

CHAPTER 1

ALL KIDNEY REPLACEMENT THERAPY IN MALAYSIA

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SECTION 1.1: STOCK AND FLOW

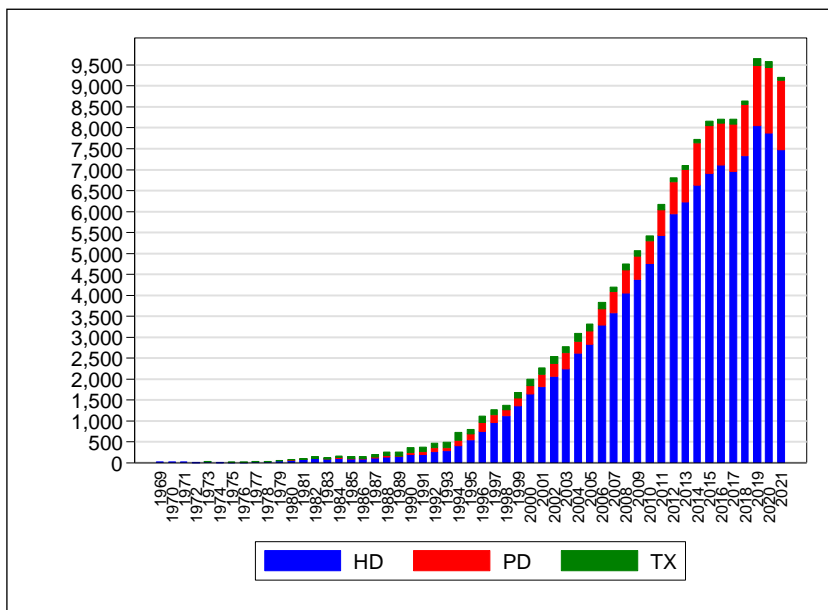
The number of new dialysis patients has continued to increase over the last 10 years from 6,045 in 2011 to 9,123 in 2021. In 2021, 7,477 new patients (81.3%) commenced on haemodialysis but there has been a gradual increase in the proportion choosing peritoneal dialysis, i.e., 17.9% in 2021 compared to 10% in 2011. The number of new transplant patients increased from 130 in 2011 to 167 and 155 respectively in 2019 and 2020 through concerted efforts to increase local transplant activity. However, the COVID-19 pandemic then caused the transplant numbers to dip to 79 in 2021 (Table 1.1.1).

The number of prevalent dialysis patients also showed an increase to 49,770 in 2021 from 26,480 in 2011. In 2021, there were 43,968 prevalent HD patients and 5,802 prevalent PD patients. The number of prevalent transplant patients was 1,839, giving a total of 51,609 patients with end-stage kidney disease on kidney replacement therapy in 2021 (Table 1.1.2)

Table 1.1.1: Stock and flow of New KRT Incidence, Malaysia 2011-2021

Year	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
New Dialysis Patients	9123	9427	9485	8548	8088	8111	8047	7628	7000	6695	6045
New HD Patients	7477	7868	8052	7318	6955	7105	6909	6631	6216	5935	5430
New PD Patients	1646	1559	1433	1230	1133	1006	1138	997	784	760	615
New Transplant Patients	79	155	167	97	112	89	114	91	100	107	130
New Dialysis Rate, pmp	278	291	297	271	260	264	266	255	238	230	211
New HD Rate, pmp	228	243	252	232	224	232	228	222	211	204	190
New PD Rate, pmp	50	48	45	39	36	33	38	33	27	26	21
New Transplant Rate, pmp	2	5	5	3	4	3	4	3	3	4	5
New HD, %	81.3	82.1	83.4	84.7	84.8	86.6	84.7	85.9	87.5	87.3	87.9
New PD, %	17.9	16.3	14.8	14.2	13.8	12.3	13.9	12.9	11	11.2	10
New Tx, %	0.9	1.6	1.7	1.1	1.4	1.1	1.4	1.2	1.4	1.6	2.1

