



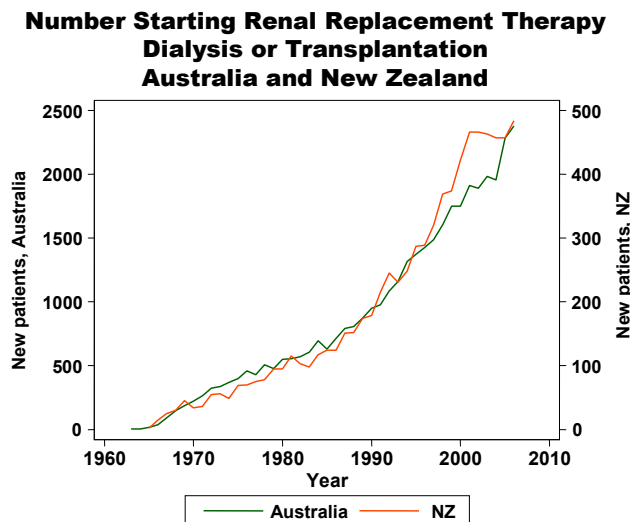
## TRENDS IN KIDNEY DISEASE OVER TIME

This section is a new one, and represents a slight change in the format of the report, following comments from various sources. In particular, there appears a role for a brief, narrative-style summary of particular themes in relation to end-stage kidney disease in Australia and New Zealand that sits somewhere between the simple figures of the “summary points”, and the exhaustive detail of the chapters and appendices. To this end, while some of the material section is unique, some is drawn from other areas of the report.

In this first “trends” section, we have chosen to highlight changes in rates of incidence (of renal replacement therapy) and how these people are treated.

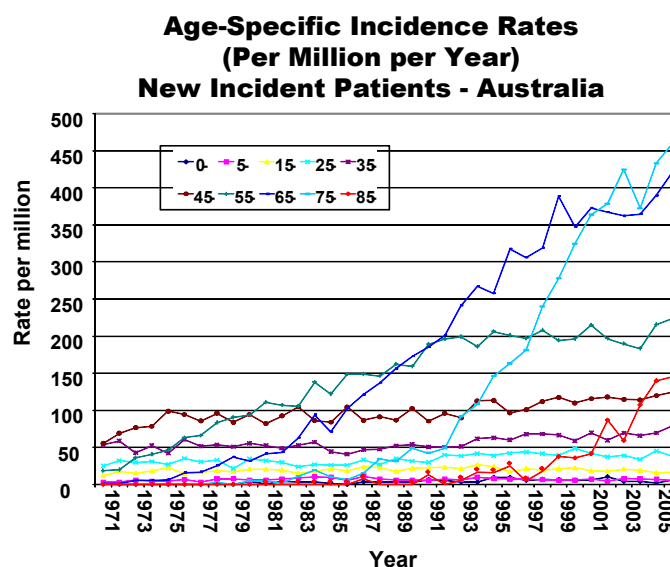
For both Australia and New Zealand, the incidence rates since the Registry commenced have increased steadily since commencement of renal replacement therapy (RRT=dialysis and transplantation). The number of new patients each year for both countries is illustrated in Figure 1.1.

