

CHAPTER 1: ALL RENAL REPLACEMENT THERAPY IN MALAYSIA

Summary

- Intake of new dialysis patients increased from 43 in 1980 to 2223 in 2002 and prevalent dialysis patients increased from 59 in 1980 to almost 10,000 at year end 2003.
- The number of new transplant patients increased from 30 in 1980 to 163 in 2002 and patients with functioning renal transplants increased from 55 to 1419 over the same period.
- Overall dialysis acceptance rates increased rapidly from 3 per million population in 1980 to 91 per million population in 2002.
- New transplant rates have remained low over the last 23 years, fluctuating between 2-3 per million in the 1980's and 6-10 per million since 1990.
- Dialysis prevalence rate increased from 4 per million population in 1980 to 365 in 2002; over the same period, the transplant prevalence rates were 4 and 58 per million population respectively.

1.1 Stock and Flow

Dialysis therapy in Malaysia was introduced on a rudimentary basis in 1964 mainly to support patients with acute renal failure. Chronic haemodialysis (HD) was introduced in 1969 and the first renal transplantation was performed in Malaysia in 1975.

In this 10 year report, the acceptance and prevalence of all patients on renal replacement therapy (RRT) in Malaysia are shown from 1980 to 2003. Prior to 1980, < 20 patients were accepted for chronic HD therapy or underwent renal transplantation. It should be noted that data for 2003 are preliminary since at the time of going to press (March 2004) there were still many new cases yet to be notified to registry.

In 1980, only 43 patients were accepted for chronic dialysis and this intake remained around 100 patients in the 1980's. This number increased to 223 in 1990 and subsequently increased by leaps and bounds to achieve a total acceptance of >2000 per year since 2001 and 2223 in 2002 (Table

1.01, Figure 1.01a). The total number of patients dialyzing each year has similarly shown an almost exponential increase, from 59 in 1980 to almost 10,000 in 2003 (Figure 1.01b).

New renal transplants however, showed only modest increase (Figure 1.01b) from about 40 new transplants per year in the early 80's to between 100 to 160 per year since 1990. The initial increase in the number of transplants were mainly due to overseas live unrelated renal transplantation in India starting from the mid 1980's until 1995 when such transplant activities were proscribed. Since then however, so called commercial cadaveric transplantation performed in China has provided an alternative source of organ transplantation. Such transplants were first registered in 1992 and have since made significant contribution to the number of transplantations seen each year.

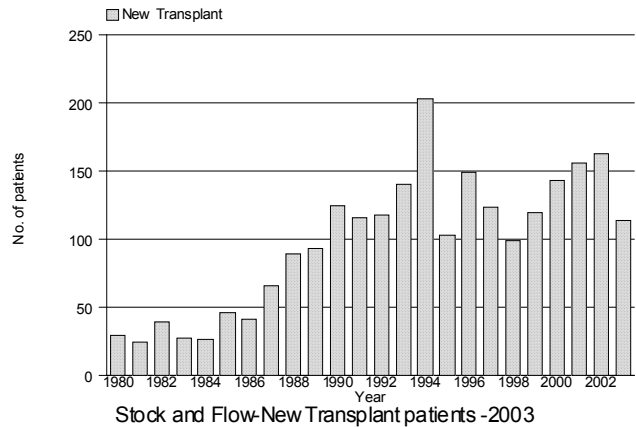
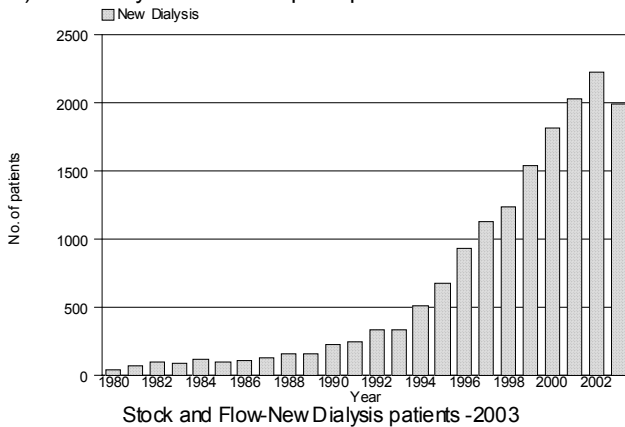
By 2003, the number of functioning renal transplants has increased steadily from 55 in 1980 to 1419 in 2002 (Figure 1.01b).

