

CHAPTER - 5
PAEDIATRIC RENAL REPLACEMENT THERAPY

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SECTION A: RRT PROVISION FOR PAEDIATRIC PATIENTS

This chapter presents data on paediatric patients less than 20 years of age receiving renal replacement therapy (RRT) for the past 20 years (1993-2012).

The dialysis acceptance rate for the paediatric population had increased from a dismal 2 per million age related population (pmarp) in the early 1990s to about 11 pmarp for the last 3 years. Data for 2012 however is preliminary as at the time of writing this report there might still be some new patients yet to be notified to the registry. The number of new transplants however had not increased as much over the years compared to dialysis. Only about 20 transplants or so are done annually over the past 5 years. The overall incidence rate for all RRT had stabilized to about 10 pmarp in the last 3 to 4 years.

As expected, with increasing numbers of children on dialysis and improved survival; the number of prevalent patients continued to rise. At the end of 2012, 922 paediatric patients were receiving RRT in Malaysia. Of these, 717 children were on dialysis. The equivalent dialysis prevalence rate almost doubled over the last 10 years from 44 pmarp in 2003 to 85 pmarp in 2012. The prevalent HD population continued to expand at a higher rate than the PD population although the dialysis acceptance rate for new PD patients was higher, consistent with higher technique failure among PD patients.

Table 5.1: Stock and flow of Paediatric Renal Replacement Therapy (RRT) 1993-2012

Year	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
New HD patients	9	6	7	20	22	21	23	12	24	29
New PD patients	7	13	13	23	21	28	30	37	40	54
New Transplants	9	11	3	6	13	8	17	17	11	13
HD deaths	2	0	2	0	3	3	2	4	1	11
PD deaths	0	0	2	2	3	7	2	3	8	8
Transplant deaths	0	1	0	3	0	1	0	1	0	1
On HD at 31 st December	31	33	37	54	69	89	105	119	143	160
On PD at 31 st December	14	26	32	51	62	73	92	109	123	152
Functioning transplant at 31 st December	45	54	55	56	64	70	82	94	102	113

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
New HD patients	32	38	35	51	36	44	37	47	42	43
New PD patients	38	41	47	44	51	50	69	57	60	50
New Transplants	11	11	18	23	20	21	19	9	19	14
HD deaths	6	10	9	7	11	11	14	15	20	16
PD deaths	12	6	9	17	8	11	11	15	14	11
Transplant deaths	2	0	1	1	3	4	2	2	4	5
On HD at 31 st December	183	215	241	286	313	351	369	407	426	446
On PD at 31 st December	164	176	193	189	202	208	239	250	259	271
Functioning transplant at 31 st December	117	126	140	158	168	175	181	182	192	205

Figure 5.1(a): Incidence cases of RRT by modality in children under 20 years old, 1993-2012

Figure 5.1(b): Prevalence cases of RRT by modality in children under 20 years old, 1993-2012

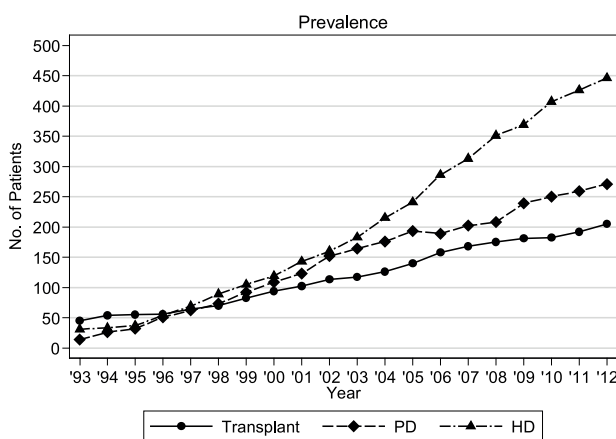
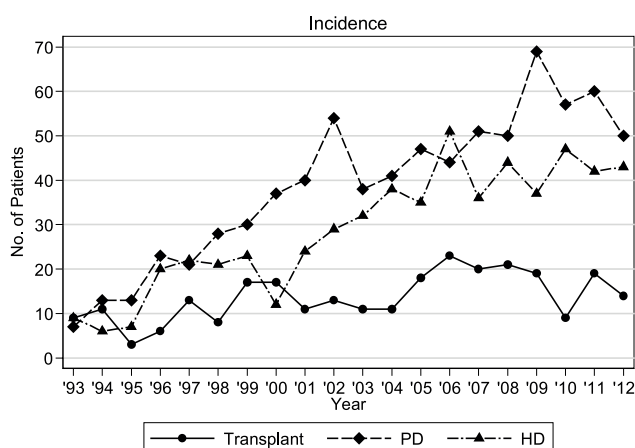
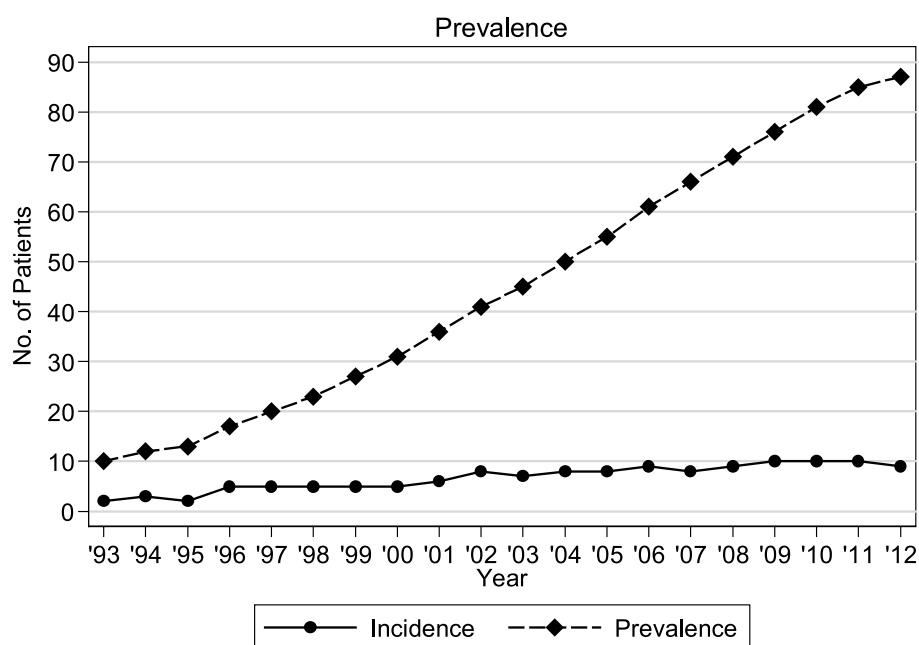


