

CHAPTER 8

**BLOOD PRESSURE CONTROL
AND DYSLIPIDAEMIA
IN PATIENTS ON DIALYSIS**

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SECTION 8.1: BLOOD PRESSURE CONTROL ON DIALYSIS

As we enter the first year of the second decade of the 21st century, the predialysis systolic blood pressure in haemodialysis patients in Malaysia remain suboptimally controlled with only 28% of haemodialysis patients achieving systolic BP < 140 mmHg in 2010 (Table 8.1.1). The mean and median predialysis systolic blood pressure in haemodialysis patients is still unacceptably high at 150.7 mmHg and 150.4 mmHg respectively in 2010.

Table 8.1.1: Distribution of Pre dialysis Systolic Blood Pressure, HD patients 2001-2010

Year	Number of patients	Mean	SD	Median	LQ	UQ	% Patients <120 mmHg	% Patients 120-<140 mmHg	% Patients 140-<160 mmHg	% Patients 160-<180 mmHg	% Patients ≥180 mmHg
2001	5147	148.8	20.9	148.8	134.9	162.6	8	25	37	23	7
2002	5911	149.2	20.6	149	135.8	163.3	8	24	38	24	6
2003	6834	149.7	20.2	149.8	136.4	162.9	7	24	39	23	7
2004	7937	149.7	20	150	136.6	163.1	7	23	39	25	6
2005	9221	149.9	19.4	149.6	137	162.8	6	24	40	24	6
2006	11526	151.4	19.3	151.1	138.8	164	5	22	41	25	7
2007	12830	152.1	19.1	151.9	139.3	164.7	5	21	40	27	7
2008	15314	152.1	19	152	139.4	164.6	4	21	40	27	7
2009	17872	151	19	150.6	138.2	163.5	5	23	41	25	7
2010	19170	150.7	19	150.4	138.3	163.3	5	23	41	25	6

Figure 8.1.1: Cumulative distribution of Pre dialysis Systolic Blood Pressure, HD patients 2001-2010

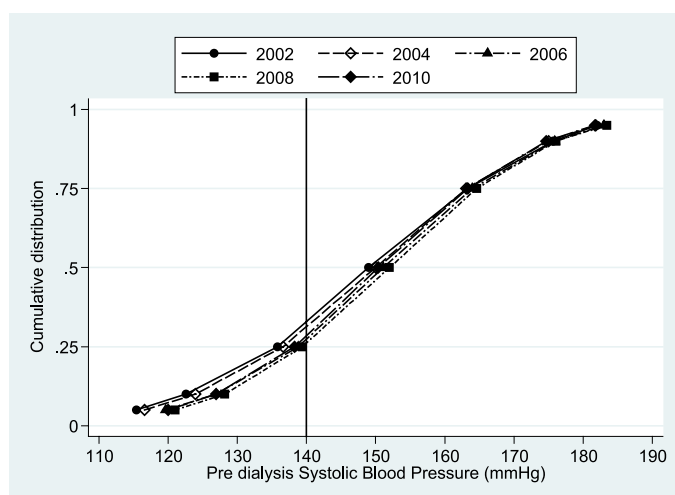
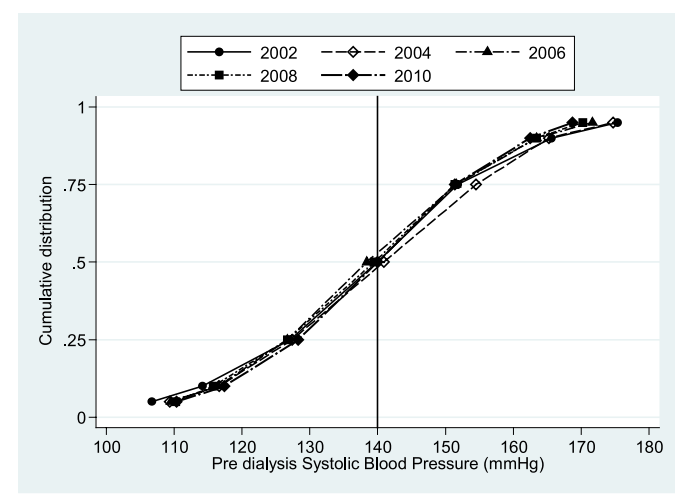


Figure 8.1.2: Distribution of Pre dialysis Systolic Blood Pressure, PD patients 2001-2010



In contrast to haemodialysis patients, predialysis systolic blood pressure was better controlled in PD patients in 2010, with 49% of PD patients having a predialysis systolic BP < 140mmHg (Table 8.1.2). The mean and median predialysis systolic BP in CAPD patients were also lower than haemodialysis patients at 140 mmHg respectively.

Table 8.1.2: Distribution of Pre dialysis Systolic Blood Pressure, PD patients 2001-2010

Year	Number of patients	Mean	SD	Median	LQ	UQ	% Patients <120 mmHg	% Patients 120-<140 mmHg	% Patients 140-<160 mmHg	% Patients 160-<180 mmHg	% Patients ≥180 mmHg
2001	739	139	20.2	137.5	125.8	151.7	16	38	30	13	3
2002	843	139.8	20.5	140	127.1	151.8	14	36	34	12	4
2003	1154	140.5	20.1	140	126.7	154.1	15	35	32	15	3
2004	1259	141	19.8	140.9	127.4	154.5	13	34	36	14	3
2005	1351	140.4	20.2	139.3	127.3	153.2	13	38	32	14	3
2006	1523	139.3	19.3	138.4	126.7	151.6	14	40	32	11	2
2007	1753	139.9	19.2	139.4	127	152.8	15	37	33	13	2
2008	2049	139.4	18.7	139.5	126.7	151.4	15	36	35	12	2
2009	2177	140.7	18.7	140.5	128.1	153.4	13	35	35	14	2
2010	2327	140	17.8	140	128.3	151.4	12	37	38	11	2

As in previous years, predialysis diastolic blood pressure in haemodialysis patients is better controlled than predialysis systolic blood pressure in 2010, with 85% of such patients achieving predialysis diastolic BP <90 mmHg (Table 8.1.3). The mean and median predialysis diastolic blood pressure in haemodialysis patients is satisfactory at 79.6 mmHg and 79 mmHg respectively in 2010. Given that the diastolic BP control is better than the systolic BP control, it indicates a wide pulse pressure - an indication of poor blood vessel compliance.

