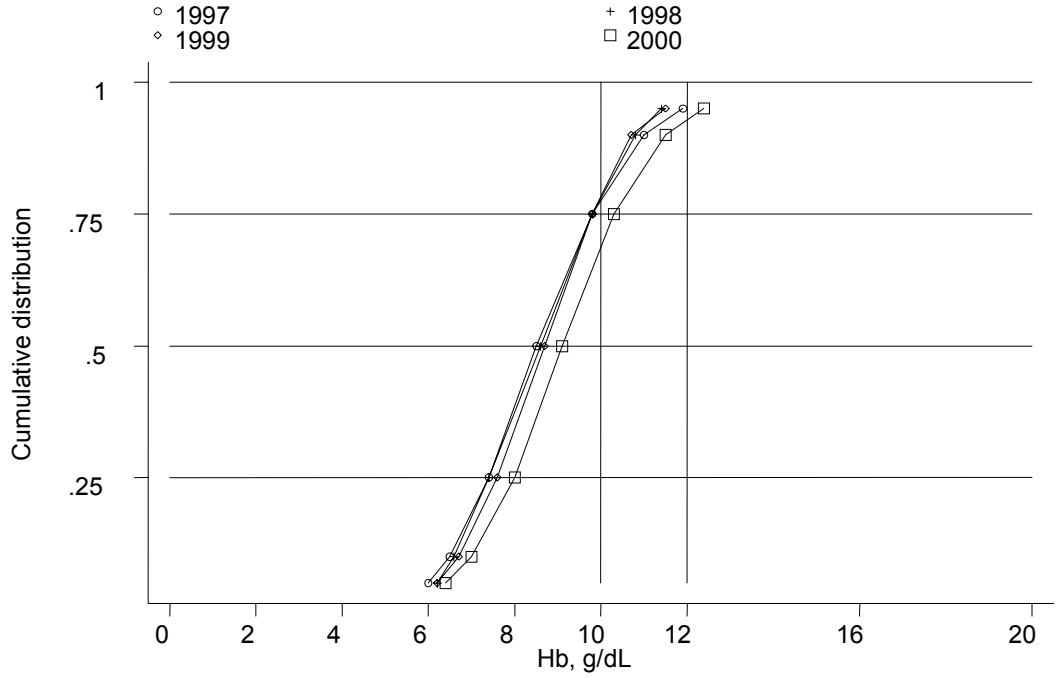


Table 3.2.46: Distribution of Haemoglobin on rHuEpo, HD patients, NGO Centres 1997 - 2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients <10 g/dl	% patients ≥10 & ≤12 g/dl	% patients >12 g/dl
1997	166	519	8.5	7.4	9.8	77	19	3
1998	202	575	8.6	7.4	9.8	79	18	3
1999	375	1091	8.7	7.6	9.8	77	21	3
2000	764	2173	9.1	8	10.3	68	26	6

Figure 3.2.46: Cumulative distribution of Haemoglobin on rHuEpo by year



3.2.13 NUTRITIONAL STATUS OF HD PATIENTS, NGO CENTRES

Table 3.2.47: Distribution of serum Albumin (g/L), HD patients, NGO Centres 1997 – 2000

year	No of subjects	No of observations	median	LQ	UQ	% patients >40g/l
1997	320	958	41	37	44	58
1998	392	1023	39	36	42	46
1999	638	1419	39	36	42	42
2000	1237	3337	39	36	41	39

Figure 3.2.47: Cumulative distribution of serum Albumin by year

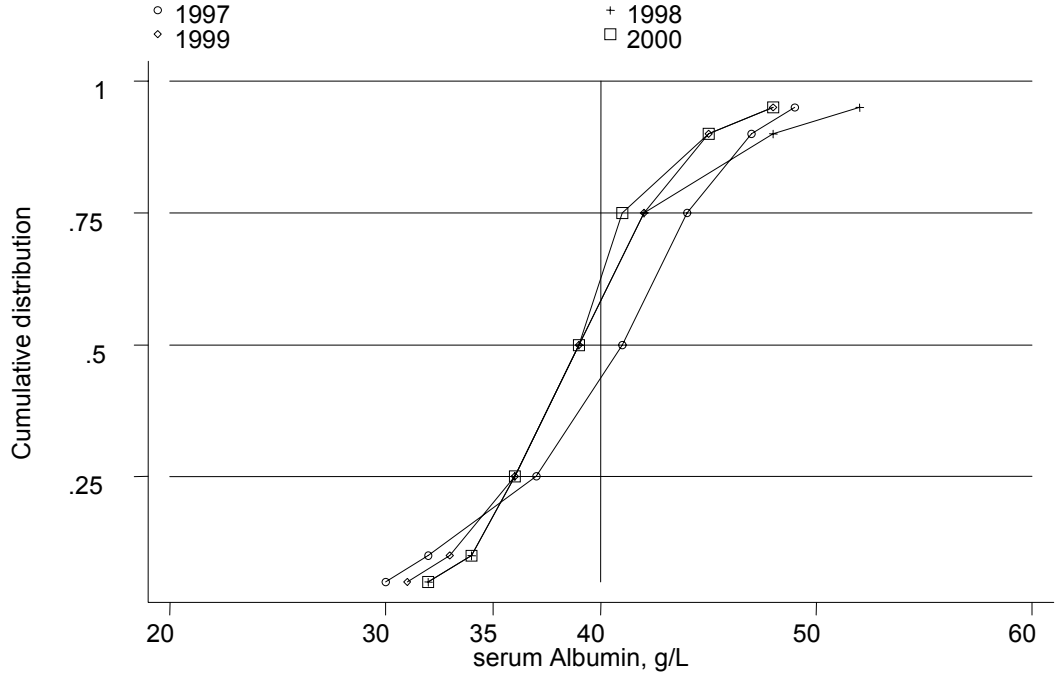
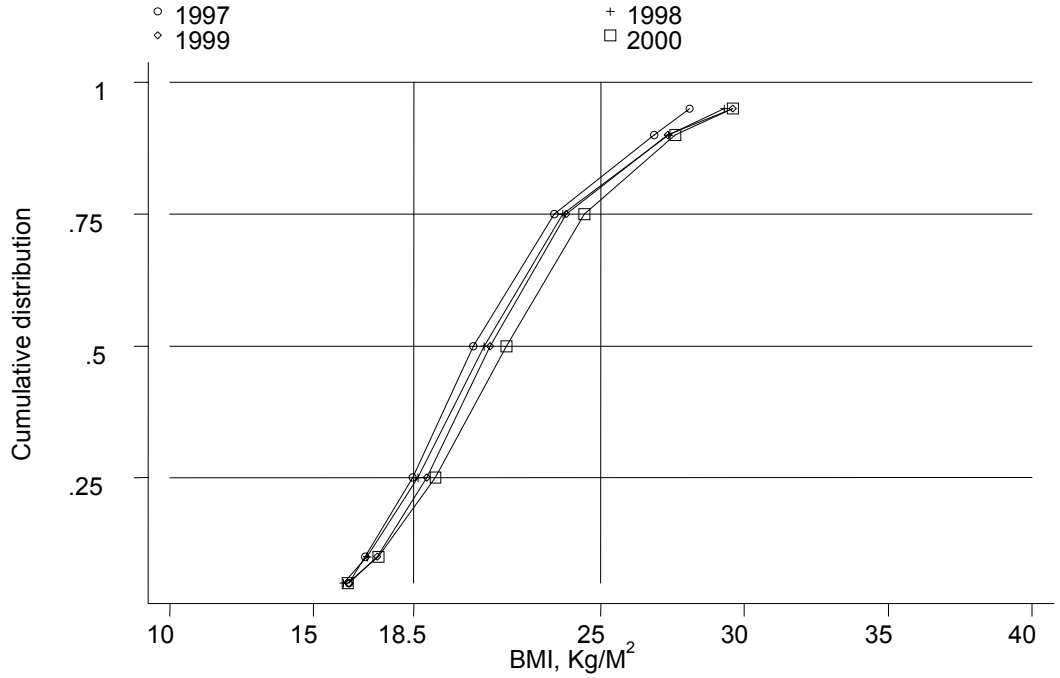


Table 3.2.48: Distribution of Body Mass Index, HD patients, NGO Centres 1997 - 2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients <18.5	% patients ≥18.5 & ≤25	% patients >25
1997	255	2175	20.6	18.5	23.4	25	57	18
1998	315	3145	20.9	18.6	23.7	24	59	17
1999	592	5781	21.1	18.9	23.8	20	63	18
2000	1201	11875	21.7	19.3	24.4	19	59	22

Figure 3.2.48: Cumulative distribution of BMI by year

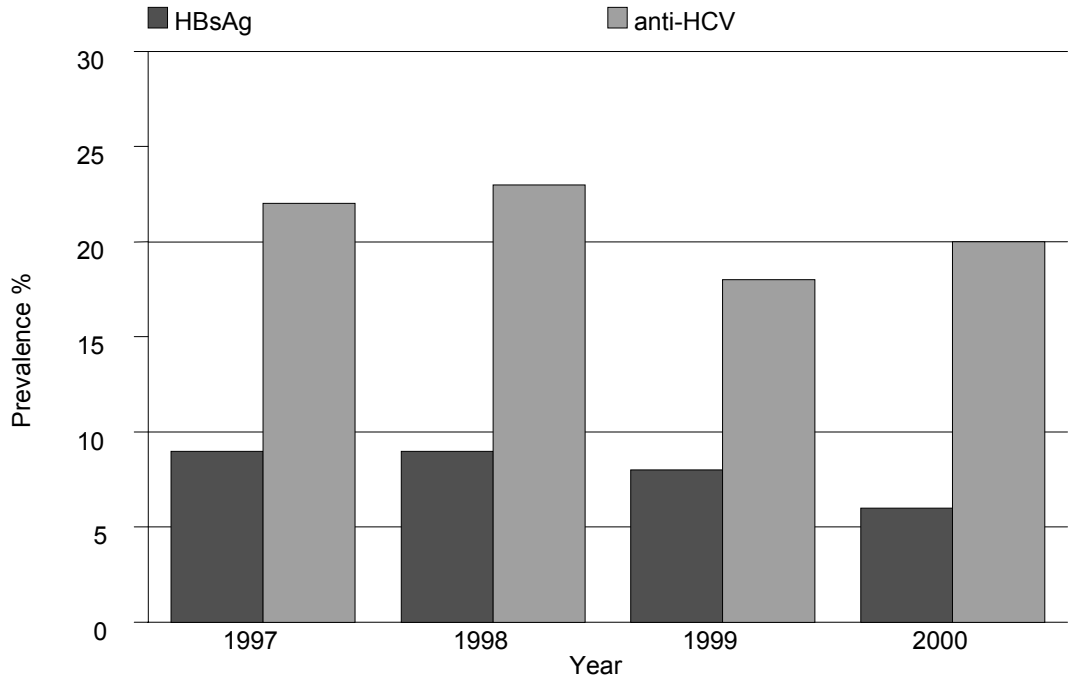


3.2.14 SEROLOGICAL STATUS, HD PATIENTS , NGO CENTRES

Table 3.2.49: Prevalence of positive anti-HCV and HbsAg, HD patients, NGO Centres 1997 – 2000

Year	No	% HBsAg positive	% anti-HCV positive
1997	330	9	22
1998	422	9	23
1999	719	8	18
2000	1543	6	20

Figure 3.2.49: Prevalence of positive anti-HCV and HbsAg, HD patients, NGO Centres 1997 – 2000



HAEMODIALYSIS
IN
PRIVATE CENTRES

Stock and Flow

Death on Haemodialysis and Transfer to PD
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

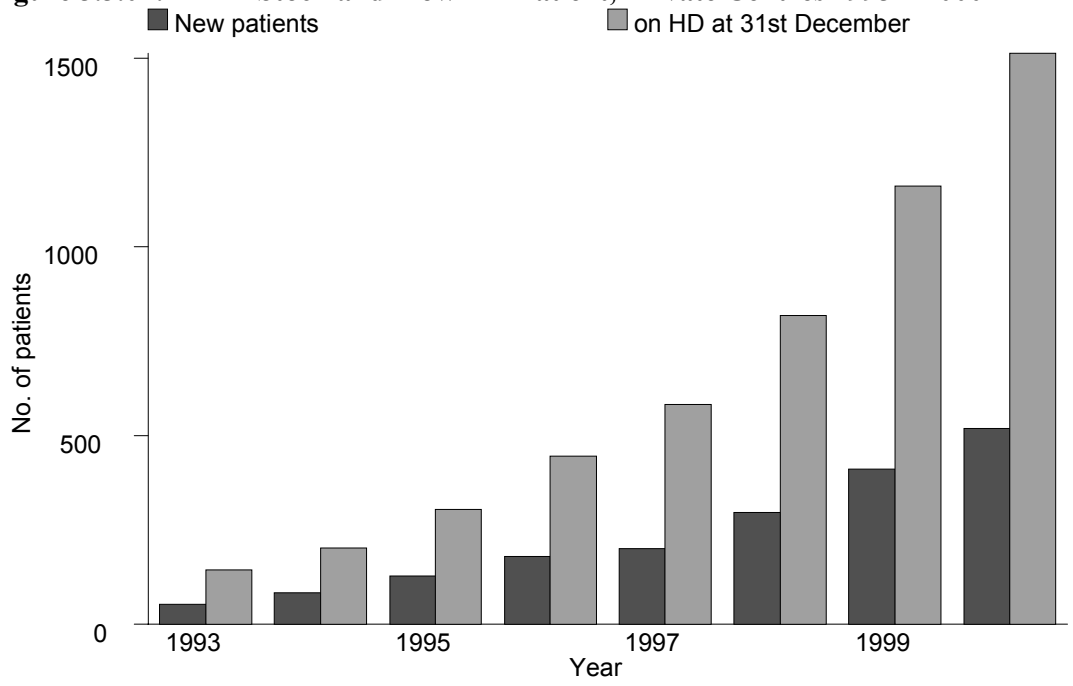
3.3: HAEMODIALYSIS IN PRIVATE CENTRES

3.3.1 STOCK AND FLOW

Table 3.3.01: Stock and Flow HD Patient, Private Centres 1993 - 2000

Year	1993	1994	1995	1996	1997	1998	1999	2000
New patients	52	83	128	179	200	296	410	518
Died	4	16	20	24	48	50	51	115
Transferred to PD	0	0	1	2	2	1	0	8
Transplanted	5	6	2	8	6	5	14	36
Lost to Follow up	0	2	3	4	7	5	1	7
Dialysing at 31st December	143	202	304	445	582	817	1161	1513

Figure 3.3.01: Stock and Flow HD Patient, Private Centres 1993 – 2000



3.3.3 DEATH ON HAEMODIALYSIS, PRIVATE CENTRES

Table 3.3.04: HD Death Rate and Transfer to PD, Private Centres 1993 – 2000

	1993	1994	1995	1996	1997	1998	1999	2000
No. at risk	143	173	253	375	514	700	989	1337
Deaths	4	16	20	24	48	50	51	115
Death rate %	3	9	8	6	9	7	5	9
Transfer to PD	0	0	1	2	2	1	0	8
Transfer to PD rate %	0	0	0	1	0	0	0	1
All Losses	4	16	21	26	50	51	51	123
All Losses rate %	3	9	8	7	10	7	5	9

Figure 3.3.04: Death Rate on HD, Private Centres 1993 - 2000

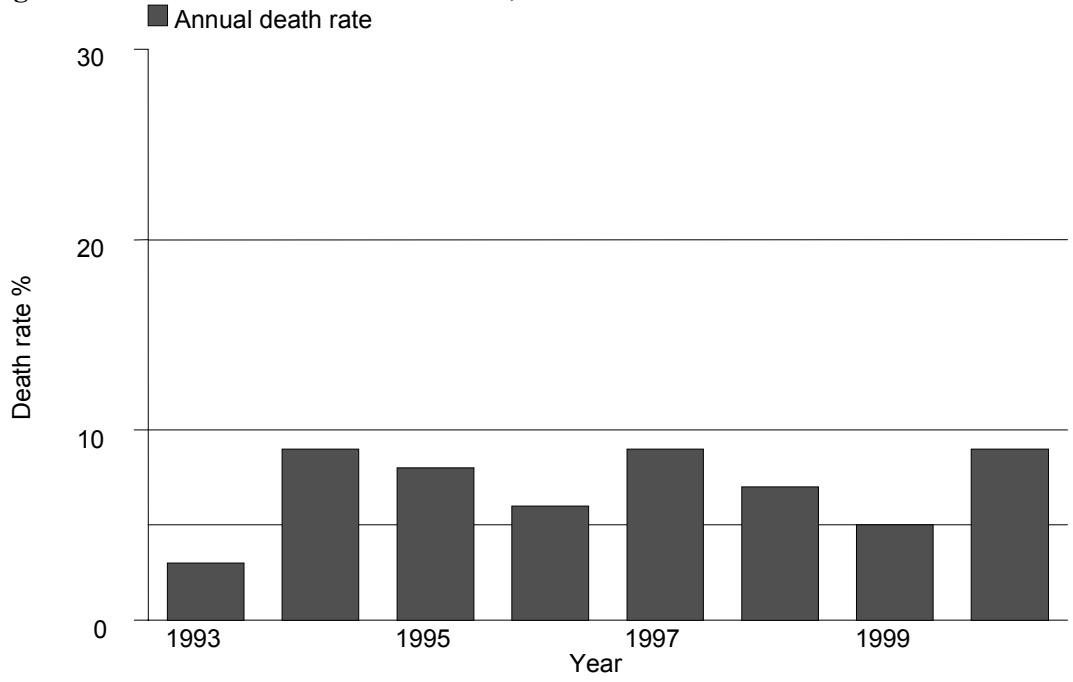


Table 3.3.05: Causes of Death HD Patient, Private Centres 1997 – 2000

	1997		1998		1999		2000	
Causes of death	No.	%	No.	%	No.	%	No.	%
Cardiovascular	5	10	11	22	12	24	41	36
Died at home	10	21	10	20	14	27	32	28
Sepsis	3	6	4	8	8	16	11	10
GIT bleed	0	0	1	2	1	2	2	2
Cancer	2	4	3	6	1	2	2	2
Liver disease	1	2	0	0	2	4	2	2
Others	13	27	19	38	11	22	21	18
Unknown	14	29	2	4	2	4	4	3
Total	48	100	50	100	51	100	115	100

3.3.5 HAEMODIALYSIS PATIENTS' CHARACTERISTICS, PRIVATE CENTRES

Table 3.3.08: Age Distribution of Dialysis Patients, Private Centres 1997 – 2000

Year	1997	1998	1999	2000
New Dialysis patients	200	296	410	518
1-14 years	0	0	0	0
15-24 years	1	3	2	1
25-34 years	8	7	7	5
35-44 years	11	15	15	14
45-54 years	20	21	21	24
55-64 years	29	29	27	30
≥65 years	32	26	28	27
Dialysing at 31st December	582	817	1161	1513
1-14 years	0	0	0	0
15-24 years	2	3	3	2
25-34 years	14	12	11	9
35-44 years	19	18	17	16
45-54 years	17	19	20	21
55-64 years	27	28	27	29
≥65 years	20	21	23	23

Table 3.3.09: Patients' Characteristics , Private Centres 1997 – 2000

Year	1997	1998	1999	2000
New Dialysis patients (No)	200	296	410	518
Mean age±sd (years)	57±14	54±14	55±14	56±13
% male	50	49	55	56
% Diabetic	42	45	45	52
% HbsAg+	2	3	4	4
% Anti-HCV+	12	12	8	4

3.3.6 SURVIVAL ANALYSIS, PRIVATE HD CENTRES

Table 3.3.10: HD Patient Survival, Private Centres 1995 - 2000

Year	1995			1996			1997		
Interval	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	84	3	102	90	2	154	93	2	182
12	81	4	98	87	3	143	90	2	176
24	74	4	85	80	3	130	86	2	166
36	65	4	75	75	3	118	79	3	148
48	61	5	70	67	4	103			
60	58	5	65						

Year	1998			1999			2000		
Interval	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	94	1	274	96	1	384	97	1	246
12	92	2	266	90	1	353			
24	85	2	233						

No. = number at risk SE = standard error

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

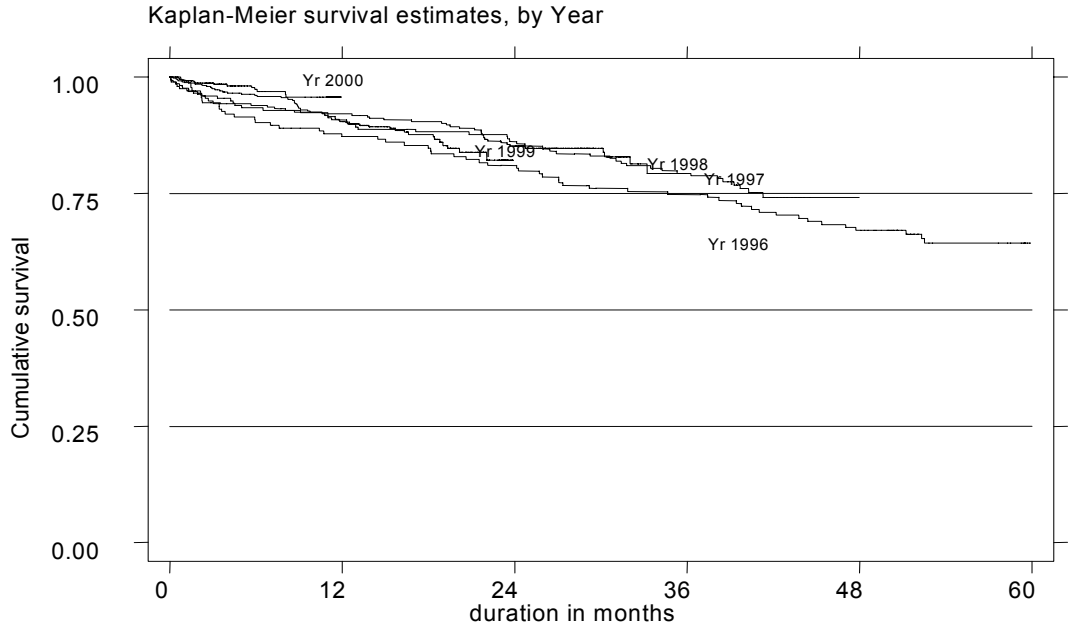


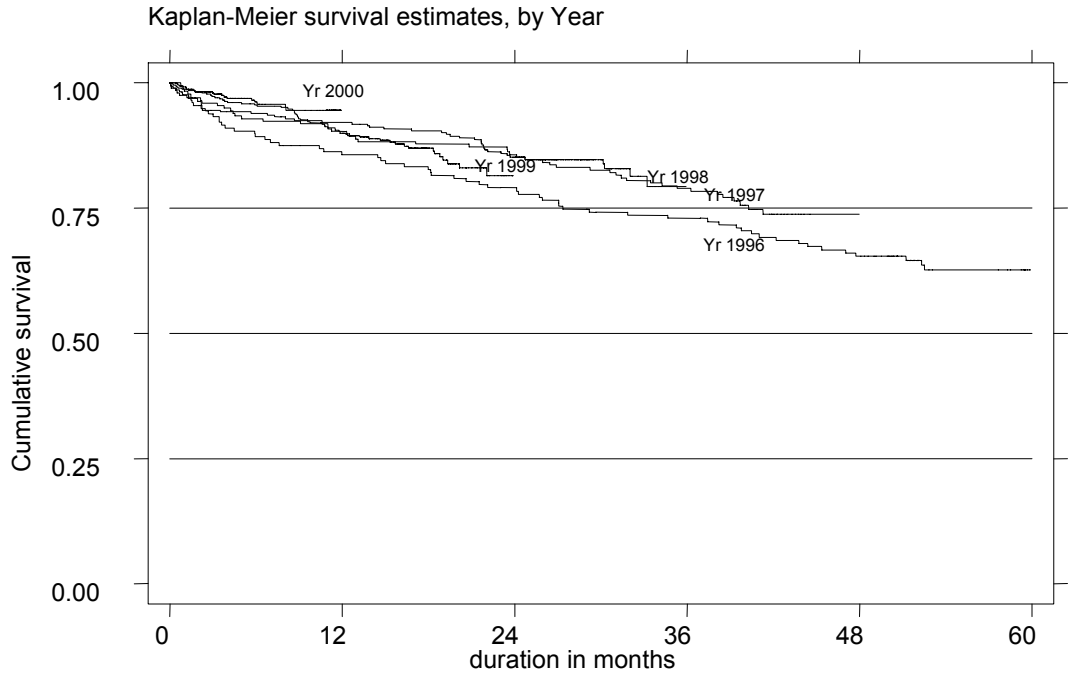
Table 3.3.11: HD Technique Survival, Private Centres

