

## **Chapter 4: Death and Survival on Dialysis**

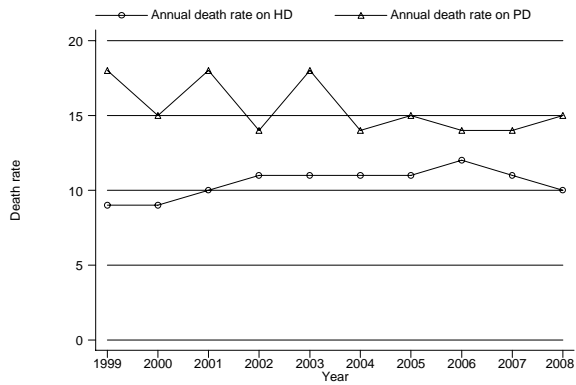
Wong Hin Seng  
Ong Loke Meng  
Wan Shaariah Md Yusuf

*16th Report of the Malaysian Dialysis and Transplant Registry 2008*

**Table 4.1.1: Deaths on Dialysis 1999-2008**

Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
No. of dialysis patients at risk	5041	6118	7271	8483	9779	11161	12644	14244	16050	17936
Dialysis deaths	493	597	816	929	1161	1278	1430	1696	1780	1803
Dialysis death rate %	10	10	11	11	12	11	11	12	11	10
No. of HD patients at risk	4473	5490	6557	7640	8791	10074	11504	13010	14624	16290
HD deaths	393	505	686	814	983	1126	1259	1528	1574	1564
HD death rate %	9	9	10	11	11	11	11	12	11	10
No. of PD patients at risk	568	628	714	843	988	1088	1140	1234	1426	1646
PD deaths	100	92	130	115	178	152	171	168	206	239
PD death rate %	18	15	18	14	18	14	15	14	14	15

**Figure 4.1.1: Death Rates on Dialysis 1999-2008**



**Table 4.1.2: Causes of Death on Dialysis 1999-2008**

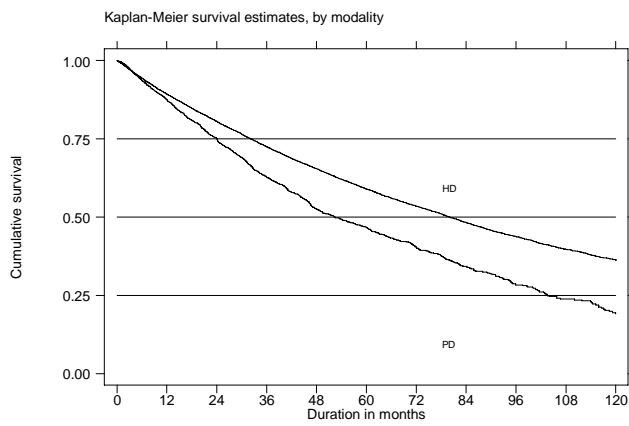
Year	1999		2000		2001		2002		2003	
	No.	%	No.	%	No.	%	No.	%	No.	%
Cardiovascular	129	26	180	30	210	26	307	33	325	28
Died at home	107	22	135	23	228	28	212	23	290	25
Sepsis	84	18	85	14	128	16	141	15	183	17
PD peritonitis	11	2	21	4	29	4	16	2	14	1
GIT bleed	18	4	18	3	18	2	24	3	28	2
Cancer	6	1	8	1	18	2	18	2	27	2
Liver disease	7	1	14	2	11	1	16	2	23	2
Withdrawal	10	2	17	3	20	2	18	2	26	2
Others	65	13	74	12	88	11	104	10	160	14
Unknown	56	11	45	8	66	8	73	8	85	7
TOTAL	493	100	597	100	816	100	929	100	1161	100

Year	2004		2005		2006		2007		2008	
	No.	%	No.	%	No.	%	No.	%	No.	%
Cardiovascular	333	26	360	25	477	28	459	26	531	29
Died at home	307	24	317	22	351	21	332	19	389	22
Sepsis	154	11	159	11	206	12	177	10	255	14
PD peritonitis	13	1	22	2	22	1	16	1	22	1
GIT bleed	24	2	28	2	26	2	26	1	39	2
Cancer	20	2	28	2	36	2	29	2	50	3
Liver disease	29	2	25	2	32	2	34	2	36	2
Withdrawal	9	1	11	1	23	1	26	1	19	1
Others	318	25	397	27	386	23	534	30	352	20
Unknown	71	6	83	6	137	8	147	8	110	6
TOTAL	1278	100	1430	100	1696	100	1780	100	1803	100

**Table 4.2.1 (a): Patient survival by dialysis modality (censored for change of modality)**

Dialysis Modality Interval (month)	PD			HD			All		
	No.	% survival	SE	No.	% survival	SE	No.	% survival	SE
0	4619	100	-	30221	100	-	34840	100	-
6	3920	94	0	26571	94	0	30491	94	0
12	3227	87	1	23078	89	0	26305	89	0
24	2114	75	1	17616	81	0	19730	80	0
36	1373	63	1	13476	72	0	14849	71	0
48	911	53	1	10287	65	0	11198	64	0
60	626	47	1	7794	59	0	8420	58	0
72	402	40	1	5936	53	0	6337	52	0
84	246	34	1	4458	48	0	4704	47	0
96	146	28	1	3360	44	0	3503	42	0
108	85	24	2	2526	40	0	2610	38	0
120	51	19	2	1855	36	0	1906	35	0