Table 8.1.3: Distribution of Pre dialysis Diastolic Blood Pressure, HD patients 2001-2010

Year	Number of patients	Mean	SD	Median	LQ	UQ	% Patients <70 mmHg	% Patients 70-<80 mmHg	% Patients 80-<90 mmHg	% Patients 90-<100 mmHg	% Patients ≥100 mmHg
2001	5146	81.6	10.4	81.7	75	88.3	12	30	37	17	4
2002	5907	81.2	10.4	81.3	74.5	88.1	13	30	37	16	3
2003	6832	80.6	10.2	80.8	73.9	87.2	14	32	37	14	3
2004	7935	80.3	10.2	80.3	73.6	86.9	15	33	36	14	3
2005	9221	80.3	10.6	80.4	73.5	87	15	32	36	14	3
2006	11525	80.4	11.1	80.4	73.3	87.1	16	32	35	14	3
2007	12830	80.4	11.1	80.2	73.1	87	16	32	34	14	4
2008	15312	79.8	11.1	79.6	72.4	86.7	18	33	33	13	3
2009	17871	79.7	12	79.2	72	86.4	19	33	31	12	4
2010	19168	79.6	12.1	79	71.8	86.3	20	34	31	12	4

Figure 8.1.3: Cumulative Distribution of Pre dialysis Diastolic Blood Pressure, HD patients 2001-2010

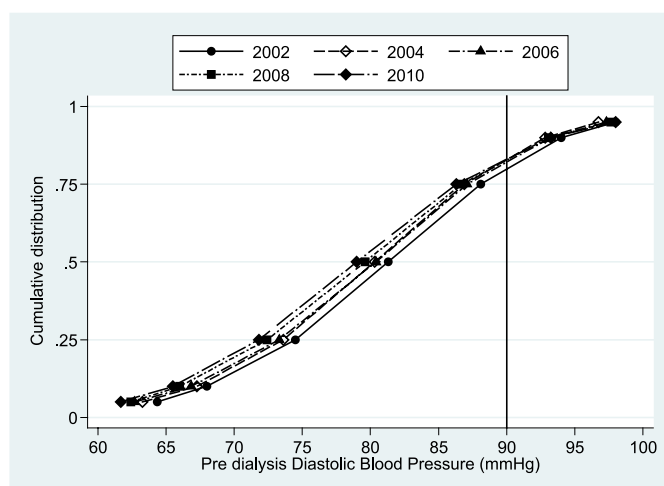
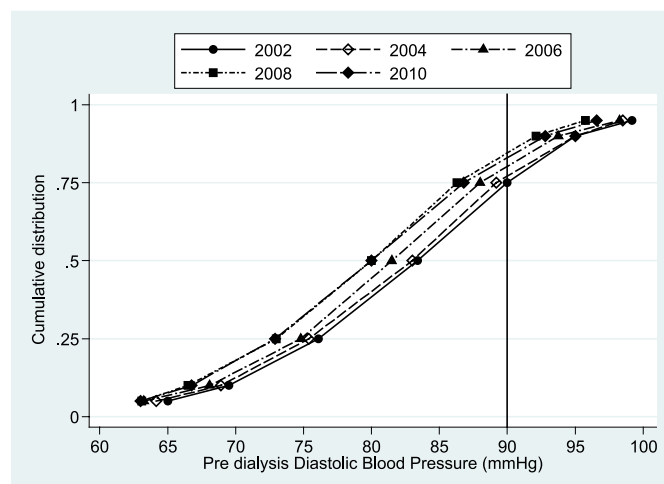


Figure 8.1.4: Cumulative Distribution of Pre dialysis Diastolic Blood Pressure, PD patients 2001-2010



The predialysis diastolic blood pressure in PD patients is similarly satisfactorily controlled in 2010 with 84% of PD patients achieving diastolic BP < 90 mmHg (Table 8.1.4). The mean and median predialysis diastolic blood pressure in PD patients were satisfactory at 79.9 mmHg and 80 mmHg respectively in 2010.

Table 8.1.4: Distribution of Pre dialysis Diastolic Blood Pressure, PD patients 2001-2010

Year	Number of patients	Mean	SD	Median	LQ	UQ	% Patients <70 mmHg	% Patients 70-<80 mmHg	% Patients 80-<90 mmHg	% Patients 90-<100 mmHg	% Patients ≥100 mmHg
2001	739	83.1	10.9	82.7	76.4	89.6	9	29	38	18	6
2002	843	82.8	10.8	83.4	76.1	90	11	24	41	21	5
2003	1156	82.2	10.9	82.3	75.6	89.4	12	26	38	19	4
2004	1258	82.2	10.5	83	75.4	89.2	11	28	38	18	4
2005	1351	81.6	10.9	82.2	75	88.3	12	29	40	15	5
2006	1522	81.3	10.6	81.5	74.8	88	13	28	40	15	3
2007	1752	80.6	10.7	80.7	74	86.9	14	32	38	12	3
2008	2049	79.7	10.1	80	73	86.3	16	32	36	13	2
2009	2177	80.2	10.3	80.2	73.5	86.9	15	33	35	14	3
2010	2327	79.9	10.4	80	72.9	86.8	17	33	34	13	3

There was only a mild variation in predialysis median systolic blood pressure and predialysis median diastolic blood pressure among haemodialysis centers in 2010. This is similar to the trend of recent years (Table 8.1.5 (a) & (b)).