**Figure 1.1**

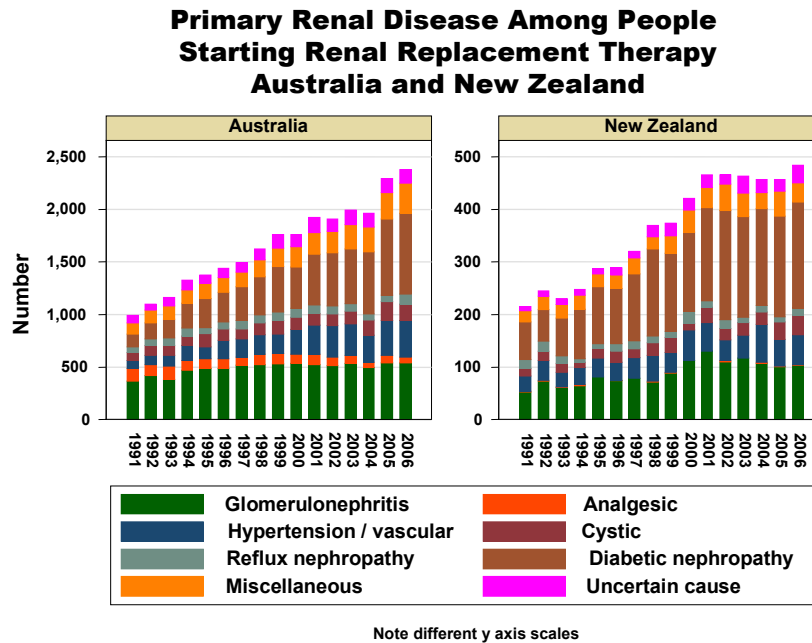


Clearly, these numbers reflect in part changes in the population but examination of age-specific rates shows dramatic changes. These changes have not been constant across all age groups. As illustrated in Figure 1.2 for Australia, the rates among the youngest age groups have been constant for many years, with increases in successively older age groups over time. Initially, the 55-64 year age group increased from the mid 1970’s, then the 65-74 year age group in the late 1980’s, and the 75-84 year old age group in the mid 1990’s. There has also been an increase in the 85 and older age group, however the overall impact of this on the actual numbers of people requiring treatment is lesser, as the absolute rates are lower and the proportion of the population in this age group is substantially smaller than in younger age groups.

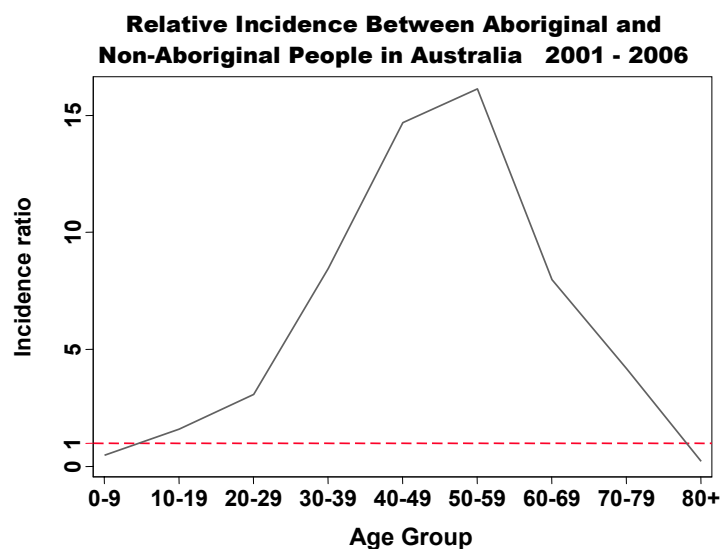
**Figure 1.2**



Associated closely with this change in rates has been a change in the types of kidney disease to which the end-stage kidney failure is attributed. In particular, the bulk of the increase has occurred in people with diabetic nephropathy and kidney disease related to hypertension and renovascular disease (Figure 1.3).

