

CHAPTER 12

Haemodialysis Practices

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SECTION 12.1: VASCULAR ACCESS AND ITS COMPLICATIONS**Table 12.1.1:** Vascular Access on Haemodialysis, 1999-2008

Access types	1999		2000		2001		2002		2003	
	No.	%	No.	%	No.	%	No.	%	No.	%
Wrist AVF	2406	81	3561	82	4049	79	4680	78	5249	75
BCF*	431	14	655	15	897	17	1068	18	1359	19
Venous graft	8	0	11	0	19	0	14	0	23	0
Artificial graft	34	1	31	1	64	1	78	1	113	2
Permanent CVC	17	1	19	0	25	0	43	1	61	1
Temporary CVC*	77	3	77	2	90	2	138	2	179	3
Temporary FVC*	0	0	0	0	0	0	0	0	0	0
TOTAL	2973	100	4354	100	5144	100	6021	100	6984	100

Access types	2004		2005		2006		2007		2008	
	No.	%	No.	%	No.	%	No.	%	No.	%
Wrist AVF	5891	73	6405	69	7798	68	8309	65	9417	62
BCF*	1693	21	2169	23	2856	25	3421	27	4366	29
Venous graft	41	1	30	0	22	0	37	0	19	0
Artificial graft	149	2	221	2	284	2	305	2	349	2
Permanent CVC	99	1	179	2	235	2	261	2	297	2
Temporary CVC*	233	3	266	3	298	3	424	3	575	4
Temporary FVC*	0	0	4	0	19	0	25	0	59	0
TOTAL	8106	100	9274	100	11512	100	12782	100	15082	100

*CVC = central venous catheter

BCF = brachiocephalic fistula

*FVC = femoral venous catheter

There proportion of patients with native vascular access was 91% in 2008. Dialysis catheter usage has increased to 6% in 2008 compared to 5% in 2007.

Table 12.1.2: Difficulties report with Vascular Access, 1999-2008

Access difficulty	1999		2000		2001		2002		2003	
	No.	%	No.	%	No.	%	No.	%	No.	%
Difficulty with needle placement	133	5	146	4	217	5	215	4	217	3
Difficulty in obtaining desired blood flow rate	112	5	136	4	239	5	235	4	243	4
Other difficulties	55	2	32	1	39	1	57	1	60	1
No difficulties	2155	88	3402	92	4276	90	5073	91	5970	92
TOTAL	2455	100	3716	100	4771	100	5580	100	6490	100

Access difficulty	2004		2005		2006		2007		2008	
	No.	%	No.	%	No.	%	No.	%	No.	%
Difficulty with needle placement	255	3	319	4	394	3	478	4	409	3
Difficulty in obtaining desired blood flow rate	301	4	354	4	356	3	368	3	419	3
Other difficulties	67	1	58	1	45	0	57	0	81	1
No difficulties	6957	92	8339	92	10592	93	11577	93	13967	94
TOTAL	7580	100	9070	100	11387	100	12480	100	14876	100

Table 12.1.3: Complications reported with Vascular Access, 1999-2008

Complication	1999		2000		2001		2002		2003	
	No.	%	No.	%	No.	%	No.	%	No.	%
Thrombosis	129	5	148	4	209	4	202	3	220	3
Bleed	23	1	30	1	62	1	66	1	54	1
Aneurysmal dilatation	159	6	208	5	212	4	211	4	199	3
Swollen limb	51	2	44	1	67	1	56	1	55	1
Access related infection, local/ systemic	34	1	52	1	49	1	52	1	43	1
Distal limb ischaemia	9	0	26	1	22	0	17	0	13	0
Venous outflow obstruction	71	3	78	2	123	2	101	2	119	2
Carpal tunnel	35	1	42	1	41	1	44	1	63	1
Others	64	2	37	1	74	1	118	2	118	2
No complications	2119	79	3237	83	4204	83	4988	85	5963	87
TOTAL	2694	100	3902	100	5063	100	5855	100	6847	100

Complication	2004		2005		2006		2007		2008	
	No.	%	No.	%	No.	%	No.	%	No.	%
Thrombosis	284	4	289	3	317	3	405	3	436	3
Bleed	67	1	73	1	69	1	58	0	75	1
Aneurysmal dilatation	193	2	179	2	246	2	385	3	386	3
Swollen limb	77	1	84	1	89	1	101	1	98	1
Access related infection, local/ systemic	70	1	63	1	78	1	97	1	92	1
Distal limb ischaemia	37	0	35	0	30	0	27	0	31	0
Venous outflow obstruction	151	2	170	2	202	2	196	2	239	2
Carpal tunnel	49	1	55	1	48	0	46	0	46	0
Others	133	2	109	1	116	1	152	1	164	1
No complications	6896	87	8113	88	10154	89	11052	88	13419	90
TOTAL	7957	100	9170	100	11349	100	12519	100	14986	100

Complication rates have remained similar for the past few years despite an increase in intake of elderly and diabetic patients onto dialysis in recent years.

SECTION 12.2: HD PRESCRIPTION

There was no further increase in proportion of patients with blood flow rate above 250ml/min in 2008 compared to 2007. Sixty two percent of patients had blood flow rates of ≥ 300 mls/min in 2008. About 1% of patients have a blood flow rate of < 200 mls/min.

Table 12.2.1: Blood Flow Rates in HD centres, 1999-2008

Blood flow rates	1999		2000		2001		2002		2003	
	No.	%	No.	%	No.	%	No.	%	No.	%
<150 ml/min	6	0	9	0	7	0	9	0	4	0
150-199 ml/min	65	2	85	2	69	1	69	1	84	1
200-249 ml/min	962	33	1282	30	1233	25	973	17	882	13
250-299 ml/min	1367	47	1938	46	2229	44	2692	46	2865	42
300-349 ml/min	455	16	814	19	1276	25	1590	27	2241	33
≥ 350 ml/min	31	1	94	2	216	4	505	9	690	10
TOTAL	2886	100	4222	100	5030	100	5838	100	6766	100

Blood flow rates	2004		2005		2006		2007		2008	
	No.	%	No.	%	No.	%	No.	%	No.	%
<150 ml/min	11	0	7	0	5	0	10	0	10	0
150-199 ml/min	86	1	94	1	103	1	87	1	119	1
200-249 ml/min	879	11	814	9	923	8	929	7	927	6
250-299 ml/min	3112	40	3523	39	3818	34	3821	31	4591	31
300-349 ml/min	2711	35	3226	36	4529	40	5214	42	6063	41
≥ 350 ml/min	1020	13	1328	15	1920	17	2451	20	3089	21
TOTAL	7819	100	8992	100	11298	100	12512	100	14799	100