Table 8.1.5: Variation in BP control among HD centres 2001-2010

Table 8.1.5 (a): Median systolic blood pressure among HD patients, HD centres

Year	Number of centres	Min	5 th Centile	LQ	Median	UQ	95 th Centile	Max
2001	126	126.6	136.2	143.3	149.5	154.9	161.8	180.5
2002	146	126.7	137.1	145	149.3	154	162	169.7
2003	178	126.7	136.6	144.9	150.4	156	161.4	173.7
2004	213	120	138	145.3	149.8	155.4	162.4	168.3
2005	241	128.3	136.8	143.6	150.3	155	161	171.8
2006	290	127.9	138.4	146.4	151.5	156.5	163.4	180.1
2007	318	132.1	140.1	147.5	151.9	156.6	165	175.5
2008	368	130	140.4	147.5	152.4	157	164	176.5
2009	408	121.7	139.6	146.7	151.1	155.9	162.8	173.3
2010	430	123.7	140.8	146.6	150.6	155.7	162.1	172.1

Figure 8.1.5 (a): Variation in median systolic blood pressure among HD patients, HD centres 2010

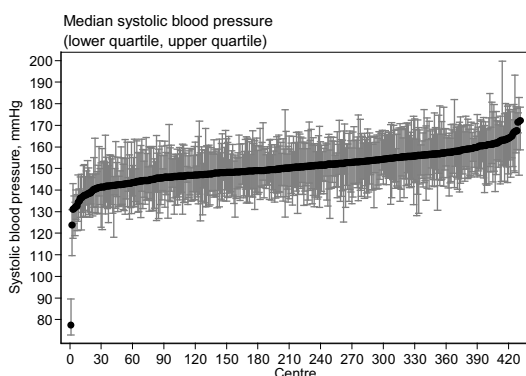


Figure 8.1.5 (b): Variation in median diastolic blood pressure among HD patients, HD centres 2010

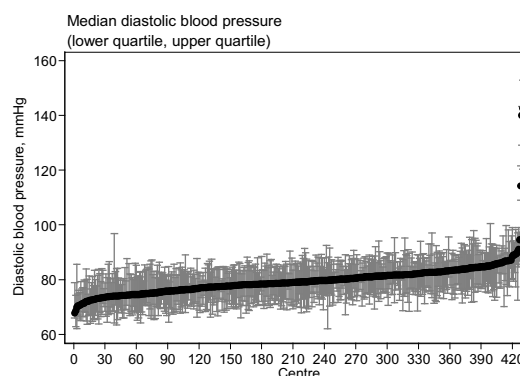


Table 8.1.5 (b): Median Diastolic blood pressure among HD patients, HD centres

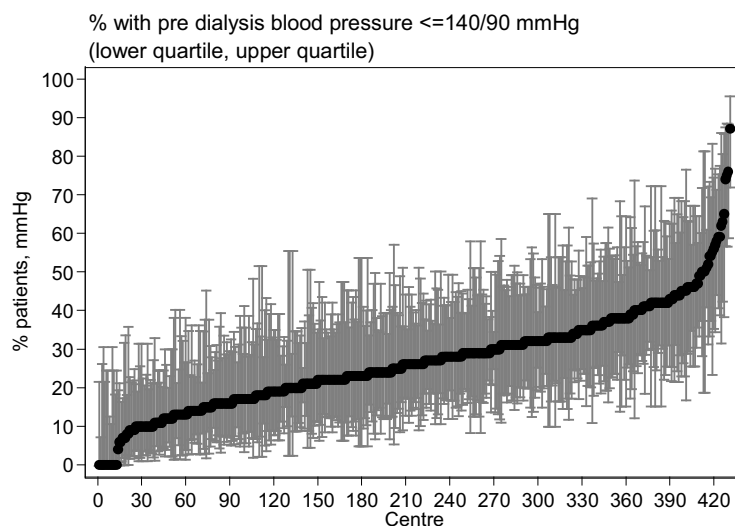
Year	Number of centres	Min	5 th Centile	LQ	Median	UQ	95 th Centile	Max
2001	126	73.9	75.7	79.8	81.9	83.7	87.4	91.3
2002	147	72.3	75.9	79.4	81.3	83.7	87.8	92
2003	178	70.1	75	78.5	80.5	83.5	86.7	93.3
2004	213	70.2	74	78.2	80.8	82.5	86.7	89.1
2005	241	67.4	73.6	78	80.4	82.8	86.7	90.3
2006	290	67.3	74.6	77.9	80.7	83.2	87.3	104.9
2007	318	70.1	73.5	77.7	80.2	83	87.3	124.5
2008	368	66.8	73.7	77.2	79.7	82.3	86.5	92.3
2009	408	68.5	73.1	76.7	79.5	82	86.2	134.4
2010	431	67.8	73	76.4	79.2	81.8	86.1	145.7

In contrast, amongst haemodialysis centres in 2010, there appears to be a wider variation in the proportion of patients achieving BP < 140/90 (Table & Figure 8.1.5(c)). There is a wide intercentile variations of 40% between the 5th to the 95th centile of patients achieving BP control of <140/90mmHg. There were even some haemodialysis centres who reported more than 70% of their patients achieving BP < 140/90 but these are “outliers” and not typical of the majority of haemodialysis centres.

Table 8.1.5 (c): Proportion of HD patients with pre dialysis blood pressure < 140/90 mmHg, HD centres

Year	Number of centres	Min	5 th Centile	LQ	Median	UQ	95 th Centile	Max
2001	126	0	11	20	30.5	43	58	70
2002	147	0	11	21	30	40	59	71
2003	178	3	9	20	28	38	58	81
2004	213	0	9	20	29	38	56	90
2005	241	4	11	20	27	39	55	93
2006	290	0	9	17	25	35	53	74
2007	318	0	8	16	25	33	47	73
2008	368	0	8	17	24	33	48	75
2009	408	0	10	18	26	35	50	80
2010	431	0	9	18	26	34	49	87

Figure 8.1.5 (c): Variation in proportion of HD patients with pre dialysis blood pressure < 140/90 mmHg, HD centers 2010



There is some variation in predialysis median systolic blood pressure and predialysis median diastolic blood pressure among PD centres in 2010 (Figure 8.1.6 (a) & (b)).