**Figure 1.3**


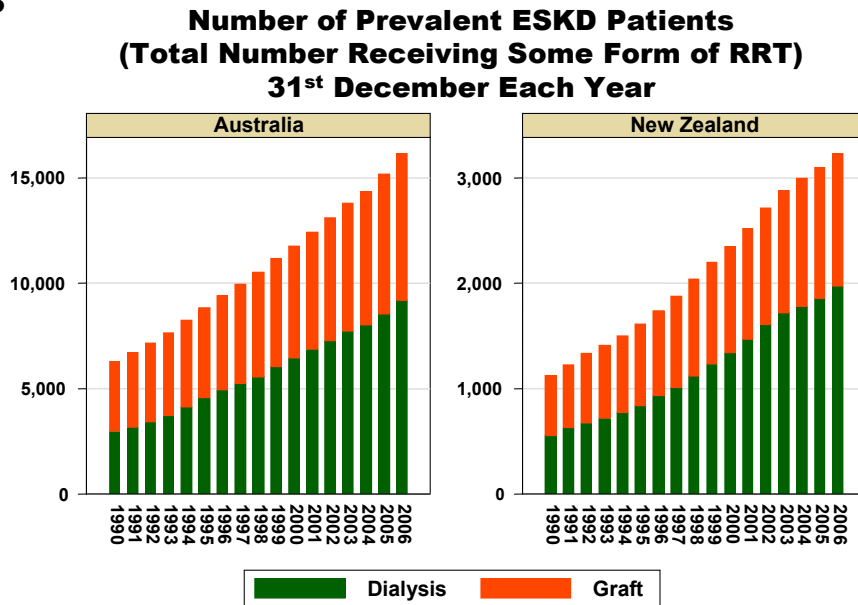
Another major trend over the previous 20 years has been the rapid rise in the rates of kidney disease among indigenous people in both Australia and in New Zealand. There are a number of publications based on ANZDATA material which have already been released and which describe the patterns and trends (1-5); there is also a very substantial body of work about the likely reasons underlying the very high rates of earlier stages of kidney disease among Aboriginal Australians in particular. The differential rates between Aboriginal and non-Aboriginal people in Australia varies with age, and is illustrated in Figure 1.4

**Figure 1.4**




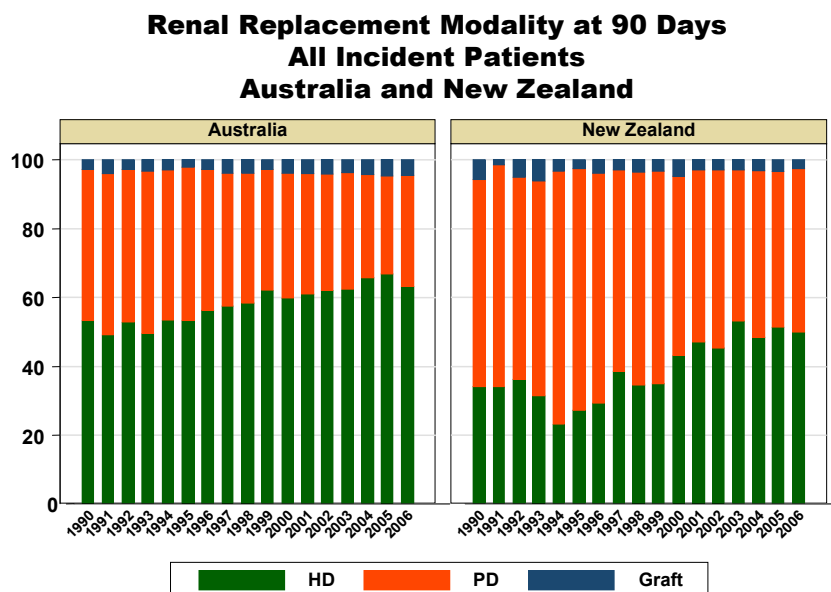
A predictable outcome of increasing rates of new patients starting RRT each year is an increase in the total number of patients receiving some form of RRT at any one time. The trends in this number are illustrated in Figure 1.5. It can be seen that there is a steady increase year on year, and that the greatest increase has been in patients receiving dialysis treatment rather than transplantation. Over the period since 1990, the number of people in Australia receiving RRT has increased by 5.9% per year, and in New Zealand by 6.9% per year. Over this time, the proportion of all people receiving RRT who had a functioning kidney transplant has steadily fallen in both countries. Provision and funding of appropriate RRT services for this growing group is clearly a major challenge for the health systems of both countries (6).