Table 5.2: Paediatric dialysis and transplant rates per million age-group population 1993-2012

Year	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Incidence Rate										
New HD	1	1	1	2	2	2	2	1	2	3
New PD	1	1	1	2	2	3	3	4	4	5
New Transplant	1	1	0	1	1	1	2	2	1	1
All RRT	2	3	2	5	5	5	5	5	6	8
Prevalence Rate at 31 st December										
On HD	3	4	4	6	7	9	10	12	14	15
On PD	2	3	3	5	6	7	9	11	12	15
Functioning Graft	5	6	6	6	7	7	8	9	10	11
All RRT	11	13	14	17	21	24	28	31	35	40

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Incidence Rate										
New HD	3	4	3	5	3	4	4	5	4	4
New PD	4	4	5	4	5	5	7	6	6	5
New Transplant	1	1	2	2	2	2	2	1	2	1
All RRT	7	8	8	9	8	9	10	10	10	9
Prevalence Rate at 31 st December										
On HD	18	21	23	27	30	34	36	39	41	42
On PD	16	17	19	18	19	20	23	24	25	26
Functioning Graft	11	12	13	15	16	17	17	18	19	19
All RRT	44	49	54	60	64	70	75	80	84	85

Figure 5.2: Incidence and prevalence rate per million age related population years old on RRT, 1993-2012

SECTION B: DISTRIBUTION OF PAEDIATRIC DIALYSIS PATIENTS

The treatment gap between the more economically developed states of West Malaysia and East Malaysia has become less obvious over the years with the set up of new paediatric and adult nephrology centres in these regions particularly in the east coast of West Malaysia and East Malaysia where the number of new dialysis patients had increased significantly over the last 5 years

Table 5.3(a): Dialysis treatment rate by state, per million state age group populations, 1993-2012

State	1993-1997	1998-2002	2003-2007	2008-2012
Pulau Pinang	3	7	15	10
Melaka	5	7	13	12
Johor	3	7	9	12
Perak	2	5	9	10
Selangor & Putrajaya	4	7	6	9
Kuala Lumpur	7	9	9	11
Negeri Sembilan	6	7	9	11
Kedah	3	7	6	9
Perlis	2	13	8	6
Terengganu	1	8	10	12
Pahang	3	6	8	11
Kelantan	1	4	7	7
Sarawak	3	5	6	7
Sabah & WP Labuan	1	3	5	9

Table 5.3(b): New dialysis patients by state, 1993-2012

State	1993-1997	1998-2002	2003-2007	2008-2012
Pulau Pinang	8	18	38	25
Melaka	6	10	19	18
Johor	17	40	54	69
Perak	9	21	42	45
Selangor & Putrajaya	25	56	56	83
Kuala Lumpur	18	22	26	30
Negeri Sembilan	11	14	16	20
Kedah	12	26	25	36
Perlis	1	6	4	3
Terengganu	2	18	22	27
Pahang	9	17	22	32
Kelantan	3	13	26	27
Sarawak	14	21	30	35
Sabah & WP Labuan	6	16	32	48

There has been consistently more males among the population of children on dialysis and transplant; a trend that has persisted over the last 10 years. This is probably a reflection of the higher incidence of ESRD among the males. However this gender disparity appears to be less marked in recent years perhaps reflecting a gender bias in the early years.

