

**REPORT SUMMARY**

- Intake of new dialysis patients showed a linear increase over the years -from 684 in 1995 to 2538 in 2004 with corresponding treatment rates of 33 and 101 per million population.
- Prevalent dialysis patients increased from 2232 (108 per million) in 1995 to 11554 (452 per million) at year end 2004.
- The number of new transplant patients increased from just above 100 in 1995 to 174 in 2004 but transplant rates remain about 6 per million. Patients with functioning renal transplants increased from 931(45 per million) to 1587 (61 per million) over the same period.
- Dialysis treatment rates varied from about 63 per million state population in the economically underdeveloped states to > 110 per million in the more economically advantaged states.
- From the centre survey carried out at the end of 2004, there were a total of 11554 dialysis patients, one third in the Ministry of Health (MOH) hospitals, another third in non-governmental organization (NGO) centres and about 28% in the private sector.
- The treatment gap between men and women has remained consistent over the years.
- Dialysis treatment rates for those < 55 years of age had plateaued while those >65 years continue to register rapid increase. 51% of new dialysis patients were at least 55 years old
- At least 85% of new patients were accepted into centre haemodialysis
- The government continued to fund about 50% of dialysis treatment, NGO funding increased to 18% in 2004, and self funding had decreased to 24%.
- In 2003, intake of new dialysis patients was distributed equally between the 3 sectors.
- Diabetes mellitus continues to be the commonest cause of ESRD accounting for 54% in 2004, followed by hypertension at 8%.
- The annual death rate for those on CAPD remained relatively unchanged over the last 10 years while there was an upward trend in the annual death rate for those on haemodialysis.
- Cardiovascular disease and death at home remained the commonest causes of death in 2004; accounting for 26% each, sepsis 13%.
- The unadjusted 5 and 10 year patient survival on dialysis were 59% and 35% respectively. HD patient survival was superior to that on CAPD.
- Older and diabetic patients had poorer survival on dialysis.
- Median QoL index scores were satisfactory. HD patients achieved a lower score than CAPD patients.
- Diabetes mellitus and older age group were factors associated with lower median QoL index scores.
- Employment amongst HD patients appeared to be positively influenced by increasing years on HD.
- 73% of HD patients compared to 62% on CAPD were on erythropoietin (EPO). Blood transfusion rate in dialysis patients remained at 10 -15%.
- There was decreasing use of oral iron supplements, use of IV Iron has increased.
- There was variation in the use of EPO and blood transfusion among HD and CAPD centres.
- Serum ferritin and transferrin saturation had increased over the years.
- Most dialysis centres had majority of patients with serum ferritin and transferrin saturation above the acceptable limit.
- In 2004, the percentage of patients with the haemoglobin > 10 gm/dl varied between 45 to 58 %.
- For the year 2004, mean serum albumin level was 40 g/L for HD patients and 33 g/L for CAPD patients.
- There were wide variations in the proportion of patients with serum albumin >40g/L in both HD and CAPD centres.
- For the year 2004, mean BMI value was 23.4 for HD and 23.2 for PD patients.