Year	1995	1996	1997

Interval	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	83	3	102	89	2	154	93	2	182
12	81	4	98	86	3	143	90	2	176
24	73	4	85	78	3	130	85	3	166
36	65	4	75	73	3	118	79	3	148
48	60	5	70	65	4	103			
60	57	5	65						
Year	1998			1999			2000		
Interval	% survival	SE	No						
6	94	1	274	95	1	384	96	1	246
12	92	2	266	90	1	353			
24	85	2	233						

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 1999-2000

REHABILITATION STATUS	1999		2000	
	No.	%	No.	%
Full time work for pay	111	30	155	23
Part time work for pay	24	6	34	5
Able to work but unable to get a job	4	1	6	1
Able to work but not yet due to dialysis schedule	5	1	10	1
Able but disinclined to work	2	1	7	1
Home maker	88	24	177	26
Full time student	1	0	2	0
Age<15 years	0	0	0	0
Retired	44	12	82	12
Age>65 years	62	17	124	19
Unable to work due to poor health	33	9	71	11
Total	374	100	668	100

Table 3.3.13: Quality of Life on Haemodialysis, Private Centres 1999-2000

QOL Index Summated Score	1999		2000	
	No.	%	No.	%
0 (Worst QOL)	1	0	1	0
1	0	0	0	0
2	2	1	1	0
3	0	0	10	1
4	3	1	21	3
5	22	6	50	7
6	26	7	56	8
7	40	11	55	8
8	32	9	68	10
9	48	13	66	10
10 (Best QOL)	195	53	365	53
Total	369	100	693	100

3.3.8 HAEMODIALYSIS PRACTICES IN PRIVATE CENTRES

Table 3.3.14: Vascular Access on Haemodialysis, Private Centres 1999-2000

Access Type	1999		2000	
	No	%	No.	%
Wrist AVF	319	81	612	80
BCF*	45	11	117	15
Venous graft	4	1	3	0
Artificial graft	6	2	10	1
PERMCATH	3	1	4	1
Temporary CVC*	18	5	18	2
Total	395	100	764	100

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

Table 3.3.15: Difficulties reported with Vascular Access, Private Centres 1999-2000

Access difficulty	1999		2000	
	No	%	No.	%
Difficulty with needle placement	12	3	28	4
Difficulty in obtaining desired blood flow rate	8	2	25	3
Other difficulty	6	2	3	0
No difficulty	369	93	709	93
Total	395	100	765	100

Table 3.3.16: Complications reported with Vascular Access, Private Centres 1999-2000

Complication	1999		2000	
	No	%	No.	%
thrombosis	13	3	20	3
bleed	2	1	3	0
aneurysmal dilatation	12	3	41	5
swollen limb	5	1	3	0
access related infection, local/systemic	1	0	3	0
distal limb ischaemia	1	0	7	1
venous outflow obstruction	1	0	6	1
carpal tunnel	1	0	2	0
other	6	2	6	1
no complication	353	89	674	88
Total	395	100	765	100

Table 3.3.17: Blood Flow Rates in Private HD Units, 1999-2000

Blood flow rates	1999		2000	
	No	%	No.	%
<150 ml/min	1	0	2	0
150-199 ml/min	10	3	16	2
200-249 ml/min	194	53	387	53
250-299 ml/min	132	36	250	34
300-349 ml/min	22	6	76	10
≥350 ml/min	9	2	5	1
Total	368	100	736	100

Table 3.3.18: Number of HD Sessions per week, Private HD Units 1999-2000

HD sessions	1999		2000	
Per week	No	%	No.	%
1	2	1	4	1
2	119	30	240	32
3	270	69	512	67
4	1	0	2	0
Total	392	100	760	100

Table 3.3.19 Duration of HD in Private HD Units, 1999-2000

Duration of HD	1999		2000	
per session	No	%	No.	%
≤3 hours	1	0	0	0
3.5 hours	8	2	9	1
4 hours	291	74	603	79
4.5 hours	54	14	79	10
5 hours	37	9	59	8
≥5 hours	0	0	10	1
Total	391	100	760	100

Table 3.3.20: Dialyser membrane types in Private HD Units, 1999-2000

Dialyser	1999		2000	
membrane	No	%	No.	%
Cellulosic	141	81	323	78
Cellulose acetate	11	6	13	3
Synthetic	23	13	80	19
Total	175	100	416	100

Table 3.3.21: Dialyser Reuse Frequency in Private HD Units, 1999-2000

Dialyser reuse frequency	1999		2000	
	No	%	No.	%
1*	43	12	57	8
2	6	2	2	0
3	28	8	26	4
4	131	38	305	44
5	42	12	76	11
6	92	26	163	24
7	2	1	4	1
8	2	1	44	6
9	0	0	0	0
10	0	0	14	2
11	1	0	1	0
12	1	0	1	0
≥13	0	0	0	0
Total	348	100	693	100

* 1 is single use i.e. no reuse

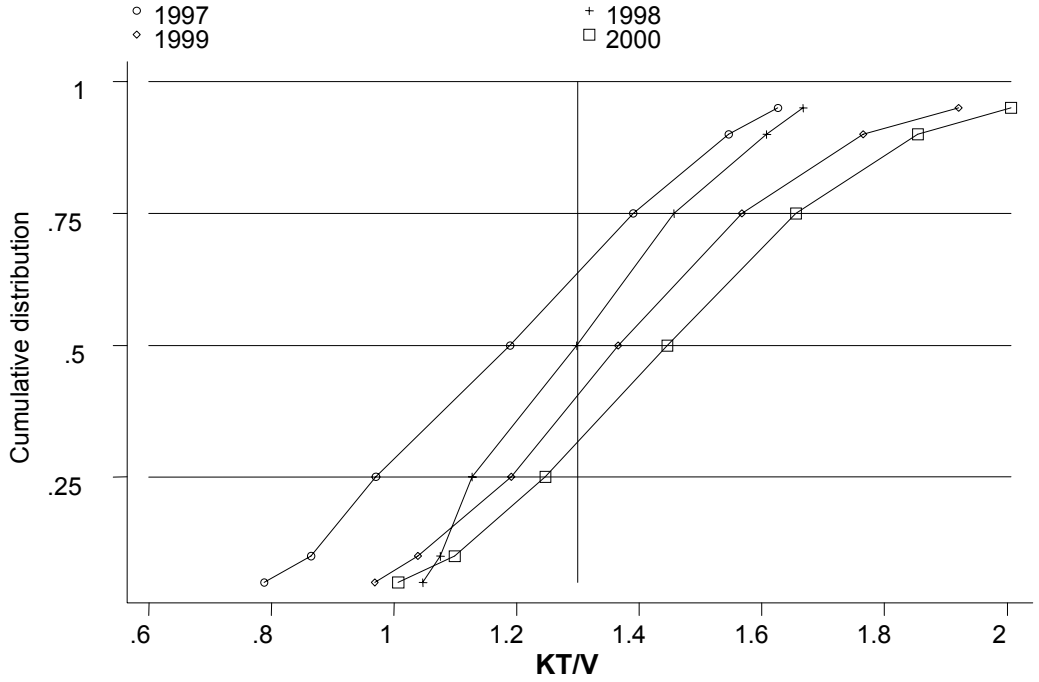
Table 3.3.22: Dialysate Buffer used in Private HD Units, 1999-2000

Dialysate buffer	1999		2000	
	No	%	No.	%
Acetate	64	16	85	11
Bicarbonate	331	84	674	89
Total	395	100	759	100

Table 3.3.23: Distribution of Prescribed KT/V, Private Centres 1999-2000

Year	No of subjects	No of observations	median	LQ	UQ	% > 1.45
1999	235	1698	1.4	1.2	1.6	61
2000	469	4443	1.4	1.2	1.7	67

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 1999-2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients < 5.3 mmol/l
1999	189	285	5	4.3	5.7	67
2000	323	514	4.9	4.1	5.8	66

Figure 3.3.24: Cumulative distribution of serum cholesterol concentration by year

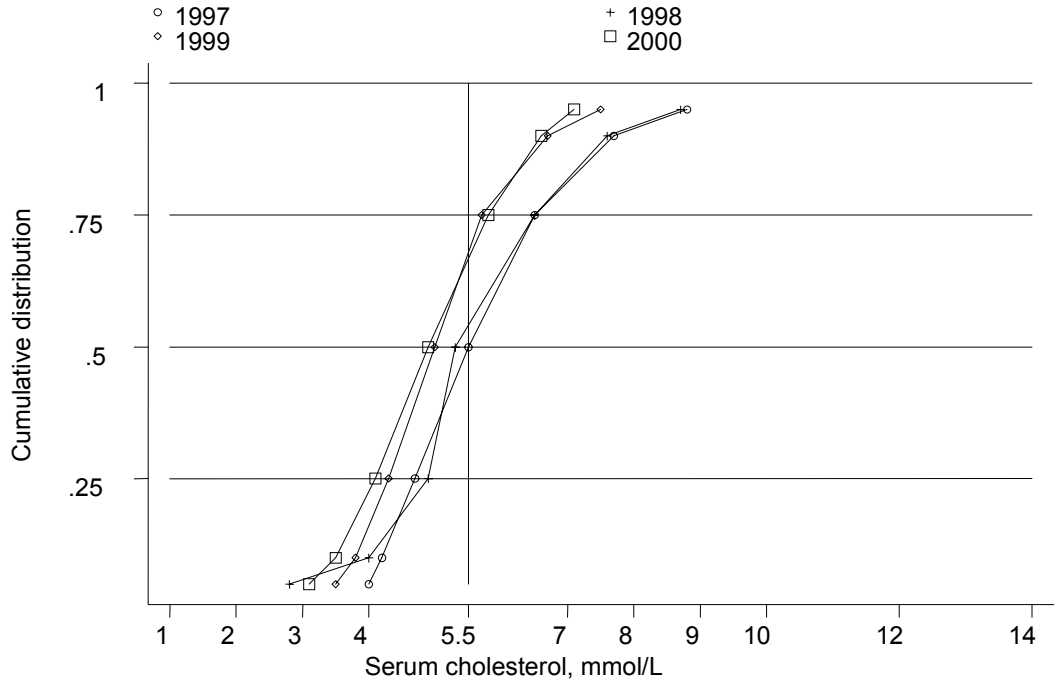


Table 3.3.25: Distribution of serum Triglyceride (mmol/l), HD patients, Private Centres 1999-2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients < 3.5 mmol/l
1999	81	104	1.8	1.2	2.7	87
2000	240	366	1.7	1.1	2.5	86

Figure 3.3.25: Cumulative distribution of serum triglyceride concentration by year

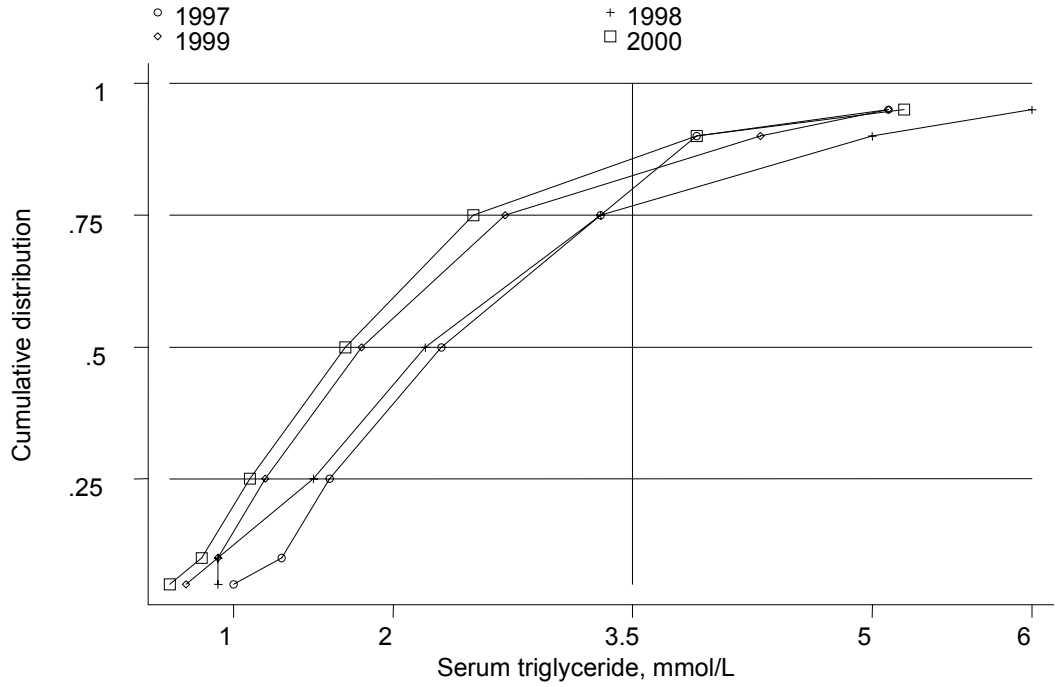


Table 3.3.26: Distribution of serum LDL (mmol/l), HD patient, Private Centres 1999-2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients <5 mmol/l
1999	72	92	3	2.5	4	93
2000	218	329	2.9	2.2	3.5	98

Figure 3.3.26 : Cumulative distribution of serum LDL by year

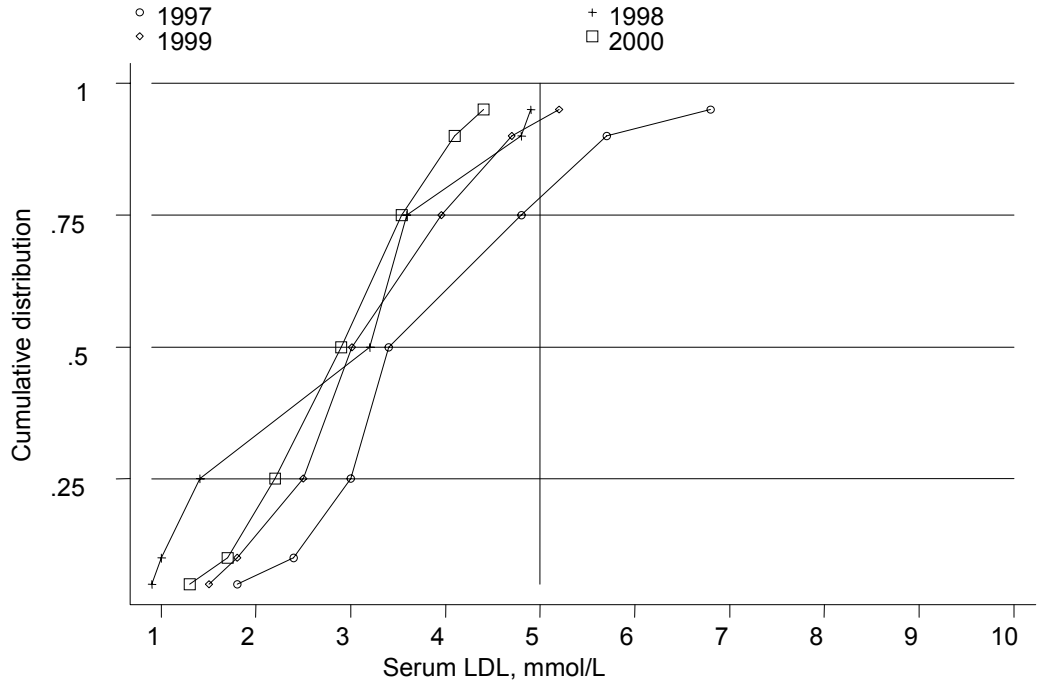
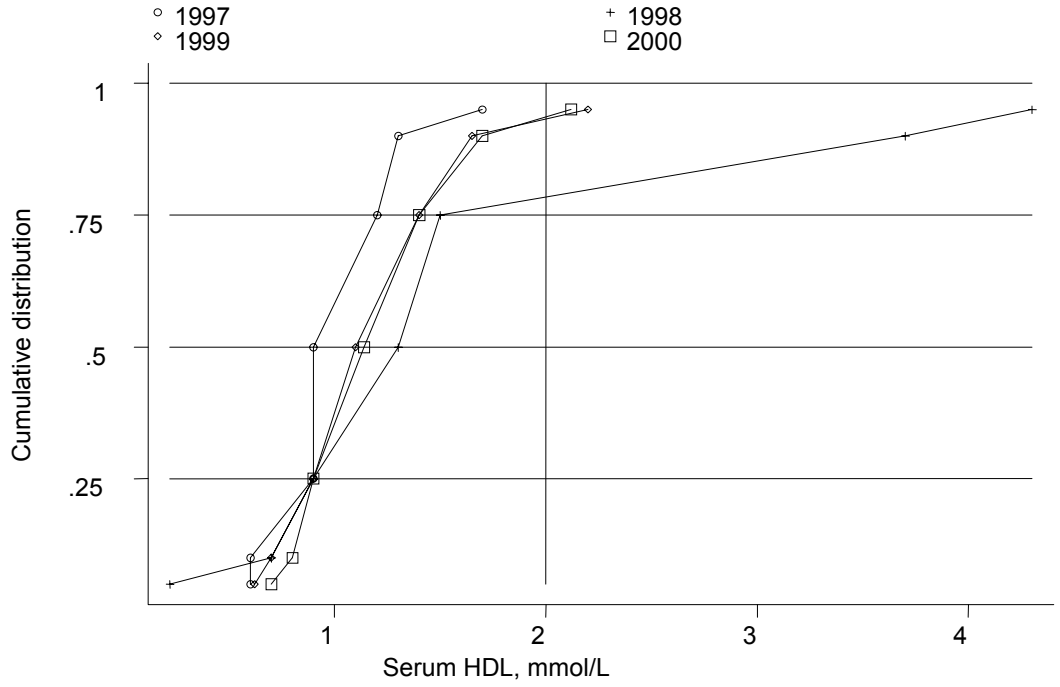


Table 3.3.27: Distribution of serum HDL (mmol/l), HD patient, Private Centres 1999-2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients < 2mmol/l
1999	74	95	1.1	.9	1.4	95
2000	218	337	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 1999-2000

year	No of subjects	% on CaCO3	% on Al(OH)3	% on Vit D
1999	396	81	6	28
2000	768	84	3	33

Table 3.3.29: Distribution of serum Phosphate (mmol/l), HD patients, Private Centres 1999-2000

year	No of subjects	No of observations	median	LQ	UQ	% patients < 1.6 mmol/l
1999	353	951	2	1.6	2.3	26
2000	658	1643	1.9	1.5	2.3	31

Figure 3.3.29 Cumulative distribution of serum Phosphate by year

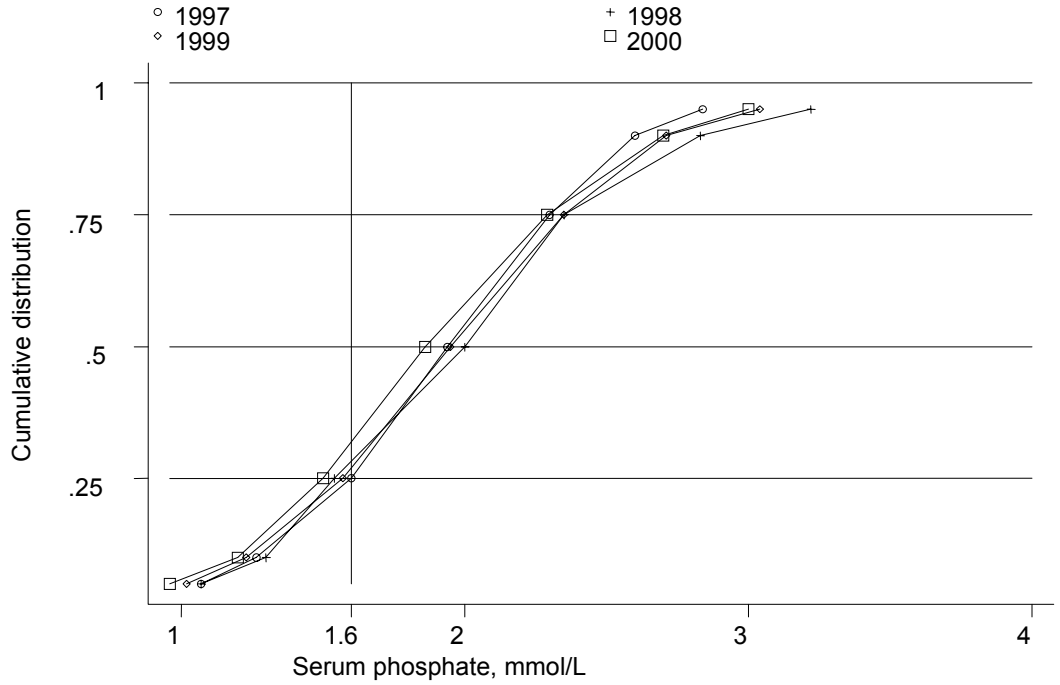


Table 3.3.30: Distribution of serum Calcium (mmol/l), HD patients, Private Centres 1999-2000

year	No of subjects	No of observations	median	LQ	UQ	% patients ≥ 2.2 & ≤2.6 mmol/l
1999	354	978	2.3	2.1	2.5	51
2000	668	1678	2.3	2.2	2.5	56

Figure 3.3.30: Cumulative distribution of serum Calcium by year

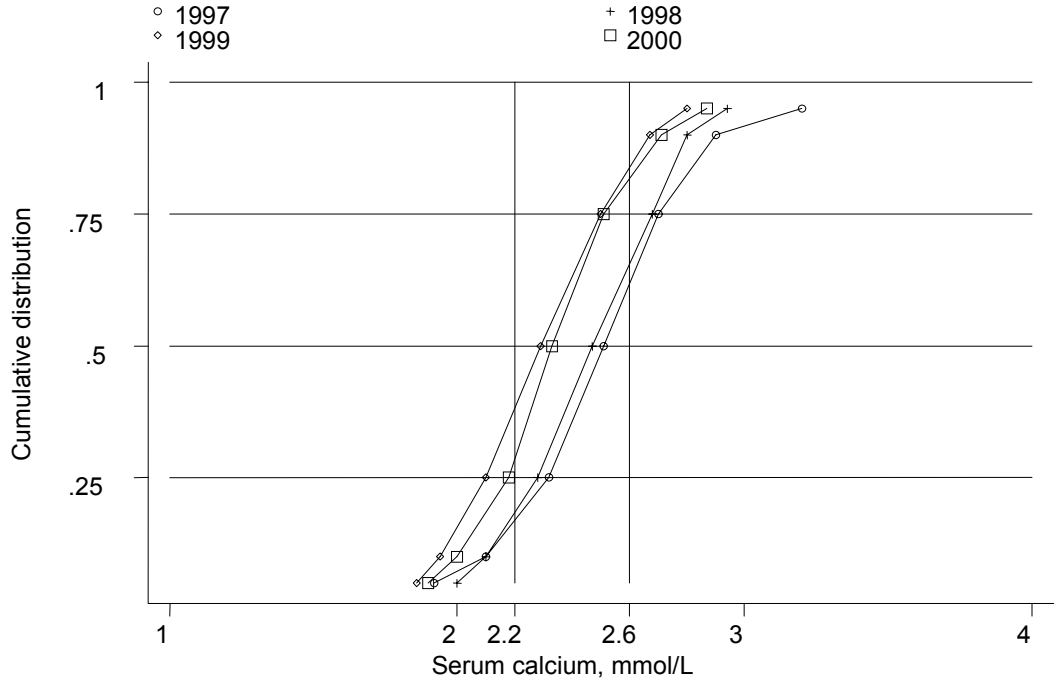
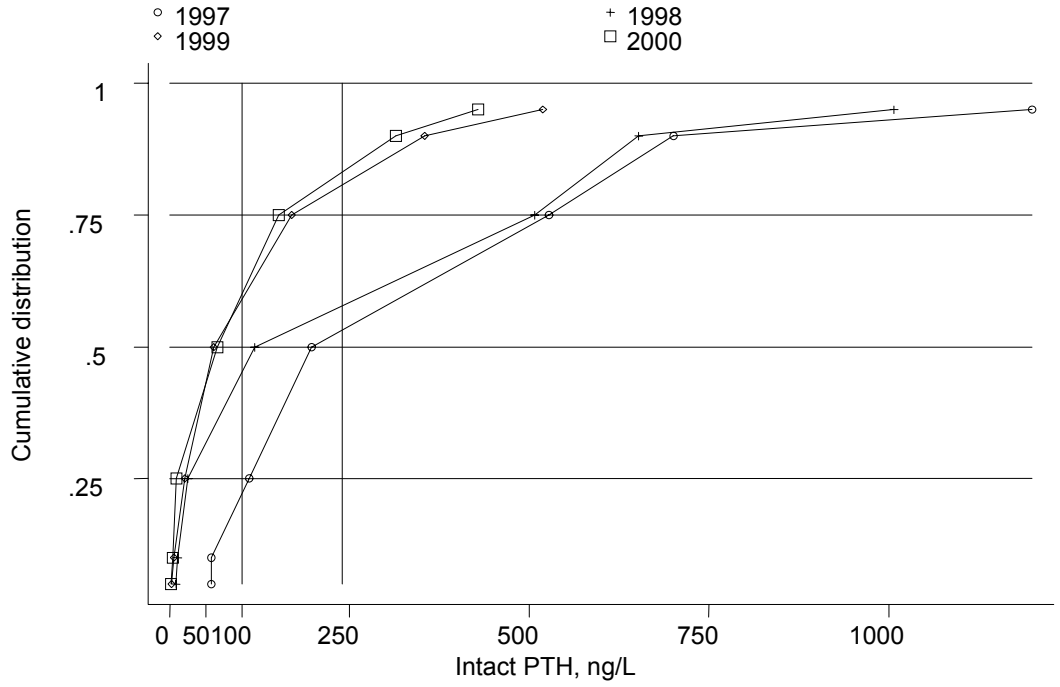