Table 5.4: Number of new dialysis and transplant patients by gender 1993-2012

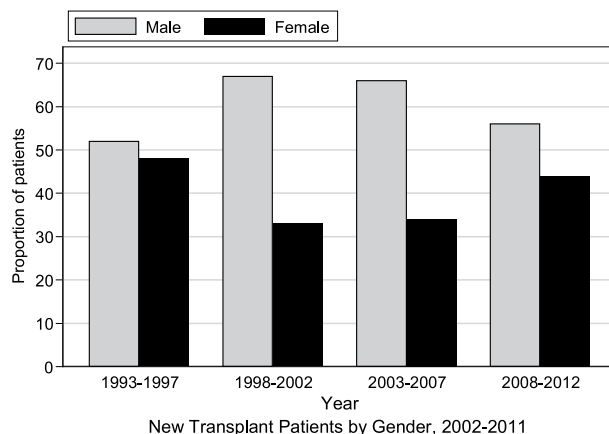
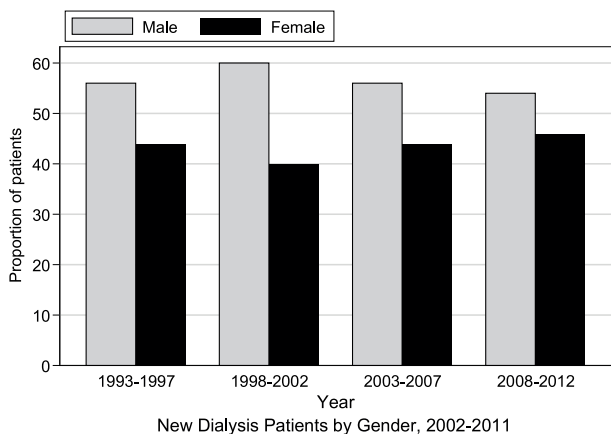
(a) New Dialysis

Year	Male		Female	
	n	%	n	%
1993-1997	79	56	62	44
1998-2002	178	60	120	40
2003-2007	231	56	182	44
2008-2012	270	54	229	46

(b) New Transplant

Year	Male		Female	
	n	%	n	%
1993-1997	22	52	20	48
1998-2002	44	67	22	33
2003-2007	55	66	28	34
2008-2012	46	56	36	44

Figure 5.4: Number of new dialysis and transplant patients by gender 1993-2012

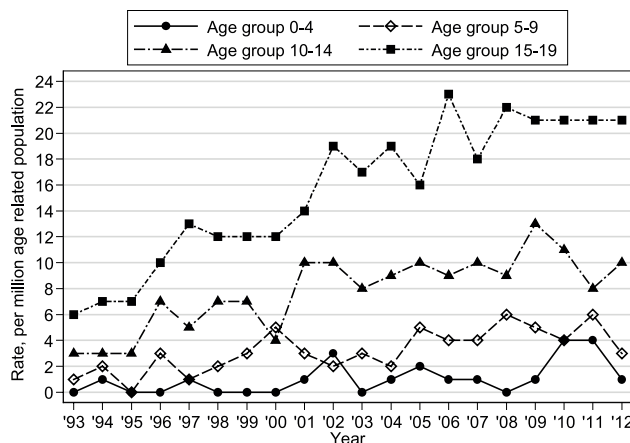


The dialysis treatment rate had leveled off over the last 10 years across the paediatric age spectrum. The treatment rate had remained consistently higher among the older age groups.

Table 5.5: New RRT rate, per million age related population by age group 1993-2012

Year	New RRT rate, pmp Age group (years)			
	0-4	5-9	10-14	15-19
1993	0	1	3	6
1994	1	2	3	7
1995	0	0	3	7
1996	0	3	7	10
1997	1	1	5	13
1998	0	2	7	12
1999	0	3	7	12
2000	0	5	4	12
2001	1	3	10	14
2002	3	2	10	19
2003	0	3	8	17
2004	1	2	9	19
2005	2	5	10	16
2006	1	4	9	23
2007	1	4	10	18
2008	0	6	9	22
2009	1	5	13	21
2010	4	4	11	21
2011	4	6	8	21
2012	1	3	10	21