Figure 12.2.1: Blood Flow Rates in HD centres, 1999-2008

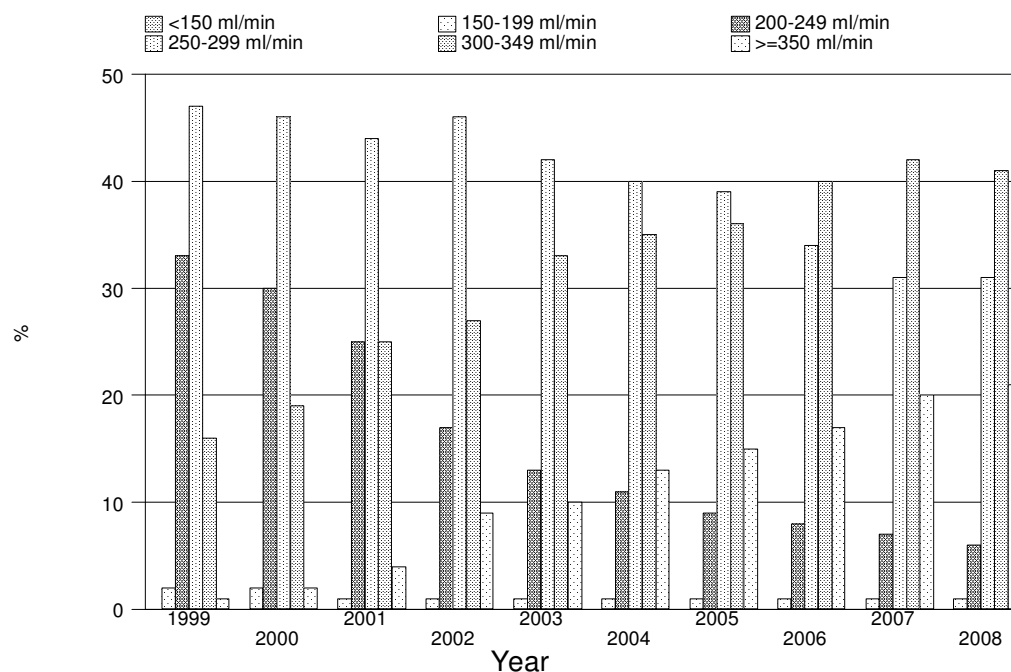


Table 12.2.2: Number of HD Sessions per week, 1999-2008

HD sessions per week	1999		2000		2001		2002		2003	
	No.	%	No.	%	No.	%	No.	%	No.	%
1	4	0	8	0	8	0	10	0	15	0
2	153	5	341	8	337	7	369	6	343	5
3	2811	95	3982	92	4761	92	5603	93	6585	95
4	3	0	10	0	50	1	18	0	9	0
TOTAL	2971	100	4341	100	5156	100	6000	100	6952	100

HD sessions per week	2004		2005		2006		2007		2008	
	No.	%	No.	%	No.	%	No.	%	No.	%
1	11	0	7	0	25	0	14	0	5	0
2	281	3	265	3	273	2	256	2	259	2
3	7751	96	9011	97	11326	97	12602	98	14935	98
4	30	0	31	0	34	0	31	0	61	0
TOTAL	8073	100	9314	100	11658	100	12903	100	15260	100

The majority of patients (98%) were on 3 dialysis sessions per week. Two percent of patients were still reported to be on 2 only dialysis sessions per week. In 2008, 61 patients have been prescribed 4 dialysis sessions per week.

Table 12.2.3: Duration of HD, 1999-2008

Duration of HD per session	1999		2000		2001		2002		2003	
	No.	%	No.	%	No.	%	No.	%	No.	%
<=3 hours	4	0	10	0	8	0	18	0	14	0
-3.5 hours	9	0	12	0	12	0	15	0	3	0
-4 hours	2738	92	4088	94	4988	97	5854	98	6798	98
-4.5 hours	157	5	154	4	93	2	60	1	66	1
-5 hours	61	2	75	2	59	1	47	1	63	1
>5 hours	0	0	13	0	0	0	0	0	0	0
TOTAL	2969	100	4352	100	5160	100	5994	100	6944	100

Duration of HD per session	2004		2005		2006		2007		2008	
	No.	%	No.	%	No.	%	No.	%	No.	%
<=3 hours	25	0	31	0	28	0	37	0	54	0
-3.5 hours	11	0	9	0	6	0	11	0	10	0
-4 hours	7885	98	9175	99	11507	99	12792	99	15081	99
-4.5 hours	106	1	46	0	66	1	23	0	74	0
-5 hours	45	1	52	1	42	0	31	0	42	0
>5 hours	3	0	0	0	1	0	1	0	0	0
TOTAL	8075	100	9313	100	11650	100	12895	100	15261	100

Majority of patients (99%) are on 4 hours HD session.

Table 12.2.4: Dialyser membrane types in HD centres, 1999-2008

Dialyser membrane	1999		2000		2001		2002		2003	
	No.	%	No.	%	No.	%	No.	%	No.	%
Modified Cellulose	1224	41	1611	37	1666	37	1377	24	1150	17
Regenerated Cellulose	1017	34	1190	27	890	20	1474	26	1599	24
Hydrophobic/Hydrophilic	754	25	1589	36	1944	43	2828	50	3841	58
Hydrophilized copolymers	1	0	0	0	0	0	1	0	35	1
TOTAL	2996	100	4390	100	4500	100	5680	100	6625	100

Dialyser membrane	2004		2005		2006		2007		2008	
	No.	%	No.	%	No.	%	No.	%	No.	%
Modified Cellulose	1719	22	1974	22	2489	22	2890	23	3389	23
Regenerated Cellulose	1150	15	930	10	997	9	699	5	486	3
Hydrophobic/Hydrophilic	4846	62	6020	66	7860	68	8984	71	10621	72
Hydrophilized copolymers	74	1	150	2	161	1	137	1	286	2
TOTAL	7789	100	9074	100	11507	100	12710	100	14782	100

The use of synthetic membrane (hydrophobic/ hydrophilic and hydrophilised copolymer) has increased from 25% in 1999 to 74% in 2008. Regenerated cellulose membrane usage has progressively declined from 34% in 1999 to 3% in 2008. The use of modified cellulose membrane has remained the same at about 23% for the past few years.