- There was some variation in proportion of patients with BMI  $\geq 18.5$  in both HD and PD centres.
- In 2004, the mean and median predialysis systolic BP in HD patients was 150 mm Hg respectively. The mean and median predialysis systolic BP in CAPD patients was 141 mmHg.
- The mean and median predialysis diastolic BP for HD patients were 80.3 mm Hg and 80.4 mm Hg respectively, while that for CAPD patients were 82.2 mm Hg and 83 mm Hg respectively.
- There was some variation noted in BP control between the various HD and PD centres.
- 71% of HD patients had total cholesterol level  $< 5.3$  mmol/l versus 53% of CAPD patients. 30% of HD patients compared to 27% of CAPD patients had elevated serum triglycerides.
- Use of calcium based phosphate binders among dialysis patients increased with a marked reduction in the use of aluminium based binders.
- Serum calcium levels remained within normal levels among both HD and CAPD populations
- CAPD centres had higher calcium levels compared to HD centres for the year 2004
- The median serum phosphate levels were lower among patients on CAPD.
- The mean serum calcium phosphate product was higher among HD patients compared to CAPD patients. A higher number of centers on CAPD have a median serum calcium phosphate product less than 4.5 as compared to HD centers (71-78% versus 51.5 –65%).
- Prevalence of dialysis patients with HBsAg remained at about 4-5%.
- The prevalence of HCV infection was much higher in HD compared to CAPD patients(5%) but had decreased after 2001 from 23% to 17% in 2004.
- There was wide variation in the prevalence of patients with anti HCV antibody among HD centres.
- Haemodialysis practices have changed since 1997 to 2004. There was increased use of brachiocephalic fistulae as vascular access, higher blood flow rates, increased usage of synthetic membranes , increased number of reuse and universal use of bicarbonate buffer. Median prescribed KT/V had increased over the years but has plateaued over the last few years at 1.6.
- There was wide variation in the proportion of patients with KT/V of  $\geq 1.3$  among centres ranging from below 30% to 100%.
- Unadjusted HD technique survival was significantly better than unadjusted CAPD technique survival at 1 year, 5 years and 10 years.
- Unadjusted HD technique survival was better in the younger age groups and the non diabetics but was not related to year of starting HD.
- In 2004, CAPD remained the commonest mode of PD. The Baxter disconnect system was the commonest connectology used. Ninety-five percent of patients perform 4 exchanges a day, and most (92%) use a fill volume of 2 L.
- The median delivered weekly Kt/V was 2.1, with 61% achieving target of 2.0 with a 2-fold variation between the highest- and the lowest-performing centres (85% vs 43%).
- 81% of prevalent patients had low-average or high-average PET status.
- One- and 2-year technique survival for CAPD was 82% and 63%
- Technique survival was better for younger patients, females and non-diabetics but was not related to the year of starting dialysis.
- In 2004, peritonitis rates varied between 21.8 and 48.2 patient-months/episode among centres. Gram positive and Gram negative organisms each accounted for 29% of peritonitis episodes. The culture-negative rate remained stable at 33%. There was a trend to increasing peritonitis rate with increasing patient age and diabetics but not with gender.

### Chapter 13 Renal Transplantation

- There were a total of 2650 renal transplantations reported to the Registry between 1975 and 2004; 1587 grafts were functioning at the end of 2004.
- There were 42 new renal transplantations done in Malaysia in 2004 and 132 done overseas.
- There were 57 centres of follow-up for renal transplant recipients in 2004.
- Mean age of new transplant patients in 2004 was  $41 \pm 13$  years; 61% were male, 19% diabetic, 6% HbsAg positive and 8% anti-HCV positive at the time of transplantation.
- In 2004, 98% of prevalent renal transplant recipients were on prednisolone, 80% cyclosporine, 12% tacrolimus, 43% azathioprine and 36% mycophenolate mofetil.
- In 2004, 32 (2%) of prevalent transplant recipients died and 43 (3%) lost their grafts. Infection and cancer were the commonest causes of death accounting for 29% and 17% respectively. Cardiovascular disease was the third commonest cause at 11%. Renal allograft rejection accounted for 70% of graft loss.
- Overall transplant patient survival rate from 1993 to 2004 was 95%, 92%, 89% and 80% at 1 year, 3 years, 5 years and 10 years respectively, while the overall graft survival rate was 97%, 93%, 88% and 77% respectively.

### Chapter 5: Paediatric Renal replacement therapy

- Intake of new paediatric dialysis patients increased from 12 in 1990 to 74 in 2004 giving a dialysis acceptance rate of 1 per million age related population to 7 per million age related population (pmarp) respectively.
- New renal transplant rate remained at only 1 pmarp over the last 15 years.
- At the end of 2004 there were a total of 390 children under 20 on dialysis giving a dialysis prevalence rate 36 pmarp.
- The number of patients with functioning transplants in 2004 was 111 giving a prevalence rate of 10 pmarp.
- Except for Perak, dialysis treatment rates were higher in the economically advantaged states of Malaysia.
- The number of 0-4 year olds provided RRT remained very low.
- CAPD was the preferred mode of initial dialysis modality.
- The government provided almost 90% of dialysis funding.
- Other glomerulonephritis accounted for 29% of ESRD, focal segmental glomerulosclerosis 11%, and SLE 9%. 30% of patients had unknown primary renal disease.
- Patient survival on HD was 95% for 1 year, 85% for 5 years and 82% for 10 years. CAPD patient survival was 95% at 1 year, 81% at 5 years
- CAPD had worse technique survival compared to HD 2 years after the start of dialysis.
- Patient survival for renal transplantation was 97% for 1 year, 95% at 5 years and 95% at 10 years post transplant. Graft survival was 91% at 1 year, 80% at 5 years, and 69% at 10 years.