Figure 5.5: New RRT rate by age group 1993-2012

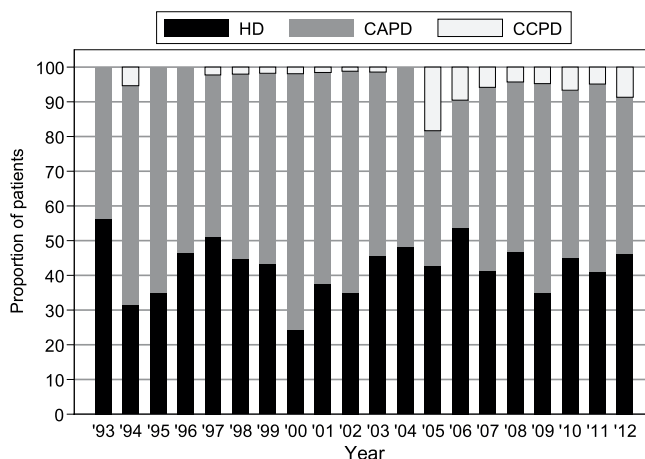


PD was the first modality of dialysis in more than half (54%) of patients in 2012. The majority of them were on CAPD while about 9% were started on automated PD (CCPD).

Table 5.6: New dialysis by treatment modality 1993-2012

Year	HD		CAPD		CCPD	
	n	%	n	%	n	%
1993	9	56	7	44	0	0
1994	6	32	12	63	1	5
1995	7	35	13	65	0	0
1996	20	47	23	53	0	0
1997	22	51	20	47	1	2
1998	21	45	25	53	1	2
1999	23	43	29	55	1	2
2000	12	24	36	73	1	2
2001	24	38	39	61	1	2
2002	29	35	53	64	1	1
2003	32	46	37	53	1	1
2004	38	48	41	52	0	0
2005	35	43	32	39	15	18
2006	51	54	35	37	9	9
2007	36	41	46	53	5	6
2008	44	47	46	49	4	4
2009	37	35	64	60	5	5
2010	47	45	50	48	7	7
2011	42	41	55	54	5	5
2012	43	46	42	45	8	9

Figure 5.6: New dialysis by treatment modality 1993-2012

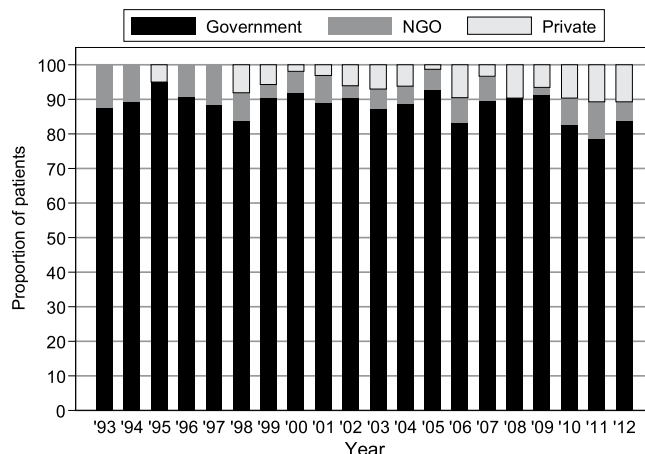


Most of the children (84%) received their dialysis treatment from government centres and hence were government funded.

Table 5.7: New dialysis by sector 1993-2012

Year	Government		NGO		Private	
	n	%	n	%	n	%
1993	14	88	2	13	0	0
1994	17	89	2	11	0	0
1995	19	95	0	0	1	5
1996	39	91	4	9	0	0
1997	38	88	5	12	0	0
1998	41	84	4	8	4	8
1999	48	91	2	4	3	6
2000	45	92	3	6	1	2
2001	57	89	5	8	2	3
2002	75	90	3	4	5	6
2003	61	87	4	6	5	7
2004	70	89	4	5	5	6
2005	76	93	5	6	1	1
2006	79	83	7	7	9	9
2007	78	90	6	7	3	3
2008	85	90	0	0	9	10
2009	97	92	2	2	7	7
2010	86	83	8	8	10	10
2011	80	78	11	11	11	11
2012	78	84	5	5	10	11

Figure 5.7: New dialysis by sector 1993-2012



SECTION C: PRIMARY RENAL DISEASE

The most common primary renal disease identified was glomerulonephritis, which accounted for about 28% of the patients. FSGS on its own accounted for about 13% of the ESRD population. SLE was the third most common cause of ESRD in girls (9%).

Table 5.8: Primary renal disease by sex, 1993-2012

Primary Renal Disease	Male		Female		All	
	n	%	n	%	n	%
Glomerulonephritis	105	29	83	27	188	28
FSGS	49	14	37	12	86	13
Reflux nephropathy	33	9	13	4	46	7
SLE	3	1	26	9	29	4
Obstructive uropathy	31	9	24	8	55	8
Renal dysplasia	32	9	23	8	55	8
Hereditary nephritis	8	2	2	1	10	2
Cystic kidney disease	5	1	7	2	12	2
Metabolic	6	2	13	4	19	3
Others	86	24	71	23	157	24
Unknown	105	29	83	27	188	28

SECTION D: TYPES OF RENAL TRANSPLANTATION

Living related renal transplant used to be the commonest type of transplantation done among children in Malaysia. However the trend has changed over the last 10 years in that cadaveric renal transplant is now the most common transplantation done accounting for about 57% compared to 32% for the living related programme. The number of transplants from overseas commercial program has reduced significantly over the last 5 years.