Figure 12.2.4: Dialyser membrane types in HD centres, 1999-2008

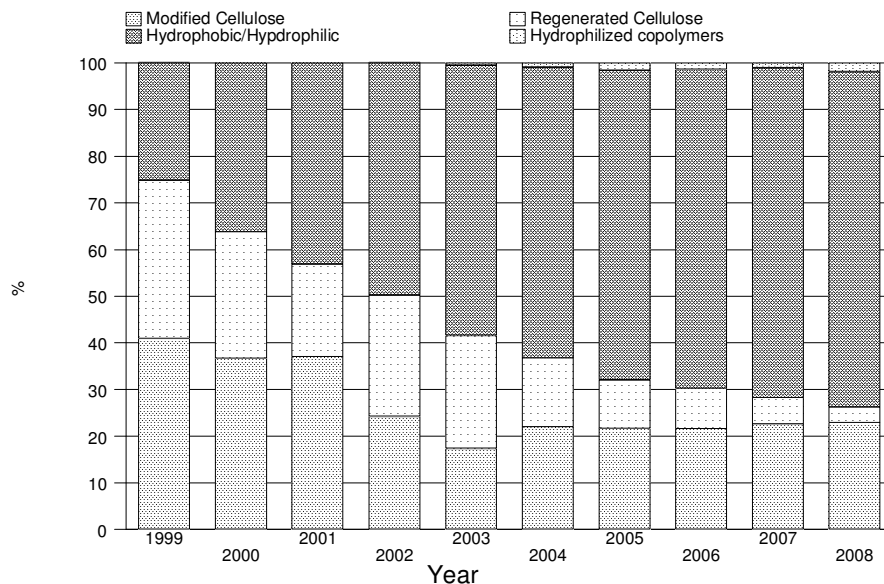


Table 12.2.5: Dialyser Reuse Frequency in HD centres, 1999-2008

Dialyser Reuse Frequency	1999		2000		2001		2002		2003	
	No.	%	No.	%	No.	%	No.	%	No.	%
1	65	2	116	3	152	3	197	4	251	4
2	13	0	17	0	15	0	41	1	19	0
3	191	7	205	5	232	5	316	6	349	5
4	250	9	477	12	416	9	337	6	339	5
5	264	10	312	8	357	7	318	6	267	4
6	1414	51	1730	43	1413	29	1216	22	915	14
7	46	2	69	2	85	2	124	2	71	1
8	122	4	357	9	793	16	866	16	852	13
9	179	6	101	2	132	3	59	1	87	1
10	96	3	246	6	400	8	538	10	880	14
11	6	0	4	0	43	1	36	1	25	0
12	118	4	333	8	470	10	879	16	1511	24
≥ 13	0	0	91	2	331	7	644	12	819	13
TOTAL	2764	100	4058	100	4839	100	5571	100	6385	100

Dialyser Reuse Frequency	2004		2005		2006		2007		2008	
	No.	%	No.	%	No.	%	No.	%	No.	%
1	319	4	196	4	400	5	568	5	810	5
2	42	1	1	0	5	0	24	0	29	0
3	194	3	81	2	36	0	117	1	87	1
4	192	3	85	2	75	1	151	1	120	1
5	192	3	137	3	190	3	128	1	168	1
6	806	11	555	10	593	8	809	7	673	5
7	89	1	44	1	63	1	141	1	156	1
8	809	11	477	9	422	6	797	7	842	6
9	50	1	46	1	115	2	107	1	236	2
10	1160	16	770	15	959	13	1530	13	1994	13
11	42	1	12	0	100	1	94	1	101	1
12	1916	26	1353	26	2243	30	4075	36	5254	35
≥ 13	1644	22	1548	29	2191	30	2830	25	4422	30
TOTAL	7455	100	5305	100	7392	100	11371	100	14892	100

Reuse of dialysers is a common practice in Malaysia whereby 95% reuse the dialyser. The frequency of reuse depends on the type of dialyser membrane. Five percent of patients did not reuse their dialysers.

Table 12.2.6: Dialyser Buffer used in HD centres, 1999-2008

Dialyser Buffer	1999		2000		2001		2002		2003	
	No.	%	No.	%	No.	%	No.	%	No.	%
Acetate	552	19	393	9	240	5	138	2	76	1
Bicarbonate	2429	81	3969	91	4920	95	5880	98	6815	99
TOTAL	2981	100	4362	100	5160	100	6018	100	6891	100

Dialyser Buffer	2004		2005		2006		2007		2008	
	No.	%	No.	%	No.	%	No.	%	No.	%
Acetate	33	0	24	0	12	0	40	0	3	0
Bicarbonate	7957	100	9268	100	11640	100	12853	100	15216	100
TOTAL	7990	100	9292	100	11652	100	12893	100	15219	100

In 2008, 3 patients were still using acetate as a buffer. Almost all patients were on bicarbonate dialysate buffer in 2008 compared to 70% in 1998.

Table 12.2.7(a): Distribution of prescribed Kt/V, HD patients 1999-2008

Year	No. of subject	Mean	SD	Median	LQ	UQ	% patients \geq 1.3
1999	2831	1.5	0.4	1.5	1.3	1.7	72
2000	4087	1.5	0.4	1.5	1.3	1.7	73
2001	4908	1.5	0.4	1.5	1.3	1.7	73
2002	5496	1.5	0.4	1.5	1.3	1.7	73
2003	6525	1.6	0.4	1.6	1.3	1.8	79
2004	7457	1.6	0.4	1.6	1.4	1.8	81
2005	8749	1.6	0.4	1.6	1.4	1.8	81
2006	11092	1.6	0.4	1.6	1.3	1.8	77
2007	12354	1.6	0.4	1.6	1.3	1.8	78
2008	14635	1.6	0.4	1.6	1.3	1.8	79

The mean and median prescribed Kt/V was 1.6. The percentage of patients with Kt/V \geq 1.3 in 2008 was 79%. This was a slight drop compared to 81% in 2005.

Figure 12.2.7(a): Cumulative distribution of prescribed Kt/V, HD patients 1999-2008