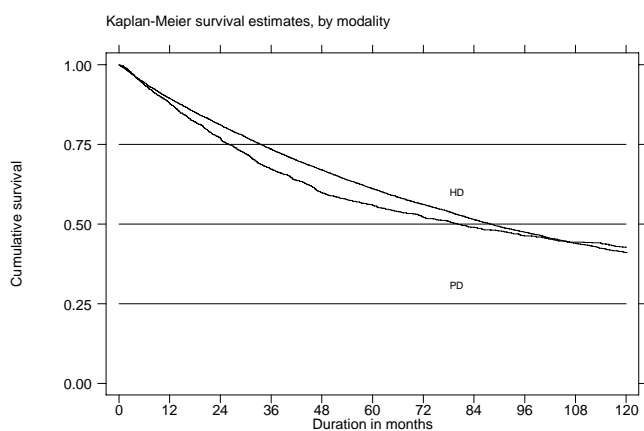
**Figure 4.2.1 (a): Patient survival by dialysis modality analysis (censored for change of modality)**



**Table 4.2.1 (b): Patient survival by dialysis modality (not censored for change of modality)**

Dialysis modality Interval (month)	PD			HD			All		
	No.	% survival	SE	No.	% survival	SE	No.	% survival	SE
0	4619	100	-	30221	100	-	34840	100	-
6	4061	94	0	27022	94	0	31080	94	0
12	3513	88	1	23891	89	0	27404	89	0
24	2592	77	1	18727	81	0	21319	81	0
36	1948	67	1	14638	74	0	16586	73	0
48	1493	60	1	11429	67	0	12922	66	0
60	1188	56	1	8876	61	0	10063	60	0
72	927	52	1	6938	56	0	7863	56	0
84	704	49	1	5356	51	0	6060	51	0
96	528	46	1	4165	47	0	4691	47	0
108	404	44	1	3237	44	0	3640	44	0
120	316	43	1	2487	41	0	2803	41	0

Figure 4.2.1 (b): Patient survival by dialysis modality analysis (not censored for change of modality)



**Table 4.2.2: Unadjusted patient survival by year of entry, 1999-2008**

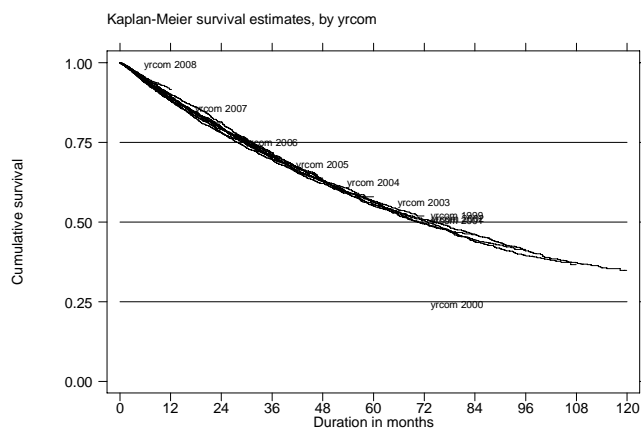
Year Interval (month)	1999			2000			2001			2002		
	No.	% survival	SE	No.	% survival	SE	No.	% survival	SE	No.	% survival	SE
0	1623	100	-	1945	100	-	2237	100	-	2521	100	-
6	1513	95	1	1808	95	1	2071	94	1	2356	95	0
12	1413	90	1	1668	90	1	1888	89	1	2178	90	1
24	1216	81	1	1416	80	1	1602	78	1	1846	80	1
36	1040	72	1	1226	71	1	1386	70	1	1600	70	1
48	896	63	1	1059	63	1	1203	62	1	1397	63	1
60	789	56	1	918	56	1	1037	55	1	1218	56	1
72	703	51	1	798	50	1	917	49	1	1073	50	1
84	622	46	1	691	44	1	809	44	1	-	-	-
96	544	41	1	607	39	1	-	-	-	-	-	-
108	491	37	1	-	-	-	-	-	-	-	-	-

Year Interval (month)	2003			2004			2005			2006		
	No.	% survival	SE	No.	% survival	SE	No.	% survival	SE	No.	% survival	SE
0	2754	100	-	3074	100	-	3295	100	-	3816	100	-
6	2535	94	0	2860	95	0	3017	94	0	3497	94	0
12	2338	89	1	2632	89	1	2772	88	1	3226	88	1
24	2021	79	1	2283	80	1	2385	78	1	2806	79	1
36	1743	70	1	1965	70	1	2113	71	1	-	-	-
48	1528	63	1	1726	63	1	-	-	-	-	-	-
60	1351	57	1	-	-	-	-	-	-	-	-	-