Table 8.1.6: Variation in BP control among PD centres 2001-2010

Table 8.1.6 (a): Median systolic blood pressure among PD patients

Year	Number of centres	Min	5 th Centile	LQ	Median	UQ	95 th Centile	Max
2001	11	119.6	119.6	130.7	137.5	138.8	149	149
2002	15	123.6	123.6	134.5	140	144.5	148.2	148.2
2003	18	123.8	123.8	132.4	142.4	144.3	151.8	151.8
2004	18	122.9	122.9	134.5	139.8	143.8	149.7	149.7
2005	19	122.6	122.6	134.8	136.6	142	158	158
2006	22	113	118.3	130.2	136.3	140.4	146	154.9
2007	22	114.6	115.8	135.2	138.2	141.8	147.4	153.5
2008	22	111.5	118.3	136	138.4	141.9	147.7	147.9
2009	23	113.7	115.6	133.6	138.5	145	150.9	161.5
2010	25	115	116.9	131.1	138.4	142	146	146.3

Figure 8.1.6 (a): Variation in median systolic blood pressure among PD patients, PD centres 2010

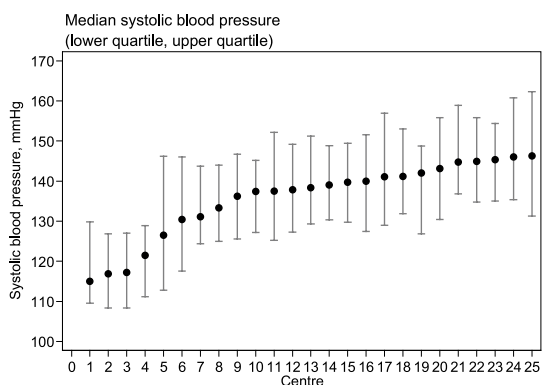


Figure 8.1.6 (b): Variation in median diastolic blood pressure among PD patients, PD centres 2010

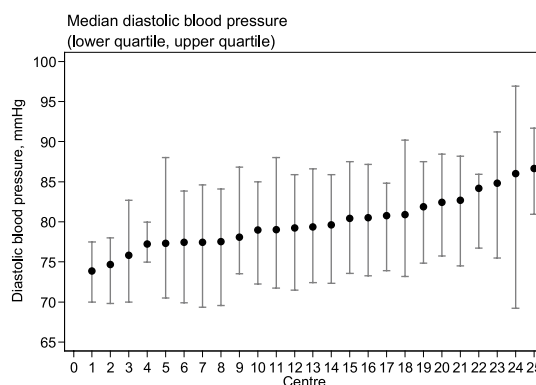


Table 8.1.6 (b): Median Diastolic blood pressure among PD patients, PD centres

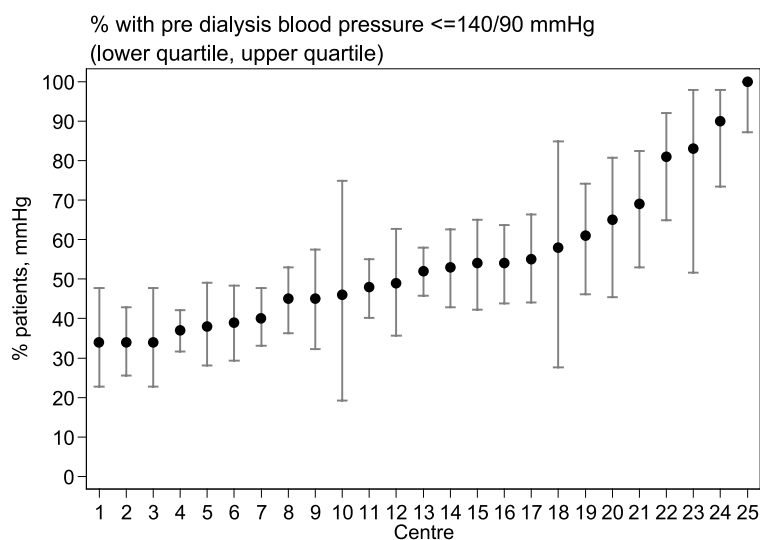
Year	Number of centres	Min	5 th Centile	LQ	Median	UQ	95 th Centile	Max
2001	11	78	78	80.9	83.4	84.8	88	88
2002	15	75.7	75.7	81.8	83.3	85.7	89.5	89.5
2003	18	77.5	77.5	81.2	82.9	84	88	88
2004	18	77.5	77.5	80.8	83.4	84.1	87	87
2005	19	74.4	74.4	80.3	82.8	84.2	86	86
2006	22	71.6	74	78.9	81.4	82.4	86.5	88.4
2007	22	68	77.3	78.9	80	82.3	83.2	87
2008	22	75.3	76.2	78.1	79.8	82	84.5	86.8
2009	23	73.3	73.5	78.5	79.3	82	84.3	87.9
2010	25	73.9	74.7	77.5	79.4	81.9	86	86.7

Similar to haemodialysis centres, there was also a wide variation amongst PD centres in the proportion of patients achieving BP < 140/90 (Table & Figure 8.1.6 (c)). ie 56% difference between the 5th and 95% centile. Overall BP control is better in PD patients.

Table 8.1.6 (c): Proportion of PD patients with pre dialysis blood pressure < 140/90 mmHg, PD centres

Year	Number of centre	Min	5 th Centile	LQ	Median	UQ	95 th Centile	Max
2001	11	36	36	48	52	63	87	87
2002	15	19	19	33	47	56	90	90
2003	18	28	28	38	46.5	65	74	74
2004	18	30	30	38	47	56	73	73
2005	19	23	23	43	55	62	92	92
2006	22	18	37	43	58.5	70	100	100
2007	22	27	29	45	53.5	68	91	91
2008	22	28	29	42	54	58	87	96
2009	23	10	29	40	51	58	92	96
2010	25	34	34	40	52	61	90	100

Figure 8.1.6 (c): Variation in proportion of PD patients with pre dialysis blood pressure \leq 140/90 mmHg, PD centres 2010



In summary, the BP control is better in PD patients as compared to HD patients with 52% achieving BP control of <140/90mmHg as compared to 26% in HD patients. This warrants further attention to control of salt and water intake and achievement of optimum dry weight.