Table 3.3.31: Distribution of serum iPTH (ng/L), HD patients, Private Centres 1999-2000

year	No of subjects	No of observations	median	LQ	UQ	% patients ≥ 100 & ≤ 250 ng/l
1999	57	75	61	21	169.9	24
2000	82	101	66	9.6	151	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 1999-2000

Year	No.	% on anti-hypertensives	% on 1 anti-hypertensives	% on 2 anti-hypertensives	% on 3 anti-hypertensives
1999	396	63	39	19	5
2000	768	68	43	21	4

Table 3.3.33: Distribution of Systolic BP without anti-hypertensives, HD patients Privaate Centres 1999-2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients < 160 mmHg
1999	137	843	140	130	160	69
2000	237	2217	140	125	160	73

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

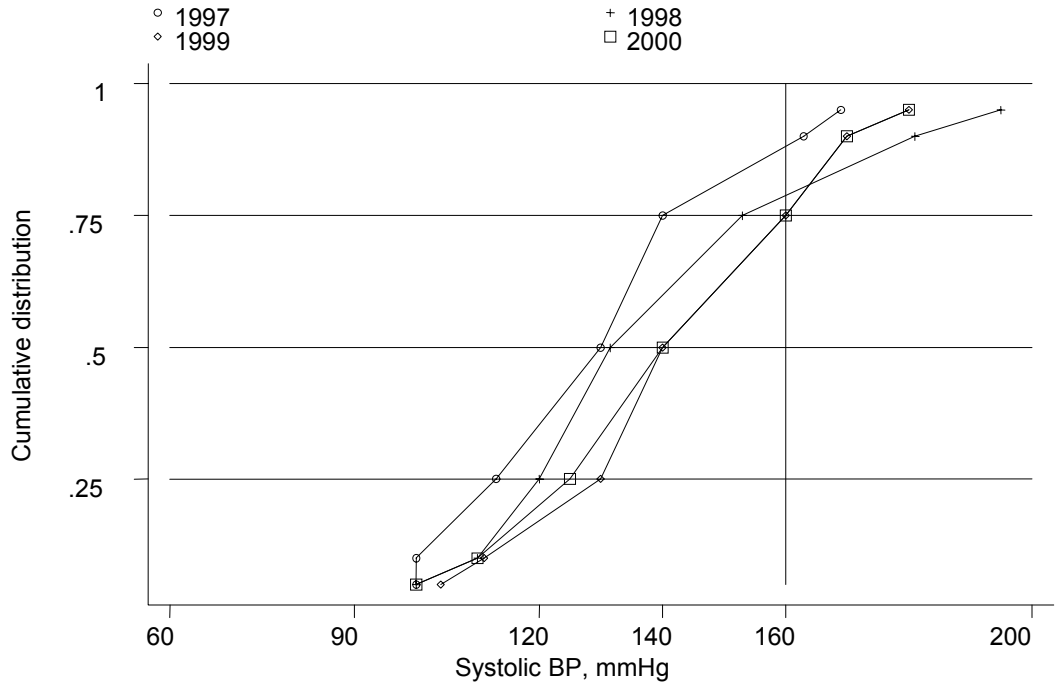


Table 3.3.34: Distribution of Diastolic BP without anti-hypertensives, HD patients, Private Centres 1999-2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients < 90 mmHg
1999	137	845	80	71	90	68
2000	237	2218	80	70	88	76

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

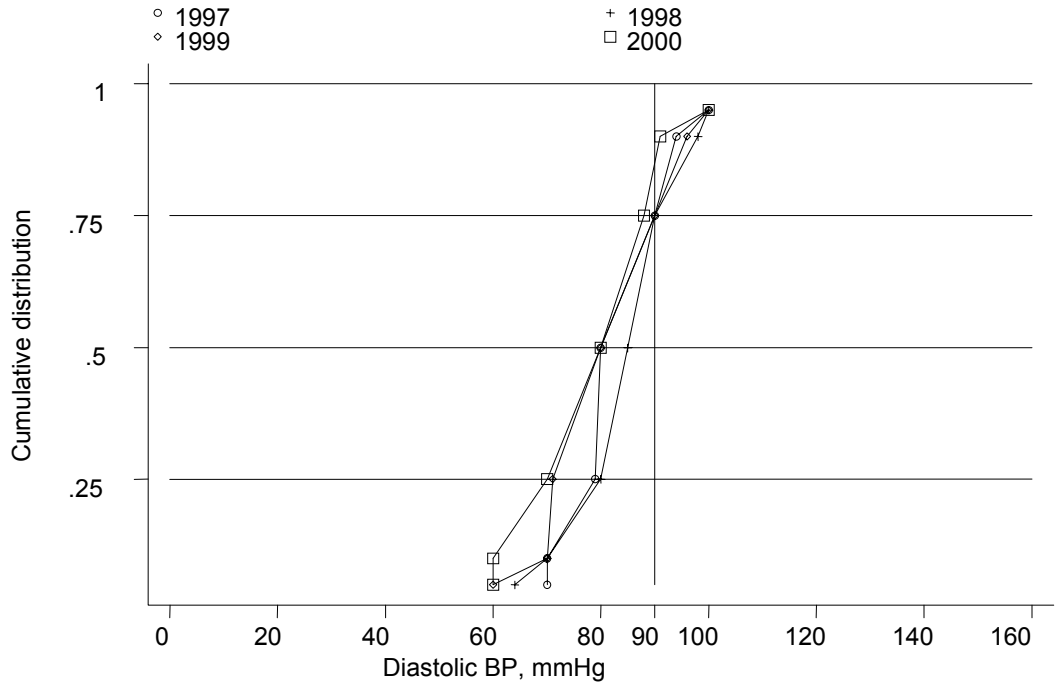


Table 3.3.35: Distribution of systolic BP on anti-hypertensives, HD patients, Private Centres 1999-2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients < 160 mmHg
1999	247	1853	155	140	170	52
2000	504	4523	156	140	170	52

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

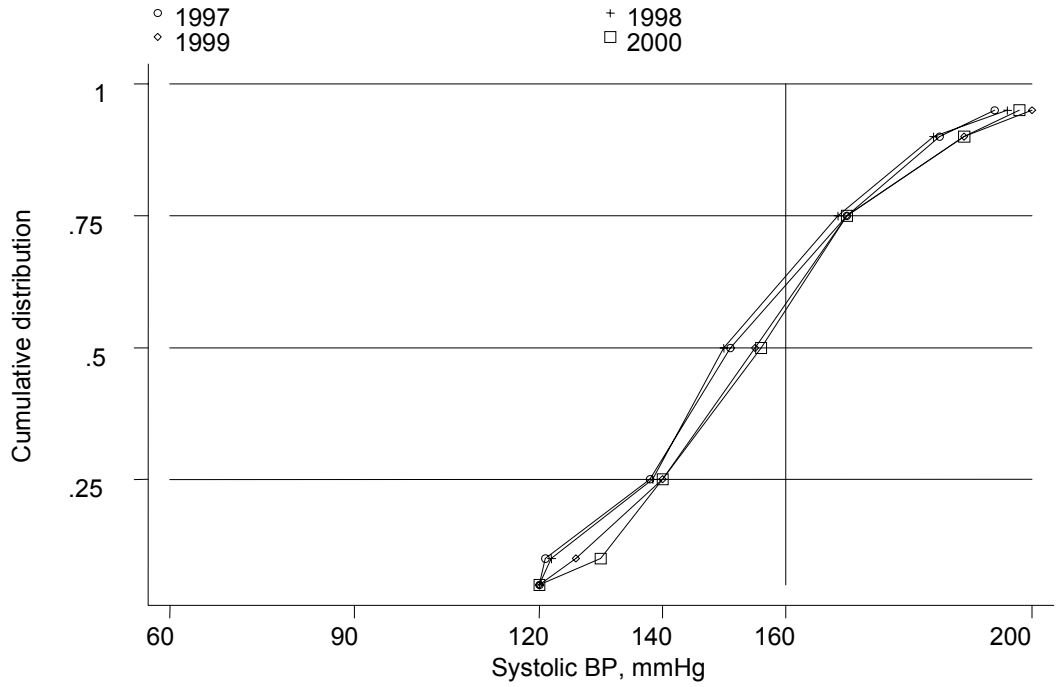
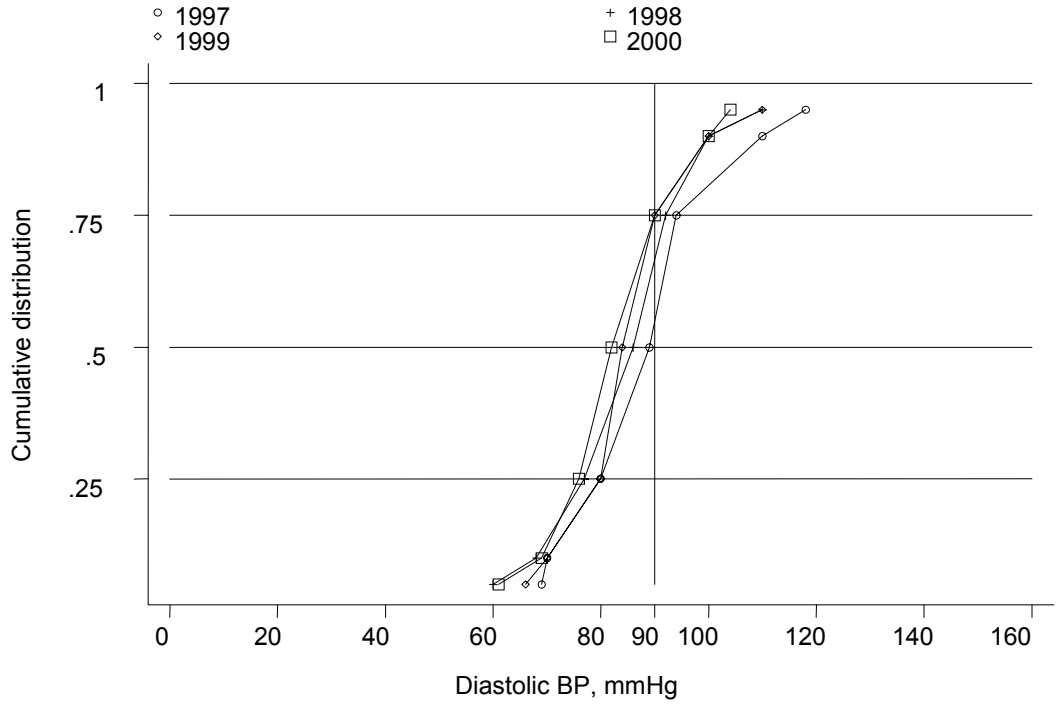


Table 3.3.36: Distribution of diastolic BP on anti-hypertensives, HD patients, Private Centres 1999-2000

year	No of subjects	No of observations	median	LQ	UQ	% patients < 90 mmHg
1999	247	1853	84	80	90	55
2000	504	4525	82	76	90	59

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 1999-2000

year	No	% on rHuEpo	% received blood transfusion	% received oral iron	% received parenteral iron
1999	396	61	23	81	13
2000	768	63	21	75	3

Table 3.3.38: Distribution of rHuEpo dose per week, HD patients, Private Centres 1999-2000

Year	1999	2000
No. of patients	233	470
% on 2000 u/week	28	30
% on 2-4000 u/week	64	59
% on 4-6000 u/week	4	7
% on 6-8000 u/week	2	1
% on 8-12000 u/week	2	2
% on >12000 u/week	0	0

Table 3.3.39: Distribution of serum Iron without rHuEpo, HD patients, PrivateCentres 1999-2000

year	No of subjects	No of observations	median	LQ	UQ	% patients > 10 umol/l
1999	14	21	11	9.1	14.4	62
2000	20	28	15.1	11.5	19	82

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

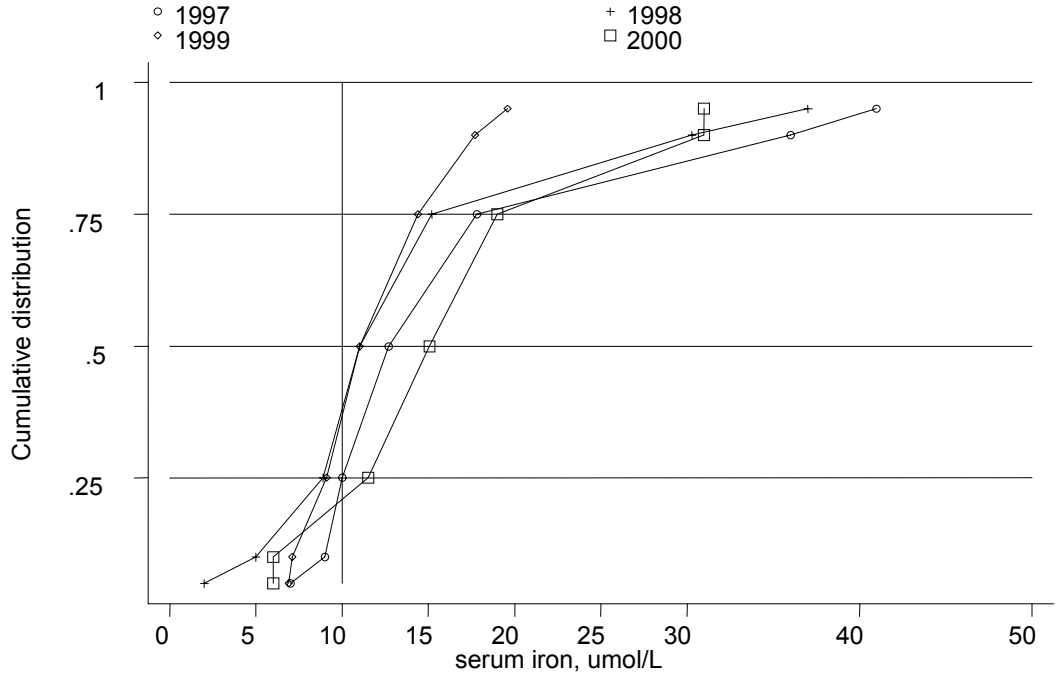


Table 3.3.40: Distribution of serum Iron on rHuEpo,HD patients, Private Centres 1999-2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients > 10 umol/l
1999	74	99	12.4	9.1	18.3	67
2000	63	87	12.7	9.1	19.5	67

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

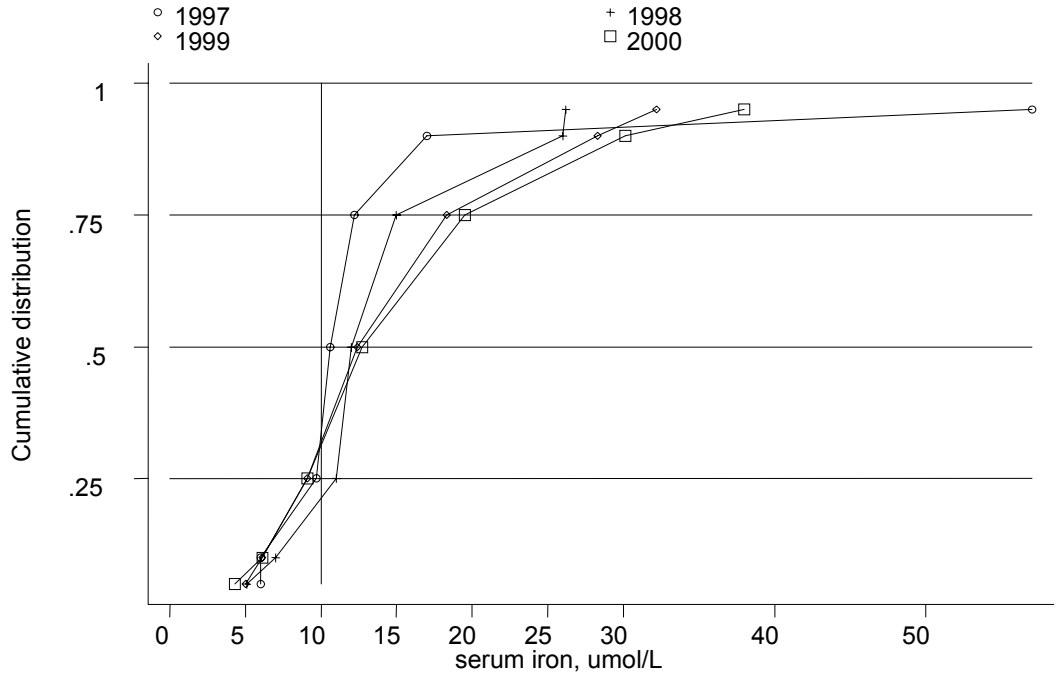


Table 3.3.41: Distribution of serum Transferrin Saturation without rHuEpo, HD patients, Private Centres 1999-2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients > 20%
1999	7	28	25.1	19.1	29.7	71
2000	18	72	27.4	18.1	35.6	72

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

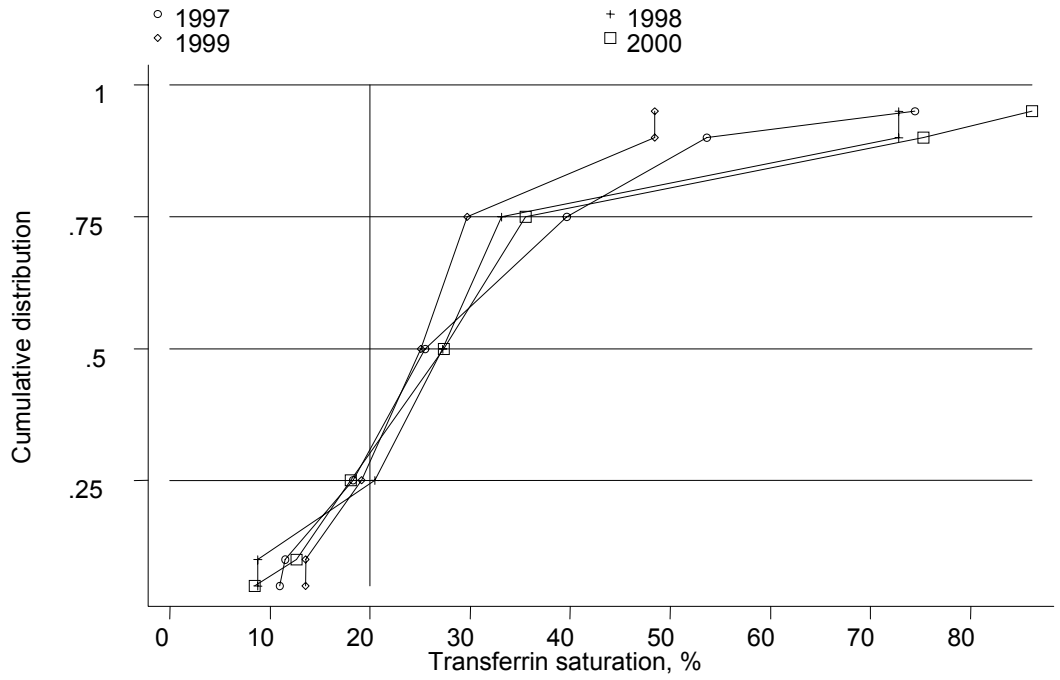


Table 3.3.42: Distribution of serum Transferrin Saturation on rHuEpo, HD patients, Private Centres 1999-2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients > 20%
1999	47	188	31.4	21.6	48.6	85
2000	51	204	34.3	22.9	50	82

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

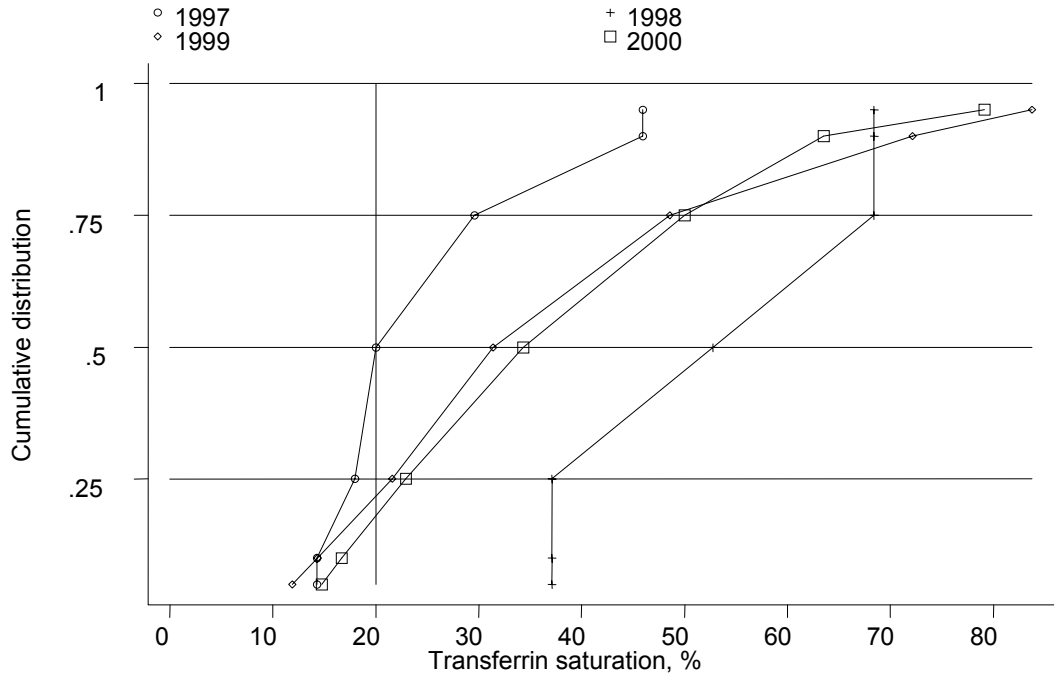


Table 3.3.43: Distribution of serum Ferritin without rHuEpo, HD patients, Private Centres 1999-2000

year	No of subjects	No of observations	median	LQ	UQ	% patients > 100 ug/l
1999	21	27	332	96.6	776	74
2000	26	36	329.4	127.4	489.7	86