Year Interval (month)	2007			2008		
	No.	% survival	SE	No.	% survival	SE
0	4083	100	-	4055	100	-
6	3784	94	0	2224	95	0
12	3507	89	1	157	-	-

**Figure 4.2.2: Unadjusted patient survival by year of entry, 1999-2008**

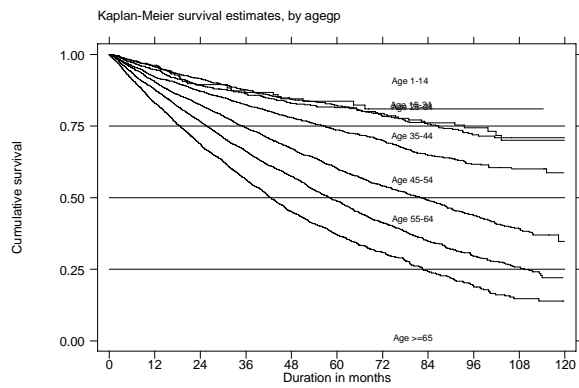


**Table 4.2.3: Unadjusted patient survival by age, 1999-2008**

Age group (years) Interval (month)	<=14			15-24			25-34			35-44		
	No.	% survival	SE	No.	% survival	SE	No.	% survival	SE	No.	% survival	SE
0	381	100	-	1237	100	-	2147	100	-	3723	100	-
6	345	98	1	1110	97	0	1914	98	0	3309	96	0
12	299	96	1	967	95	1	1661	96	0	2843	92	0
24	214	89	2	702	89	1	1254	92	1	2209	87	1
36	148	87	2	530	86	1	973	88	1	1706	82	1
48	109	85	2	402	83	1	758	84	1	1309	78	1
60	75	84	3	290	81	1	586	82	1	964	74	1
72	53	81	3	203	79	2	411	79	1	710	70	1
84	26	81	3	132	76	2	270	76	1	466	65	1
96	14	81	3	74	74	2	179	72	2	271	62	1
108	4	81	3	36	70	3	90	71	2	111	60	2

Age group (years) Interval (month)	45-54			55-64			≥65		
	No.	% survival	SE	No.	% survival	SE	No.	% survival	SE
0	7318	100	-	8134	100	-	6463	100	-
6	6498	95	0	7077	94	0	5405	91	0
12	5576	90	0	6012	88	0	4419	83	0
24	4120	82	0	4203	77	1	2918	69	1
36	2972	74	1	2914	66	1	1870	56	1
48	2126	67	1	1977	57	1	1135	45	1
60	1474	60	1	1255	49	1	675	37	1
72	982	54	1	750	41	1	389	31	1
84	619	49	1	421	35	1	194	24	1
96	332	44	1	211	29	1	75	19	1
108	143	39	1	89	26	1	27	15	1

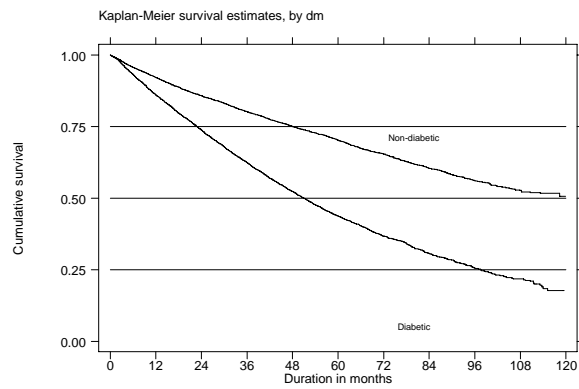
**Figure 4.2.3: Unadjusted patient survival by age, 1999-2008**



**Table 4.2.4: Unadjusted patient survival by Diabetes status, 1999-2008**

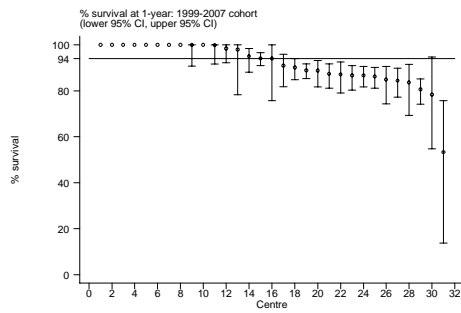
Diabetes status Interval (month)	Non-diabetic			Diabetic		
	No.	% survival	SE	No.	% survival	SE
0	13798	100	-	15605	100	-
6	12176	96	0	13481	93	0
12	10573	92	0	11203	86	0
24	7956	86	0	7664	74	0
36	6078	80	0	5034	62	0
48	4594	75	0	3211	52	1
60	3358	70	1	1959	44	1
72	2349	65	1	1146	37	1
84	1511	60	1	612	31	1
96	863	56	1	288	25	1
108	397	53	1	96	22	1