SECTION 8.2: DYSLIPIDEMIA IN DIALYSIS PATIENTS

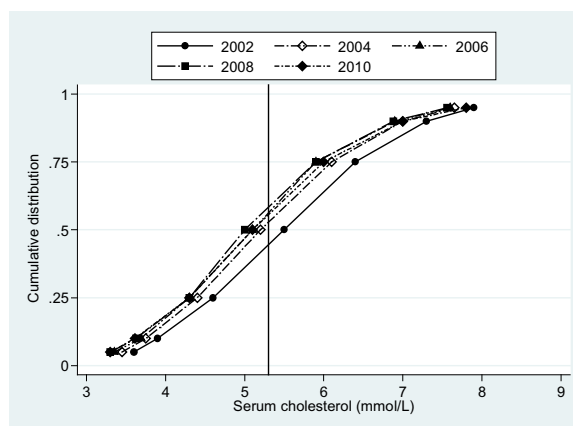
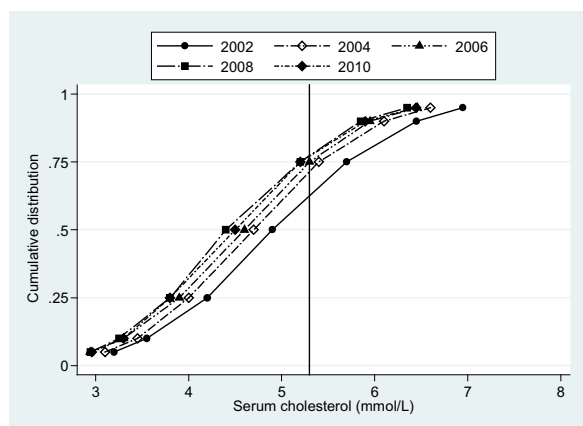
The trend over the past 10 years of improving total cholesterol levels in HD patients continued in 2010, with 77% of HD patients achieving total cholesterol < 5.3 mmol/L (Table & Figure 8.2.1) compared to 60% in 2001. The mean and median serum cholesterol levels in HD patients were 4.6 mmol/L and 4.5mmol/L respectively.

Table 8.2.1: Distribution of serum Cholesterol, HD patients 2001-2010

Year	Number of patients	Mean	SD	Median	LQ	UQ	% patients <3.5 mmol/L	% patients 3.5-<5.3 mmol/L	% patients 5.3-<6.2 mmol/L	% patients ≥6.2 Mmol/L
2001	3898	5.1	1.3	4.9	4.2	5.8	8	52	24	16
2002	4751	5	1.2	4.9	4.2	5.7	9	55	24	13
2003	5806	4.8	1.1	4.8	4.1	5.5	9	59	21	11
2004	6710	4.7	1.1	4.7	4	5.4	11	60	21	8
2005	7906	4.7	1.1	4.6	4	5.3	12	61	19	8
2006	10139	4.6	1.1	4.6	3.9	5.3	14	62	17	7
2007	11347	4.6	1.1	4.5	3.8	5.2	14	63	17	6
2008	13820	4.5	1.1	4.4	3.8	5.2	15	63	16	6
2009	15905	4.6	1.1	4.5	3.8	5.2	14	63	16	6
2010	17424	4.6	1.1	4.5	3.8	5.2	14	63	16	7

Figure 8.2.1: Cumulative distribution of Cholesterol, HD patients 2001-2010

Figure 8.2.2: Cumulative distribution of Cholesterol (mmol/L), PD patients 2001-2010



However total cholesterol levels in PD patients was less optimally controlled in comparison with HD patients, with 56% of PD patients achieving total cholesterol < 5.3 mmol/L in 2010 (Table & Figure 8.2.2). The mean and median serum cholesterol levels in PD patients in 2010 were 5.2 mmol/L and 5.1 mmol/L respectively.

Table 8.2.2: Distribution of serum Cholesterol, PD patients 2001-2010

Year	Number of patients	Mean	SD	Median	LQ	UQ	% patients <3.5 mmol/L	% patients 3.5-<5.3 mmol/L	% patients 5.3-<6.2 mmol/L	% patients ≥6.2 Mmol/L
2001	581	5.8	1.4	5.7	4.8	6.6	2	36	27	35
2002	766	5.6	1.4	5.5	4.6	6.4	4	38	28	29
2003	1104	5.4	1.4	5.3	4.4	6.1	5	45	27	23
2004	1230	5.3	1.4	5.2	4.4	6.1	5	48	26	21
2005	1242	5.2	1.3	5	4.3	5.9	5	55	22	18
2006	1395	5.2	1.4	5.1	4.3	5.9	6	51	25	18
2007	1629	5.1	1.3	5.1	4.2	5.9	8	50	24	18
2008	1902	5.2	1.4	5	4.3	5.9	7	51	23	18
2009	2016	5.3	1.5	5.1	4.3	6	6	50	24	20
2010	2186	5.2	1.4	5.1	4.3	6	7	49	24	20

Serum triglyceride control was slightly better in HD patients than PD patients in 2010, with 75% of HD patients achieving serum triglyceride levels < 2.3 mmol/L (Table & Figure 8.2.3) compared with 70% of CAPD patients achieving serum triglyceride level < 2.3 mmol/L (Table & Figure 8.2.4). Control of triglyceride levels in HD patients has been steadily improving over the past 10 years.