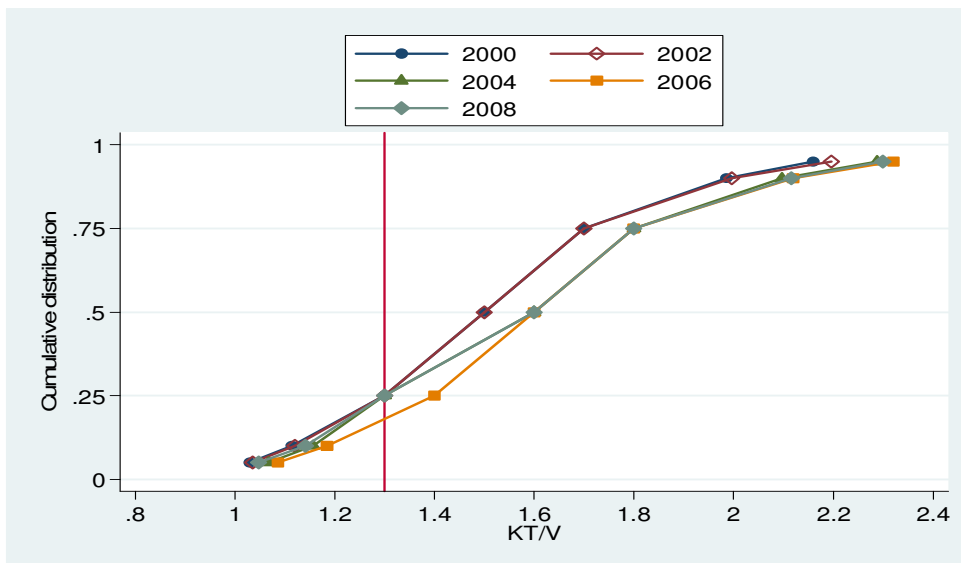


Table 12.2.7(b): Distribution of delivered Kt/V, HD patients 2005-2008

Year	No. of subject	Mean	SD	Median	LQ	UQ	% patients ≥ 1.2	% patients ≥ 1.3	Variance*
2005	1673	1.6	2.7	1.4	1.2	1.7	80	61	0
2006	5389	1.4	2.4	1.4	1.2	1.6	75	57	0
2007	6171	1.4	0.6	1.4	1.2	1.6	78	60	0
2008	7855	1.4	0.4	1.4	1.2	1.6	78	58	0

*(prescribed KT/V – delivered KT/V)/ Prescribed KT/V

The prescribed median Kt/V was 1.6 but the delivered median Kt/V was only 1.4. The percentage of patients with a delivered Kt/V ≥ 1.3 was only 58% and has decreased compared to 60% in 2007. The percentage of patients with URR ≥ 65 was 79% and has remained the same since 2005. The median URR was 71.7 for 2008. It has remained relatively stable since 2005.

Figure 12.2.7 (b): Cumulative distribution of delivered Kt/V, HD patients 2005-2008

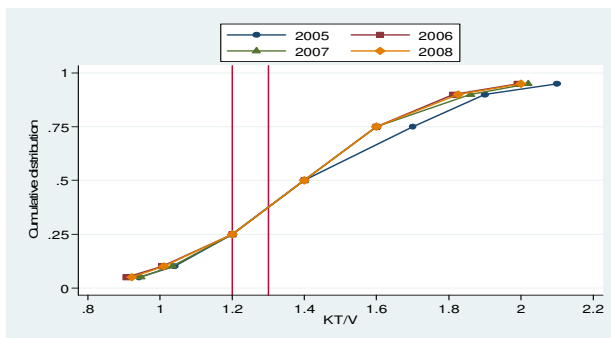


Figure 12.2.7 (c): Cumulative distribution of URR, HD patients 2005-2008

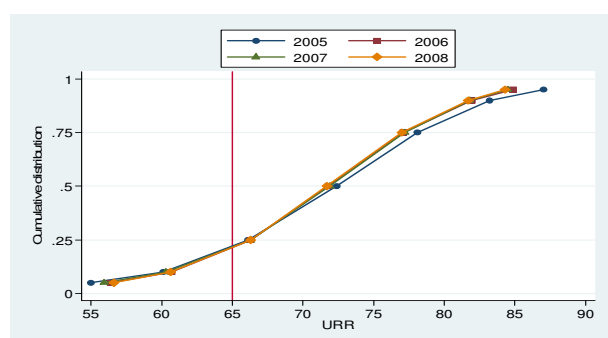


Table 12.2.7(c): Distribution of URR, HD patients 2005-2008

Year	No. of subject	Mean	SD	Median	LQ	UQ	% patients ≥ 65
2005	2543	71.8	10.3	72.4	66.1	78.1	79
2006	8267	71.4	9.2	71.8	66.3	77.1	79
2007	9945	71.3	9.2	71.9	66.3	77.2	79
2008	12484	71.3	8.7	71.7	66.3	77	79

Table 12.2.8: Variation in HD prescription among HD centres 2008

(a) Median blood flow rates in HD patients, HD centres

Year	No. of centers	Min	5th Centile	LQ	Median	UQ	95th Centile	Max
1999	67	200	200	230	250	250	300	300
2000	100	200	200	240	250	275	300	300
2001	116	200	220	250	252.5	300	300	350
2002	137	200	230	250	280	300	300	350
2003	155	200	240	250	280	300	325	350
2004	184	220	250	257.5	287.5	300	350	400
2005	228	200	250	260	300	300	350	400
2006	283	200	250	270	300	300	350	400
2007	302	200	250	280	300	300	350	400
2008	352	200	250	280	300	300	350	400

The median blood flow rates among centres had increased from 250 mls/min in 1999 to 300 mls/min in 2008. There was still a wide variation in practices among centres. The median blood flow rates among centres ranges from 200 mls/min to 400 mls/min.

Figure 12.2.8 (a): Variation in medical blood flow rates in HD patients among centres 2008

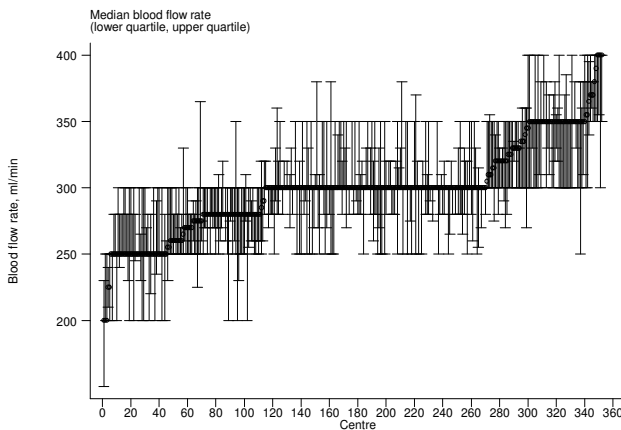
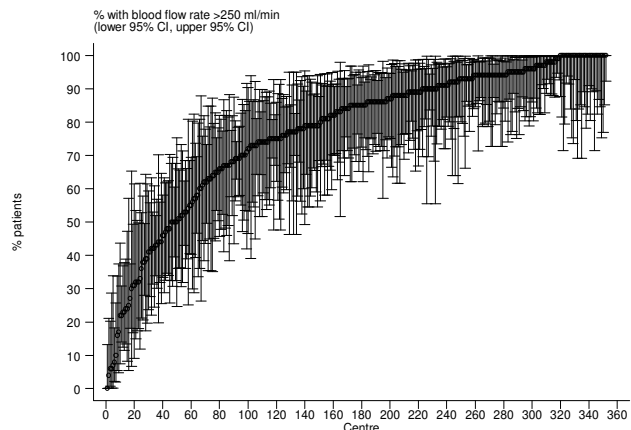


Figure 12.2.8 (b): Variation in Proportion of patients with blood flow rates > 250 ml/min among HD centres 2008



(b) Proportion of patients with blood flow rates > 250 ml/min, HD centres 2008

Year	No. of centers	Min	5th Centile	LQ	Median	UQ	95th Centile	Max
1999	67	0	2	8	28	49	85	100
2000	100	0	0	10.5	31.5	59.5	85.5	91
2001	116	0	0	22.5	49.5	73.5	92	100
2002	137	0	2	36	61	82	95	100
2003	155	0	4	42	70	85	98	100
2004	184	0	17	50	73	86	96	100
2005	228	0	17	54.5	77	90.5	99	100
2006	283	0	19	56	81	92	100	100
2007	302	0	22	65	83	93	100	100
2008	352	0	30	68	85	94	100	100

There was an increase in the proportion of patients with blood flow rates > 250 mls/min. in 2008. Fifty percent of centres had 85% of their patients with blood flow rates of > 250 mls/min compared to only 28% in 1999.