**Figure 4.2.4: Unadjusted patient survival by Diabetes status, 1999-2008**



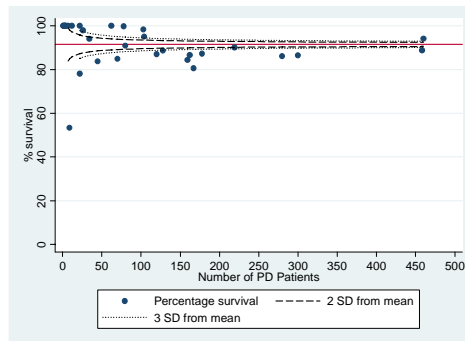


**Figure 4.3.2 (a): Variation in % Survival at 1-years adjusted to age and diabetes, 1999-2007**

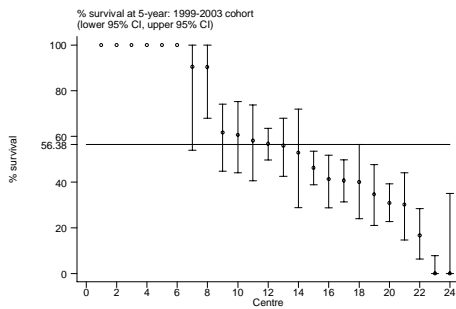


\*Horizontal line represents the median % survival among HD centres

**Figure 4.3.2 (b): Funnel plot for adjusted age at 60 and diabetes at 1 year, 1999-2007 cohort (PD centres)**

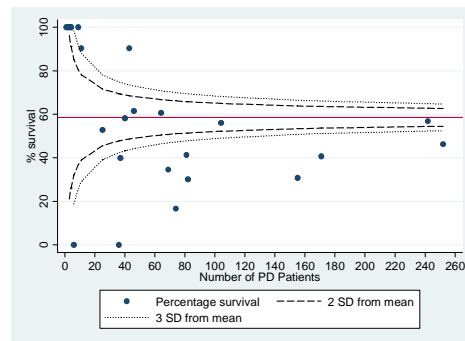


**Figure 4.3.2 (c): Variation in % Survival at 5-years adjusted to age and diabetes, PD centres, 1999-2003**



\*Horizontal line represents the median % survival among HD centres

**Figure 4.3.2 (d): Funnel plot for adjusted age at 60 and diabetes at 5 year, 1999-2003 cohort (PD centres)**



**Table 4.4.1: Adjusted hazard ratio for mortality of dialysis patients (1999-2008)**

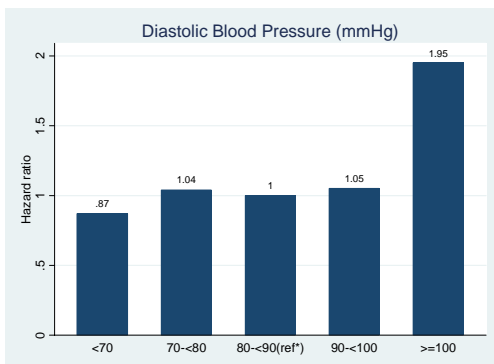
Factors	N	Hazard ratio	95% CI		P value
Age (years):					
- Age 1-14 (ref*)	381	1.00			
- Age 15-24	1,237	1.57	(1.12;	2.20)	0.009
- Age 25-34	2,147	1.58	(1.14;	2.20)	0.006
- Age 35-44	3,723	2.23	(1.62;	3.07)	0.000
- Age 45-54	7,318	3.03	(2.21;	4.16)	0.000
- Age 55-64	8,134	3.89	(2.83;	5.33)	0.000
- Age >=65	6,463	5.56	(4.05;	7.63)	0.000
Gender:					
- Male (ref*)	16,331	1.00			
- Female	13,072	0.82	(0.78;	0.85)	0.000
Primary diagnosis:					
- Unknown primary (ref*)	7,988	1.00			
- Diabetes mellitus	15,265	1.57	(1.48;	1.66)	0.000
- GN/SLE	2,056	0.93	(0.83;	1.05)	0.238
- Polycystic kidney	374	1.07	(0.86;	1.32)	0.564
- Obstructive nephropathy	882	1.07	(0.94;	1.22)	0.310
- Others	2,838	1.01	(0.92;	1.10)	0.857

Factors	N	Hazard ratio	95% CI		P value
Year start dialysis:					
- 1999-2000 (ref*)	3,568	1.00			
- 2001-2002	4,758	1.02	(0.96;	1.08)	0.598
- 2003-2004	5,828	1.01	(0.95;	1.07)	0.799
- 2005-2006	7,111	1.05	(0.98;	1.13)	0.139
- 2007-2008	8,138	0.88	(0.80;	0.96)	0.004
Modality:					
- HD (ref*)	25,469	1.00			
- PD	3,934	1.28	(1.19;	1.38)	0.000
BMI:					
- BMI<18.5	2,651	1.32	(1.21;	1.44)	0.000
- BMI 18.5-25	19,381	1.22	(1.16;	1.28)	0.000
- >=25 (ref*)	7,371	1.00			
Serum albumin (g/L):					
- <30	1,858	4.28	(3.90;	4.70)	0.000
- 30-<35	3,953	2.44	(2.27;	2.63)	0.000
- 35-<40	13,861	1.86	(1.76;	1.97)	0.000
- >=40 (ref*)	9,731	1.00			
Serum cholesterol (mmol/L):					
- <3.2	1,168	1.17	(1.05;	1.30)	0.006
- 3.2-<5.2	21,388	1.17	(1.11;	1.23)	0.000
- >=5.2 (ref*)	6,847	1.00			