Table 5.9: Types of renal transplantation, 1993-2012

Year	1993-1997		1998-2002		2003-2007		2008-2012	
	n	%	n	%	n	%	n	%
Living related donor	26	65	37	57	30	37	25	32
Cadaver	3	8	17	26	31	38	43	56
Living emotionally related	0	0	0	0	0	0	1	1
Commercial cadaver	5	13	8	12	19	23	8	10
Commercial living donor	6	15	3	5	2	2	0	0
TOTAL	40	101	65	100	82	100	77	99

SECTION E: DEATH AND SURVIVAL ANALYSIS

Renal transplantation had the best patient survival with 97% survival at 5 years and 10 years. HD patients consistently showed better survival compared to PD patients and this disparity becomes more marked when censored for change of dialysis modality. The separation of the survival curve became more obvious after about 4 to 5 years of dialysis with PD patients showing a poorer outcome compared to HD (Figure 5.10b)

Table 5.10(a): Patient survival by dialysis modality analysis (not censored with change of modality)

Modality Interval (months)	Transplant			PD			HD		
	n	% survival	SE	n	% survival	SE	n	% survival	SE
0	70	100		786	100		652	100	
6	67	97	2	736	97	1	605	96	1
12	67	97	2	686	94	1	568	94	1
24	67	97	2	585	88	1	501	90	1
36	65	97	2	516	85	1	443	87	1
48	64	97	2	439	82	1	399	84	2
60	59	97	2	382	80	2	358	82	2
72	58	97	2	330	77	2	316	80	2
84	58	97	2	285	73	2	271	77	2
96	56	97	2	250	71	2	241	76	2
108	55	97	2	215	69	2	208	74	2
120	55	97	2	185	66	2	186	73	2

Figure 5.10(a): Patient survival by dialysis modality analysis (not censored with change of modality)

Figure 5.10(b): Patient survival by dialysis modality analysis (censored with change of modality)

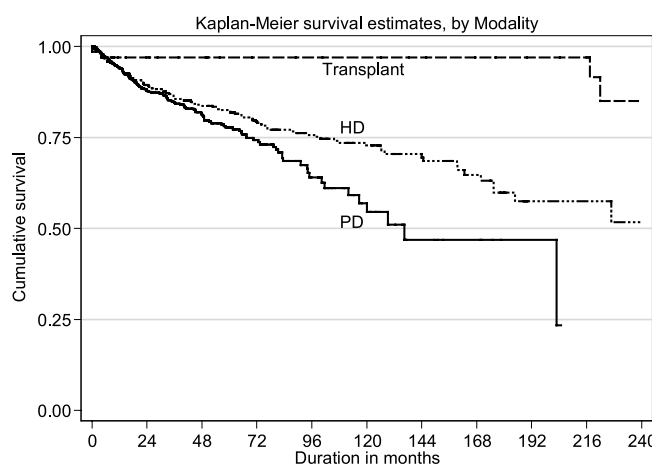
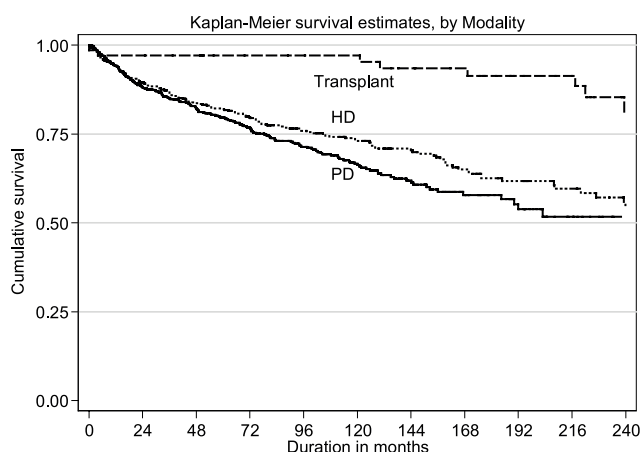


Table 5.10(b): Patient survival by dialysis modality analysis (censored with change of modality)

Modality Interval (months)	Transplant			PD			HD		
	n	% survival	SE	n	% survival	SE	n	% survival	SE
0	70	100		786	100		652	100	
6	60	97	2	717	97	1	564	96	1
12	54	97	2	624	94	1	496	94	1
24	52	97	2	461	88	1	406	89	1
36	49	97	2	341	85	2	341	86	2
48	48	97	2	248	81	2	293	84	2
60	43	97	2	179	78	2	255	82	2
72	42	97	2	130	74	2	217	79	2
84	41	97	2	83	68	3	178	77	2
96	39	97	2	55	64	3	154	76	2
108	37	97	2	35	61	4	123	73	2
120	37	97	2	24	54	5	102	73	3

The commonest known causes of death among dialysis patients were sepsis and cardiovascular.