There was still a wide variation in the proportion of patients with blood flow rate > 250 mls/min among centres. There was one centre that had no patients with blood flow rates of > 250 mls/min in 2008.

Table 12.2.8 (c): Proportion of patients with 3 HD sessions per week, HD centres 2008

Year	No. of centers	Min	5th Centile	LQ	Median	UQ	95th Centile	Max
1999	69	17	45	97	100	100	100	100
2000	100	25	44.5	90.5	100	100	100	100
2001	118	23	50	92	100	100	100	100
2002	137	28	48	94	99	100	100	100
2003	160	36	55	97	100	100	100	100
2004	188	37	70	98	100	100	100	100
2005	231	40	75	99	100	100	100	100
2006	287	52	83	98	100	100	100	100
2007	309	51	87	98	100	100	100	100
2008	356	51	89	98	100	100	100	100

The majority of centres had 100% of their patients with 3 HD sessions/ week. There was one centres with 50% of their patients on less than 3 HD session/ week.

Figure 12.2.8 (c): Variation in proportion of patients with 3 HD sessions per week among HD centres 2008

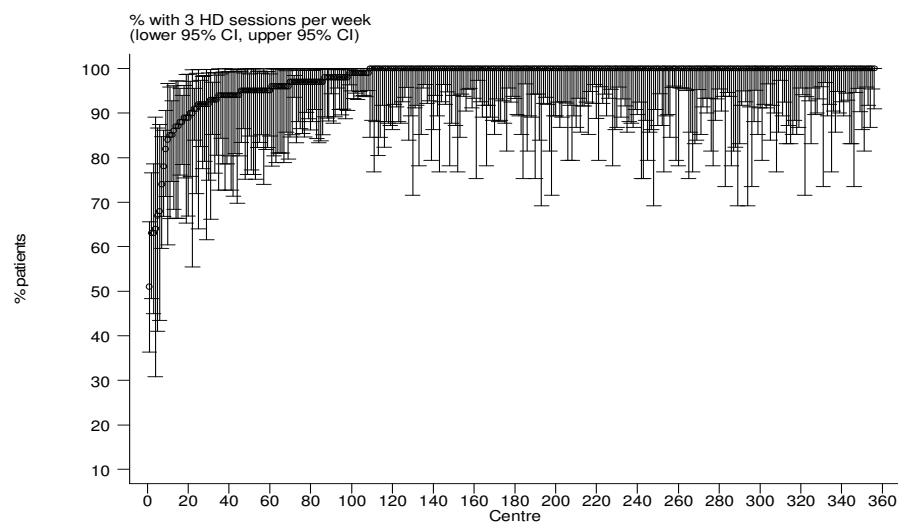


Table 12.2.8 (d): Median prescribed Kt/V in HD patients, HD centres

Year	No. of centres	Min	5th Centile	LQ	Median	UQ	95th Centile	Max
1999	67	1.1	1.3	1.4	1.5	1.6	1.8	1.8
2000	99	1	1.3	1.4	1.5	1.6	1.8	2.8
2001	114	1.2	1.3	1.4	1.5	1.6	1.7	1.9
2002	132	1.2	1.3	1.4	1.5	1.6	1.7	1.8
2003	150	1.1	1.3	1.4	1.6	1.7	1.9	2
2004	181	1.2	1.4	1.5	1.6	1.7	1.8	2.2
2005	224	1.2	1.3	1.5	1.6	1.7	1.8	2
2006	281	1	1.3	1.4	1.6	1.7	1.8	2.1
2007	302	1.1	1.3	1.4	1.6	1.7	1.8	2.1
2008	350	1.1	1.3	1.4	1.6	1.7	1.9	2.1

The median prescribed Kt/V in HD patients was 1.6 in 2008. The minimum prescribed Kt/V was 1.1 and maximum Kt/V was 2.1.

Figure 12.2.8 (d): Variation in median prescribed Kt/V in HD patients among HD centres 2008

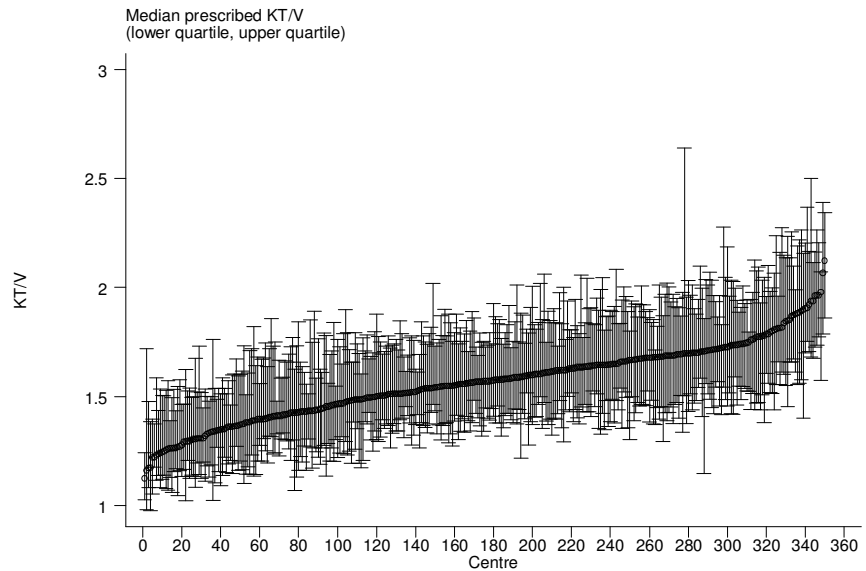


Table 12.2.8 (e): Proportion of patients with prescribed Kt/V \geq 1.3

Year	No. of centers	Min	5th Centile	LQ	Median	UQ	95th Centile	Max
1999	67	29	45	64	73	84	94	100
2000	99	26	43	64	78	84	94	100
2001	114	33	42	67	75	83	93	100
2002	132	26	43	65	74.5	83	92	98
2003	150	30	48	71	81	89	96	100
2004	181	28	58	74	83	91	98	100
2005	224	32	56	73	82	90	98	100
2006	281	0	46	67	79	87	96	100
2007	302	21	50	67	80	89	96	100
2008	350	14	47	68	83	89	97	100

In 2008, half the centres had 83% of their patients with a prescribed Kt/V \geq 1.3. However there was still a wide variation in proportion of patients with Kt/V \geq 1.3 among the centres. One centre was noted to have less than 20% of their patients with prescribed Kt/V \geq 1.3.