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

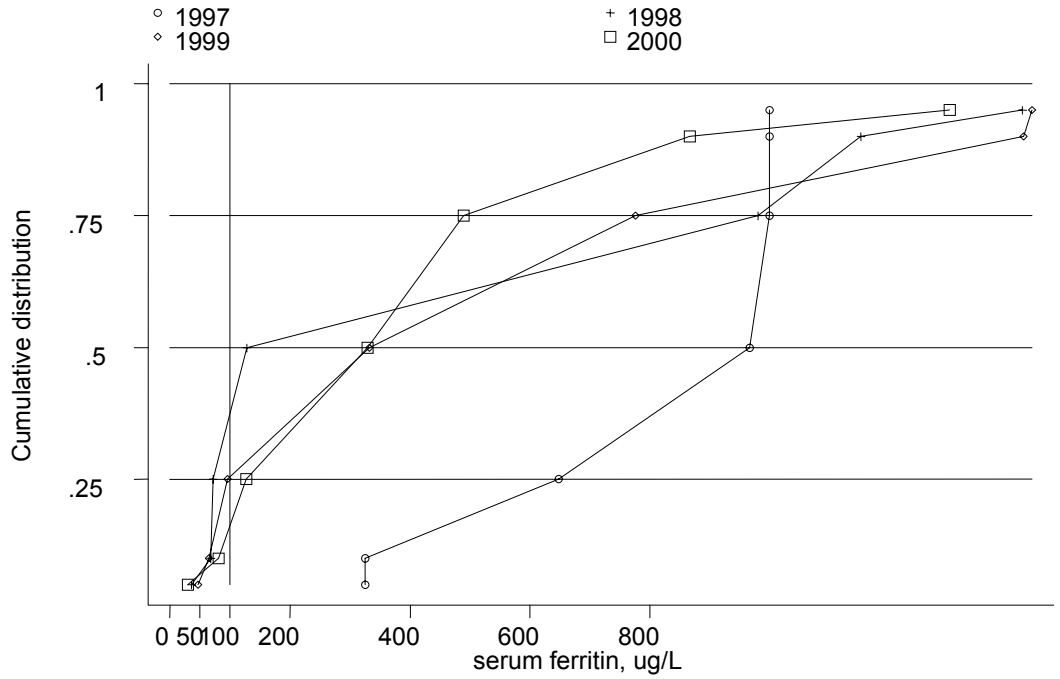


Table 3.3.44: Distribution of serum Ferritin on rHuEpo, HD patients, Private Centres 1999-2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients > 100 ug/l
1999	107	151	472.9	298	868	95
2000	102	137	525	229	1000	90

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

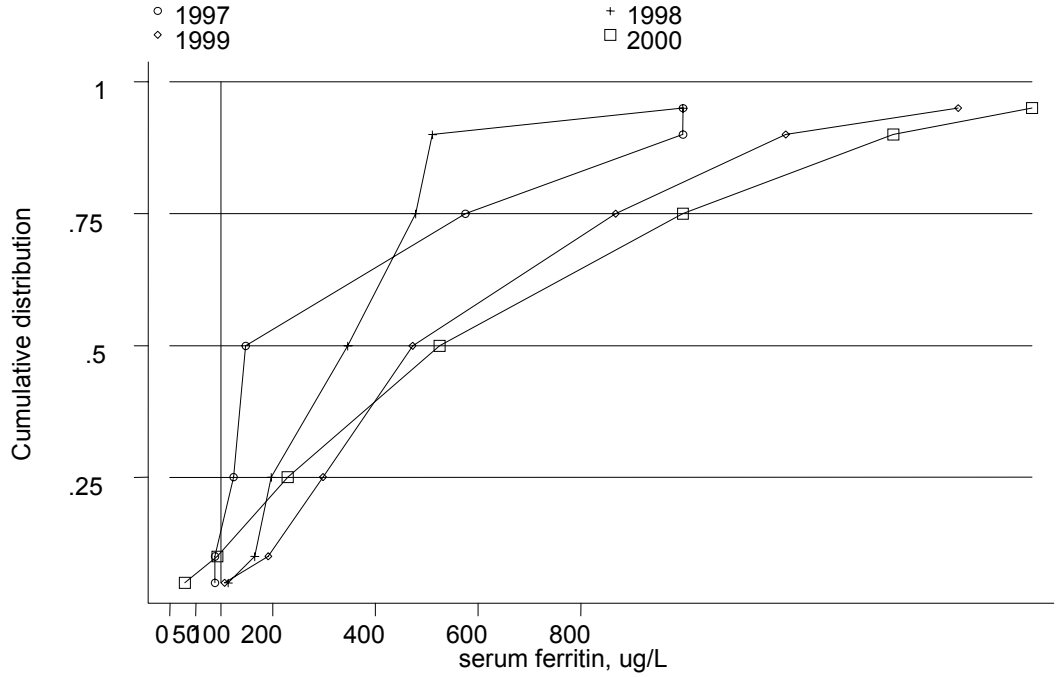


Table 3.3.45: Distribution of Haemoglobin concentration without rHuEpo, HD patients, Private Centres 1999-2000

year	No of subjects	No of observations	median	LQ	UQ	% patients <10 g/dl	% patients ≥10 & ≤12 g/dl	% patients >12 g/dl
1999	135	366	8.7	7.6	10.2	71	19	10
2000	249	635	8.7	7.6	10.1	73	20	7

Figure 3.3.45: Cumulative distribution of Hb without rHuEpo by year

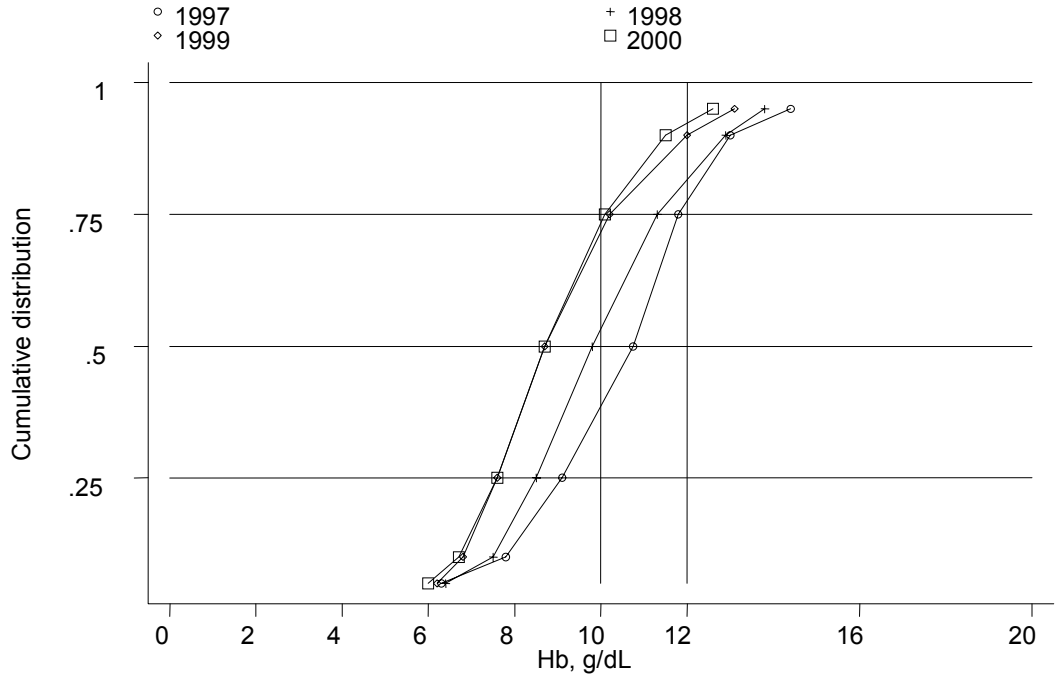
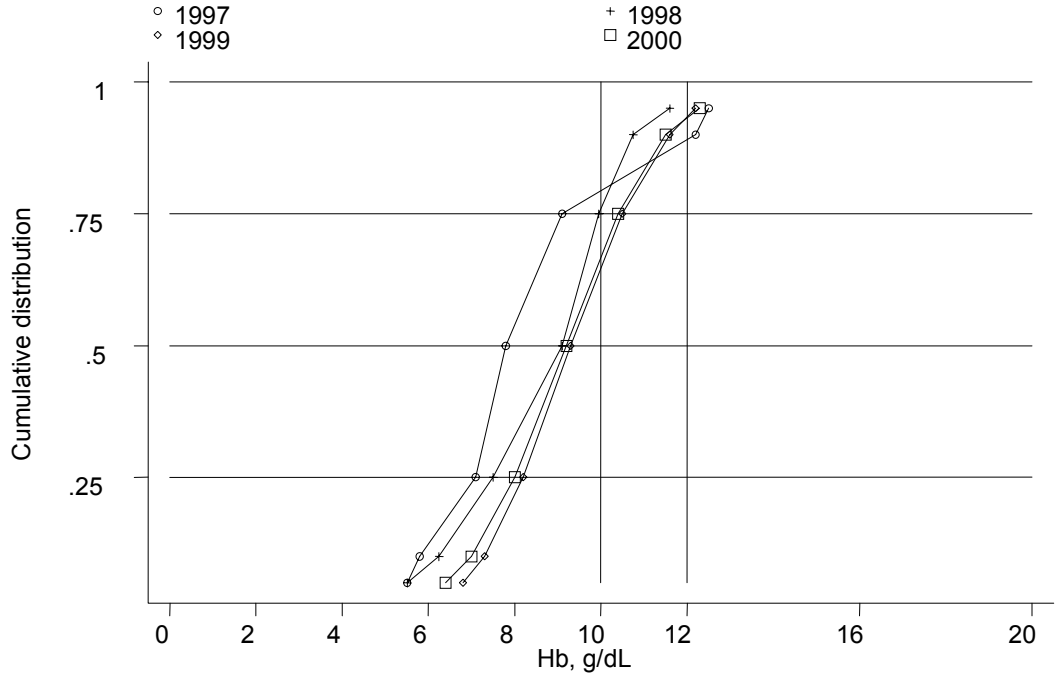


Table 3.3.46: Distribution of haemoglobin concentration on rHuEpo, HD patients, Private Centres 1999-2000

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	708	9.3	8.2	10.5	65	29	6
2000	453	1335	9.2	8	10.4	66	28	6

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 1999-2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients >40g/l
1999	287	806	37	34	40	29
2000	506	1217	37	35	40	30

Figure 3.3.47: Cumulative distribution of serum Albumin by year

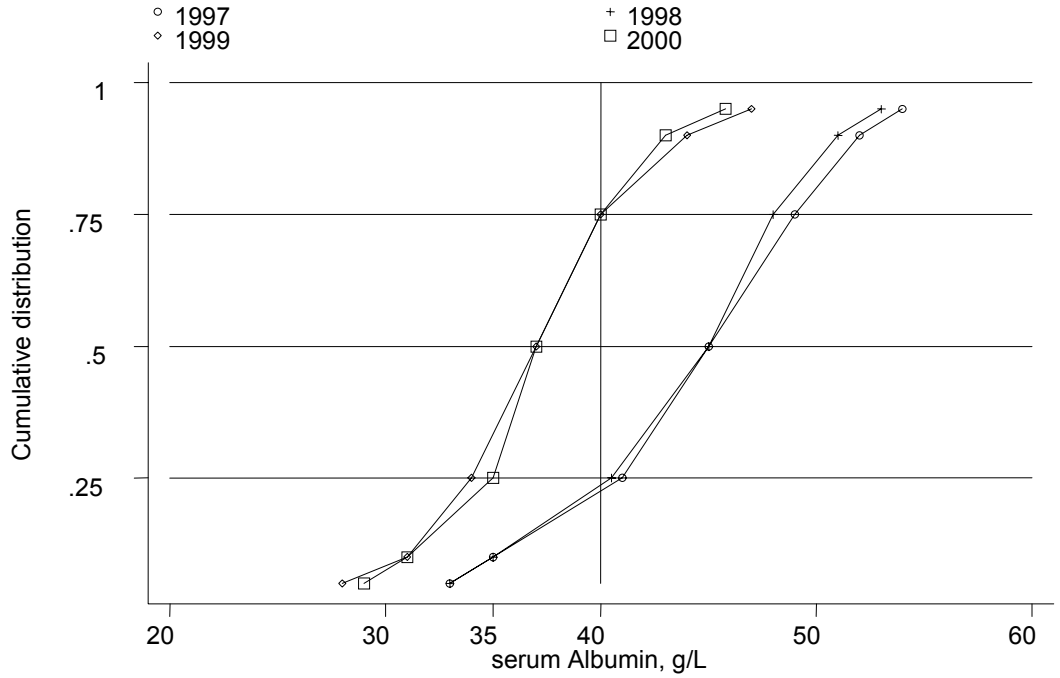
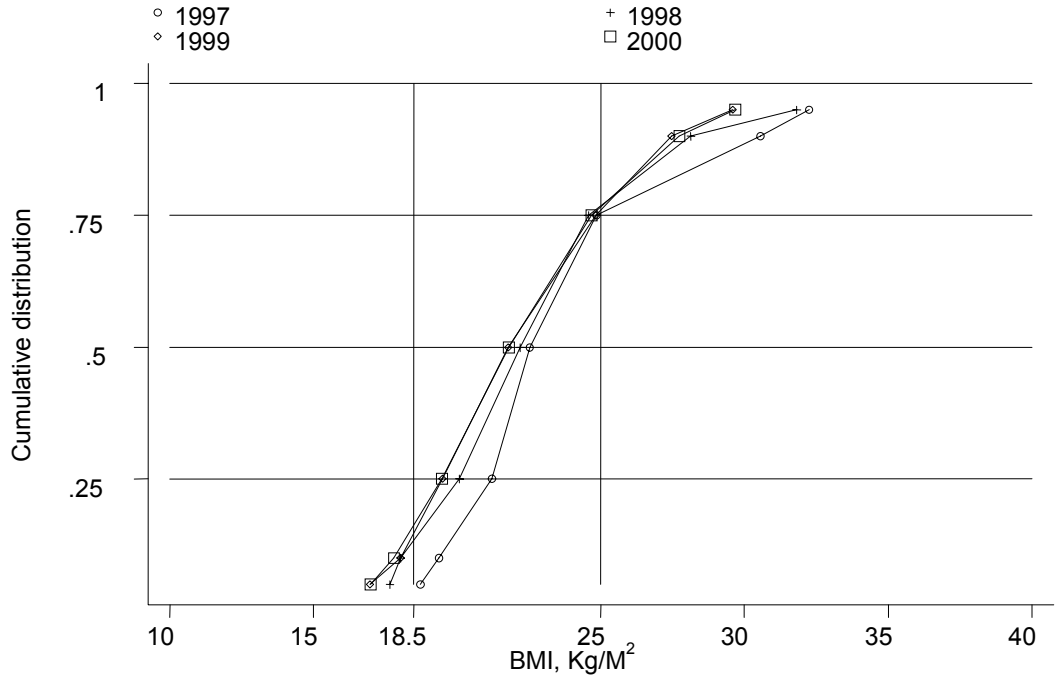


Table 3.3.48: Distribution of Body Mass Index, HD patients, Private Centres 1999-2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients <18.5	% patients ≥18.5 & ≤25	% patients >25
1999	276	1912	21.8	19.5	24.8	13	63	24
2000	574	5464	21.8	19.5	24.7	17	61	23

Figure 3.3.48: Cumulative distribution of body mass index by year

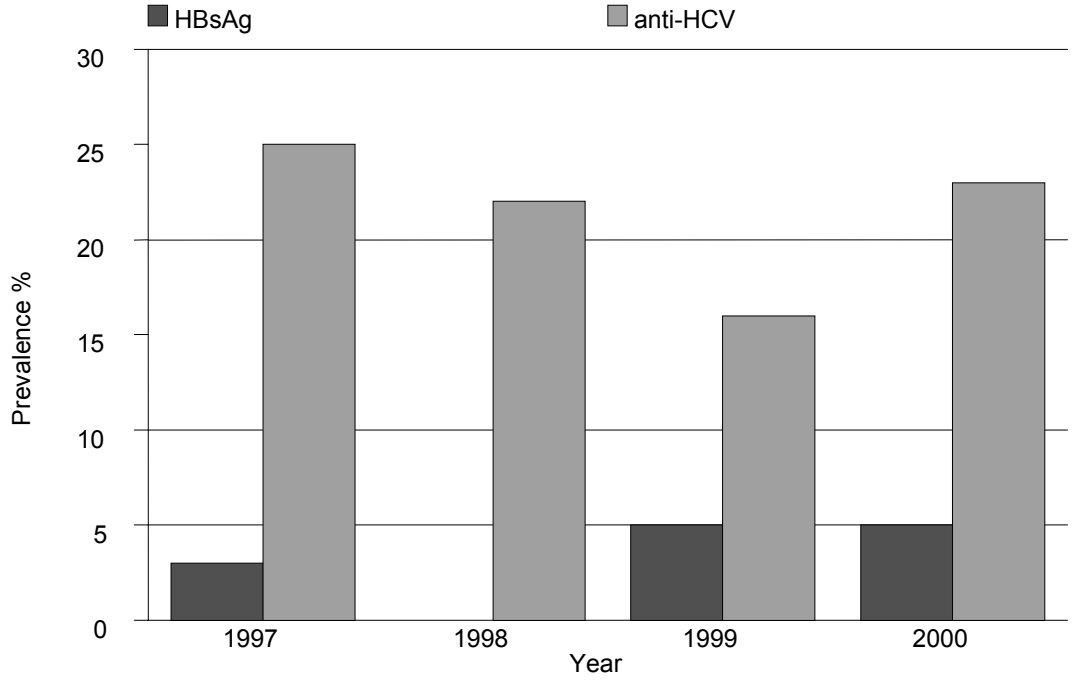


3.3.14 SEROLOGICAL STATUS, HD PATIENTS PRIVATECENTRES

Table 3.3.49: Prevalence of positive anti-HCV antibody and HbsAg HD patients, Private Centres 1999-2000

Year	No	% HbsAg positive	% anti-HCV positive
1999	396	5	16
2000	768	5	23

Figure 3.3.49: Prevalence of positive anti-HCV antibody and HbsAg HD patients, Private Centres 1997 – 2000



CHRONIC PERITONEAL DIALYSIS

IN

GOVERNMENT CENTRES

Stock and Flow

Funding for CPD

Death on CPD and Transfer to HD

Government CAPD Centres

CAPD Patients' Characteristics

Survival Analysis

Work related rehabilitation and quality of life

CAPD practices

Dyslipidaemia in CAPD patients

Treatment of Renal Bone Disease

Management of Blood Pressure

Management of Anaemia

Nutritional status

Serological Status on CAPD

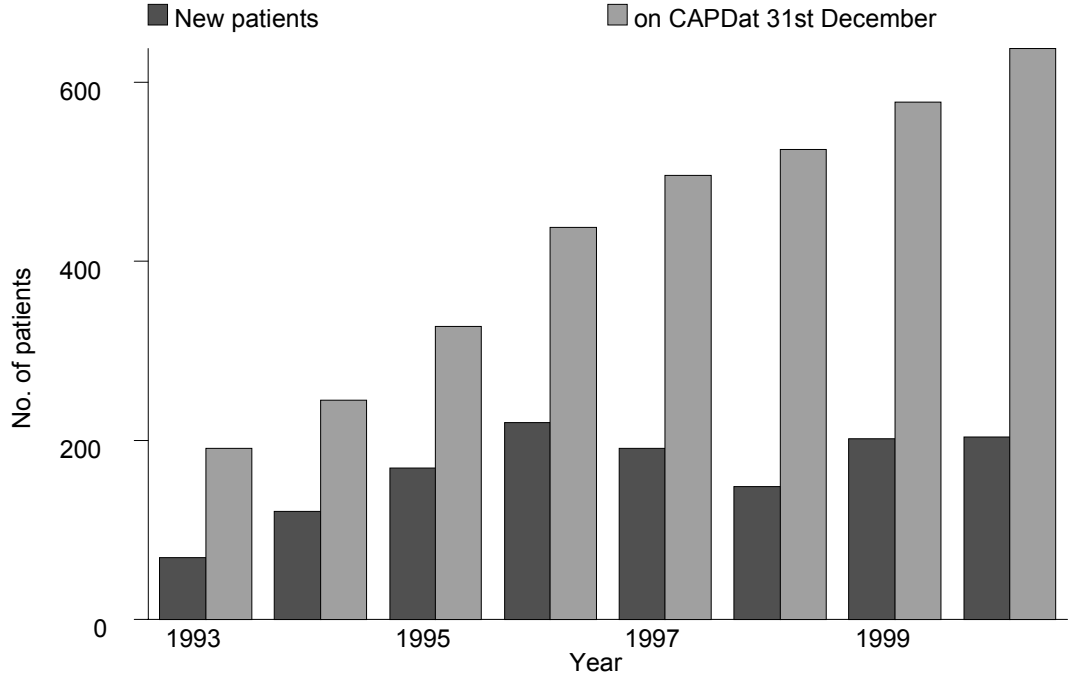
4. CHRONIC PERITONEAL DIALYSIS

4.1 STOCK AND FLOW

Table 4.01 Stock and Flow of Chronic PD Patients 1993 - 2000

Year	1993	1994	1995	1996	1997	1998	1999	2000
New Dialysis patients	69	121	169	220	191	148	202	204
Died	23	42	58	61	73	74	98	71
Transferred to HD	14	22	22	38	50	33	37	63
Transplanted	2	3	7	8	10	12	12	8
Lost to follow up	1	0	0	2	0	0	2	2
Dialysing at 31st December	191	245	327	438	496	525	578	638

Figure 4.01 Stock and Flow of Chronic PD Patients 1993 - 2000

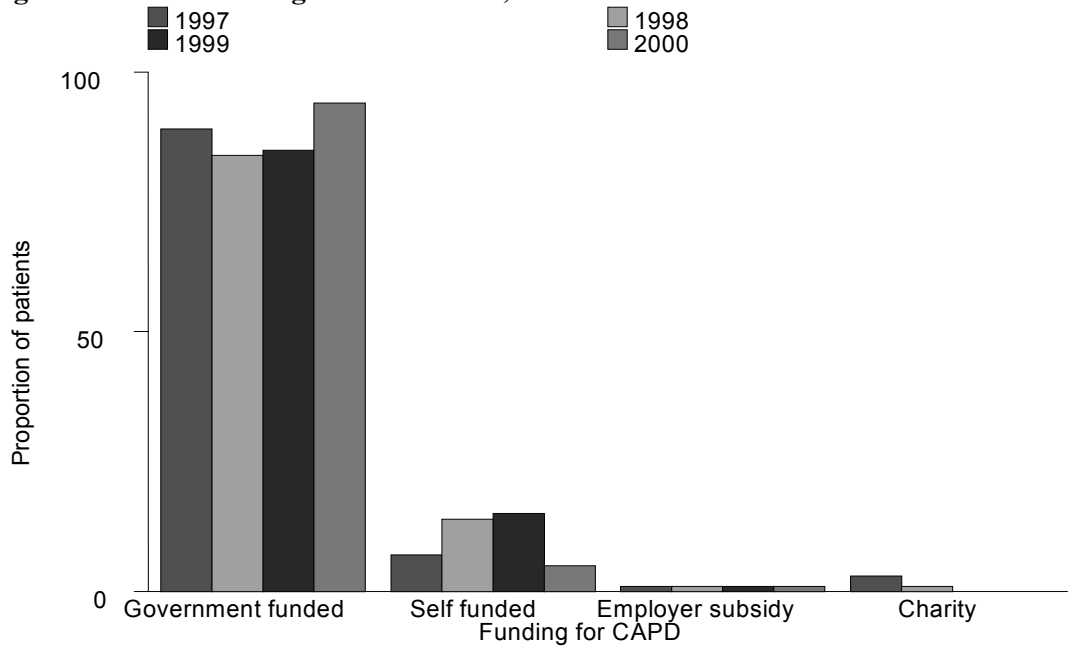


4.2 FUNDING FOR CHRONIC PERITONEAL DIALYSIS

Table 4.03: Funding for CAPD, Government Centres 1997 – 2000

Year	1997	1998	1999	2000
New Dialysis patients	191	148	202	204
% Government funded	89	84	85	94
% Self funded	7	14	15	5
% Employer subsidised	1	1	1	1
% Charity	3	1	0	0
Dialysing at 31st December	496	525	578	638
% Government funded	87	85	86	88
% Self funded	9	12	12	10
% Employer subsidised	1	1	1	1
% Charity	2	2	1	1