Table 1.01 Stock and Flow of RRT, Malaysia 1980 – 2003

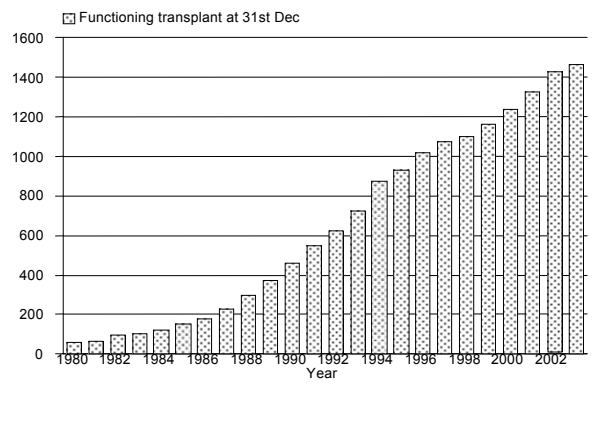
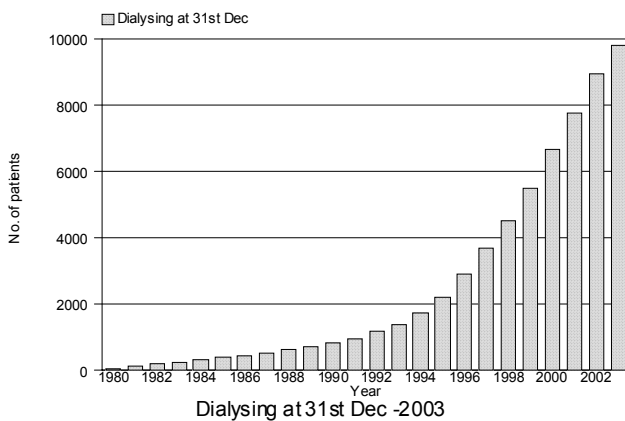
Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
New Dialysis patients	43	73	104	93	118	106	108	131	162	161	233	247
New Transplants	30	25	40	28	27	46	42	66	90	94	125	116
Dialysis deaths	6	3	14	22	27	26	47	31	38	65	70	87
Transplant deaths	5	4	3	14	6	7	8	8	9	10	19	13
Dialysing at 31st December	59	124	195	252	334	406	467	543	634	704	838	972
Functioning transplant at 31st December	55	66	97	103	119	150	177	227	296	372	461	545
Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
New Dialysis patients	333	339	514	680	939	1130	1237	1538	1811	2036	2223	1992
New Transplants	118	140	203	103	149	124	99	120	143	156	163	114
Dialysis deaths	95	102	146	178	222	314	373	486	581	786	874	993
Transplant deaths	16	20	28	16	31	29	23	25	27	33	27	27
Dialysing at 31st December	1178	1399	1743	2230	2914	3689	4519	5522	6663	7775	8954	9795
Functioning transplant at 31st December	625	721	872	928	1017	1074	1101	1159	1240	1322	1419	1466

Figure 1.01 Stock and Flow of RRT, Malaysia 1980 – 2003

a) New Dialysis and Transplant patients



b) Patients Dialysing and with Functioning Transplant at 31st December 1980 – 2003



1.2 Treatment Provision Rate

The new dialysis acceptance rates increased slightly from 3 per million population in 1980 to 9 per million in 1989. The rates then showed an exponential increase from 13 per million from 1990 onwards to reach 91 per million population in 2002 (Table 1.02 and Figure 1.02). With rising acceptance rates (and constant mortality rates), the dialysis prevalence rates has similarly increased exponentially from 4 per million in 1980 to 391 per million in 2003

The reasons for the rapid increase in dialysis provision and prevalence rates are many. Firstly, there has been rapid economic growth in Malaysia with the gross domestic product (GDP) more than doubling over this period from USD1845 in 1980 to USD4114 in 1997 paralleling the increase in the dialysis provision rate.(see Figures 1.03b and c). With the advent of the Asian financial crisis in 1998, the ringgit which was trading at about RM2.50 to USD1.00 was pegged to the US dollar at RM3.80 to USD1.00, partly accounting for the dip in per capita GDP in 1998. Without the pegging of the ringgit to USD the GDP in Malaysia would have increased more than 3 fold from 1980 to 2003. Secondly, the Minister of Health too had been given a challenge in 1994 during the silver anniversary celebration of HD treatment in Malaysia to increase the dialysis provision to 50 per million by the year 2000 from 17 per million in 1993. Malaysia hit the target dialysis provision of 50 per million by 1997.