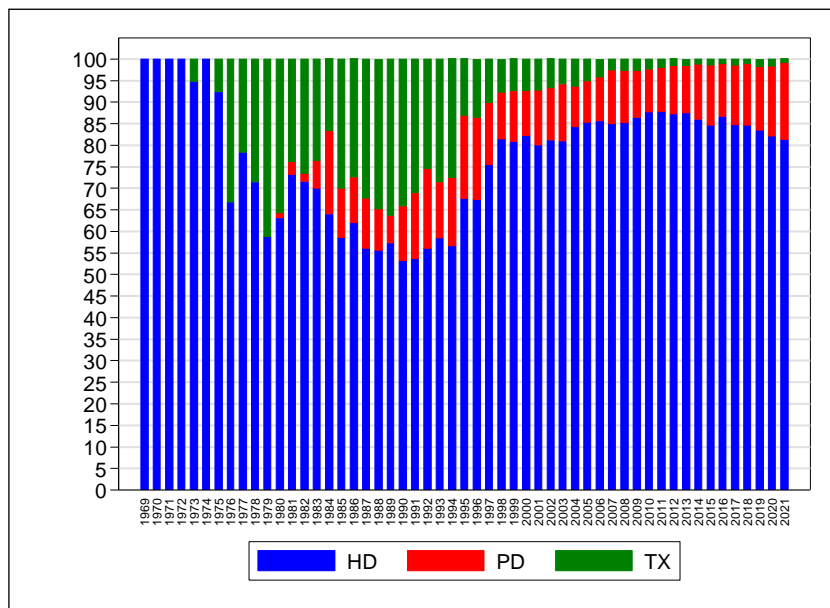
Figure 1.1.1(a): Number of new KRT patients by modality (New Dialysis and New Transplant), Malaysia 1969-2021



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

The proportion of new transplants compared with dialysis has declined substantially from a peak of about 30% in the late 70's to early 90's (1976 to 1994). This is partly due to the increasing availability of dialysis options and hence a larger denominator in the form of all KRT. The proportion of new home dialysis, which predominantly is PD, has gradually been increasing at a rate of 0.2-0.6% per annum to 11.2 % in 2021 (Table 1.1.2 and Figure 1.1.2).

Figure 1.1.1(b): Proportion of new KRT patients by modality (New Dialysis and New Transplant), Malaysia 1969-2021

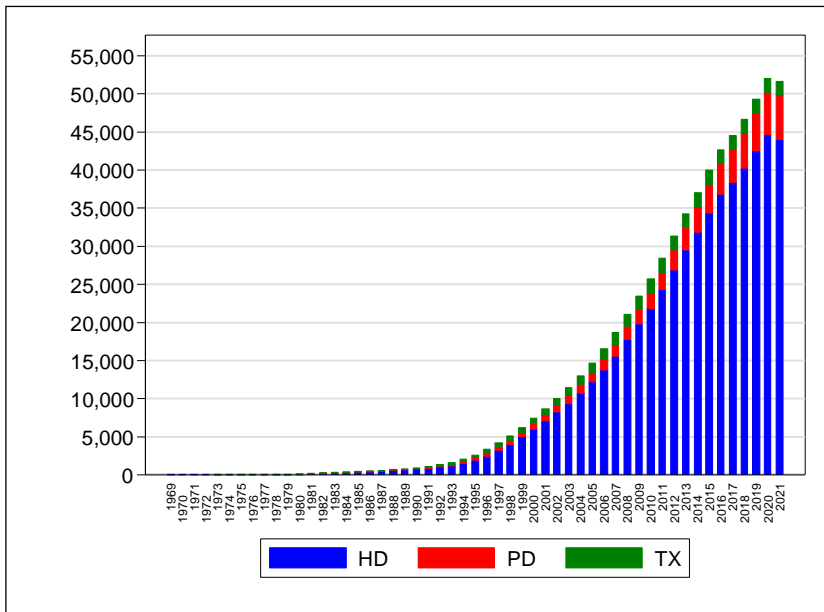


(For actual numbers in Fig 1.1.1, refer to Appendix T1.1.1)