Figure 4.03: Funding for new CAPD, Government Centres 1997 – 2000



4.3 DEATH ON CAPD AND TRANSFER TO HAEMODIALYSIS

Table 4.04: Death Rate and Transfer to HD Government Centres 1993 - 2000

Year	1993	1994	1995	1996	1997	1998	1999	2000
No. at risk	191	218	286	383	467	511	552	608
Death (No.)	23	42	58	61	73	74	98	71
Death rate %	12	19	20	16	16	14	18	12
No transferred to HD	14	22	22	38	50	33	37	63
Transfer to HD rate %	7	10	8	10	11	6	7	10
All losses	37	64	80	99	123	107	135	134
All losses rate %	19	29	28	26	26	21	24	22

Figure 4.04: Death Rates on CAPD, Government Centres 1993 - 2000

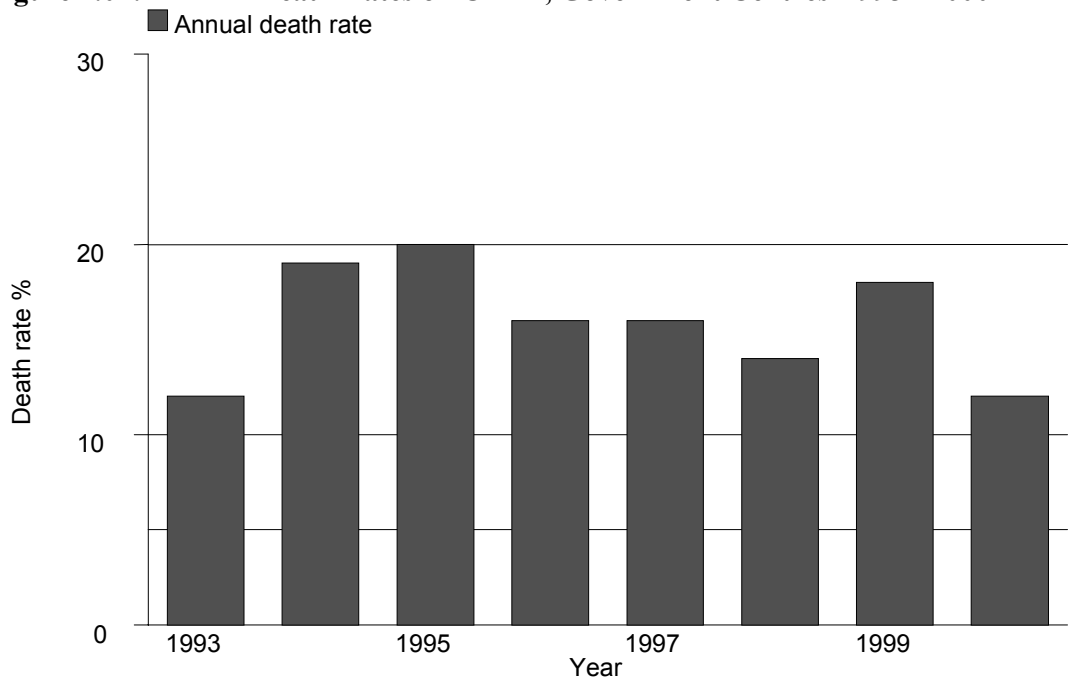


Table 4.05: Causes of Death on CAPD, Government Centres 1997 – 2000

Year	1997		1998		1999		2000	
	No	%	No	%	No	%	No	%
Cardiovascular	25	34	23	31	26	27	19	27
Died at home	18	25	11	15	32	33	20	28
Sepsis	16	22	16	22	15	15	15	21
CAPD peritonitis	4	5	1	1	7	7	9	13
GIT bleed	0	0	0	0	3	3	1	1
Cancer	1	1	0	0	1	1	0	0
Liver disease	0	0	0	0	0	0	0	0
Others	8	11	12	16	11	11	7	10
Unknown	1	1	11	15	3	3	0	0
Total	73	100	74	100	98	100	71	100

Table 4.06: Causes of Transfer to CAPD 1997 - 2000

Year	1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%
Peritonitis	29	58	17	52	23	62	39	62
Cather related infection	3	6	0	0	2	5	1	2
Technical problem	0	0	3	9	0	0	3	5
Membrane failure	6	12	3	9	3	8	9	14
Patient preference/cannot cope	0	0	2	6	3	8	4	6
Others	2	4	0	0	3	8	3	5
Unknown	10	20	8	24	3	8	4	6
Total	50	100	33	100	37	100	63	100

4.4 GOVERNMENT CAPD CENTRES

Table 4.07: Centre Distribution of CAPD patients, 2000

N	Centre	No	Percent
0	No.on CAPD at 31st December	638	100
1	Ipoh Hospital	40	6
2	Kota Bharu Hospital	4	1
3	Kuala Lumpur Hospital	167	26
4	Kuala Lumpur Hospital (Paed.)	23	4
5	Kuala Terengganu Hospital	21	3
6	Pulau Pinang Hospital	90	14
7	Queen Elizabeth Hospital	18	3
8	Selayang Hospital	11	2
9	Seremban Hospital	49	8
10	Sultanah Aminah Hospital	100	16
11	Tengku Ampuan Afzan Hospital, Kuantan	2	0
12	Tengku Ampuan Rahimah Hospital, Klang	26	4
13	Universiti Kebangsaan Malaysia Hospital	5	1
14	University Hospital	82	13

4.5 CAPD PATIENTS' CHARACTERISTICS

Table 4.08: Percentage Age Distribution of CAPD patients 1997 – 2000

Year	1997	1998	1999	2000
New Dialysis patients	191	148	202	204
1-14 years	8	13	11	10
15-24 years	7	9	7	12
25-34 years	14	14	6	8
35-44 years	16	12	13	16
45-54 years	29	19	21	25
55-64 years	12	25	24	18
≥65 years	14	9	16	11
Dialysing at 31st December	496	525	578	638
1-14 years	10	11	12	11
15-24 years	4	5	6	8
25-34 years	14	16	14	14
35-44 years	16	16	16	16
45-54 years	27	25	24	24
55-64 years	19	18	19	18
≥65 years	10	9	9	9

Table 4.09: CAPD Patient Characteristics 1997- 2000

Year	1997	1998	1999	2000
New Dialysis patients	191	148	202	204
Mean age ± sd	44±18	43±19	47±19	43±19
% male	52	49	52	47
% Diabetic	42	37	44	36
% HBsAg+	3	0	1	3
% Anti-HCV+	6	3	3	4

4.6 SURVIVAL ANALYSIS

Table 4.10: CAPD 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	93	2	152	94	2	200	96	1	180
12	87	3	140	88	2	177	91	2	163
24	71	4	96	77	3	139	78	3	133
36	58	4	70	66	3	105	66	4	100
48	44	4	48	57	4	68			
60	36	4	31						

Year	1998			1999			2000		
Interval (months)	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	94	2	137	94	2	181	95	2	87
12	86	3	121	90	2	168			
24	74	4	91						

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

Figure 4.10: CAPD Patient Survival related to Year of Entry, Government Centres 1996 – 2000

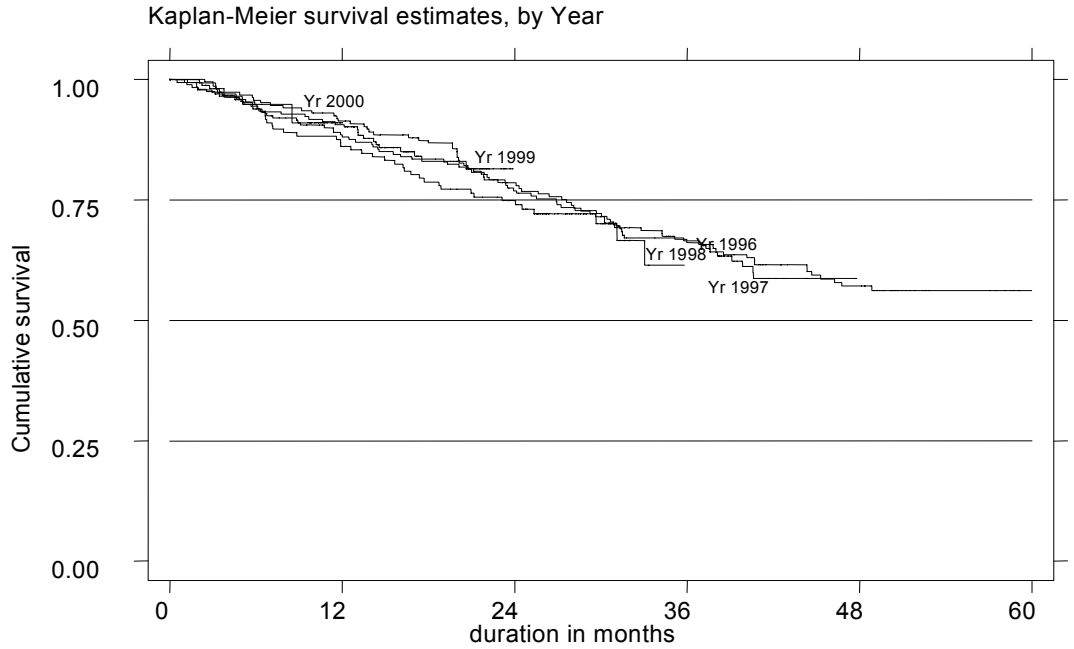


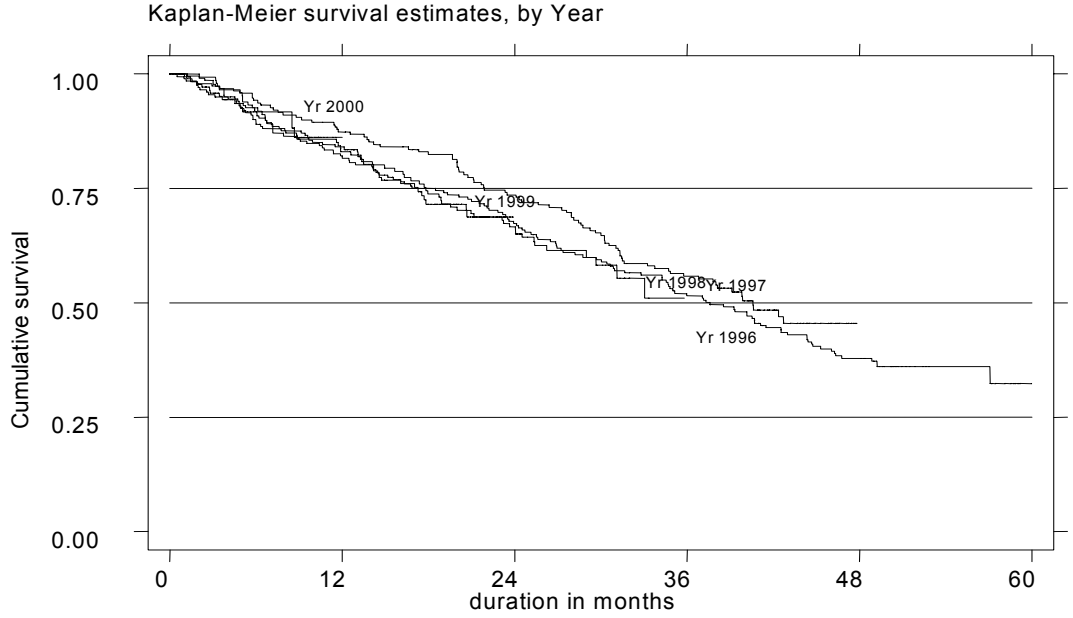
Table 4.11: CAPD Technique Survival related to Year of Entry, Government Centres 1995 – 2000

Year	1995			1996			1997		
Interval (months)	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	90	2	152	91	2	199	94	2	180
12	83	3	140	82	3	177	87	2	163
24	58	4	96	67	3	139	73	3	133
36	43	4	70	52	3	105	56	4	100
48	30	4	48	38	3	68			
60	22	3	32						

Year	1998			1999			2000		
Interval (months)	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	92	2	137	89	2	181	92	2	87
12	83	3	121	84	3	168			
24	65	4	91						

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

Figure 4.11: CAPD Technique Survival by Year of Entry Government Centres 1996 – 2000



4.7 WORK RELATED REHABILITATION AND QUALITY OF LIFE ON CAPD

Table 4.12: Work Related Rehabilitation on CAPD, Government Centres 1997 - 2000

REHABILITATION STATUS	1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%
Full time work for pay	78	19	83	20	96	19	92	17
Part time work for pay	26	6	23	6	45	9	27	5
Able to work but unable to get a job	15	4	13	3	14	3	25	5
Able to work but not yet due to dialysis schedule	0	0	4	1	3	1	7	1
Able but disinclined to work	7	2	7	2	11	2	10	2
Home maker	126	31	121	29	143	28	166	31
Full time student	43	11	45	11	67	13	81	15
Age<15 years	5	1	11	3	13	3	8	2
Retired	42	10	37	9	38	7	45	8
Age>65 years	38	9	38	9	39	8	42	8
Unable to work due to poor health	26	6	36	9	43	8	29	5
Total	406	100	418	100	512	100	532	100

Table 4.13: Quality of Life on CAPD, Government Centres 1997 – 2000

QOL Index Summated Score	1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%
0 (Worst QOL)	78	19	83	20	96	19	92	17
1	26	6	23	6	45	9	27	5
2	15	4	13	3	14	3	25	5
3	0	0	4	1	3	1	7	1
4	7	2	7	2	11	2	10	2
5	126	31	121	29	143	28	166	31
6	43	11	45	11	67	13	81	15
7	5	1	11	3	13	3	8	2
8	42	10	37	9	38	7	45	8
9	38	9	38	9	39	8	42	8
10 (Best QOL)	26	6	36	9	43	8	29	5
Total	406	100	418	100	512	100	532	100

4.8 CAPD PRACTICES

Table 4.14: Chronic Peritoneal Dialysis Regimes 1997 - 2000

PD regime	1997		1998		1999		2000	
	No	%	No	%	No	%	No	%
Standard CAPD	453	96	504	95	580	96	637	98
DAPD	15	3	22	4	19	3	12	2
Automated PD	4	1	6	1	4	1	4	1
Total	472	100	532	100	603	100	653	100

Table 4.15: CAPD Connectology 1997 - 2000

CAPD connectology	1997		1998		1999		2000	
	No	%	No	%	No	%	No	%
UVXD	36	8	11	2	4	1	2	0
Baxter disconnect	426	90	500	95	343	58	233	39
Braun disconnect	10	2	18	3	248	42	370	61
Total	472	100	529	100	595	100	605	100

Table 4.16: CAPD Number of Exchanges per day 1997 - 2000

No of Exchanges/day	1997		1998		1999		2000	
	No	%	No	%	No	%	No	%
2	0	0	2	0	0	0	2	0
3	3	1	4	1	4	1	1	0
4	455	97	508	96	579	97	624	96
5	12	3	16	3	13	2	23	4
100	470	100	531	100	597	100	650	100

Table 4.17: CAPD Volume per Exchange 1997 - 2000

Volume per Exchange (L)	1997		1998		1999		2000	
	No	%	No	%	No	%	No	%
1	24	5	25	5	19	3	25	4
2	445	95	496	95	557	96	595	95
3	0	0	0	0	2	0	7	1
Total	469	100	521	100	578	100	627	100

4.9. DYSLIPIDAEMIA IN CAPD PATIENTS, GOVERNMENT CENTRES

Table 4.24: Distribution of serum Cholesterol Concentrations (mmol/l), CAPD patients, Government Centres 1997 – 2000

year	No of subjects	No of observations	median	LQ	UQ	% patients < 5.3 mmol/l
1997	421	795	6	5.1	7	35
1998	348	519	5.9	5	6.8	39
1999	434	619	5.5	4.8	6.5	48
2000	526	833	5.8	4.9	6.8	40

Figure 4.24: Cumulative distribution of serum cholesterol concentration by year

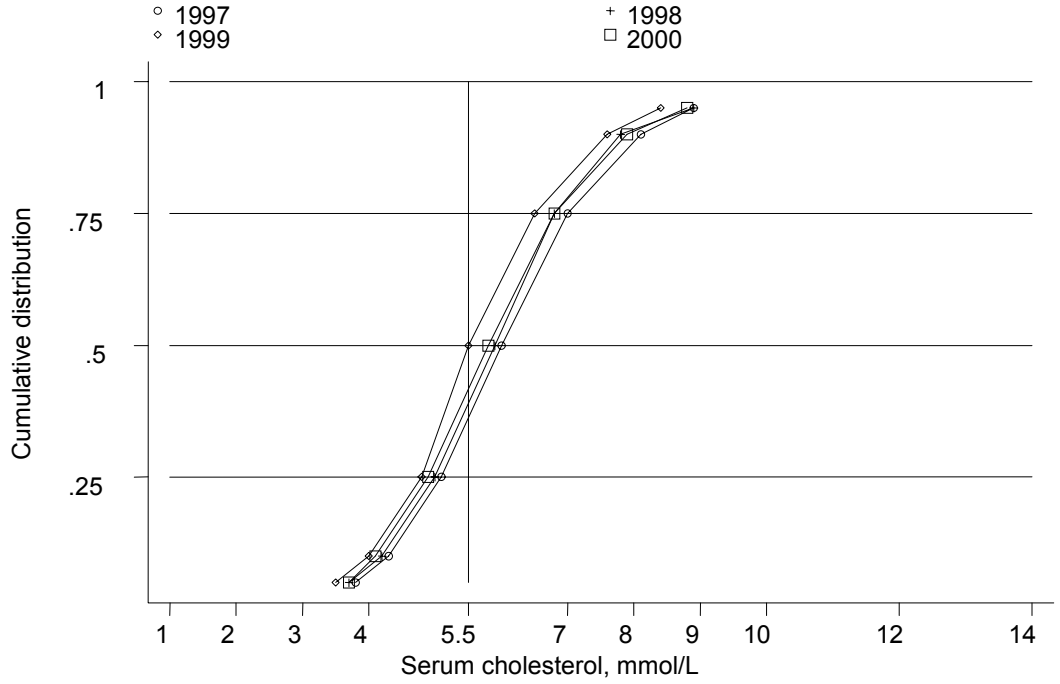


Table 4.25: Distribution of serum Triglyceride (mmol/l), CAPD patients, Government Centres 1997 - 2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients < 3.5 mmol/l
1997	414	782	2	1.4	3.1	79
1998	344	511	1.8	1.2	3	81
1999	421	602	1.9	1.3	2.9	82
2000	520	819	2.1	1.4	3.1	79

Figure 4.25: Cumulative distribution of serum triglyceride concentration by year

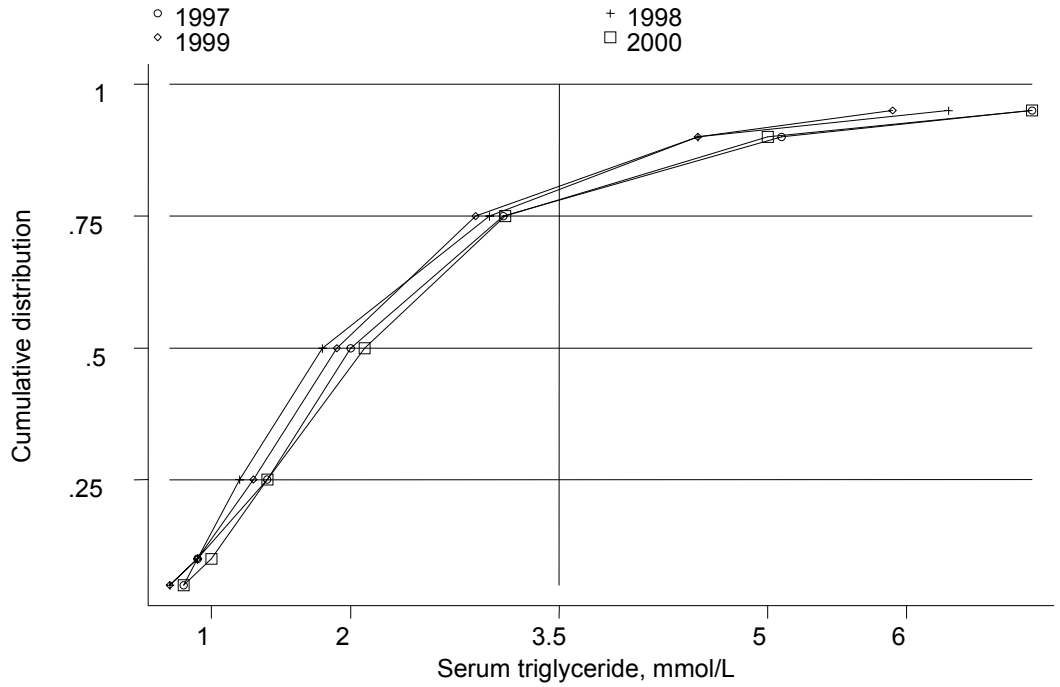


Table 4.26: Distribution of serum LDL (mmol/l), CAPD patient, Government Centres 1997 – 2000

year	No of subjects	No of observations	median	LQ	UQ	% patients <5 mmol/l
1997	259	456	3.7	2.8	4.7	80
1998	146	187	3.9	3.1	4.6	84
1999	198	263	3.4	2.8	4.4	82
2000	271	392	3.6	2.7	4.3	88

Figure 4.26 : Cumulative distribution of serum LDL by year

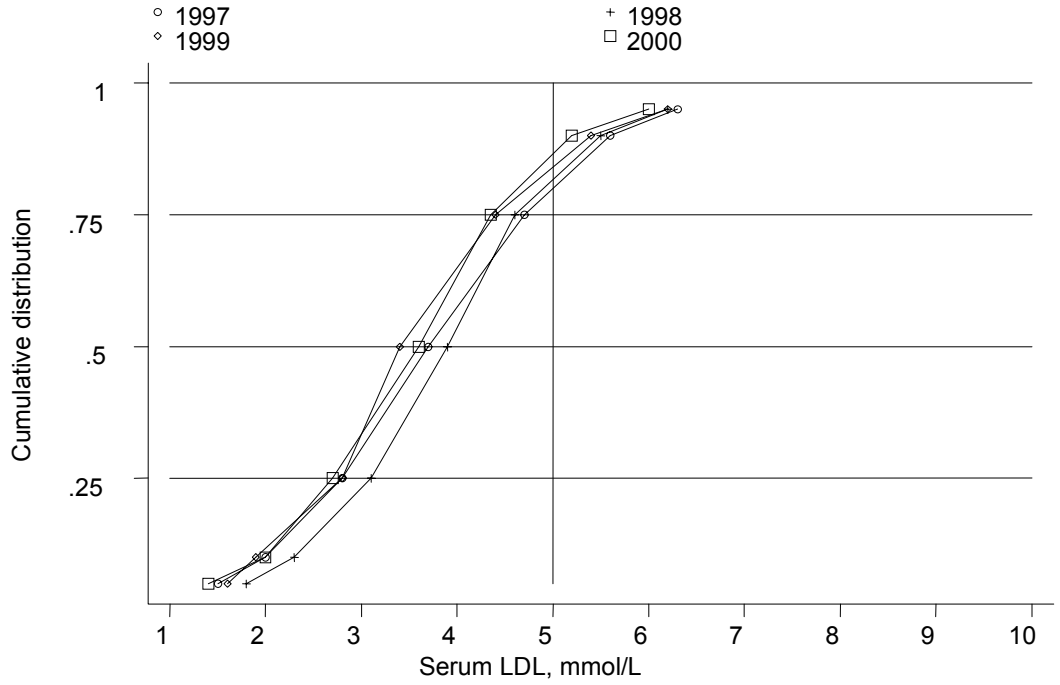
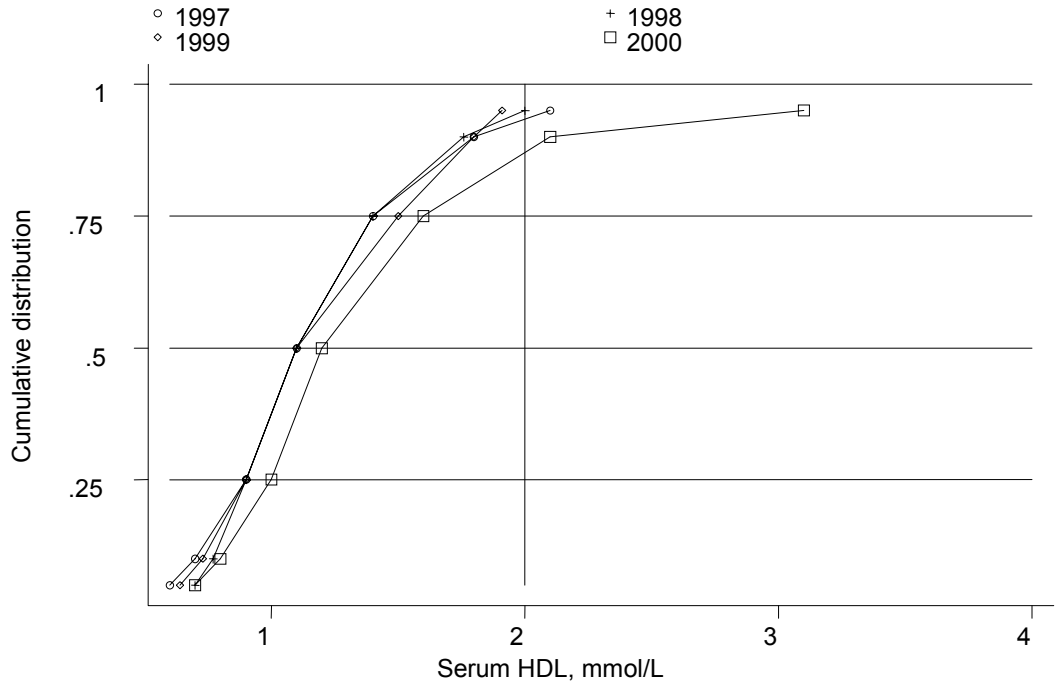