Table 8.2.3: Distribution of serum Triglyceride, HD patients 2001-2010

Year	Number of patients	Mean	SD	Median	LQ	UQ	% patients <1.7 mmol/L	% patients 1.7-<2.3 mmol/L	% patients 2.3-<3.5 mmol/L	% patients ≥3.5 mmol/L
2001	3162	2.1	1.4	1.7	1.2	2.5	48	22	17	13
2002	3861	2.1	1.4	1.8	1.2	2.5	47	22	18	12
2003	4710	2	1.3	1.7	1.2	2.5	48	23	18	11
2004	5607	2	1.2	1.7	1.2	2.4	51	23	17	10
2005	6950	2	1.3	1.7	1.2	2.4	50	22	18	10
2006	9522	2	1.3	1.6	1.2	2.3	54	21	16	9
2007	10882	1.9	1.2	1.6	1.1	2.3	55	21	16	8
2008	12927	1.9	1.2	1.6	1.1	2.3	56	20	15	8
2009	15184	1.9	1.3	1.6	1.1	2.3	54	21	16	9
2010	16737	1.9	1.3	1.6	1.1	2.3	54	21	16	9

Figure 8.2.3: Cumulative distribution of serum triglyceride, HD patients 2001-2010

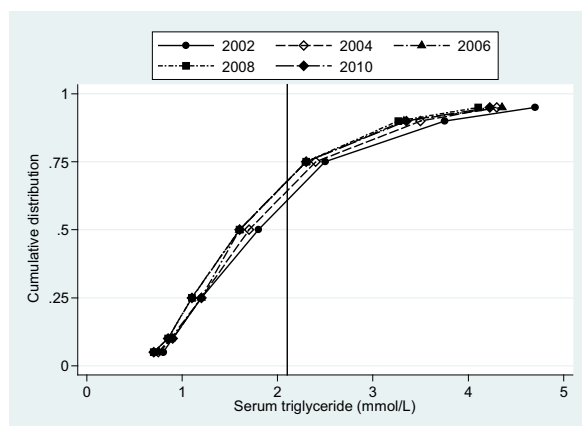


Figure 8.2.4: Cumulative distribution of serum triglyceride, PD patients 2001-2010

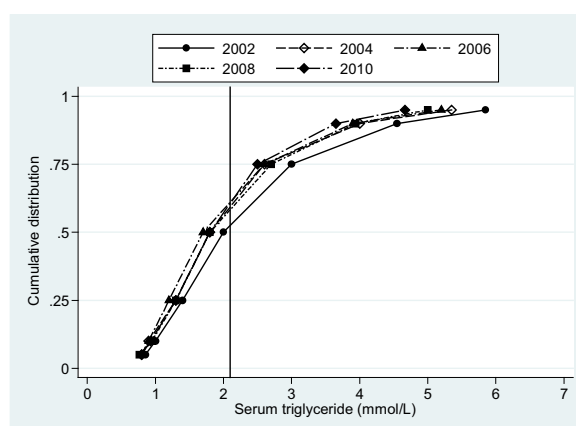


Table 8.2.4: Distribution of serum Triglyceride, PD patients 2001-2010

Year	Number of patients	Mean	SD	Median	LQ	UQ	% patients <1.7 mmol/L	% patients 1.7-<2.3 mmol/L	% patients 2.3-<3.5 mmol/L	% patients ≥3.5 mmol/L
2001	576	2.6	1.8	2	1.4	3	36	22	22	20
2002	767	2.5	1.7	2	1.4	3	39	21	22	18
2003	1100	2.3	1.6	1.8	1.2	2.8	45	20	21	14
2004	1223	2.2	1.6	1.8	1.3	2.6	47	23	17	13
2005	1241	2.2	1.5	1.8	1.3	2.7	43	24	18	14
2006	1391	2.2	1.6	1.7	1.2	2.6	47	21	18	13
2007	1625	2.1	1.4	1.8	1.3	2.6	45	24	19	12
2008	1907	2.2	1.5	1.8	1.3	2.7	45	21	20	14
2009	2017	2.2	1.6	1.8	1.3	2.7	46	21	20	14
2010	2177	2.1	1.4	1.8	1.3	2.5	47	23	18	11

There was a mild variation in median serum cholesterol levels and proportion of HD patients with serum cholesterol < 5.3 mmol/L in HD centers in 2010 (Table 8.2.5 (a) & (b)). Compared to 10 years ago, the median of the proportion of patients with serum cholesterol level < 5.3 mmol/L in HD centers has significantly increased (60% in 2001 to 78% in 2010 (Table 8.2.5(b)).

Table 8.2.5: Variation in dyslipidaemia among HD centres 2001-2010

Table 8.2.5 (a): Median serum cholesterol level among HD patients

Year	Number of centres	Min	5 th Centile	LQ	Median	UQ	95 th Centile	Max
2001	96	4.1	4.4	4.7	5	5.2	5.6	6.3
2002	122	4.3	4.5	4.7	4.9	5.1	5.5	6.4
2003	153	4.2	4.3	4.6	4.8	5	5.3	5.6
2004	182	3.9	4.2	4.5	4.7	4.9	5.3	6.1
2005	214	3.8	4.1	4.4	4.6	4.8	5.2	5.7
2006	267	3.4	3.9	4.3	4.6	4.8	5.1	5.9
2007	286	3.6	4	4.3	4.5	4.8	5.1	5.4
2008	341	3.4	3.9	4.3	4.5	4.7	5.1	6.3
2009	377	3.5	4	4.3	4.5	4.7	5.1	5.6
2010	405	3.7	4	4.3	4.5	4.7	5.1	5.7

Figure 8.2.5 (a): Variation in median serum cholesterol level among HD patients, HD centres 2010

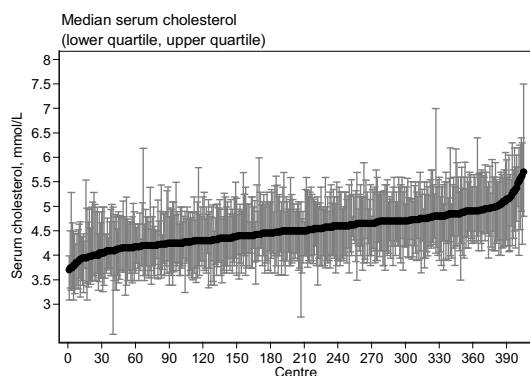


Figure 8.2.5 (b): Variation in proportion of patients with serum cholesterol < 5.3 mmol/L, HD centres 2010