Table 5.11: Causes of death in dialysis patients 1993-2012

Year Causes of Death	1993-1997		1998-2002		2003-2007		2008-2012	
	n	%	n	%	n	%	n	%
Cardiovascular	0	0.0	4	19.0	10	25.0	24	31.6
Died at home	0	0.0	3	14.3	3	7.5	12	15.8
Sepsis	3	42.9	10	47.6	13	32.5	21	27.6
Withdrawal	0	0.0	2	9.5	1	2.5	2	2.6
Others	4	57.1	2	9.5	16	40.0	17	22.4
TOTAL	7	100	21	100	43	107	76	100

After the first year; dialysis technique failure rate was much higher amongst PD patients with progressive widening of the technique survival curve with increasing years on dialysis. Technique survival at 5 years was only 49% for PD compared to 77% for HD.

The most common causes of drop out from PD program were death (32%), transplant (20%) and peritonitis (17%)

Table 5.12: Dialysis technique survival by modality, 1993-2012

Modality Interval (months)	PD			HD		
	n	% survival	SE	n	% survival	SE
0	823	100		774	100	
6	753	96	1	696	94	1
12	660	89	1	617	90	1
24	485	78	2	494	84	1
36	360	66	2	405	81	2
48	261	58	2	343	78	2
60	184	49	2	287	77	2
72	133	41	2	243	74	2
84	85	32	2	193	71	2
96	57	25	2	165	69	2
108	36	21	2	126	67	2
120	26	17	2	103	66	2

Figure 5.12: Dialysis technique survival by modality, 1993-2012

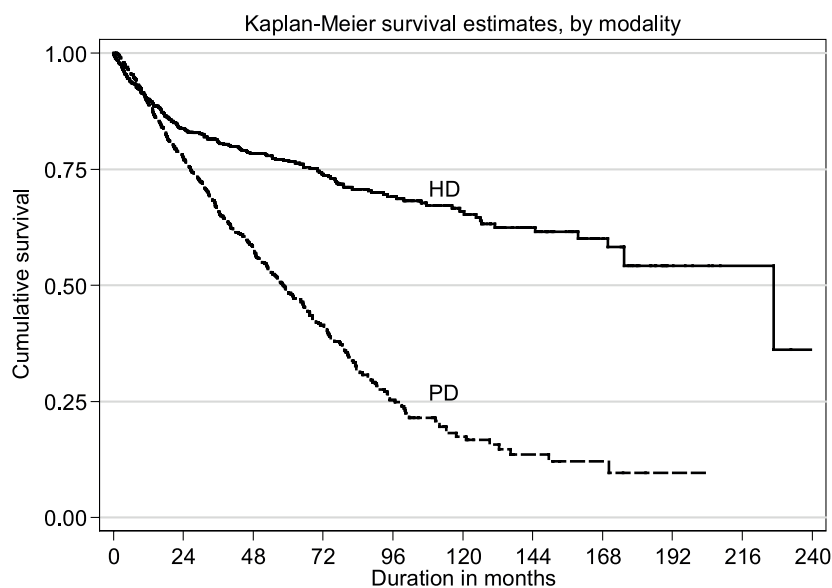


Table 5.13: Reasons for drop-out from PD program, 1993-2012

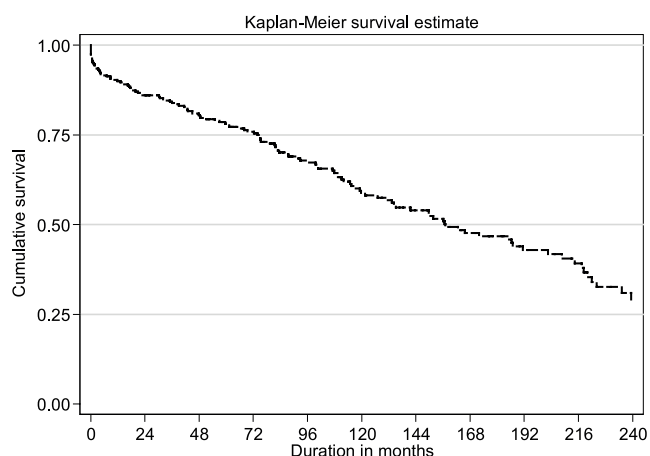
Year	1993-1997		1998-2002		2003-2007		2008-2012	
	n	%	n	%	n	%	n	%
Death	16	21	47	28	57	32	26	32
Transplant	29	38	48	29	47	27	16	20
Peritonitis	18	23	24	14	35	20	14	17
Catheter related infection	2	3	0	0	0	0	4	5
Membrane failure	9	12	29	17	15	9	8	10
Technical problem	1	1	4	2	6	3	7	9
Patient preference	1	1	6	4	9	5	4	5
Others	1	1	6	4	6	3	2	2
Unknown	0	0	2	1	1	1	1	1

The graft survival for paediatric transplants was 90% at 1 year and 78% at 5 years.