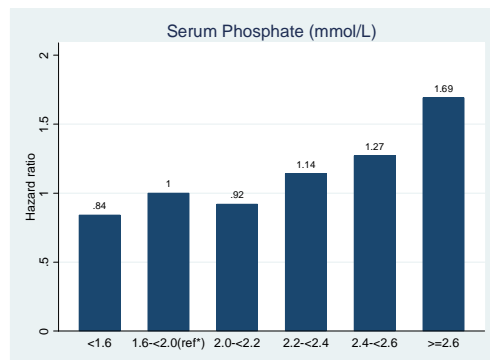
Factors	N	Hazard ratio	95% CI		P value
Diastolic BP (mmHg):					
- <70	3,851	0.87	(0.82;	0.94)	0.000
- 70-<80	11,392	1.04	(0.99;	1.10)	0.091
- 80-<90 (ref*)	10,569	1.00			
- 90-<100	2,930	1.05	(0.97;	1.15)	0.222
- >=100	661	1.95	(1.69;	2.26)	0.000
Hemoglobin:					
- <8	2,550	3.59	(3.26;	3.95)	0.000
- 8-<9	4,209	2.42	(2.21;	2.65)	0.000
- 9-<10	10,356	2.37	(2.18;	2.57)	0.000
- 10-<11	7,156	1.43	(1.31;	1.56)	0.000
- 11-<12 (ref*)	3,437	1.00			
- >=12	1,695	1.04	(0.92;	1.18)	0.526
Serum calcium (mmol/L):					
- <2.2	10,553	0.88	(0.84;	0.92)	0.000
- 2.2-<2.6 (ref*)	18,212	1.00			
- >=2.6	638	1.81	(1.60;	2.05)	0.000
Calcium Phosphate product (mmol <sup>2</sup> /L <sup>2</sup> ):					
- <3.5	10,254	0.98	(0.91;	1.06)	0.586
- 3.5-<4.5 (ref*)	13,041	1.00			
- 4.5-<5.5	4,307	0.66	(0.60;	0.72)	0.000
- >=5.5	1,801	0.63	(0.53;	0.75)	0.000

Factors	N	Hazard ratio	95% CI		P value
Serum Phosphate (mmol/L):					
- <1.6	10,820	0.84	(0.78;	0.90)	0.000
- 1.6-<2.0 (ref*)	12,354	1.00			
- 2.0-<2.2	2,700	0.92	(0.83;	1.01)	0.088
- 2.2-<2.4	1,602	1.14	(1.00;	1.30)	0.052
- 2.4-<2.6	943	1.27	(1.07;	1.51)	0.007
- >=2.6	984	1.69	(1.39;	2.07)	0.000
HBsAg:					
- Negative (ref*)	28,253	1.00			
- Positive	1,150	1.15	(1.04;	1.27)	0.007
Anti-HCV:					
- Negative (ref*)	28,333	1.00			
- Positive	1,070	0.94	(0.85;	1.04)	0.229
Cardiovascular disease (CVD)					
- No CVD (ref*)	24,016	1.00			
- CVD	5,387	1.33	(1.27;	1.40)	0.000

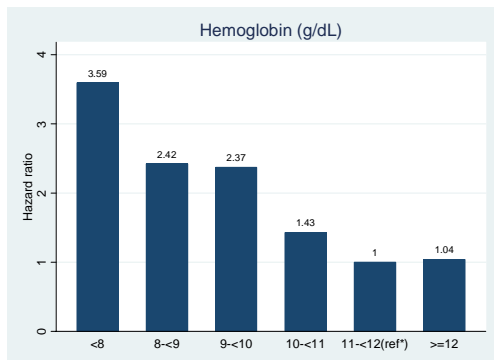
**Figure 4.4.1 (a): Adjusted hazard ratio for mortality of dialysis patients by diastolic blood pressure (1999-2008 cohort)**



**Figure 4.4.1 (b): Adjusted hazard ratio for mortality of dialysis patients by serum phosphate (1999-2008 cohort)**



**Figure 4.4.1 (c): Adjusted hazard ratio for mortality of dialysis patients by hemoglobin (1999-2008 cohort)**



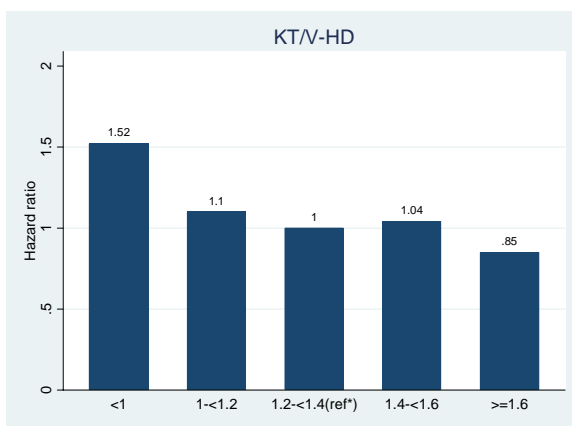
**Table 4.4.1 (b): Adjusted hazard ratio for mortality of HD patients (1999-2008 cohort)**