Table 1.1.2: Stock and flow of ESKD Patients on KRT at 31st Dec, Malaysia 2011-2021

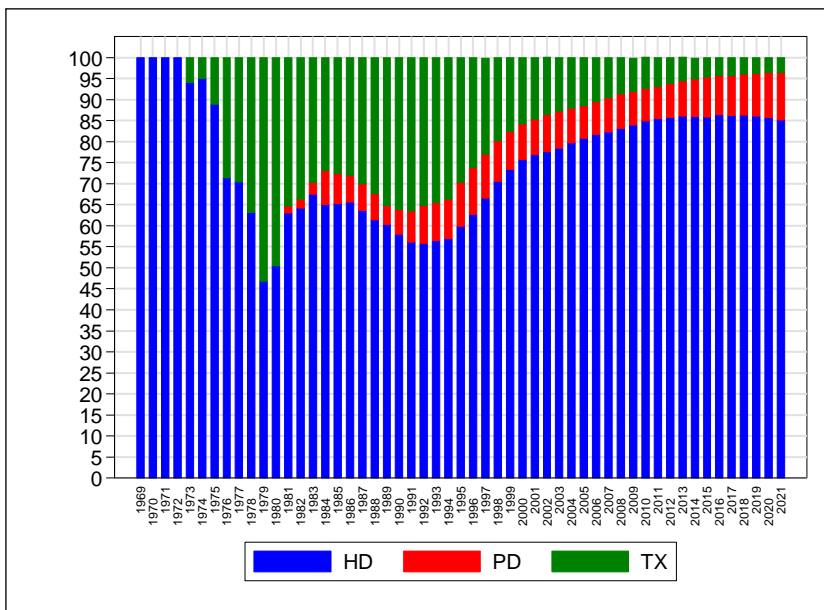
Year	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Dialysis Patients	49770	50150	47418	44818	42702	40795	38138	35171	32366	29443	26480
HD Patients	43968	44649	42440	40248	38408	36811	34351	31869	29502	26873	24301
PD Patients	5802	5501	4978	4570	4294	3984	3787	3302	2864	2570	2179
Transplant Patients	1839	1888	1872	1823	1849	1827	1853	1867	1902	1919	1929
Dialysis Rate, pmp	1528	1546	1458	1384	1333	1290	1223	1145	1071	998	911
HD Rate, pmp	1350	1376	1305	1243	1199	1164	1101	1038	976	911	836
PD Rate, pmp	178	170	153	141	134	126	121	108	95	87	75
Transplant Rate, pmp	56	58	58	56	58	58	59	61	63	65	66
HD, %	85.2	85.8	86.1	86.3	86.2	86.4	85.9	86	86.1	85.7	85.5
PD, %	11.2	10.6	10.1	9.8	9.6	9.3	9.5	8.9	8.4	8.2	7.7
Tx, %	3.6	3.6	3.8	3.9	4.2	4.3	4.6	5	5.6	6.1	6.8

Figure 1.1.2(a): Prevalence of treated ESKD patients by modality (On KRT at 31st Dec), Malaysia 1969-2021



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

Figure 1.1.2(b): Proportion of treated prevalent ESKD patients by modality (On KRT at 31st Dec), Malaysia 1969-2021