Figure 12.2.8 (e): Variation in proportion of patients with prescribed Kt/V \geq 1.3 among HD centres 2008

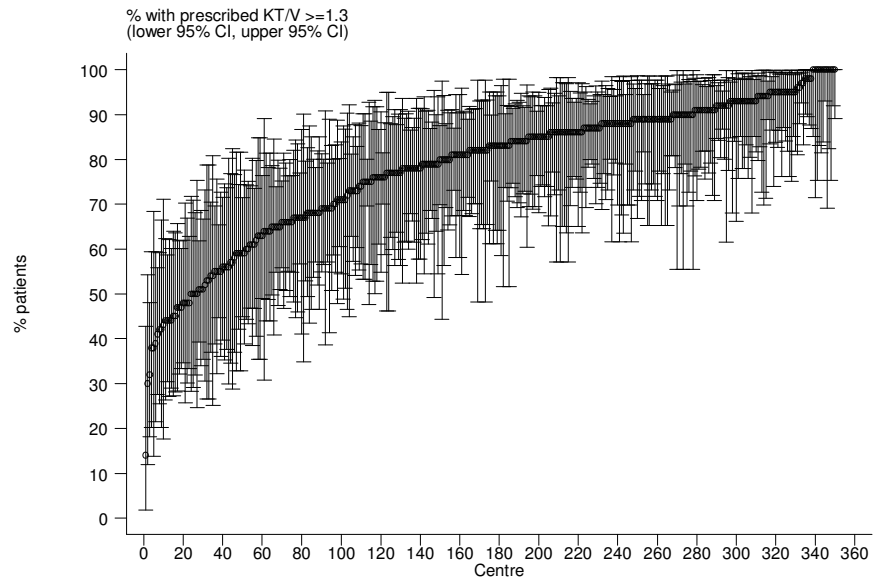


Table 12.2.8 (f): Median delivered Kt/V in HD patients, HD centres

Year	No. of centers	Min	5th Centile	LQ	Median	UQ	95th Centile	Max
2005	49	1.2	1.2	1.3	1.4	1.5	1.7	1.7
2006	142	1	1.1	1.3	1.4	1.5	1.6	1.8
2007	157	1.1	1.2	1.3	1.4	1.5	1.7	1.8
2008	191	1	1.2	1.3	1.4	1.5	1.6	1.8

The median delivered Kt/V of HD centres was 1.4. The variation of median delivered Kt/V ranged from 1 to 1.8 in 2008

Figure 12.2.8 (f): Variation in median delivered Kt/V in HD patients among HD centres 2008

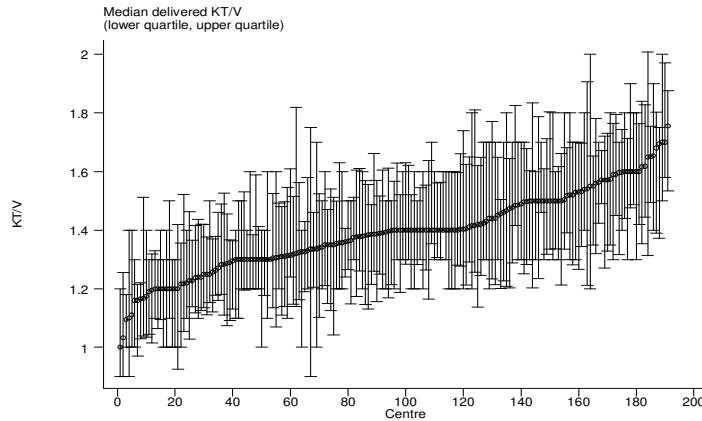


Table 12.2.8 (g): Proportion of patients with delivered Kt/V ≥ 1.2

Year	No. of centers	Min	5th Centile	LQ	Median	UQ	95th Centile	Max
2005	49	50	55	70	82	88	100	100
2006	142	0	44	64	75	85	93	100
2007	157	27	49	68	79	88	96	100
2008	191	25	49	69	80	87	98	100

In 2008, 50% of centres had 80% of their patients with a delivered Kt/V ≥ 1.2. There were 8 centres with < 40% of their patients with a delivered Kt/V ≥ 1.2 in 2008 compared to only 3 in 2007.

Figure 12.2.8 (g): Variation in proportion of patients with delivered Kt/V ≥ 1.2

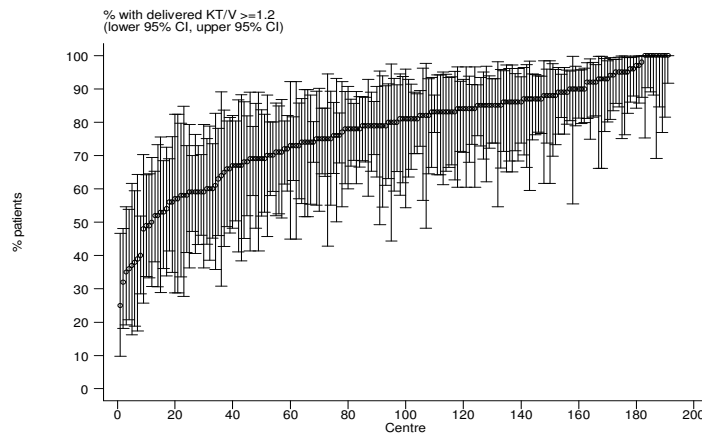


Table 12.2.8 (h): Median URR among HD patients, HD centres 2005-2008

Year	No. of centers	Min	5th Centile	LQ	Median	UQ	95th Centile	Max
2005	73	61.3	65.5	69.9	72	74.4	85.9	96.2
2006	214	55.4	64.2	68.9	71.5	74.3	78.2	94.4
2007	245	56.1	65.3	69.6	71.8	74.8	78	95.5
2008	307	57.6	63.5	68.5	71.7	74.4	77.9	93.6

The median URR for 2008 was 71.7%. The number of centres reporting URR has increased from 73 in 2005 to 307 centres in 2008. The variation of URR ranged from 57.6 to 77.9 in 2008.