Factors	N	Hazard Ratio	95% CI		P value
Age (years):					
- Age 1-14 (ref*)	106	1			
- Age 15-24	884	0.99	0.53	1.84	0.972
- Age 25-34	1,818	0.87	0.47	1.60	0.657
- Age 35-44	3,227	1.20	0.66	2.20	0.546
- Age 45-54	6,438	1.60	0.88	2.92	0.122
- Age 55-64	7,199	2.03	1.11	3.69	0.021
- Age >=65	5,797	2.94	1.61	5.36	0.000
Gender:					
- Male (ref*)	14,346	1.00			
- Female	11,123	0.85	0.81	0.89	0.000
Primary diagnosis:					
- Unknown primary (ref*)	7,093	1.00			
- Diabetes mellitus	13,432	1.50	1.41	1.59	0.000
- GN/SLE	1,541	0.93	0.82	1.06	0.290
- Polycystic kidney	323	1.00	0.79	1.27	0.978
- Obstructive nephropathy	708	1.08	0.94	1.25	0.274
- Others	2,372	1.04	0.95	1.15	0.384
Year start dialysis:					
- 1999-2000 (ref*)	3,131	1.00			
- 2001-2002	4,048	1.03	0.97	1.10	0.327
- 2003-2004	5,070	1.03	0.97	1.11	0.343
- 2005-2006	6,286	1.06	0.99	1.15	0.096
- 2007-2008	6,934	0.85	0.77	0.94	0.001

Factors	N	Hazard Ratio	95% CI		P value
<b>BMI:</b>					
- BMI<18.5	2,076	1.50	1.34	1.67	0.000
- BMI 18.5-25	17,307	1.31	1.23	1.40	0.000
- >=25 (ref*)	6,086	1.00			
<b>Serum albumin (g/L):</b>					
- <30	846	4.88	4.38	5.44	0.000
- 30-<35	2,457	2.42	2.24	2.63	0.000
- 35-<40	12,808	1.88	1.77	1.99	0.000
- >=40 (ref*)	9,358	1.00			
<b>Serum cholesterol (mmol/L):</b>					
- <3.2	1,090	1.20	1.06	1.35	0.003
- 3.2-<5.2	19,460	1.23	1.16	1.31	0.000
- >=5.2 (ref*)	4,919	1.00			
<b>KT/V</b>					
- <1	704	1.52	1.32	1.74	0.000
- 1-<1.2	2,311	1.10	1.00	1.20	0.039
- 1.2-<1.4 (ref*)	5,467	1.00			
- 1.4-<1.6	7,156	1.04	0.98	1.11	0.202
- >=1.6	9,831	0.85	0.79	0.91	0.000
<b>Diastolic BP (mmHg):</b>					
- <70	3,368	0.83	0.77	0.89	0.000
- 70-<80	10,098	1.04	0.98	1.09	0.204
- 80-<90 (ref*)	8,959	1.00			
- 90-<100	2,461	1.04	0.95	1.14	0.412
- >=100	583	1.84	1.57	2.15	0.000

Factors	N	Hazard Ratio	95% CI		P value
<b>Hemoglobin:</b>					
- <8	2,329	3.96	3.55	4.42	0.000
- 8-<9	3,751	2.64	2.38	2.93	0.000
- 9-<10	9,419	2.61	2.37	2.87	0.000
- 10-<11	5,908	1.49	1.34	1.64	0.000
- 11-<12 (ref*)	2,747	1.00			
- >=12	1,315	1.01	0.87	1.18	0.887
<b>Serum calcium (mmol/L):</b>					
- <2.2	9,242	0.90	0.85	0.95	0.000
- 2.2-<2.6 (ref*)	15,729	1.00			
- >=2.6	498	1.73	1.51	1.99	0.000
<b>Calcium Phosphate product (mmol<sup>2</sup>/L<sup>2</sup>):</b>					
- <3.5	8,097	0.91	0.84	0.99	0.030
- 3.5-<4.5 (ref*)	11,869	1.00			
- 4.5-<5.5	3,851	0.66	0.60	0.73	0.000
- >=5.5	1,652	0.63	0.52	0.76	0.000
<b>Serum Phosphate (mmol/L):</b>					
- <1.6	8,494	0.85	0.78	0.92	0.000
- 1.6-<2.0 (ref*)	11,297	1.00			
- 2.0-<2.2	2,447	0.86	0.77	0.95	0.003
- 2.2-<2.4	1,460	1.09	0.95	1.25	0.239
- 2.4-<2.6	862	1.18	0.98	1.42	0.076
- >=2.6	909	1.62	1.31	1.99	0.000
<b>HBsAg:</b>					
- Negative (ref*)	24,473	1.00			
- Positive	996	1.13	1.02	1.26	0.023
<b>Anti-HCV:</b>					
- Negative (ref*)	24,531	1.00			
- Positive	938	0.92	0.83	1.02	0.106
<b>Cardiovascular disease (CVD)</b>					
- No CVD (ref*)	21,007	1.00			
- CVD	4,462	1.29	1.22	1.35	0.000