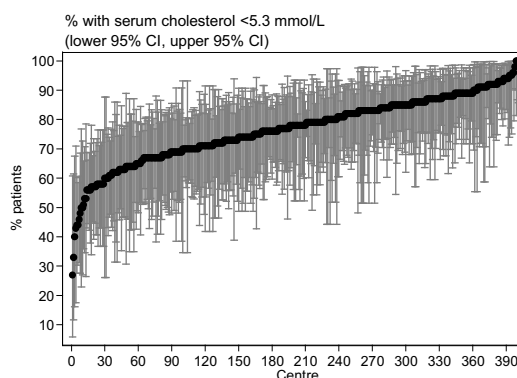


Table 8.2.5 (b): Proportion of HD patients with serum cholesterol < 5.3 mmol/L

Year	Number of centre	Min	5 th Centile	LQ	Median	UQ	95 th Centile	Max
2001	96	14	36	54	60	69	80	89
2002	122	28	44	58	64	71	78	93
2003	153	40	47	60	68	76	83	92
2004	182	38	48	61	70	79	90	94
2005	214	38	52	66	74	81	91	100
2006	267	23	56	69	76	83	92	100
2007	286	38	59	69	77	84	93	100
2008	341	30	58	70	79	86	93	100
2009	377	36	58	70	78	85	93	100
2010	405	27	57	70	78	85	93	100

The proportion of patients with triglyceride level < 2.1 mmol/L in HD centres has only mildly increased from 66% in 2001 to 71% in 2010 (Table 8.2.5(d)).

Table 8.2.5 (c): Median serum triglyceride level among HD patients

Year	Number of centres	Min	5 th Centile	LQ	Median	UQ	95 th Centile	Max
2001	83	1.1	1.4	1.5	1.7	2	2.3	3.1
2002	98	1.1	1.4	1.6	1.8	2	2.3	3.2
2003	130	1.2	1.3	1.5	1.7	1.9	2.2	2.5
2004	157	1	1.3	1.5	1.7	1.8	2.2	3
2005	194	0.9	1.3	1.5	1.7	1.9	2.2	2.6
2006	254	0.9	1.3	1.5	1.6	1.8	2.2	4
2007	274	0.8	1.2	1.4	1.6	1.8	2.1	2.9
2008	317	1	1.2	1.4	1.6	1.7	2	2.3
2009	353	1	1.2	1.4	1.6	1.8	2.1	2.4
2010	387	0.9	1.2	1.5	1.6	1.8	2.1	3.6

Figure 8.2.5 (c): Variation in median serum triglyceride level among HD patients, HD centers 2010

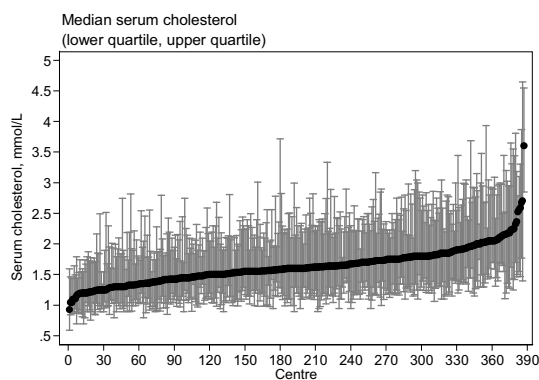


Figure 8.2.5 (d): Variation in proportion of patients with serum triglyceride < 2.1 mmol/L, HD centers 2010

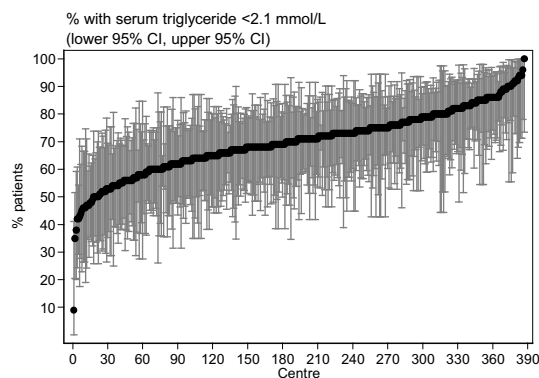


Table 8.2.5 (d): Proportion of HD patients with serum triglyceride < 2.1 mmol/L

Year	Number of centres	Min	5 th Centile	LQ	Median	UQ	95 th Centile	Max
2001	83	29	45	57	66	76	86	90
2002	98	27	44	55	65.5	72	81	93
2003	130	27	44	58	67.5	75	90	100
2004	157	20	47	60	68	79	87	96
2005	194	29	44	59	67	74	84	100
2006	254	7	46	63	70	76	88	100
2007	274	36	50	63	70	78	88	95
2008	317	36	54	64	71	79	87	100
2009	353	38	50	63	70	77	88	100
2010	387	9	50	63	71	78	88	100

There was a mild variation in median cholesterol levels among PD patients in 2010 (Table & Figure 8.2.6 (a)). The median of the proportion of PD patients with serum cholesterol < 5.3 mmol/L has gradually increased from 34.5% in 2001 to 53.3% in 2010, reflecting better control of serum cholesterol levels in PD patients in recent years (Table & Figure 8.2.6 (b)).

Table 8.2.6: Variation in dyslipidaemia among PD centres 2001-2010

Table 8.2.6 (a): Median serum cholesterol level among PD patients

Year	Number of centres	Min	5 th Centile	LQ	Median	UQ	95 th Centile	Max
2001	10	5	5	5.6	5.9	6.1	6.2	6.2
2002	15	4.9	4.9	5.4	5.5	5.7	6.2	6.2
2003	18	4.5	4.5	5	5.3	5.7	5.9	5.9
2004	18	4.6	4.6	4.9	5.3	5.5	6.1	6.1
2005	19	4.4	4.4	4.7	5	5.4	5.9	5.9
2006	21	4.4	4.6	4.9	5	5.3	6.1	6.2
2007	22	4.5	4.5	4.8	5.2	5.4	6.1	6.3
2008	21	4.3	4.5	4.8	5.1	5.4	5.5	5.8
2009	21	4.6	4.7	4.8	5.1	5.4	5.8	6.8
2010	24	4.6	4.6	4.9	5.2	5.4	6	7.5