Table 4.27: Distribution of serum HDL (mmol/l), CAPD patient, Government Centres 1997 - 2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients < 2mmol/l
1997	259	456	3.7	2.8	4.7	80
1998	146	187	3.9	3.1	4.6	84
1999	198	263	3.4	2.8	4.4	82
2000	271	392	3.6	2.7	4.3	88

Figure 4.27: Cumulative distribution of serum HDL by year



4.10 MANAGEMENT OF RENAL BONE DISEASE, GOVERNMENT CENTRES

Table 4.28: Treatment for Renal Bone Disease, CAPD patients, Government Centres 1997 - 2000

Year	No of subjects	% on CaCO3	% on Al(OH)3	% on Vitamin D
1997	477	83	12	24
1998	541	79	9	20
1999	610	74	6	12
2000	662	79	2	15

Table 4.29: Distribution of serum Phosphate concentration (mmol/l), CAPD patients, Government Centres 1997 – 2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients < 1.6 mmol/l
1996	359	1121	1.5	1.2	1.9	56
1997	471	1562	1.5	1.2	1.9	56
1998	537	1680	1.6	1.3	1.9	52
1999	583	1783	1.6	1.3	2	51

Figure 4.29: Cumulative distribution of serum Phosphate by year

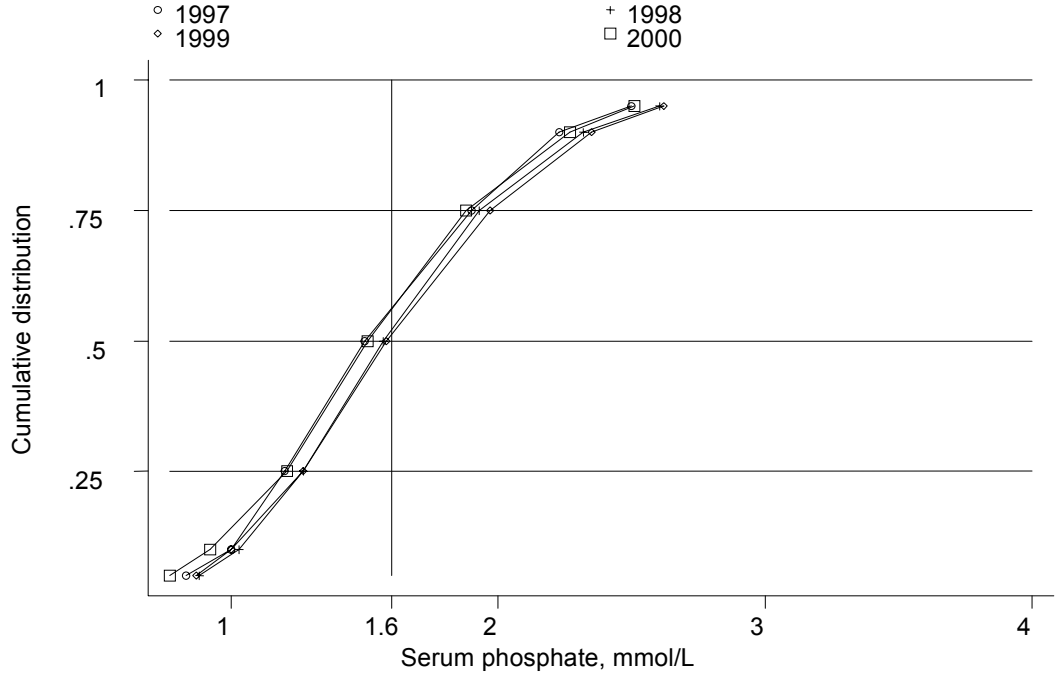


Table 4.30: Distribution of serum Calcium concentration (mmol/l), CAPD patients, Government Centres 1997 – 2000

year	No of subjects	No of observations	median	LQ	UQ	% patients ≥ 2.2 & ≤2.6 mmol/l
1997	472	1577	2.4	2.2	2.6	55
1998	539	1707	2.3	2.2	2.5	52
1999	594	1830	2.4	2.2	2.5	55
2000	642	1954	2.4	2.2	2.5	58

Figure 4.30: Cumulative distribution of serum Calcium concentration by year

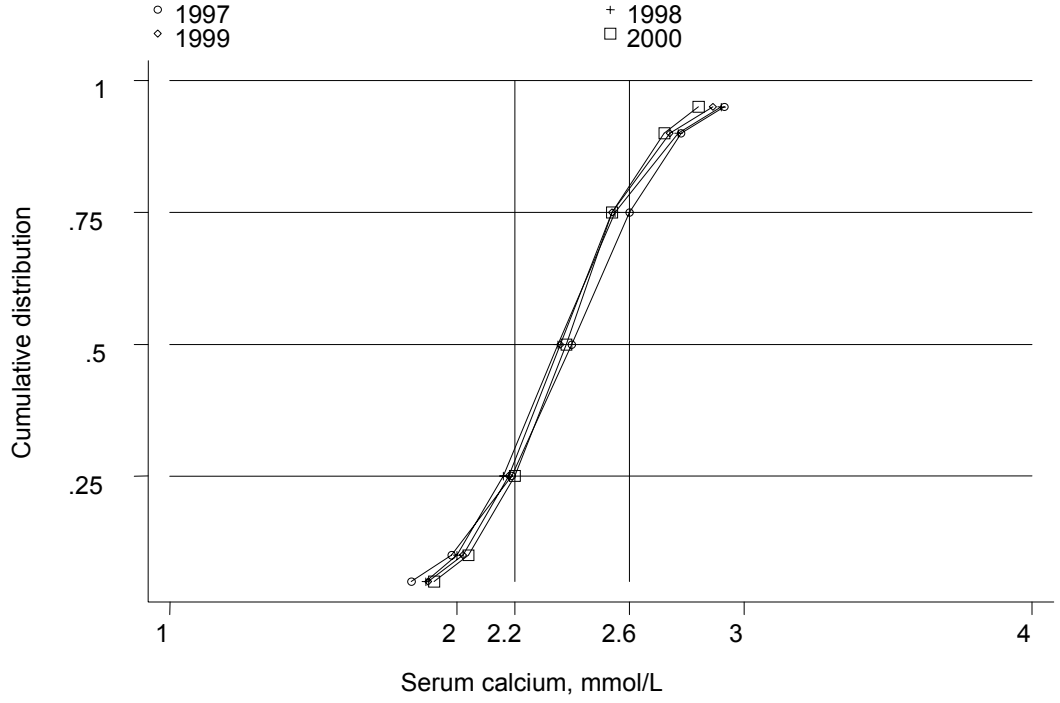
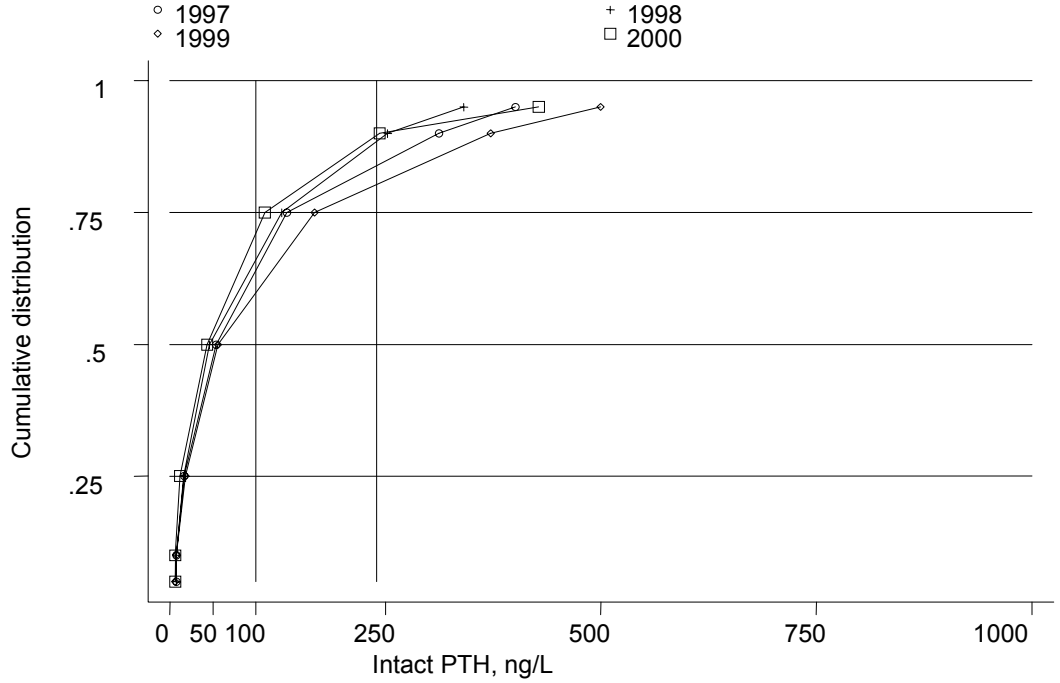


Table 4.31: Distribution of serum intact PTH(ng/L) concentration, CAPD patients, Government Centres 1997 – 2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients ≥ 100 & ≤ 250 ng/l
1997	293	428	53.5	17	136	19
1998	280	346	46	16	130	19
1999	365	482	56	18	168	17
2000	406	555	43	11.8	110	18

Figure 4.31: Cumulative Distribution of serum iPTH by year



4.11 MANAGEMENT OF BLOOD PRESSURE, GOVERNMENT CENTRES

Table 4.32: Treatment for hypertension, CAPD patients, Government Centres 1997 - 2000

year	No.	% on anti-hypertensives	% on 1 anti-hypertensives	% on 2 anti-hypertensives	% on 3 anti-hypertensives
1997	477	83	32	33	18
1998	541	88	34	31	23
1999	610	82	30	33	19
2000	662	78	31	27	20

Table 4.33: Distribution of Systolic BP without anti-hypertensives, CAPD patients, Government Centres 1997 – 2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients < 160 mmHg
1997	78	608	120	110	140	87
1998	63	491	120	110	145	86
1999	98	699	120	110	142	87
2000	141	1114	120	110	138	91

Figure 4.33: Cumulative distribution of Systolic BP without anti-hypertensives by year

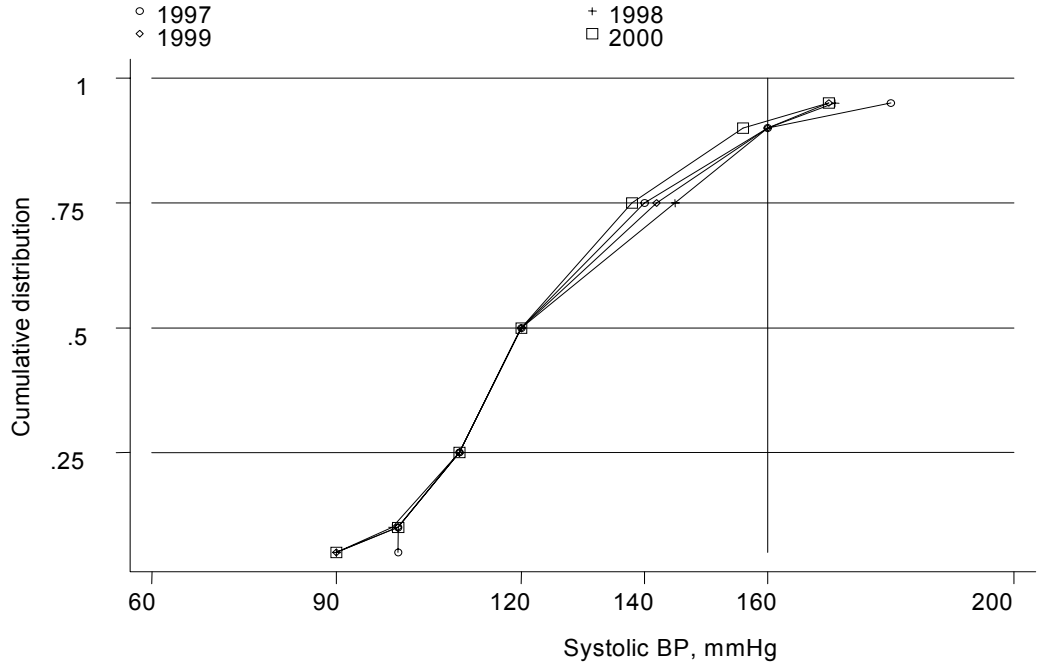


Table 4.34: Distribution of Diastolic BP without anti-hypertensives, CAPD patients, Government Centres 1997 – 2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients < 90 mmHg
1997	78	606	80	70	90	73
1998	63	492	80	70	89	76
1999	98	700	76.5	67	87.5	76
2000	141	1116	80	70	88	76

Figure 4.34: Cumulative distribution of Diastolic BP without anti-hypertensives by year

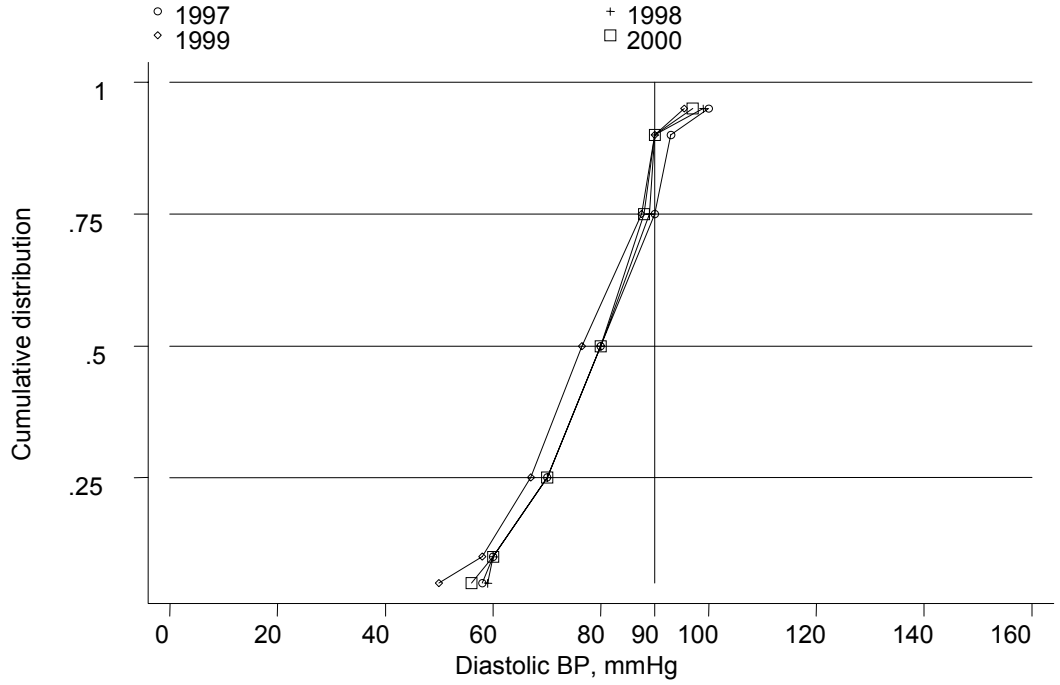


Table 4.35: Distribution of systolic BP on anti-hypertensives CAPD patients, Government Centres 1997 – 2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients < 160 mmHg
1997	391	3303	140	130	160	69
1998	456	3900	140	124	160	72
1999	478	3833	140	130	160	72
2000	497	4188	140	123	158	76

Figure 4.35: Cumulative distribution of systolic BP on anti-hypertensives by year

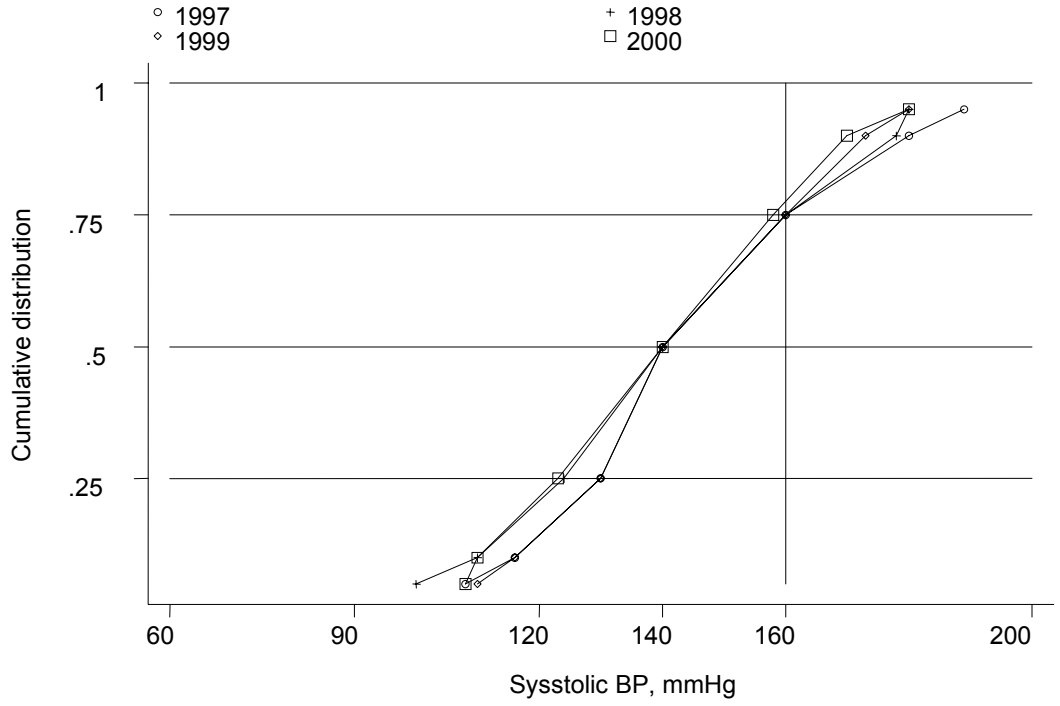
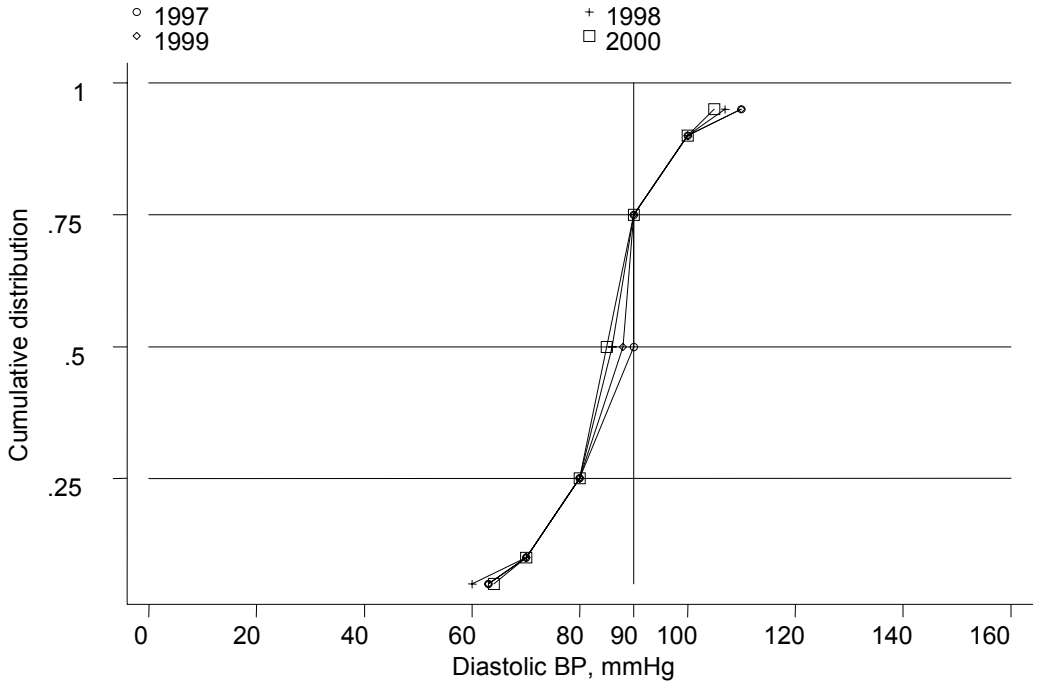


Table 4.36: Distribution of diastolic BP on anti-hypertensives, CAPD patients, Government Centres 1997 – 2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients < 90 mmHg
1997	390	3293	90	80	90	50
1998	456	3899	86	80	90	53
1999	478	3838	88	80	90	51
2000	497	4191	85	80	90	56

Figure 4.36: Cumulative distribution of diastolic BP on anti-hypertensives by year



4.12 TREATMENT OF ANAEMIA, GOVERNMENT CAPD CENTRES

Table 4.37: Treatment for Anaemia, CAPD patients, Government Centres 1997 - 2000

Year	No	% on rHuEpo	% received blood transfusion	% received oral iron	% received parenteral iron
1997	36	28	3	86	8
1998	49	39	6	84	0
1999	396	61	23	81	13
2000	768	63	21	75	3

Table 4.38: Distribution of rHuEpo dose per week, CAPD patients, Government Centres 1997 - 2000

Year	1997	1998	1999	2000
No. of patients	170	225	259	287
% on 2000 u/week	19	25	35	31
% on 2-4000 u/week	66	56	50	53
% on 4-6000 u/week	2	6	3	5
% on 6-8000 u/week	11	12	9	9
% on 8-12000 u/week	1	1	2	3
% on >12000 u/week	0	0	0	0

Table 4.39: Distribution of serum Iron concentration without rHuEpo, CAPD patients, Government Centres 1997 – 2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients > 10 umol/l
1997	254	627	14	10	20	75
1998	190	446	15	11	24	76
1999	202	470	15	11	26	78
2000	255	549	15.8	10	23	75

Figure 4.39: Cumulative distribution of serum Iron without rHuEpo by year

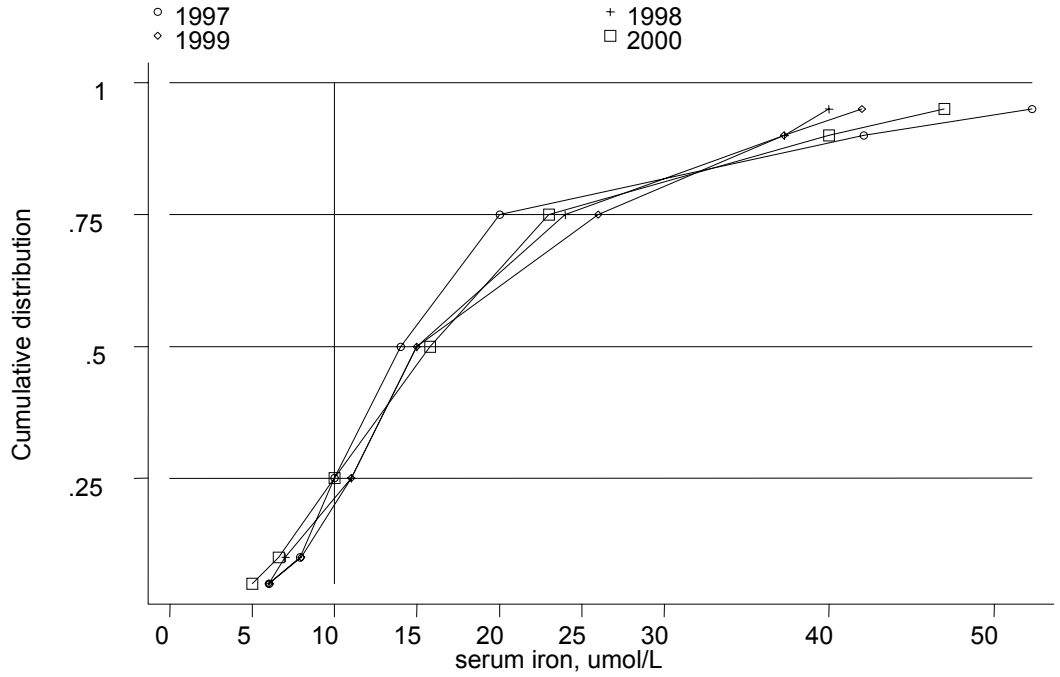


Table 4.40: Distribution of serum Iron concentration on rHuEpo, CAPD patients, Government Centres 1997 – 2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients > 10 umol/l
1997	153	424	15	10	30.9	72
1998	113	323	16	11	30.3	79
1999	143	392	18	11	28	81
2000	244	557	15	10	25	73

Figure 4.40: Cumulative distribution of serum Iron concentration on rHuEpo by year.