Thirdly, with increased awareness among the public and politicians, charitable organizations with subsidies from the government started providing dialysis in the 1990's and now accounts for about a third of all dialysis provision in Malaysia. More public funds became available for dialysis treatment resulting in the setting up of dialysis centres. Affluence in Malaysia too has led to a rapid growth in private dialysis centres.

Incident rates for renal transplantation up till 1986 remained at 2-3 per million population consisting of mainly live related transplantations. After 1986 the transplant rate increased steadily to 10 per million in 1994 contributed mainly by live unrelated transplants done overseas but has since decreased to about 5 to 7 per million when this source of kidneys became unavailable after 1995 to be replaced at a slower rate by overseas cadaveric renal transplantation. These overseas transplantations were mainly self-funded or funded by private or public donations. The Asian financial crisis in 1998 resulted in the lowest renal transplantation rate in the 1990's at 4 per million population in 1998.

The rate of increase of renal transplant prevalence rates has almost plateaued off from 1996 to 1999 because of the Asian financial crisis in 1998 and the proscription of live unrelated transplantation in India. The transplant prevalence rates have started to show an increase again since 2000 contributed in part by more cadaveric renal transplantation done in China.

Table 1.02 New Dialysis Acceptance Rate and New Transplant Rate per million population 1980 – 2003

Acceptance rate	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
New Dialysis	3	5	7	6	8	7	7	8	9	9	13	13
New Transplant	2	2	3	2	2	3	3	4	5	5	7	6

Acceptance rate	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
New Dialysis	17	17	26	33	44	52	56	68	77	85	91	80
New Transplant	6	7	10	5	7	6	4	5	6	6	7	5

Figure 1.02 New Dialysis Acceptance and New Transplant Rate 1980 - 2003

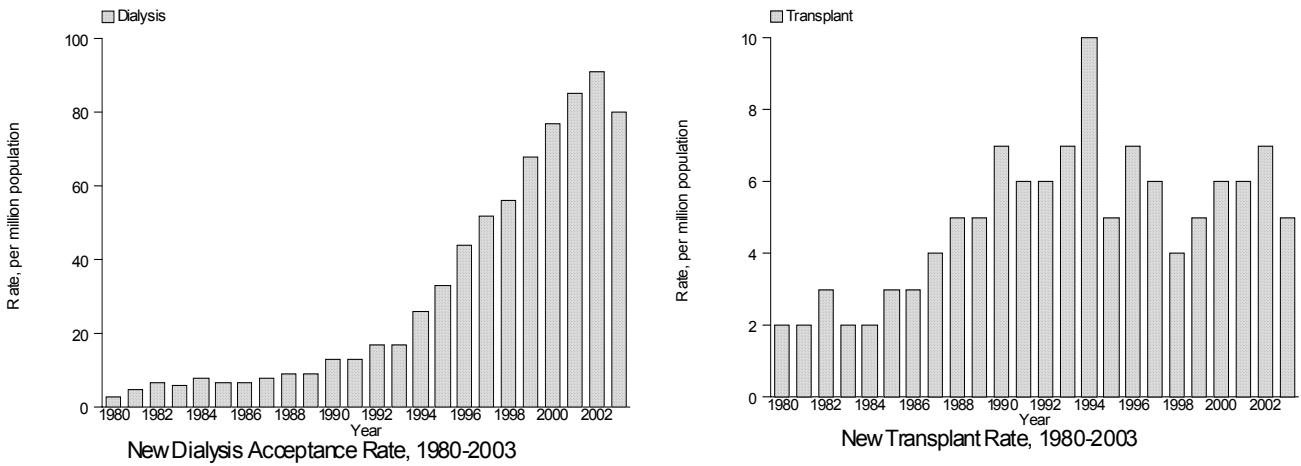


Table 1.03 RRT Prevalence Rate per million population 1980 – 2003

Prevalence rate	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Dialysis	4	9	13	17	22	26	29	32	37	40	46	52
Transplant	4	5	7	7	8	9	11	14	17	21	25	29

Prevalence rate	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Dialysis	62	72	87	108	138	170	204	243	284	324	365	391
Transplant	33	37	43	45	48	50	50	51	53	55	58	59

Figure 1.03(a) Dialysis and Transplant Prevalence Rate per million population 1980 - 2003