**Figure 1.5**



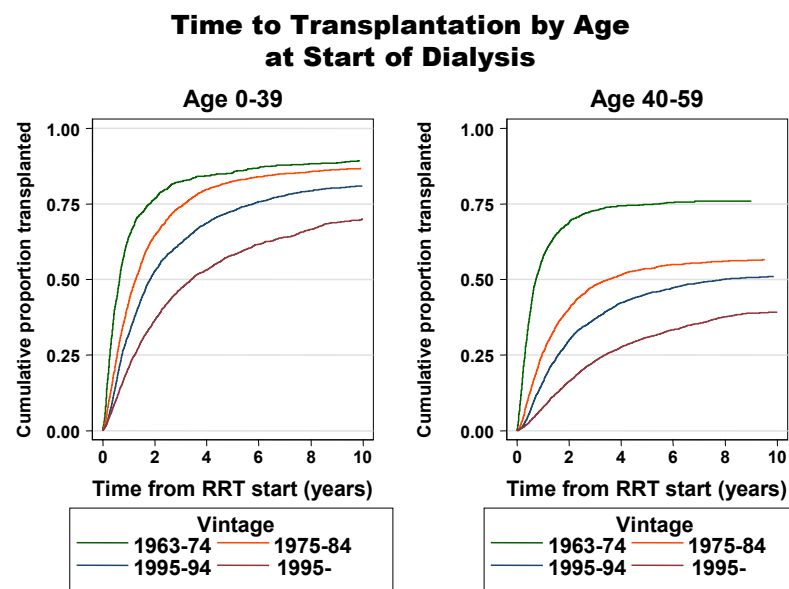
Patterns of treatment have also changed over time. The treatment modality in use at 90 days is a commonly accepted surrogate for the planned longer term method of dialysis, as it allows time for in the implementation of an appropriate long-term treatment strategy among people who present late with their kidney disease. As can be seen in Figure 1.6, there is a steady trend towards HD and away from PD over the past 15 years.

**Figure 1.6**



Although the success rates of kidney transplantation have been steadily improving over many years, the number of kidney transplants is a key limiting factor. The number of transplants performed from deceased kidney donors have been static for ten years; there has been an increasing number of kidneys from living donors, particularly living unrelated donors in very recent years. Nevertheless, it can be seen from Figure 1.7 that a lower proportion of people are actually reaching transplantation. This is not explained simply by the ageing of the patients entering renal replacement therapy – it is true even for the younger age groups in whom transplantation would be the usual option if available, such as the <40 year age group.

**Figure 1.7**



Note that in Kaplan-Meier graphs the denominator is the population at that point in time - for example at five years approximately 75% of people still receiving RRT (either dialysis or transplantation) have received a transplant. People who have died (either before or after transplantation) or who have reached the end of their follow up are removed from follow up at the time of death or loss to follow up.

## References

1. McDonald, SP & Russ, GR: The burden of end stage renal disease (ESRD) among indigenous peoples in Australia and New Zealand. *Kidney Int*, 63: s123-s 2003.
2. McDonald, SP & Russ, GR: Current incidence, treatment patterns and outcome of end-stage renal disease among indigenous groups in Australia and New Zealand. *Nephrology*, 8: 42-48, 2003.
3. Stewart, JH, McCredie, MRE & McDonald, SP: The incidence of treated end-stage renal disease in New Zealand Maori and Pacific Island people and in Indigenous Australians. *Nephrol Dial Transplant*, 19: 678-85, 2004.
4. Cass, A, Cunningham, J, Wang, Z & Hoy, W: Regional variation in the incidence of end-stage renal disease in Indigenous Australians. *Med J Aust*, 175: 24-7., 2001.
5. Preston-Thomas, A, Cass, A & O'Rourke, P: Trends in the incidence of treated end-stage kidney disease among Indigenous Australians and access to treatment. *Aust N Z J Public Health*, 31: 419-21, 2007.
6. Cass, A, Chadban, S, Craig, J, Howard, K, McDonald, S, Salkeld, G & White, S: The economic impact of end-stage kidney disease in Australia. Sydney, The George Institute, 2006.