

Chapter 1

ALL RENAL REPLACEMENT THERAPY IN MALAYSIA

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SECTION 1.1: STOCK AND FLOW

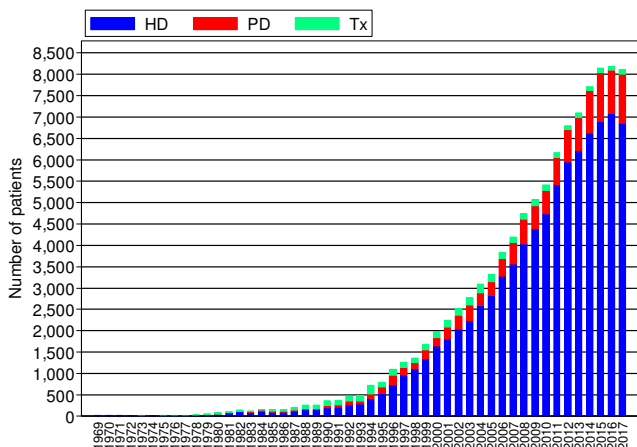
The number of new dialysis patients continues to increase over the last 10 years - from 4,076 in 2007 to 7,996 in 2017 (Data for 2017 however may be preliminary since at the time of writing this report there are still some new patients yet to be notified to registry) with 6,862 new HD and 1,134 new PD patients. However, the number of new transplant patients reported decreased from 113 in 2007 to 109 in 2017 (Table 1.1.1).

The number of prevalent dialysis patients also showed an increase to 42,109 in 2017, (from 17,110 in 2007), with 37,832 prevalent HD patients and 4,277 prevalent PD patients, while the prevalent transplant patients was only 1,832 in 2017 (Table 1.1.2). The total prevalent RRT patients for 2017 were 43,941 (Table 1.1.2)

Table 1.1.1: Stock and flow of New RRT Incidence, Malaysia 2007-2017

Year	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
New Dialysis Patients	7996	8083	8033	7621	6993	6695	6039	5277	4924	4607	4076
New HD Patients	6862	7080	6901	6625	6209	5936	5424	4740	4375	4038	3559
New PD Patients	1134	1003	1132	996	784	759	615	537	549	569	517
New Transplant Patients	109	86	112	91	100	107	130	128	141	133	113
New Dialysis Rate, pmp	249	262	264	253	235	228	208	185	177	167	150
New HD Rate, pmp	214	229	226	220	209	202	187	166	157	147	131
New PD Rate, pmp	35	32	37	33	26	26	21	19	20	21	19
New Transplant Rate, pmp	3	3	4	3	3	4	4	4	5	5	4
New HD, %	84.7	86.7	84.7	85.9	87.5	87.3	87.9	87.7	86.4	85.2	85
New PD, %	14	12.3	13.9	12.9	11.1	11.2	10	9.9	10.8	12	12.3
New Tx, %	1.3	1.1	1.4	1.2	1.4	1.6	2.1	2.4	2.8	2.8	2.7

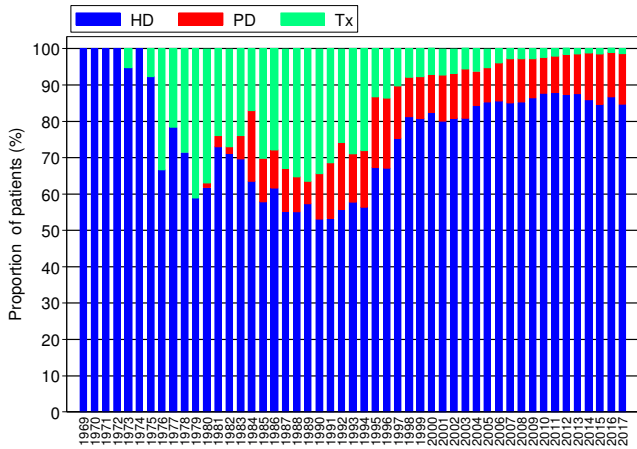
Figure 1.1.1a: Number of new RRT patients by modality (New Dialysis and New Transplant), Malaysia 1969-2017



(For actual numbers in Fig 1.1.1, refer to Appendix T1.1.1)

The proportion of new transplant over all modalities of new RRT had demonstrated substantial decline from the peak of about 30% in the late 70's to early 90's (1976 to 1994) (Appendix T.1.1.1) to the current <3% for the last decade (Fig 1.1.1b & Appendix T.1.1.1). The proportion of new home dialysis, which predominantly was PD, was about 15% of all RRT in 2017 (Fig 2.1.5i & Appendix T2.1.5). However, the proportion of prevalent home dialysis had remained at <10% for the last decade (Fig 2.1.5ii & Appendix T2.1.5)

Figure 1.1.1b: Distribution of new RRT patients by modality (New Dialysis and New Transplant), Malaysia 1969-2017