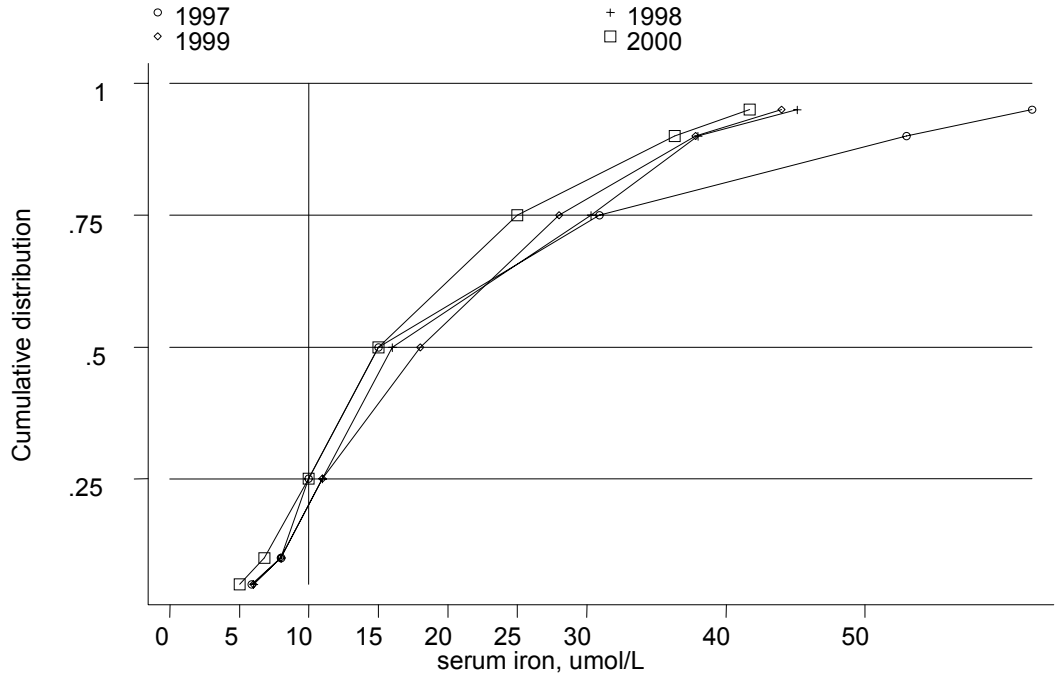


Table 4.41: Distribution of serum Transferrin Saturation without rHuEpo, CAPD patients, Government Centres 1997 – 2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients > 20%
1997	246	984	33.3	21.8	47.8	80
1998	158	632	35.6	22.9	49.1	78
1999	134	536	34.2	23.3	45.1	85
2000	234	936	35.3	22.4	50	80

Figure 4.41: Cumulative distribution of serum Transferrin Saturation without rHuEpo by year

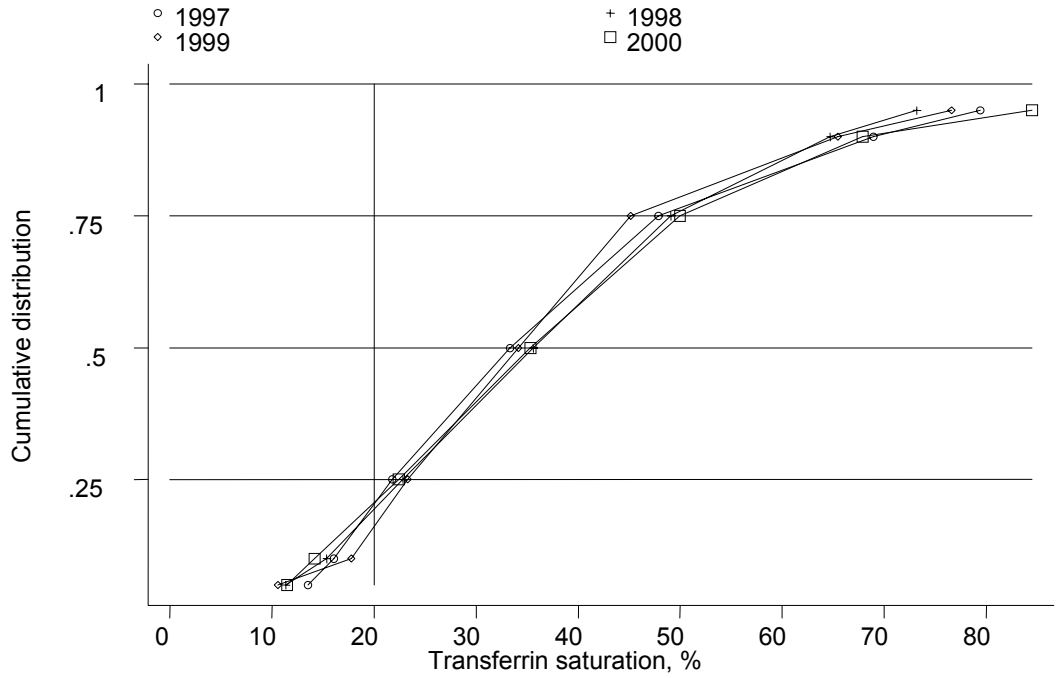


Table 4.42: Distribution of serum Transferrin Saturation on rHuEpo, CAPD patients, Government Centres 1997 – 2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients > 20%
1997	141	564	37.1	25	61.4	86
1998	103	412	39.3	28.1	55	88
1999	92	368	37.2	25.3	48.1	85
2000	233	932	34.1	22	49.4	82

Figure 4.42: Cumulative distribution of serum Transferrin Saturation on rHuEpo by year

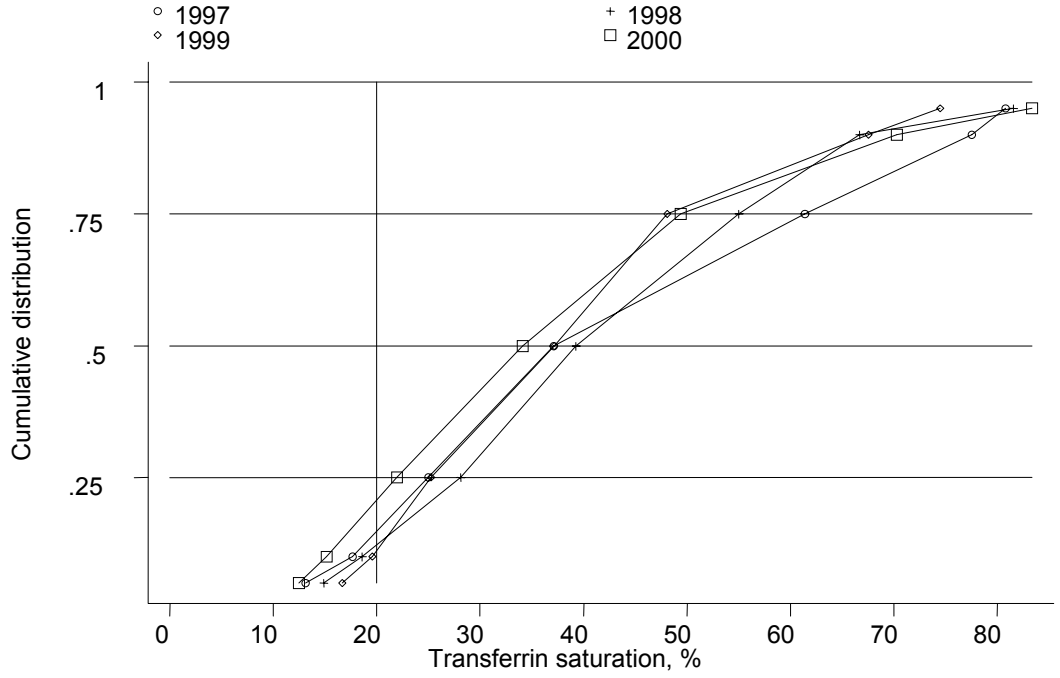


Table 4.43: Distribution of serum Ferritin without rHuEpo, CAPD patients, Government Centres 1997 – 2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients > 100 ug/l
1997	133	193	407	217	749	86
1998	92	105	394	196	686	86
1999	124	154	482	259.7	729	93
2000	144	204	462	167.5	726.3	86

Figure 4.43: Cumulative distribution of serum Ferritin without rHuEpo by year

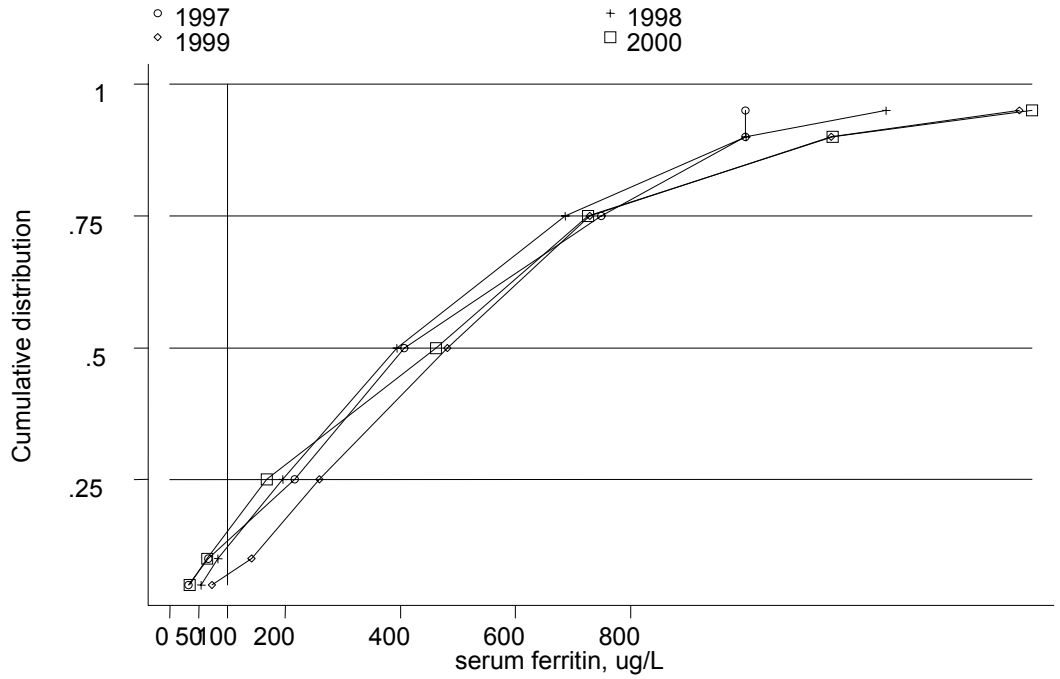


Table 4.44: Distribution of serum Ferritin concentration on rHuEpo, CAPD patients, Government Centres 1997 – 2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients > 100 ug/l
1997	129	216	495.5	260	994	92
1998	135	185	518	246	851	92
1999	136	201	553.3	254	857.3	93
2000	180	271	545	292.9	839.5	90

Figure 4.44: Cumulative distribution of serum Ferritin concentration on rHuEpo, by year

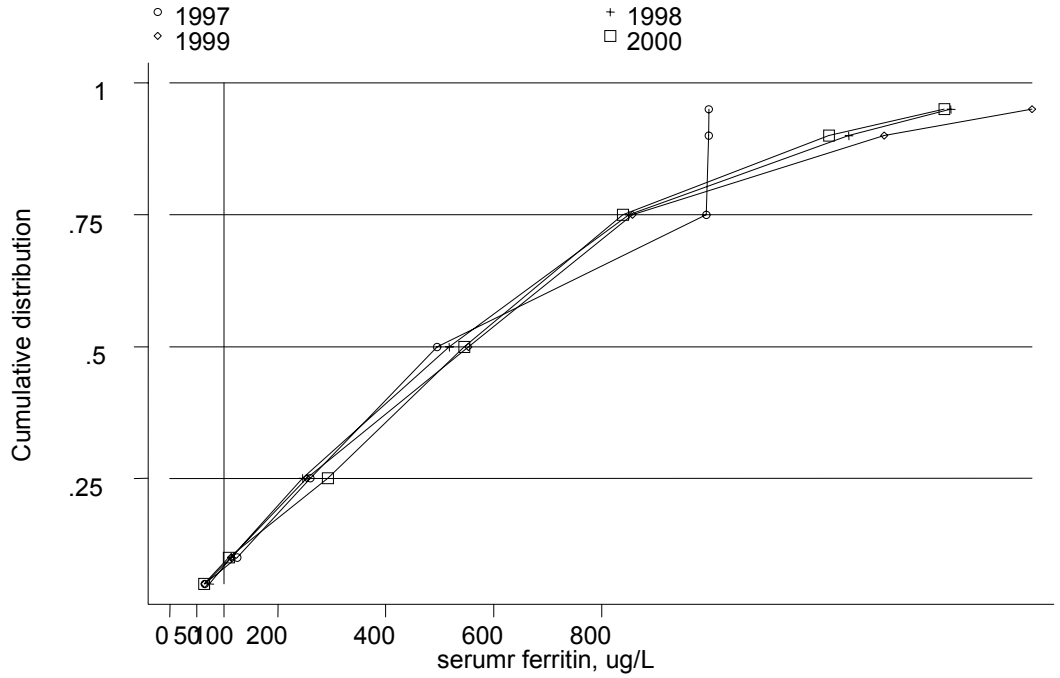


Table 4.45: Distribution of Haemoglobin concentration without rHuEpo, CAPD patients, Government Centres 1997 – 2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients <10 g/dl	% patients ≥10 & ≤12 g/dl	% patients >12 g/dl
1997	298	981	9.1	8	10.4	67	26	7
1998	301	915	9.2	8	10.5	65	26	9
1999	336	967	9.4	8.3	10.7	61	32	7
2000	342	960	9.8	8.6	11	53	35	12

Figure 4.45: Cumulative distribution of haemoglobin concentration without rHuEpo by year

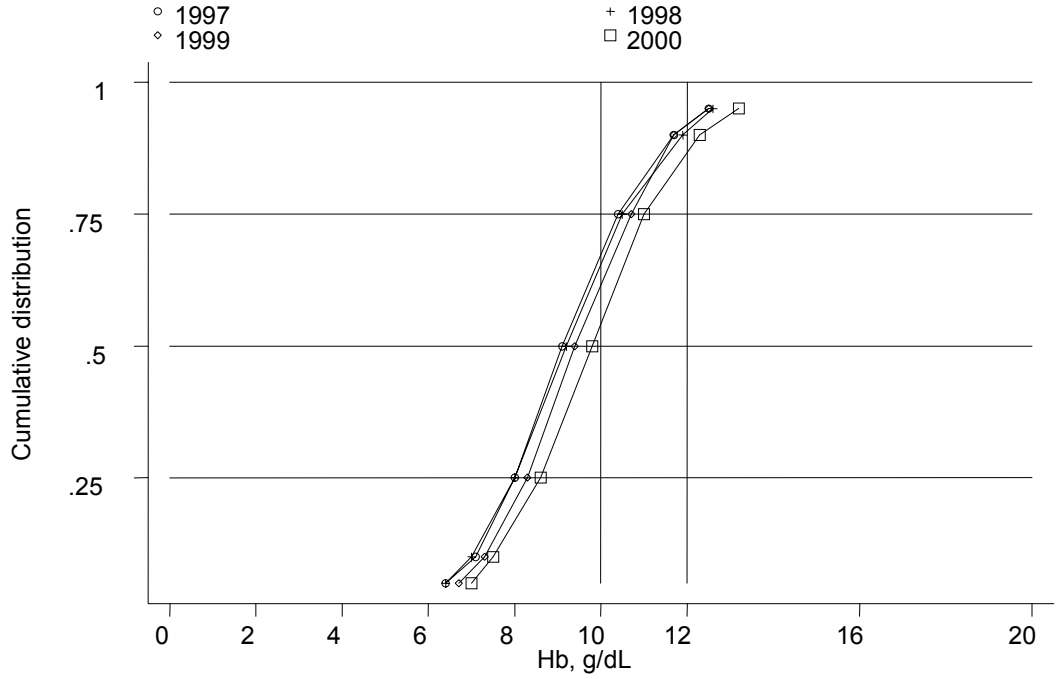
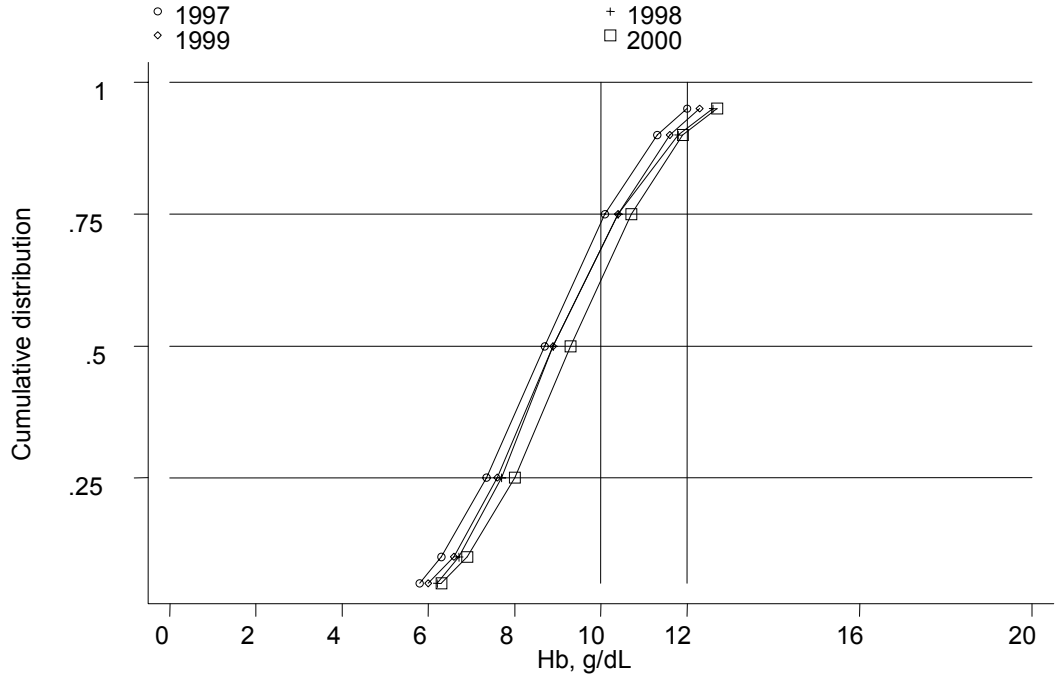


Table 4.46: Distribution of Haemoglobin concentration on rHuEpo, CAPD patients, Government Centres 1997 – 2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients <10 g/dl	% patients ≥10 & ≤12 g/dl	% patients >12 g/dl
1997	175	652	8.7	7.3	10.1	73	22	5
1998	238	826	8.9	7.7	10.4	69	23	8
1999	262	906	8.9	7.6	10.4	69	25	6
2000	299	1013	9.3	8	10.7	62	30	9

Figure 4.46: Cumulative distribution of Haemoglobin on rHuEpo by year



4.13 NUTRITIONAL STATUS OF CAPD PATIENTS, GOVERNMENT CENTRES

Table 4.47: Distribution of serum Albumin concentration(g/L), CAPD patients, Government Centres 1997 – 2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients >40g/l
1997	472	1572	36	31	40	28
1998	536	1692	37	32	40	29
1999	597	1872	35	31	38	18
2000	640	1970	35	31	39	19

Figure 4.47: Cumulative distribution of serum Albumin concentration by year

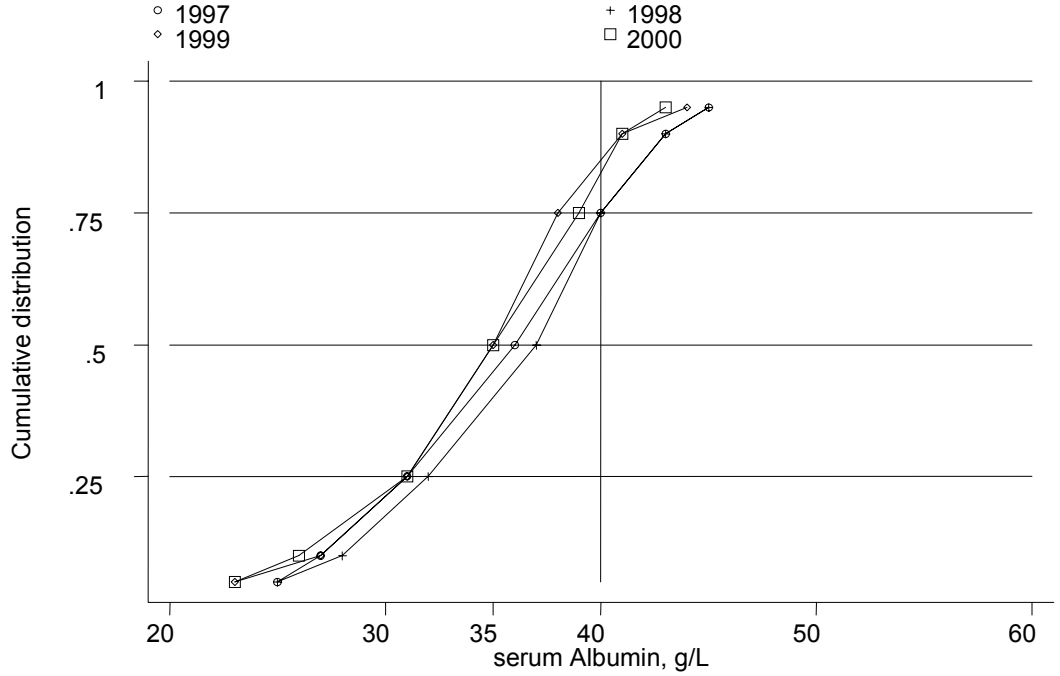
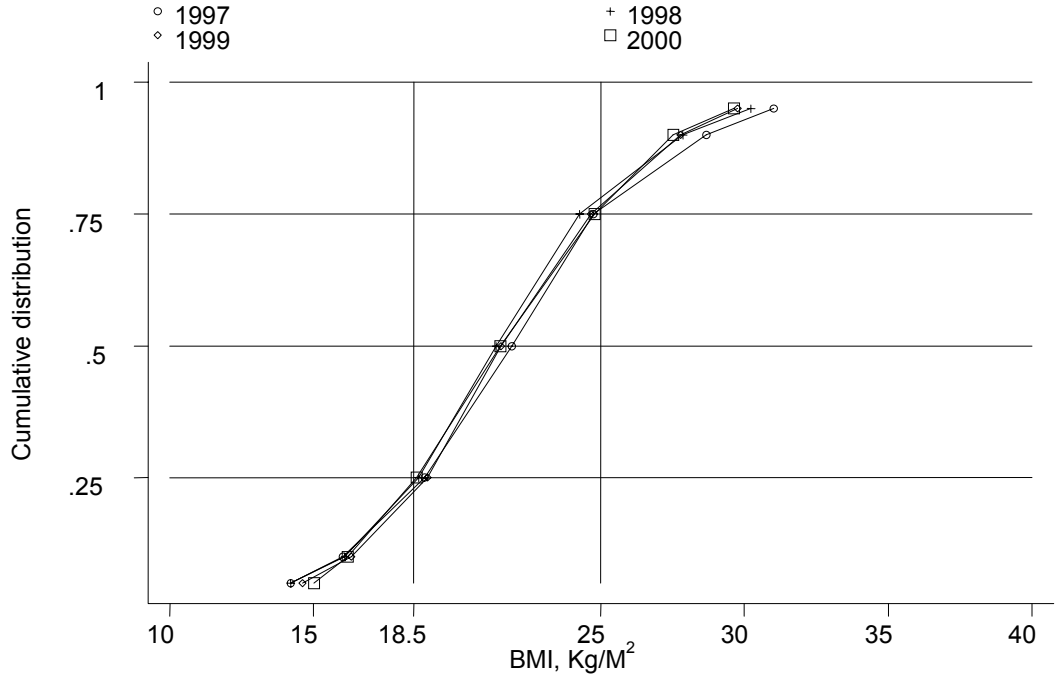