Figure 12.2.8 (h): Variation in median URR among HD patients, HD centres 2008

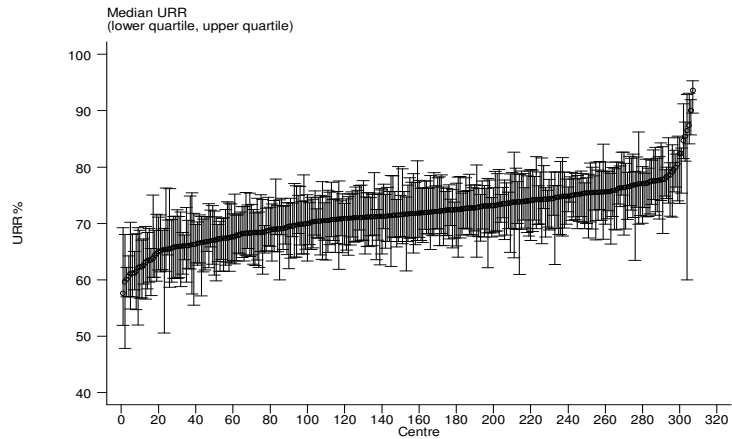
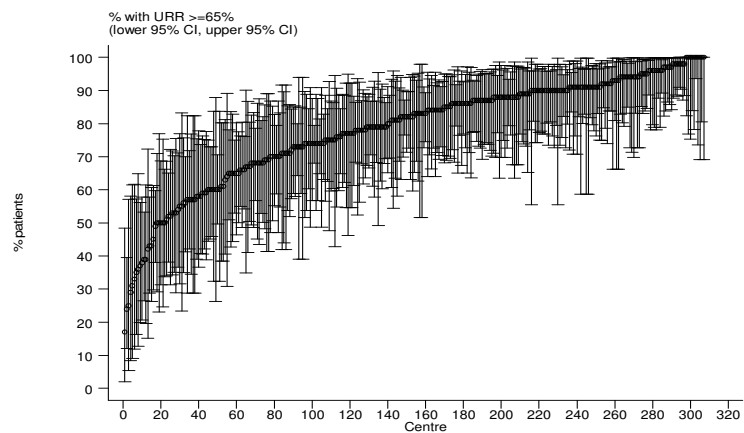


Table 12.2.8 (i): Proportion of HD patients with URR \geq 65%, HD centres 2005-2008

Year	No. of centers	Min	5th Centile	LQ	Median	UQ	95th Centile	Max
2005	73	40	53	70	81	88	100	100
2006	214	0	50	69	79.5	88	97	100
2007	245	15	51	71	82	89	97	100
2008	307	17	45	69	83	90	98	100

In 2008, 50% of centres had 83% of their patients with URR \geq 65%. There were 12 centres with less than 40% of their patients with URR \geq 65%.

Figure 12.2.8 (i): Variation in proportion of patients with URR \geq 65% among HD centres 2008



SECTION 12.3: TECHNIQUE SURVIVAL ON DIALYSIS

Table 12.3.1: Unadjusted technique survival by Dialysis modality, 1999-2008

Dialysis modality Interval (month)	PD			HD			All Dialysis		
	No.	% Survival	SE	No.	% Survival	SE	No.	% Survival	SE
0	3934	100	.	25469	100	.	29403	100	.
6	3284	91	1	22373	94	0	25657	94	0
12	2634	81	1	19142	88	0	21776	87	0
24	1645	63	1	13975	79	0	15620	77	0
36	997	47	1	10115	70	0	11112	67	0
48	630	36	1	7175	63	0	7805	59	0
60	398	29	1	4919	56	0	5317	53	0
72	225	23	1	3271	50	1	3496	47	0
84	108	17	1	2015	45	1	2123	41	0
96	44	12	1	1108	40	1	1152	37	1
108	11	10	1	481	37	1	492	34	1

The unadjusted HD technique survival at 1 year, 5 years and 9 years was 88%, 56% and 37% respectively. The PD unadjusted technique survival was 81% at 1 year, 29% at 5 years and 10% at 9 years.

Figure 12.3.1: Unadjusted technique survival by Dialysis modality, 1999-2008

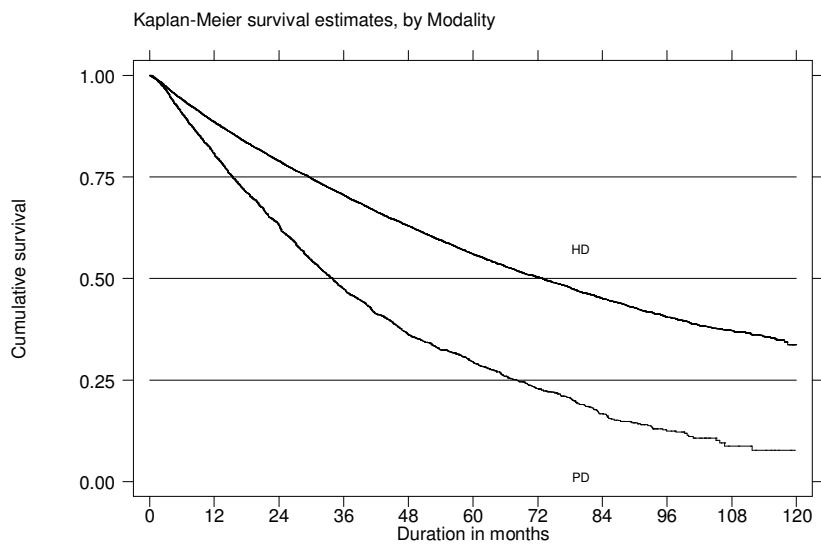


Table 12.3.2: Unadjusted technique survival by year of entry, 1999-2008

Year Interval (month)	1999			2000			2001		
	No.	% Survival	SE	No.	% Survival	SE	No.	% Survival	SE
0	1413	100	.	1718	100	.	1900	100	.
6	1324	95	1	1603	94	1	1769	93	1
12	1239	90	1	1483	89	1	1623	87	1
24	1100	82	1	1279	79	1	1405	77	1
36	963	73	1	1126	71	1	1235	69	1
48	840	64	1	982	63	1	1096	61	1
60	740	57	1	852	55	1	959	54	1
72	667	52	1	752	49	1	853	48	1
84	596	47	1	656	43	1	763	43	1
96	528	41	1	580	38	1	.	.	.
108	481	38	1	.	.	.	.	.	.

Year Interval (month)	2002			2003			2004			2005		
	No.	% Survival	SE	No.	% Survival	SE	No.	% Survival	SE	No.	% Survival	SE
0	2148	100	.	2336	100	.	2734	100	.	2933	100	.
6	2014	94	1	2167	94	1	2558	94	0	2696	93	0
12	1885	89	1	2007	88	1	2366	88	1	2493	87	1
24	1619	78	1	1769	79	1	2070	79	1	2165	77	1
36	1436	70	1	1562	70	1	1804	69	1	1951	70	1
48	1272	62	1	1388	63	1	1602	62	1	.	.	.
60	1123	55	1	1242	57	1	.	.	.	.	.	.
72	995	49	1	.	.	.	.	.	.	.	.	.