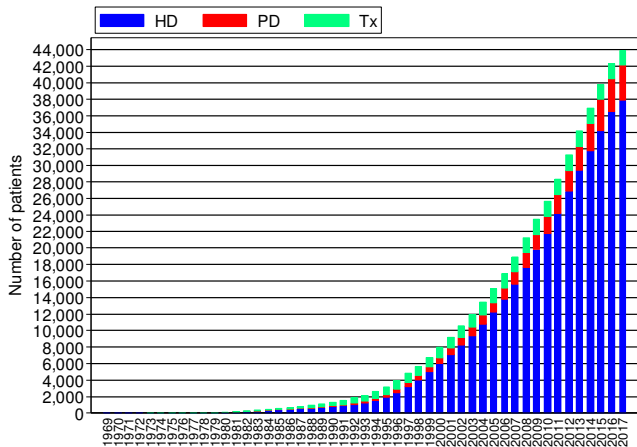


(For actual numbers in Fig 1.1.1, refer to Appendix T1.1.1)

Table 1.1.2: Stock and flow of ESKD Patients dialyzing at 31st Dec, Malaysia 2007-2017

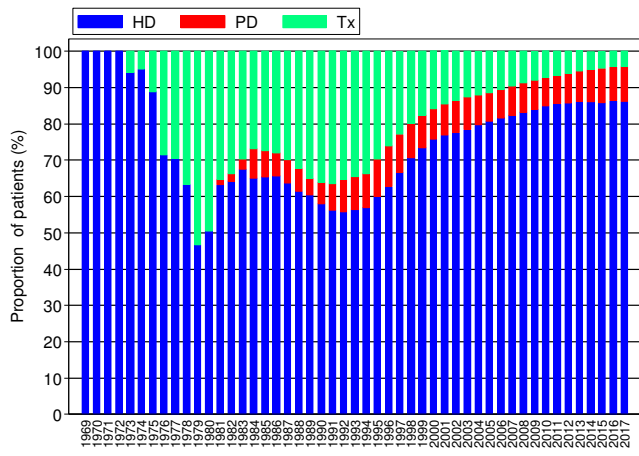
Year	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
Dialysis Patients	42109	40508	37954	35058	32283	29375	26422	23776	21633	19420	17110
HD Patients	37832	36530	34170	31755	29417	26804	24242	21782	19744	17669	15560
PD Patients	4277	3978	3784	3303	2866	2571	2180	1994	1889	1751	1550
Transplant Patients	1832	1817	1848	1864	1898	1912	1926	1894	1863	1821	1798
Dialysis Rate, pmp	1314	1312	1245	1165	1086	1001	912	832	776	705	629
HD Rate, pmp	1180	1183	1121	1055	990	914	837	762	708	642	572
PD Rate, pmp	133	129	124	110	96	88	75	70	68	64	57
Transplant Rate, pmp	57	59	61	62	64	65	66	66	67	66	66
HD, %	86.1	86.3	85.8	86	86.1	85.7	85.5	84.9	84	83.2	82.3
PD, %	9.7	9.4	9.5	8.9	8.4	8.2	7.7	7.8	8	8.2	8.2
Tx, %	4.2	4.3	4.6	5	5.6	6.1	6.8	7.4	7.9	8.6	9.5

Figure 1.1.2a: Prevalence of treated ESKD patients by modality (On RRT at 31st Dec), Malaysia 1969-2017



(For actual numbers for Fig 1.1.2, refer to Appendix T1.1.2)

Figure 1.1.2b: Prevalence Distribution of treated ESKD patients by modality (On RRT at 31st Dec), Malaysia 1969-2017



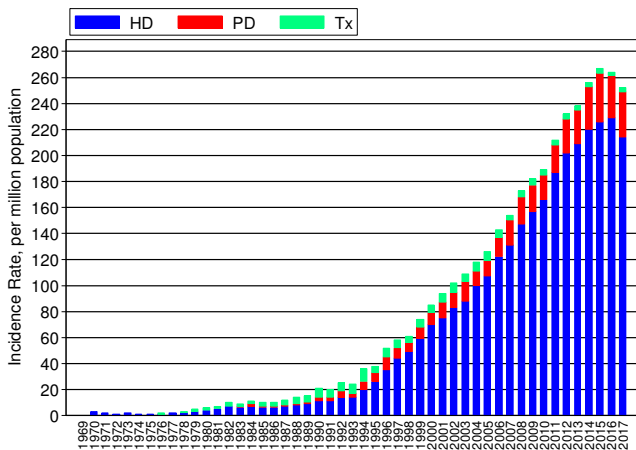
(For actual numbers for Fig 1.1.2, refer to Appendix T1.1.2)

SECTION 1.2: TREATMENT PROVISION RATE

Dialysis acceptance rates showed an increase over the last 10 years, from 150 per million population (pmp) in 2007 to 249 pmp in 2017 (Data for 2017 however is preliminary since at the time of writing this report there was still some new patients yet to be notified to registry), while the new HD acceptance rates was 214 pmp and the new PD acceptance rate was 35 pmp in 2017 (Table 1.1.1). Dialysis prevalence rate increased more than 2-fold over the last 10 years, from 629 pmp in 2007 to 1314 pmp in 2017 (Table 1.1.2).