Figure 4.4.1 (d): Adjusted hazard ratio for mortality of HD patients by KT/V (1999-2008 cohort)



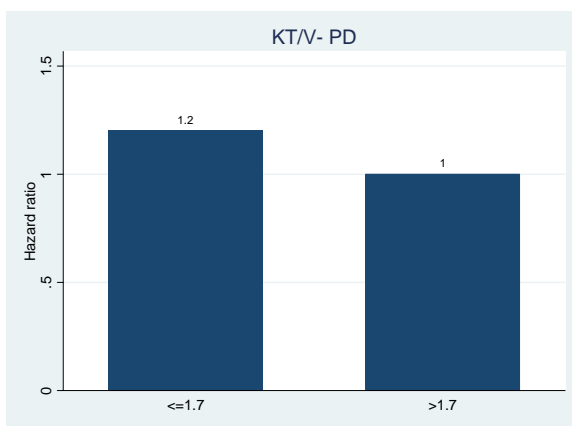
**Figure 4.4.1 (c): Adjusted hazard ratio for mortality of PD patients (1999-2008 cohort)**

Factors	N	Hazard ratio	95% CI		P value
<b>Age (years):</b>					
- Age 1-14 (ref*)	275	1			
- Age 15-24	353	1.55	0.98	2.44	0.058
- Age 25-34	329	1.70	1.04	2.76	0.033
- Age 35-44	496	2.52	1.57	4.03	0.000
- Age 45-54	880	4.14	2.65	6.49	0.000
- Age 55-64	935	5.00	3.22	7.77	0.000
- Age >=65	666	7.99	5.08	12.56	0.000
<b>Gender:</b>					
- Male (ref*)	1,985	1.00			
- Female	1,949	0.84	0.74	0.96	0.010
<b>Primary diagnosis:</b>					
- Unknown primary (ref*)	895	1.00			
- Diabetes mellitus	1,833	1.98	1.64	2.39	0.000
- GN/SLE	515	0.96	0.73	1.26	0.763
- Polycystic kidney	51	1.41	0.85	2.34	0.186
- Obstructive nephropathy	174	1.08	0.76	1.52	0.670
- Others	466	0.92	0.73	1.17	0.512
<b>Year start dialysis:</b>					
- 1999-2000 (ref*)	437	1.00			
- 2001-2002	710	1.07	0.90	1.28	0.456
- 2003-2004	758	1.03	0.86	1.24	0.750
- 2005-2006	825	1.02	0.83	1.24	0.876
- 2007-2008	1,204	0.96	0.76	1.22	0.761

Factors	N	Hazard ratio	95% CI		P value
<b>BMI:</b>					
- BMI<18.5	575	1.67	1.34	2.08	0.000
- BMI 18.5-25	2,074	1.26	1.11	1.43	0.000
- >=25 (ref*)	1,285	1.00			
<b>Serum albumin (g/L):</b>					
- <30	1,012	1.93	1.44	2.59	0.000
- 30-<35	1,496	1.31	0.98	1.75	0.063
- 35-<40	1,053	0.93	0.69	1.26	0.648
- >=40 (ref*)	373	1.00			
<b>Serum cholesterol (mmol/L):</b>					
- <3.2	78	1.43	0.99	2.07	0.057
- 3.2-<5.2	1,928	0.90	0.80	1.02	0.093
- >=5.2 (ref*)	1,928	1.00			
- KT/V					
- <=1.7	1,113	1.20	0.93	1.56	0.158
- >1.7 (ref*)	2,821				
<b>Diastolic BP (mmHg):</b>					
- <70	483	1.26	1.04	1.52	0.016
- 70-<80	1,294	0.98	0.85	1.12	0.767
- 80-<90 (ref*)	1,610	1.00			
- 90-<100	469	1.22	0.98	1.53	0.075
- >=100	78	2.17	1.42	3.31	0.000
<b>Hemoglobin:</b>					
- <8	221	2.25	1.68	3.00	0.000
- 8-<9	458	1.81	1.44	2.28	0.000
- 9-<10	937	1.59	1.32	1.91	0.000
- 10-<11	1,248	1.21	1.02	1.44	0.031
- 11-<12 (ref*)	690	1.00			
- >=12	380	1.04	0.82	1.32	0.762