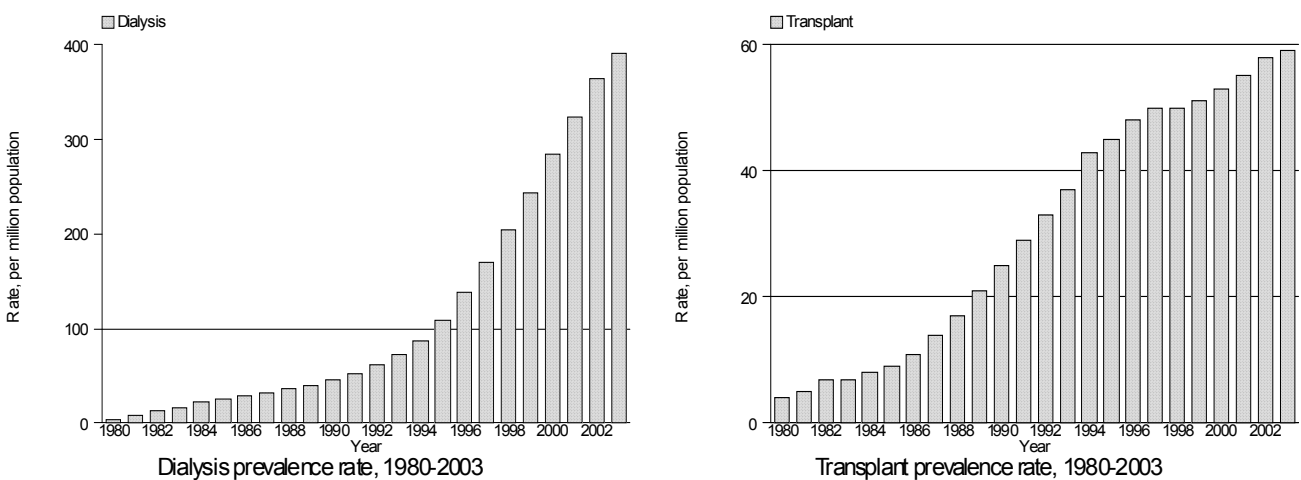


Figure 1.03(b) New Dialysis Treatment Rate per million population and Gross Domestic Product (USD) 1980-2003

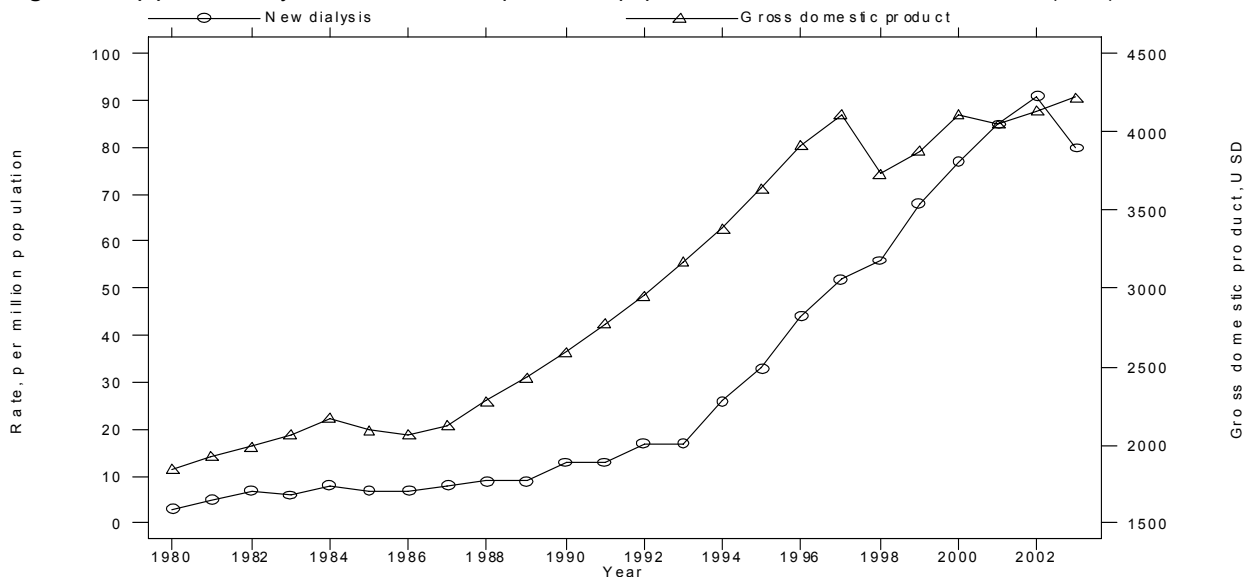


Figure 1.03(c) RRT Prevalence Rate per million population and Gross Domestic Product (USD) 1980-2003