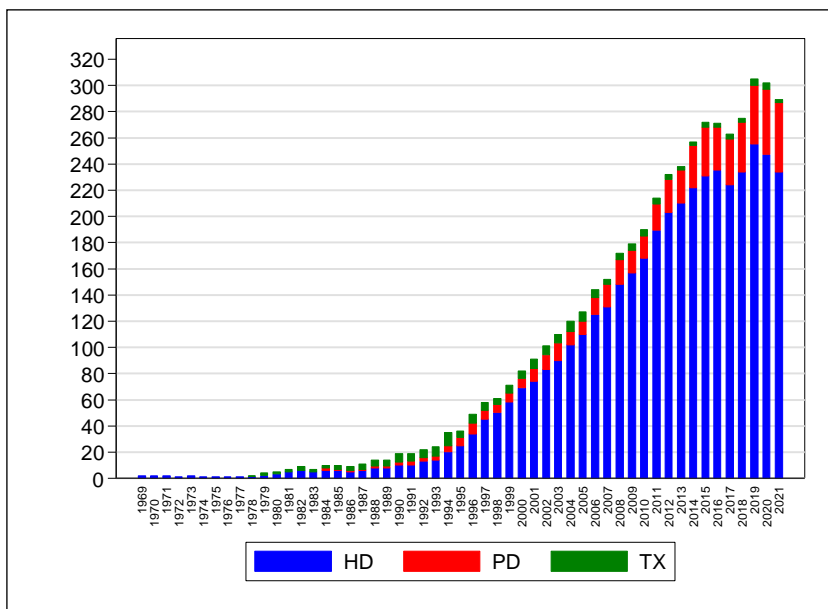
(For actual numbers for Fig 1.1.2, refer to Appendix T1.1.2)

SECTION 1.2: TREATMENT PROVISION RATE

Dialysis acceptance rates continued to increase over the last decade from 211 per million population (pmp) in 2011 to 278 pmp in 2021. In 2021, the new HD and PD acceptance rates were 228 pmp and 50 pmp respectively (Table 1.1.1). Dialysis prevalence rate has increased by approximately 1.5-fold over the last 10 years, from 924 pmp in 2011 to 1,518 pmp in 2021 (Table 1.1.2).

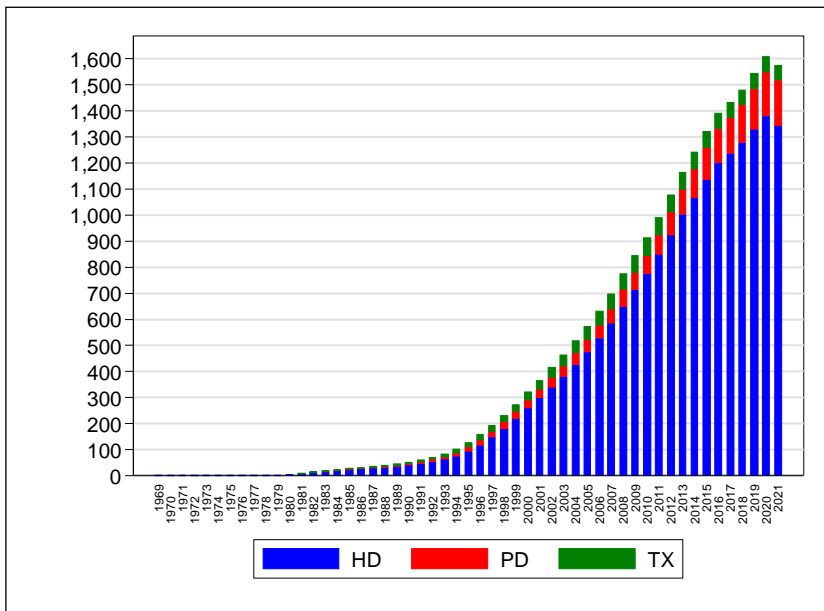
The new transplant recipient rate had declined from 5 pmp in 2011 to 3 pmp in 2016 but recovered to 5 pmp in 2019 and 2020 (Table 1.1.1), while the prevalence rate has declined from 67 pmp in 2011 to 56 pmp in 2021 (Table 1.1.2). This decrease is more remarkable if the rate is compared to those who are 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 4.9 to 3.1 per 1000 dialysis patients in 2011 compared to 2020 (2021 is not used as comparison due to the disruption in transplant activity by the COVID-19 pandemic).