Figure 8.2.6 (a): Variation in median serum cholesterol level among PD patients, PD centres 2010

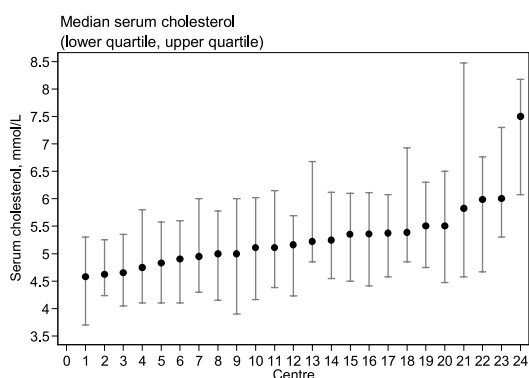


Figure 8.2.6 (b): Variation in proportion of patients with serum cholesterol < 5.3 mmol/L, PD centres 2010

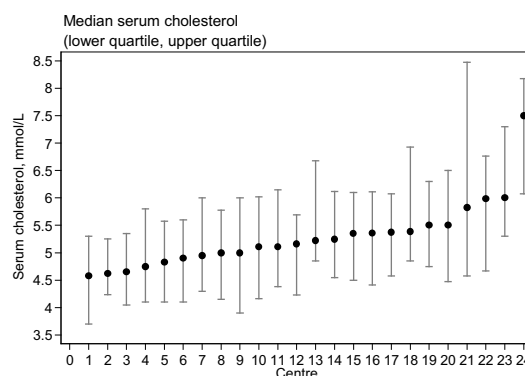


Table 8.2.6 (b): Proportion of PD patients with serum cholesterol < 5.3 mmol/L

Year	Number of centres	Min	5 th Centile	LQ	Median	UQ	95 th Centile	Max
2001	10	22	22	30	34.5	45	63	63
2002	15	13	13	33	42	45	80	80
2003	18	22	22	39	48.5	59	83	83
2004	18	24	24	42	51	60	71	71
2005	19	29	29	47	60	70	77	77
2006	21	20	25	48	59	66	75	79
2007	22	29	30	47	52.5	68	77	86
2008	21	42	42	47	56	69	75	77
2009	21	17	37	48	54	62	74	77
2010	24	8	22	45	53.5	62	73	77

As in previous years, there was only mild variation among PD centres with the median triglyceride levels in PD patients as well as proportion of patients with serum triglyceride levels < 2.1 mmol/L (Table 8.2.6.(c) & (d)). The median of the proportion of PD patients with serum triglyceride < 2.1 mmol/L has gradually increased from 53% in 2001 to 62% in 2010.

Table 8.2.6 (c): Median serum triglyceride level among PD patients

Year	Number of centres	Min	5 th Centile	LQ	Median	UQ	95 th Centile	Max
2001	10	1.5	1.5	1.9	2	2.1	3	3
2002	15	1.5	1.5	1.8	1.9	2	2.4	2.4
2003	18	1.2	1.2	1.7	1.8	1.9	2.3	2.3
2004	18	1.3	1.3	1.7	1.8	1.8	2.2	2.2
2005	19	1.4	1.4	1.6	1.9	2	2.2	2.2
2006	21	1.1	1.4	1.6	1.8	1.9	2	2.6
2007	22	1.2	1.5	1.7	1.8	1.9	2.1	2.7
2008	23	1.3	1.5	1.7	1.8	2	2.1	2.2
2009	22	1.3	1.5	1.7	1.7	1.9	2.1	2.6
2010	24	1.4	1.4	1.6	1.8	1.9	2.2	2.2

Figure 8.2.6 (c): Variation in median serum triglyceride level among PD patients, PD centres 2010

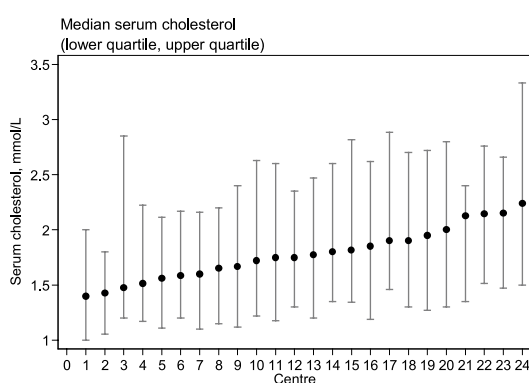


Figure 8.2.6 (d): Variation in proportion of patients with serum triglyceride < 2.1 mmol/L, PD centres 2010

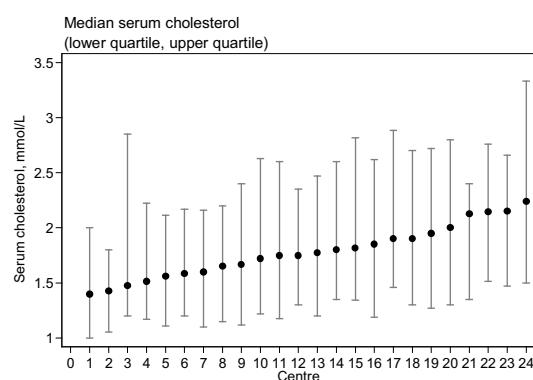


Table 8.2.6 (d): Proportion of PD patients with serum triglyceride < 2.1 mmol/L

Year	Number of centres	Min	5 th Centile	LQ	Median	UQ	95 th Centile	Max
2001	10	27	27	50	53	58	68	68
2002	15	38	38	52	56	58	76	76
2003	18	49	49	55	58.5	62	92	92
2004	18	47	47	60	62	65	88	88
2005	19	40	40	54	60	69	91	91
2006	21	33	52	56	61	64	78	82
2007	22	40	52	58	65	69	80	81
2008	23	48	52	56	61	65	82	84
2009	22	25	50	57	59.5	68	71	72
2010	24	47	48	58.5	62	68.5	77	83

In summary, it can be said that lipid levels are better controlled in HD patients as compared to PD patients in 2010, but the overall picture has improved over the last decade.