Table 4.48: Distribution of Body Mass Index
CAPD patients, Government Centres 1997 – 2000

Year	No of subjects	No of observations	median	LQ	UQ	% patients <18.5	% patients ≥18.5 & ≤25	% patients >25
1997	419	3579	21.9	18.9	24.7	22	55	24
1998	489	4243	21.4	18.7	24.3	23	55	21
1999	550	4316	21.5	19	24.7	22	56	23
2000	599	4990	21.5	18.6	24.8	24	53	23

Figure 4.48: Cumulative distribution of BMI by year

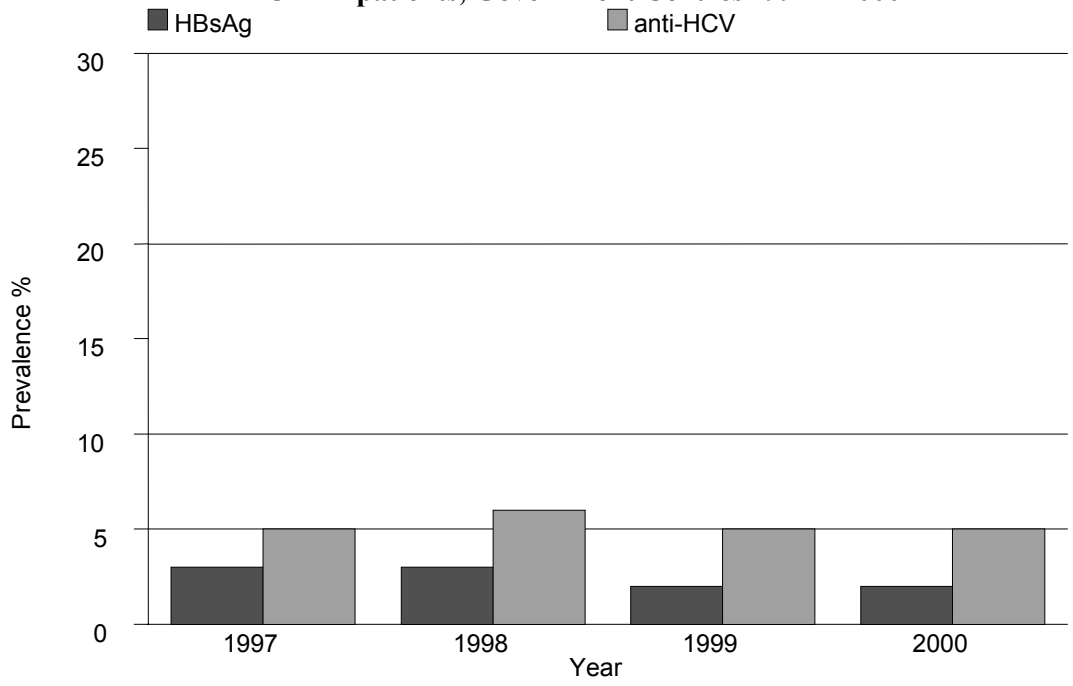


4.14 SEROLOGICAL STATUS, CAPD PATIENTS, GOVERNMENT CENTRES

Table 4.49: Prevalence of positive anti-HCV and HBsAg APD patients, Government Centres 1997 – 2000

Year	No	% HBsAg positive	% anti-HCV positive
1997	477	3	5
1998	541	3	6
1999	610	2	5
2000	662	2	5

Figure 4.49: Prevalence of positive anti-HCV and HBsAg CAPD patients, Government Centres 1997 – 2000



RENAL TRANSPLANTATION

Stock and Flow

Place and Type of Transplant

Death after Transplantation and Graft Failure

Centres of Follow-up

Characteristics of Transplant Patients

Survival Analysis

Work related Rehabilitation and Quality of Life

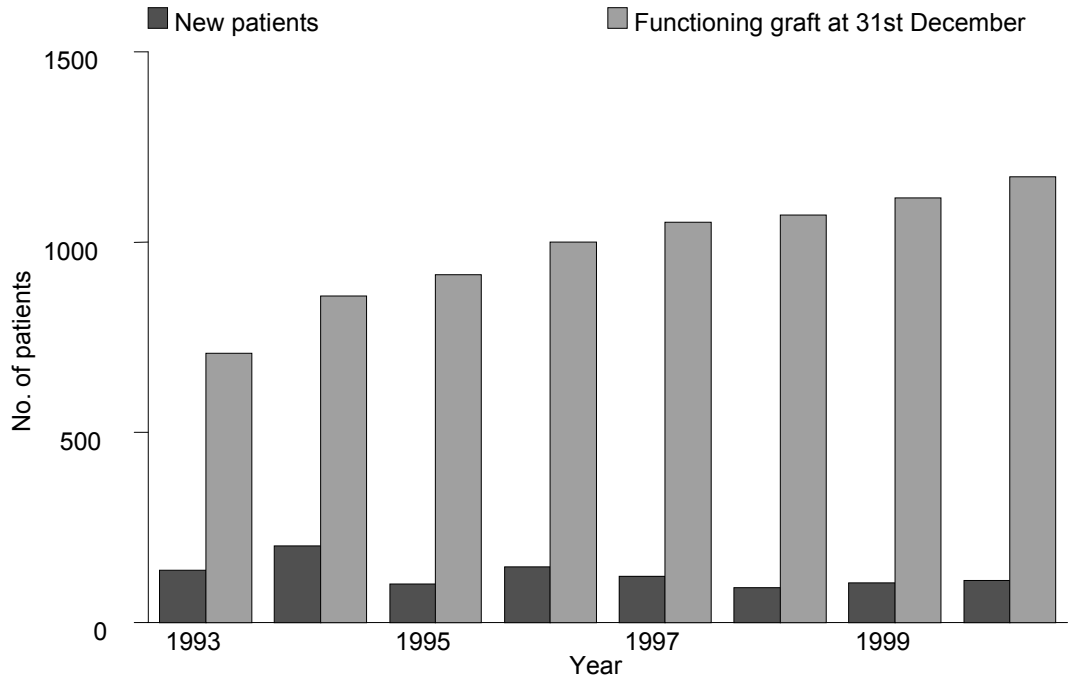
5. RENAL TRANSPLANTATION

5.1 STOCK AND FLOW

Table 5.01 Stock and Flow of Renal Transplant Patients 1993 - 2000

Year	1993	1994	1995	1996	1997	1998	1999	2000
New transplant patients	137	202	101	146	122	91	104	111
Died	20	28	16	31	29	24	24	26
Returned to dialysis	23	21	28	28	39	46	34	28
Lost to Follow Up	1	3	1	1	2	2	1	2
Functioning graft at 31st December	708	858	914	1000	1052	1071	1116	1171

Figure 5.01: Stock and Flow Renal Transplant Patients, 1993 - 2000



5.2 PLACE AND TYPE OF RENAL TRANSPLANT

Table 5.02: Place of Renal Transplantation 1993 - 2000

Year	1993		1994		1995		1996	
	No.	%	No.	%	No.	%	No.	%
HKL	36	26	33	16	36	36	33	23
UH	3	2	5	2	9	9	6	4
Other local	0	0	0	0	0	0	0	0
India	84	61	142	70	22	22	5	3
China	12	9	21	10	33	33	101	69
Other overseas	2	1	1	0	1	1	1	1
Total	137	100	202	100	101	100	146	100

Year	1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%
HKL	29	24	33	36	35	34	28	25
UH	6	5	6	7	9	9	6	5
Other local	0	0	0	0	1	1	1	1
India	7	6	6	7	5	5	8	7
China	78	64	44	48	54	52	62	56
Other overseas	2	2	2	2	0	0	0	0
Total	122	100	91	100	104	100	111	100

Table 5.03: Type of Renal Transplantation 1993 - 2000

Year	1993		1994		1995		1996	
	No.	%	No.	%	No.	%	No.	%
Commercial Cadaver	12	9	21	10	33	33	101	69
Commercial Live donor	83	61	141	70	19	19	4	3
Live donor	39	28	38	19	44	44	39	27
Cadaver	2	1	2	1	5	5	2	1
Total	137	100	202	100	101	100	146	100
Year	1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%
Commercial Cadaver	78	64	44	48	49	47	58	52
Commercial Live donor	7	6	4	4	4	4	9	8
Live donor	29	24	27	30	37	36	14	13
Cadaver	8	7	15	16	11	11	26	23
Total	122	100	91	100	104	100	111	100

5.3 DEATH AFTER TRANSPLANTATION AND GRAFT FAILURE

Table 5.04: Transplant Patients Death Rate and Graft Loss 1993 - 2000

Year	1993	1994	1995	1996	1997	1998	1999	2000
No. at risk	708	783	886	957	1026	1062	1094	1144
Transplant death	20	28	16	31	29	24	24	26
Transplant death rate %	3	4	2	3	3	2	2	2
Graft loss	23	21	28	28	39	46	34	28
Graft loss %	3	3	3	3	4	4	3	2
All losses	43	49	44	59	68	70	58	54
All losses rate %	6	6	5	6	7	7	5	5

Figure 5.04: Transplant Recipient Death Rate 1993 - 2000

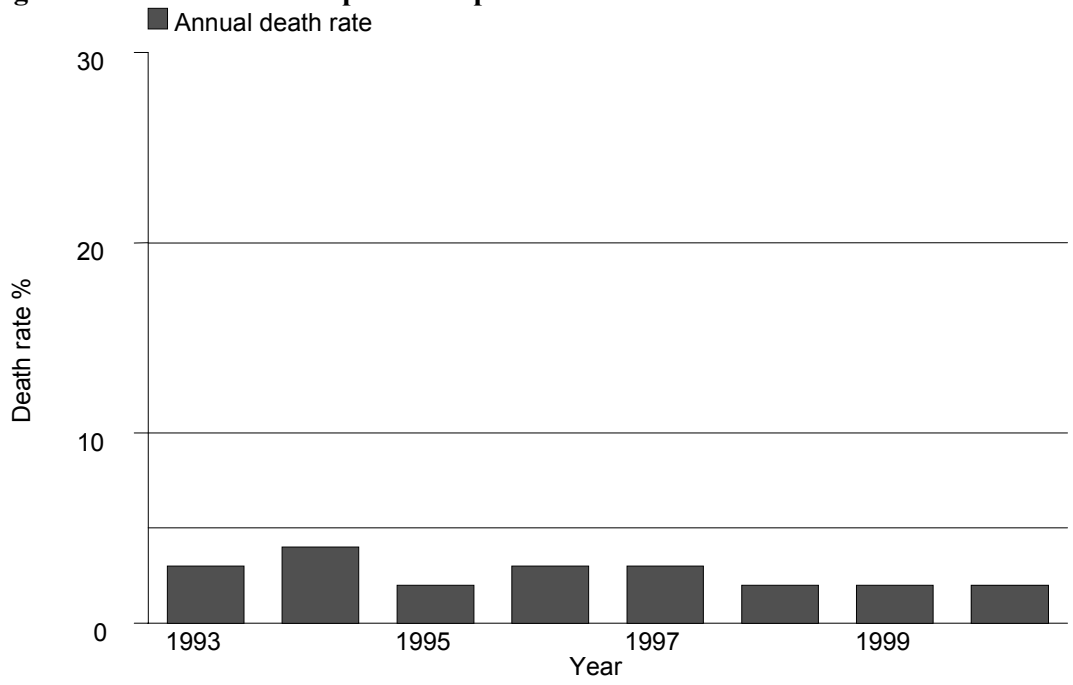


Table 5.05: Causes of Death in Transplant Recipients 1997 – 2000

Year	1997		1998		1999		2000	
	No	%	No	%	No	%	No	%
Cardiovascular	3	10	3	13	3	13	9	35
Died at home	2	7	4	17	3	13	0	0
Sepsis	14	48	9	38	7	29	9	35
GIT bleeding	0	0	2	8	1	4	1	4
Cancer	0	0	3	13	3	13	2	8
Liver disease	2	7	1	4	1	4	1	4
Others	4	14	0	0	3	13	4	15
Unknown	4	14	2	8	3	13	0	0
Total	29	100	24	100	24	100	26	100

Table 5.06: Causes of Graft Failure 1997 - 2000

Year	1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%
Rejection	20	51	24	52	21	62	19	68
Cyclosporine/ drug toxicity	0	0	0	0	0	0	0	0
Ureteric obstruction	0	0	0	0	0	0	0	0
Vascular causes(stenosis / thrombosis)	4	10	1	2	1	3	3	11
Renal disease, recurrent/de novo	1	3	1	2	0	0	0	0
Technical complication	0	0	0	0	0	0	2	7
Others	4	10	4	9	0	0	1	4
Unknown	10	26	16	35	12	35	3	11
Total	39	100	46	100	34	100	28	100

5.4 CENTRES OF FOLLOW-UP

Table 5.07: Distribution of Centres of Follow-up of Transplant Recipients, 2000

n	Centre	No	percent
0	No. with functioning graft at 31st December	1171	100
1	Alor Setar Hospital	6	1
2	Ampang Puteri Specialist Hospital	1	0
3	Assunta Hospital	2	0
4	Batu Pahat Hospital	11	1
5	Bintulu Hospital	3	0
6	C.S. Loo Kidney & Medical Specialist Centre	2	0
7	Damai Medical & Heart Clinic	1	0
8	Dutches of Kent Hospital	5	0
9	Healthcare Dialysis Centre, Petaling Jaya	16	1
10	Ipoh Hospital	45	4
11	Kluang Hospital	11	1
12	Kota Bharu Hospital	2	0
13	Kuala Lumpur Hospital	339	29
14	Kuala Terengganu Hospital	6	1
15	Kuching Hospital	45	4
16	Labuan Hospital	1	0
17	Mahkota Medical	15	1
18	Melaka Hospital	25	2
19	Miri Hospital	16	1
20	Muar Hospital	15	1
21	Pantai Mutiara Hospital, Penang	1	0
22	Pulau Pinang Hospital	159	14
23	Pusat Pakar Tawakal	11	1
24	Queen Elizabeth Hospital	42	4
25	Renal Dialysis Centre, Gleneagles Intan Medical Centre	1	0
26	Renal Healthcare, Kuala Lumpur	1	0
27	Segamat Hospital	9	1
28	Selangor Medical Centre	3	0
29	Selayang Hospital	11	1
30	Seremban Hospital	27	2
31	Sibu Hospital	26	2
32	Subang Jaya Medical Centre	13	1
33	Sultanah Aminah Hospital	137	12
34	Taiping Hospital	1	0
35	Tawau Hospital	6	1
36	Tengku Ampuan Afzan Hospital, Kuantan	23	2
37	Tengku Ampuan Rahimah Hospital, Klang	33	3
38	Timberland Medical Centre	22	2
39	Universiti Kebangsaan Malaysia Hospital	1	0
40	Universiti Sains Malaysia Hospital	3	0
41	University Hospital	74	6

5.5 TRANSPLANT RECIPIENTS' CHARACTERISTICS

Table 5.08: Percentage age distribution of transplant recipients 1997 – 2000

Year	1997	1998	1999	2000
New transplant patients	122	91	104	111
1-14 years	6	4	6	7
15-24 years	16	5	13	7
25-34 years	23	32	26	23
35-44 years	30	29	31	24
45-54 years	20	24	18	29
55-64 years	3	5	7	9
≥65 years	2	0	0	1
Functioning graft at 31st December	1052	1071	1116	1171
1-14 years	2	3	3	3
15-24 years	15	14	14	14
25-34 years	32	32	32	31
35-44 years	30	30	30	30
45-54 years	15	16	16	17
55-64 years	5	5	5	5
≥65 years	0	0	0	0

Table 5.09: Renal Transplant Recipients' Characteristics 1997 - 2000

Year	1997	1998	1999	2000
New transplant patients	122	91	104	111
Mean age± sd	35±13	37±11	36±13	38±14
% male	66	60	61	66
% Diabetic	11	9	12	14
% HBsAg+	5	4	4	4
% Anti-HCV+	5	16	10	6

5.6 SURVIVAL ANALYSIS

Table 5.10: Transplant Patient Survival related to Year of Transplant 1995 - 2000

Year	1995			1996			1997		
Interval (months)	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	97	2	93	93	2	136	98	1	114
12	97	2	92	92	2	133	96	2	111
24	96	2	89	90	2	129	95	2	108
36	94	3	81	88	3	124	91	3	93
48	91	3	77	86	3	121			
60	90	3							

Year	1998			1999			2000		
Interval (months)	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	94	3		99	1		98	2	
12	94	3		99	1				
24	94	3							

No. = number at risk SE = standard error

Figure 5.10: Transplant Patient Survival by Year of Transplant 1996 – 2000

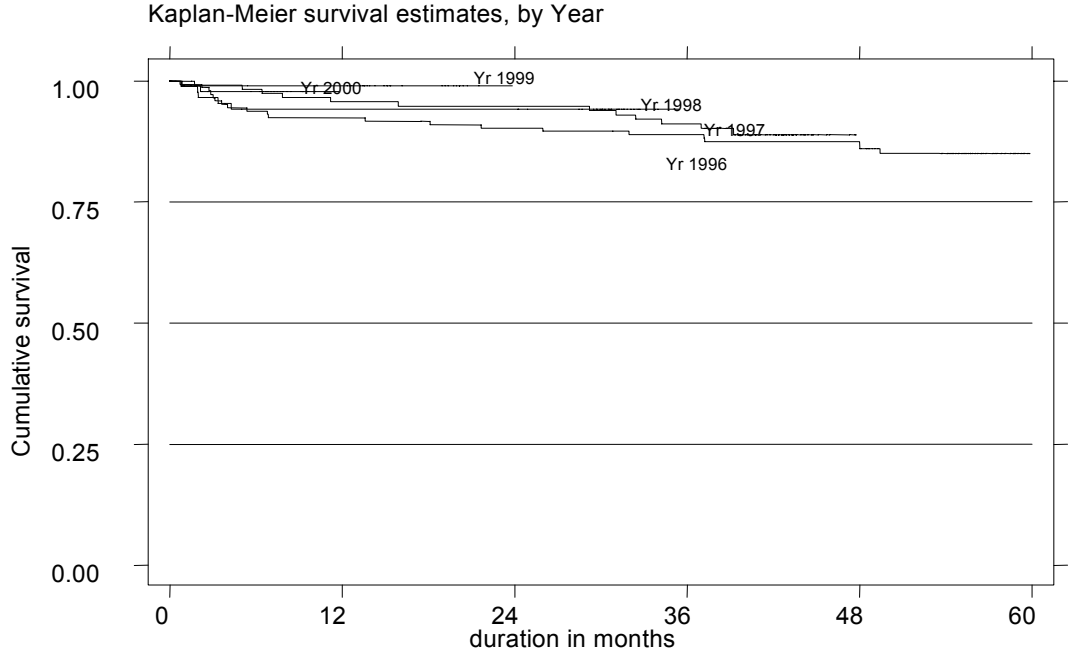


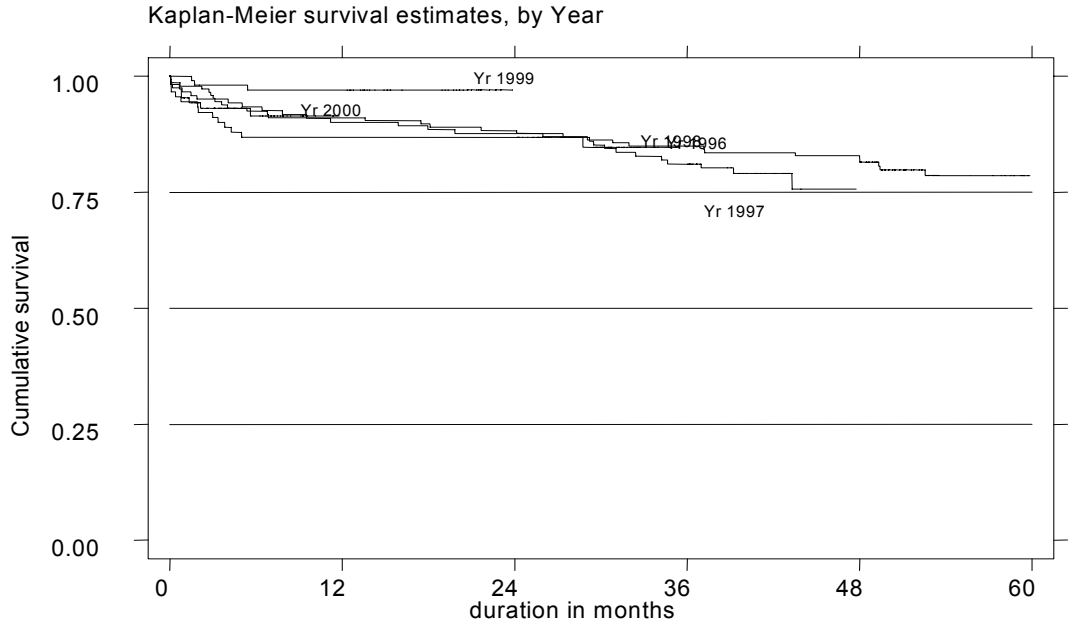
Table 5.11: Transplant Allograft Survival related to Year of Transplant 1995 – 2000

Year	1995			1996			1997		
Interval (months)	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	91	3	93	92	2	136	93	2	114
12	91	3	92	91	2	133	90	3	111
24	89	3	90	88	3	129	87	3	107
36	81	4	81	84	3	124	81	4	93
48	76	4	76	82	3	121			
60	75	4							

Year	1998			1999			2000		
Interval (months)	% survival	SE	No	% survival	SE	No	% survival	SE	No
6	87	4	78	97	2		91	3	
12	87	4	68	97	2				
24	87	4	49						

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

Figure 5.11: Transplant Allograft Survival by Year of Transplant 1996-2000



5.7 WORK RELATED REHABILITATION AND QUALITY OF LIFE IN TRANSPLANT RECIPIENTS

Table 5.12: Work Related Rehabilitation in Transplant Recipients 1997 - 2000

REHABILITATION STATUS	1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%
Full time work for pay	492	62	420	68	543	62	548	66
Part time work for pay	77	10	36	6	62	7	60	7
Able to work but unable to get a job	20	3	20	3	8	1	10	1
Able to work but not yet due to dialysis schedule	1	0	0	0	0	0	1	0
Able but disinclined to work	9	1	10	2	6	1	7	1
Home maker	128	16	94	15	174	20	138	17
Full time student	18	2	14	2	32	4	30	4
Age<15 years	5	1	3	0	3	0	3	0
Retired	14	2	10	2	32	4	31	4
Age>65 years	7	1	6	1	7	1	5	1
Unable to work due to poor health	20	3	9	1	11	1	2	0
Total	791	100	622	100	878	100	835	100

Table 5.13: Quality of Life, Transplant recipients 1997 – 2000

QOL Index Summated Score	1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%
0 (Worst QOL)	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0
4	2	0	1	0	0	0	2	0
5	2	0	0	0	1	0	0	0
6	10	1	5	1	4	0	2	0
7	11	1	9	2	8	1	1	0
8	18	2	11	2	5	1	12	1
9	24	3	31	5	9	1	23	3
10 (Best QOL)	728	92	532	90	852	97	780	95
Total	795	100	589	100	879	100	820	100