Figure 1.2.1: Incidence rate of newly treated ESKD patients (per million population) by modality (New Dialysis and New Transplant), Malaysia 1969-2021



(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 KRT at 31st Dec), Malaysia 1969-2021

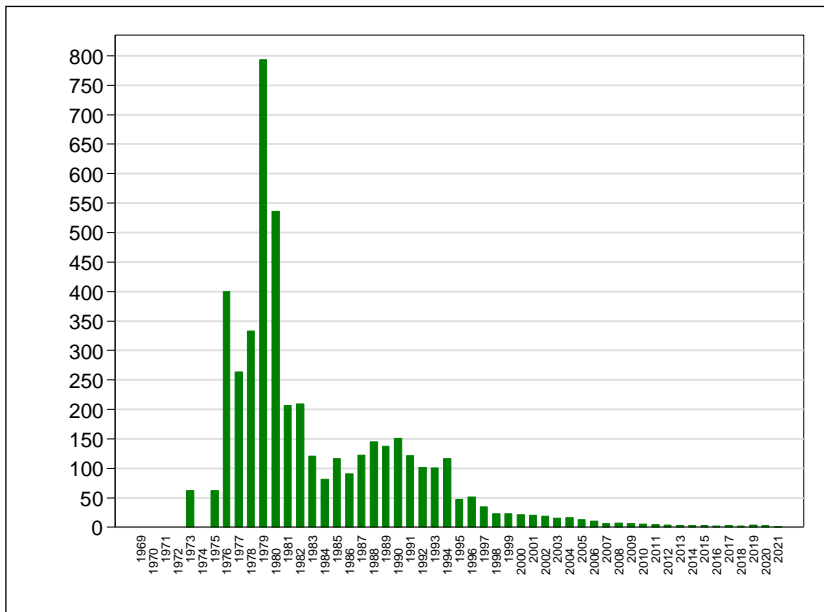


(For actual numbers in Fig 1.2.2, refer to Appendix T1.1.2)

Table 1.2.3: Kidney transplant rate per 1000 dialysis patients, 1969-2021

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
2021	79	49770	1.6	1994	203	1744	116.4
2020	155	50150	3.1	1993	140	1396	100.3
2019	167	47418	3.5	1992	119	1176	101.2
2018	97	44818	2.2	1991	117	965	121.2
2017	112	42702	2.6	1990	125	831	150.4
2016	89	40795	2.2	1989	96	697	137.7
2015	114	38138	3	1988	91	628	144.9
2014	91	35171	2.6	1987	66	538	122.7
2013	100	32366	3.1	1986	42	462	90.9
2012	107	29443	3.6	1985	47	403	116.6
2011	130	26480	4.9	1984	27	331	81.6
2010	129	23818	5.4	1983	30	249	120.5
2009	142	21660	6.6	1982	40	191	209.4
2008	133	19447	6.8	1981	25	121	206.6
2007	113	17128	6.6	1980	30	56	535.7
2006	154	15113	10.2	1979	23	29	793.1
2005	173	13382	12.9	1978	8	24	333.3
2004	194	11862	16.4	1977	5	19	263.2
2003	161	10429	15.4	1976	6	15	400
2002	172	9126	18.8	1975	1	16	62.5
2001	163	7851	20.8	1974	0	19	0
2000	145	6712	21.6	1973	1	16	62.5
1999	127	5559	22.8	1972	0	17	0
1998	106	4551	23.3	1971	0	15	0
1997	129	3708	34.8	1970	0	18	0
1996	151	2925	51.6	1969	0	12	0
1995	105	2237	46.9				

Figure 1.2.3: Kidney transplant rate per 1000 dialysis patients in Malaysia, 1969-2021



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

Figure 1.2.3(b): Kidney transplant rate per 1000 dialysis patients in Malaysia in Ln 1969 – 2021