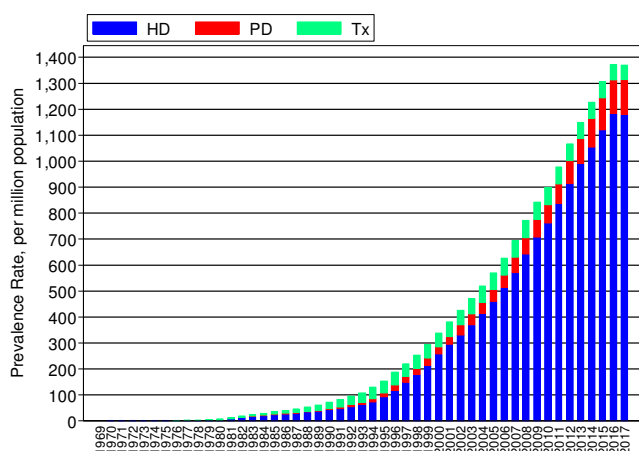
New transplant recipient rate has declined from 4 pmp in 2007 to 3 pmp in 2017 over the last 10 years (Table 1.1.1), while the prevalence rate has declined from 66 pmp in 2007 to 57 pmp in 2017 (Table 1.1.2). This decrease is more remarkable if the rate is compared to those who are on the potential transplant waiting list i.e. prevalent dialysis patients. As shown in table 1.2.3 and figure 1.2.3, the transplant rate per 1000 dialysis patients has decreased from 6.6 to 2.2 per 1000 dialysis patients over the last decade. In short, the average waiting time for a kidney transplant which was already very long is now at least 3 times longer, while the waiting time for 2017 was 10 times longer compared to 2 decades ago (2.2 per 1000 dialysis patients for 2017 vs 23.1 per 1000 dialysis patients 2 decades ago) (Table 1.2.3).

Figure 1.2.1: Incidence rate of newly treated ESKD patients (per million population) by modality (New Dialysis and New Transplant), Malaysia 1969-2017



(For actual numbers in Fig 1.2.1, refer to Appendix T1.1.1)

Figure 1.2.2: Prevalence rate of treated ESKD patients (per million population) by modality (On RRT at 31st Dec), Malaysia 1969-2017

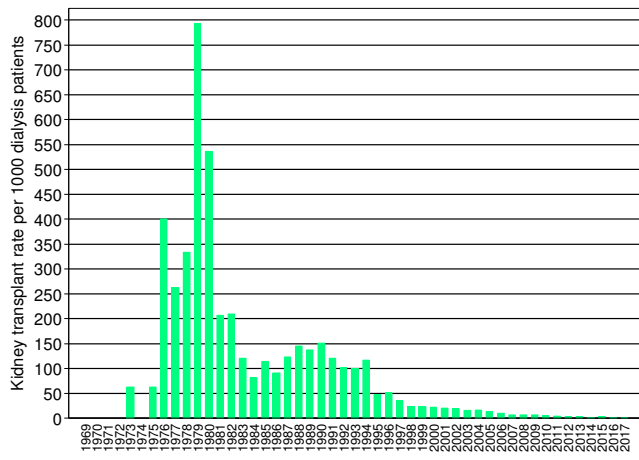


(For actual numbers in Fig 1.2.2, refer to Appendix T1.1.2)

Table 1.2.3: Kidney transplant rate per 1000 dialysis patients, 1969-2017

Year	Number of new transplant recipients	Number of prevalent dialysis patients	Kidney transplant rate per 1000 dialysis patients	Year	Number of new transplant recipients	Number of prevalent dialysis patients	Kidney transplant rate per 1000 dialysis patients
2017	109	42109	2.2	1992	119	1176	101.2
2016	86	40508	2.2	1991	117	965	121
2015	112	37954	3.3	1990	125	831	150.7
2014	91	35058	2.2	1989	96	697	137.5
2013	100	32283	3.3	1988	91	628	145.2
2012	107	29375	3.3	1987	66	538	123.2
2011	130	26422	4.4	1986	42	462	91.3
2010	128	23776	5.5	1985	46	403	114.4
2009	141	21633	6.6	1984	27	331	81.4
2008	133	19420	6.6	1983	30	249	121
2007	113	17110	6.6	1982	40	191	209
2006	153	15093	9.9	1981	25	121	206.8
2005	174	13367	13.2	1980	30	56	535.7
2004	194	11847	16.5	1979	23	29	793.1
2003	160	10417	15.4	1978	8	24	333.3
2002	172	9116	18.7	1977	5	19	262.9
2001	163	7841	20.9	1976	6	15	400.4
2000	144	6701	22	1975	1	16	62.7
1999	128	5553	23.1	1974	0	19	0
1998	107	4550	23.1	1973	1	16	62.7
1997	129	3706	35.2	1972	0	17	0
1996	151	2923	51.7	1971	0	15	0
1995	105	2235	47.3	1970	0	18	0
1994	203	1742	116.6	1969	0	12	0
1993	140	1396	100.1				

Figure 1.2.3: Kidney transplant rate per 1000 dialysis patients, Malaysia 1969 – 2017



(For actual numbers in Fig 1.2.3, refer to Appendix T1.2.3)