Factors	N	Hazard ratio	95% CI	P value	
Serum calcium (mmol/L):					
- <2.2	1,311	0.87	0.75	1.00	0.052
- 2.2-<2.6 (ref*)	2,483	1.00			
- >=2.6	140	2.14	1.62	2.82	0.000
Calcium Phosphate product (mmol <sup>2</sup> /L <sup>2</sup> ):					
- <3.5	2,157	1.33	1.09	1.64	0.006
- 3.5-<4.5 (ref*)	1,172	1.00			
- 4.5-<5.5	456	0.87	0.67	1.14	0.320
- >=5.5	149	0.83	0.48	1.41	0.486
Serum Phosphate (mmol/L):					
- <1.6	2,326	1.02	0.82	1.27	0.840
- 1.6-<2.0 (ref*)	1,057	1.00			
- 2.0-<2.2	253	1.49	1.10	2.02	0.010
- 2.2-<2.4	142	1.38	0.88	2.16	0.159
- 2.4-<2.6	81	1.81	1.05	3.14	0.034
- >=2.6	75	1.43	0.68	3.04	0.347
HBsAg:					
- Negative (ref*)	3,780	1.00			
- Positive	154	1.16	0.88	1.53	0.279
Anti-HCV:					
- Negative (ref*)	3,802	1.00			
- Positive	132	1.23	0.94	1.61	0.128
Cardiovascular disease (CVD)					
- No CVD (ref*)	3,009	1.00			
- CVD	925	1.53	1.34	1.73	0.000

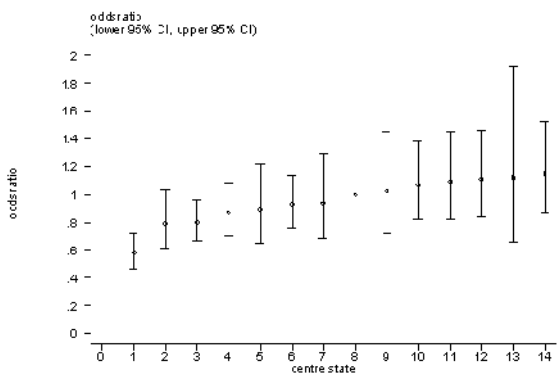
Figure 4.4.1 (e): Adjusted hazard ratio for mortality of PD patients by KT/V (1999-2008 cohort)



**Table 4.4.2: Variation in odds ratio of death by centre state 2007**

	Variation in odds ratio						
	Min	5th centile	LQ	Median	UQ	95th centile	Max
	0.580	0.580	0.868	0.939	1.095	1.152	1.152
State	Number of centres		Odds ratio				
Pulau Pinang	60		0.868				
Melaka	31		1.110				
Johor	92		1.000				
Perak	74		0.933				
Selangor and WP Putrajaya	123		0.802				
WP Kuala Lumpur	77		0.580				
Negeri Sembilan	26		1.022				
Kedah	36		1.068				
Perlis	3		1.124				
Terengganu	17		0.939				
Pahang	27		1.095				
Kelantan Darul Naim	26		0.886				
Sarawak	40		0.793				
Sabah and WPLabuan	35		1.152				

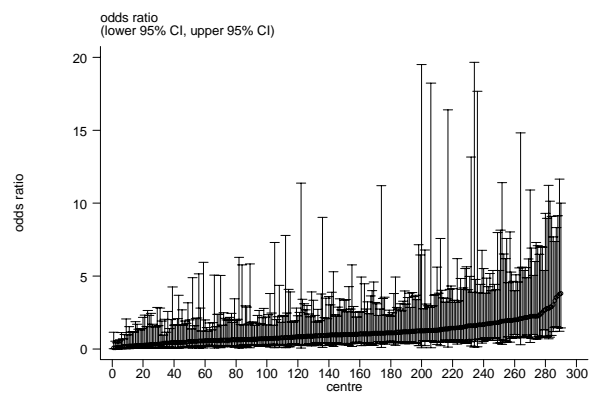
Figure 4.4.2: Variation in odds ratio of death by state 2007



**Table 4.4.3: Variation in odds ratio of death by centre, 1998-2007**

Year	Number of Centre	Min	5th centile	LQ	Median	UQ	95th centile	Max
1998	49	0.077	0.277	0.96	1.461	2.462	5.337	15.798
1999	52	0.013	0.147	0.562	1.362	2.901	4.471	10.504
2000	81	0.028	0.098	0.314	0.733	1.334	3.05	5.082
2001	119	0.102	0.167	0.555	0.903	1.815	3.42	7.601
2002	145	0.095	0.174	0.668	1.071	1.809	3.841	12.178
2003	176	0.104	0.243	0.748	1.389	2.16	6.525	16.577
2004	203	0.000	0.000	0.497	0.779	1.26	2.866	7.488
2005	239	0.081	0.187	0.494	0.852	1.323	2.64	6.075
2006	272	0.095	0.186	0.497	0.877	1.186	2.226	5.442
2007	303	0.061	0.226	0.608	0.983	1.498	2.87	5.887

**Figure 4.4.3: Variations in odds ratio of death by centre, 2007**



\*from 303 centres, 13 centres have upper OR bound more than 20.