The commonest known causes for graft loss among pediatric transplants was due to vascular causes (13%) and rejection (4%) (Table 5.15). Unfortunately graft loss due to unknown cause accounted for more than half the graft loss, not because the causes of graft loss are unknown but notification of outcome of graft loss was indirect and hence no cause was entered.

Table 5.14: Transplant graft survival, 1993-2012

Interval (month)	n	% survival	SE
0	323	100	
6	291	92	2
12	282	90	2
24	251	86	2
36	237	84	2
48	211	81	2
60	187	78	2
72	165	76	3
84	136	70	3
96	121	68	3
108	109	64	3
120	93	59	3

Figure 5.14: Transplant graft survival, 1993-2012**Table 5.15:** Causes of graft loss

Causes of graft loss	1993-1997		1998-2002		2003-2007		2008-2012	
	n	%	n	%	n	%	n	%
Rejection	13	36	15	41	10	29	1	4
Calcineurin toxicity	0	0	0	0	1	3	0	0
Vascular causes	3	8	2	5	4	12	3	13
Recurrent/ de novo renal disease	0	0	1	3	0	0	0	0
Others	1	3	0	0	0	0	1	4
Unknown	19	53	19	51	19	56	19	79
TOTAL	36	100	37	100	34	100	24	100

SECTION F: HAEMODIALYSIS PRACTICE

The majority (about 90%) of the paediatric haemodialysis patients had native vascular access. However the percentage of children with cuffed or non-cuffed central venous catheters has increased over the last 10 years from 2.9% to 11.2%

Table 5.16: Vascular access on haemodialysis, 1997-2012

Access types	1997-2002		2003-2007		2008-2012	
	n	%	n	%	n	%
Wrist AVF	449	76.6	720	63.4	1065	55.8
BCF*	118	20.1	326	28.7	622	32.6
Venous graft	0	0	2	0.2	1	0.1
Artificial graft	2	0.3	2	0.2	6	0.3
cuffed catheter	1	0.2	44	3.9	131	6.9
non-cuffed catheter	16	2.7	41	3.6	82	4.3
TOTAL	586	100	1135	100	1907	100

The median prescribed Kt/V was 2.2 in 2012. 87% of patients achieved the target Kt/V of ≥ 1.3 while 92% achieved an average URR of $> 65\%$.

Table 5.17(a): Distribution of prescribed Kt/V, HD patients 2006-2012

Year	Number of patients	Mean	SD	Median	LQ	UQ	% patients ≥ 1.3	% patients ≥ 1.8	% patients ≥ 2
2006	256	2.1	0.6	2	1.7	2.4	92	68	256
2007	281	2.1	0.6	2	1.7	2.4	94	68	281
2008	329	2.1	0.6	2.1	1.7	2.4	94	73	329
2009	360	2.2	0.6	2.2	1.8	2.6	94	76	360
2010	367	2.2	0.6	2.2	1.8	2.6	94	74	367
2011	403	2.2	0.6	2.2	1.8	2.7	95	76	403
2012	439	2.3	0.6	2.2	1.9	2.7	95	77	439

Table 5.17(b): Distribution of delivered Kt/V, HD patients 2006-2012

Year	Number of patients	Mean	SD	Median	LQ	UQ	% patients ≥ 1.3	% patients ≥ 1.8	% patients ≥ 2
2006	64	2.2	0.6	2.1	1.8	2.4	88	39	64
2007	163	2.1	0.6	2	1.7	2.4	81	33	163
2008	186	2.1	0.6	2	1.7	2.4	85	36	186
2009	246	2.1	0.6	2	1.7	2.4	84	32	246
2010	286	2.2	0.6	2.1	1.8	2.5	82	36	286
2011	305	2.2	0.6	2.2	1.8	2.6	86	32	305
2012	322	2.3	0.6	2.2	1.9	2.7	87	35	322

Table 5.17(c): Distribution of URR, HD patients 2006-2012

Year	Number of patients	Mean	SD	Median	LQ	UQ	% patients $\geq 65\%$
2006	77	76.1	8.6	75.1	70.4	81.7	92
2007	202	75.5	8.5	76.1	72.1	80.8	91
2008	230	75.5	8	76.2	71.3	81.4	90
2009	283	76.5	8.3	77.9	71.5	81.9	92
2010	325	75.3	8.2	76	70.8	80.4	90
2011	326	75.4	7.5	76	70.1	81	92
2012	369	76.1	7	76.7	72.1	81.3	92

SECTION G: ANAEMIA TREATMENT

The percentage of children treated with erythropoietin progressively increased and reached a plateau of about 92% for the last 5 years. Similarly the proportion of children receiving parenteral iron showed an encouraging upward trend up to 36-38% the last 5 years concurrent with reduced percentage (57%) of children on oral iron. However the percentage of children who received blood transfusion still remained high at about 14%.