Year Interval (month)	2006			2007			2008		
	No.	% Survival	SE	No.	% Survival	SE	No.	% Survival	SE
0	3353	100	.	3492	100	.	3442	100	.
6	3070	93	0	3261	94	0	1923	95	0
12	2855	88	1	3039	88	1	.	.	.
24	2525	78	1	.	.	.	.	.	.

There was no apparent difference in the unadjusted HD technique survival by year of starting dialysis for the years 1999 to 2008.

Figure 12.3.2: Unadjusted technique survival by year of entry, 1999-2008

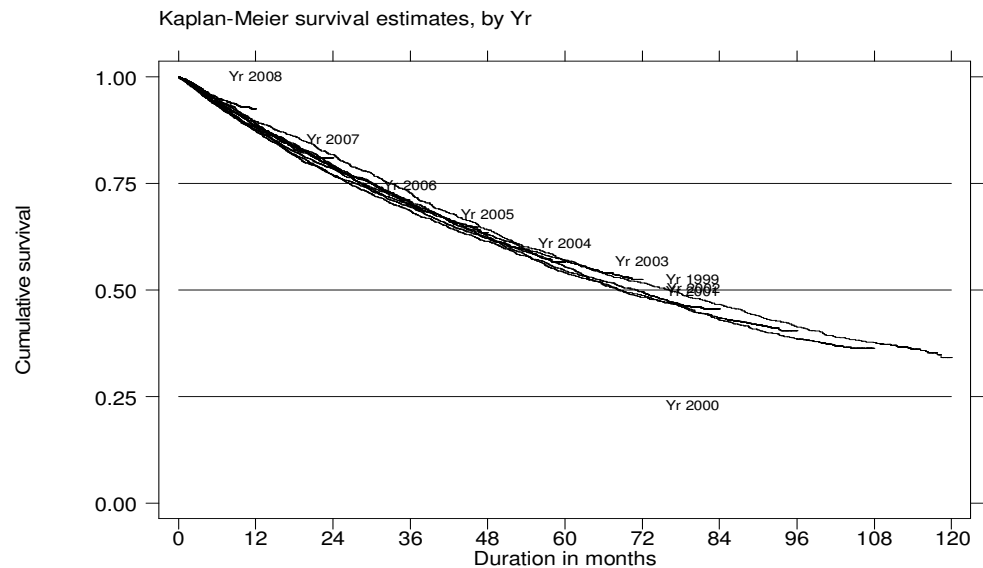


Table 12.3.3: Unadjusted technique survival by age, 1999-2008

Age group (year) Interval (month)	≤ 14			15-24			25-34			35-44		
	No.	% Survival	SE	No.	% Survival	SE	No.	% Survival	SE	No.	% Survival	SE
0	106	100	.	884	100	.	1818	100	.	3227	100	.
6	95	96	2	805	96	1	1636	97	0	2871	96	0
12	76	91	3	710	93	1	1433	94	1	2476	91	1
24	56	82	4	532	87	1	1100	89	1	1962	86	1
36	41	77	5	411	84	1	866	85	1	1541	82	1
48	28	74	5	319	81	2	693	83	1	1196	77	1
60	18	74	5	237	80	2	540	80	1	890	73	1
72	14	74	5	173	78	2	391	77	1	658	69	1
84	9	74	5	116	75	2	261	75	2	439	64	1
96	6	74	5	69	72	3	175	71	2	258	61	1
108	4	74	5	34	65	4	88	70	2	107	60	2

Age group (year) Interval (month)	45-54			55-64			≥ 65		
	No.	% Survival	SE	No.	% Survival	SE	No.	% Survival	SE
0	6438	100	.	7199	100	.	5797	100	.
6	5754	95	0	6304	93	0	4910	91	0
12	4964	90	0	5406	88	0	4078	84	1
24	3719	82	1	3859	77	1	2748	69	1
36	2731	75	1	2730	67	1	1796	57	1
48	1978	68	1	1873	58	1	1099	46	1
60	1384	61	1	1195	49	1	659	38	1
72	937	55	1	721	41	1	380	31	1
84	596	50	1	410	35	1	191	25	1
96	324	44	1	207	30	1	74	19	1
108	141	40	1	89	27	1	27	15	1

The unadjusted HD technique survival was better in the younger age groups than the older age group, 9 years unadjusted HD technique survival in the age group of <14, 15-24, 25-34, 35-44, 44-54, 55-64 and > 65 years old was 74%, 65%, 70%, 60 %, 40%, 27% and 15% respectively

Figure 12.3.3: Unadjusted technique survival by age, 1999-2008

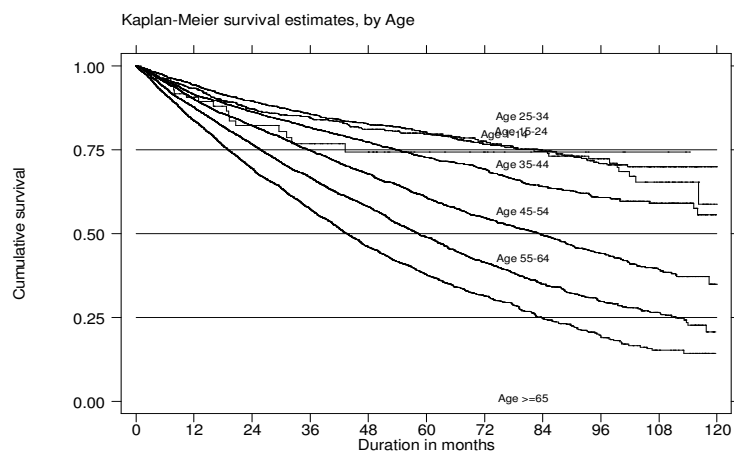


Table 12.3.4: Unadjusted technique survival by Diabetes status, 1999-2008

Diabetes status Interval (month)	No.	Non-Diabetic % Survival	SE	No.	Diabetic % Survival	SE
0	11736	100	.	13733	100	.
6	10394	95	0	11979	93	0
12	9078	91	0	10064	86	0
24	6924	85	0	7051	74	0
36	5381	79	0	4734	63	1
48	4118	74	1	3057	53	1
60	3040	69	1	1879	44	1
72	2164	64	1	1107	37	1
84	1423	59	1	592	31	1
96	827	54	1	281	26	1
108	388	51	1	95	22	1

Unadjusted HD technique survival in non diabetics at 1 year, 5 years and 9 years was 91%, 69% and 51% respectively. Unadjusted HD technique survival for diabetics was worse than non diabetics; 86% at 1 year, 44% at 5 years and only 22% at 9 years.

Figure 12.3.4: Unadjusted technique survival by Diabetes status, 1999-2008