Table 5.18: Treatment for anaemia, HD patients 1997-2012

Year	Number of patients	% on Erythropoietin	% received blood transfusion	% on oral iron	% received parenteral iron
1997	53	70	2	98	6
1998	73	62	15	93	5
1999	89	73	9	91	2
2000	112	79	14	93	6
2001	122	75	7	88	10
2002	146	76	10	88	18
2003	164	80	10	91	18
2004	192	84	9	88	18
2005	218	88	14	76	18
2006	271	89	18	71	27
2007	293	92	14	73	25
2008	339	92	17	59	36
2009	372	92	16	57	39
2010	378	92	13	57	37
2011	419	93	14	56	36
2012	455	92	14	57	38

The median transferrin saturation has consistently been above 30%. Almost 90% of children had transferrin saturation greater than 20%.

Table 5.20: Distribution of transferrin saturation on Erythropoietin, PD patients, 1997-2012

Year	Number of patients	Mean	SD	Median	LQ	UQ	% Patients ≥ 20 %
1997	34	42.3	21	35.3	28.5	51.6	91
1998	16	45.2	15.7	46.6	32.8	58	94
1999	21	42.4	17	41.9	29.1	50.7	90
2000	54	33.5	16.4	31.1	21.9	44.4	78
2001	78	39.9	15.1	38.3	27.9	48.1	96
2002	99	39.5	16.5	37.5	28.1	47.7	93
2003	113	41.7	16.7	36.6	31.6	48.3	96
2004	148	41.5	16.6	39	30	48.7	97
2005	169	40.5	15.4	38.9	31.2	46.9	94
2006	176	41.2	16.1	38.8	30.4	49.3	95
2007	182	36.7	16	33.2	26.3	44.3	91
2008	193	38.5	16.6	35.1	28.2	46.7	90
2009	221	38	17.2	34.6	25.5	48.8	88
2010	236	39.1	17.6	35.6	26.1	49.1	92
2011	245	36.3	15.4	34	24.6	47.2	87
2012	252	36.1	15.2	34.8	25.8	44.4	87

The median weekly dose of ESA has doubled over the last 7 years from 2000 units to 4000 units per week.

Table 5.21: Distribution of ESA dose (u/wk) 1997-2012

Year	Number of patients	Mean	SD	Median	LQ	UQ
1997	65	1938.5	1321.4	2000	2000	2000
1998	69	1797.1	1461.1	2000	0	2000
1999	103	1951.5	1374.7	2000	1000	2000
2000	138	1833.3	1343.2	2000	0	2000
2001	173	2046.2	1341.7	2000	2000	2000
2002	223	1932.7	1284	2000	2000	2000
2003	221	2588.2	1012.5	2000	2000	4000
2004	258	3790.5	2915.3	2000	2000	4000
2005	315	3758.7	2934.3	2000	2000	4000
2006	363	4987.6	2866.4	4000	4000	6000
2007	402	5614.4	4524.6	4000	4000	6000
2008	436	5211	3996.9	4000	3000	6000
2009	480	4953.8	2766.1	4000	2000	6000
2010	511	5290	3062.1	4000	4000	6000
2011	535	5480.4	3373.3	4000	4000	6000
2012	561	5246.7	3077.1	4000	4000	6000

Report Summary

- The overall RRT incidence rate for paediatric patients less than 20 years old has stabilized in the last few years to about 10 pmarp; the majority of whom were on dialysis. The new transplant incidence rate was remained between 1-2 pmarp
- At the end of 2012; there were a total of 717 children on dialysis giving a rising dialysis prevalence rate of 85 pmarp
- The number of children with a functioning transplant in 2012 was 205; with a prevalence rate of 19 pmarp
- The dialysis treatment rate has remained consistently higher among the older age groups.
- Chronic PD was the initial dialysis modality in 54% of patients
- The majority (84%) of children received their dialysis in government centres
- The commonest cause of known ESRD was glomerulonephritis (28%). FSGS itself accounted for another 13% of patients.
- Renal transplantation had the best patient survival; 97% at 5 years and 10 years. HD patients had better survival compared to PD patients.
- The commonest type of renal transplant done in children was cadaveric transplant (56%) compared to living related transplant (32%).
- Graft survival for paediatric transplant was 90% at 1 year and 78% at 5 years.