

Immunisations and renal transplant patients in New Zealand

The need to improve population health via immunisation is widely accepted, and the bulk of the New Zealand National Immunisation Schedule focuses on children. More recently groups of adult patients who are more susceptible to vaccine preventable diseases, for various reasons, have been highlighted in the Immunisation Handbook.

One such group is adults with in or approaching end stage kidney disease, who ultimately require dialysis and transplantation for management of their illness. Infections remain a leading cause of mortality in the New Zealand dialysis and transplant population as described in the annual reports of the Australian and New Zealand Dialysis and Transplant registry. This is particularly evident in the population on dialysis, with infections coming second only to cardiovascular disease and remains a significant cause of mortality post transplant (1).

There are multiple reasons for this. Diabetes is a leading cause of end stage kidney disease in New Zealand and carries its own vulnerability to infection. Renal disease in itself leads to immune dysfunction secondary to uraemic disruption of both the innate and adaptive immune systems. (2) As chronic kidney disease advances patients show reduced rates of seroconversion post vaccination, with a quicker decline in antibody rate (3) Higher doses and supplementary vaccines may be needed in addition to the usual schedule and a history of having received a vaccine is no guarantee of a protective antibody response. Once on dialysis mechanical factors such as fluid shifts may play a role. Dialysis patient are vulnerable to pneumonia with around a quarter of infectious deaths attributable to this and those with chronic kidney disease are also more susceptible to pneumococcal infections with a European study quoting a mortality rate of up to ten times that of the general population (4,5). Vaccination for pneumococcal disease and for influenza has been shown to improve survival (6). Although renal function improves post transplant patients remain immunosuppressed to prevent graft rejection, and continue to be vulnerable to infection. Immunosuppressive drugs such as tacrolimus, cyclosporine, steroids and mycophenolate change the immune response to infections such as influenza and can both increase the risk of infection and lead to more serious complications should disease occur. Patients who are non immune to varicella and measles cannot receive these live vaccines post transplant, and may be exposed to these infections in the community.

The number of patients with end stage renal disease in New Zealand is steadily increasing and reducing vaccine preventable disease, with the consequent benefit to patients and the health system alike has been recognized.

Prevalent ESKD patients New Zealand 2009-2013

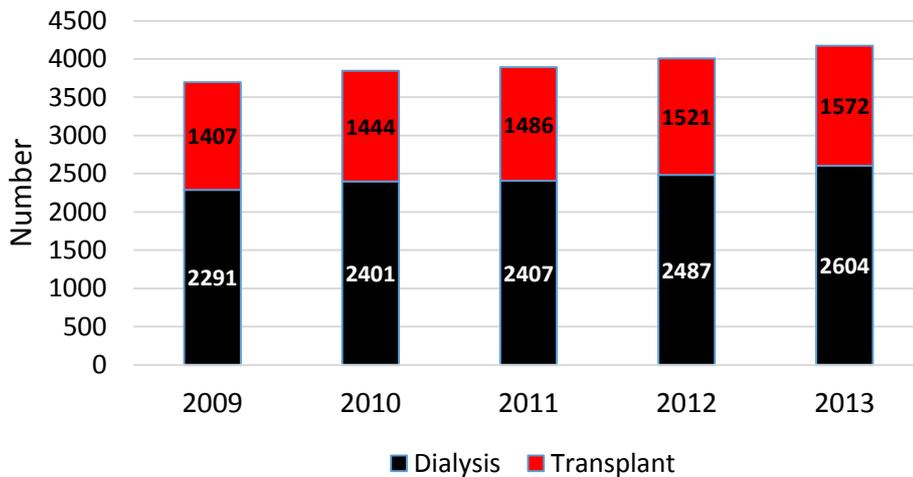


Figure one – Data from the National Renal Advisory Board’s Standards and Audits report at :<http://www.health.govt.nz/about-ministry/leadership-ministry/clinical-groups/national-renal-advisory-board/papers-and-reports>)

In 2014 the Immunisation subcommittee at Pharmac reviewed funded vaccines for special groups, including adult patients with kidney disease on or approaching renal replacement therapy, and widened access, and this was extended further in 2015.

Figure 2



Vaccine eligibility
2015 update final 07C

Barriers to immunisation are not confined to funding. Lack of understanding and knowledge of what is needed also play a role. Health professionals seeing patients with advanced or end stage kidney disease may defer vaccinations however, deeming the patient too unwell, or feeling unsure as to whether the vaccine is safe or appropriate to give. This means that opportunities to vaccinate this vulnerable population may be delayed, or missed altogether.

Drawing up a specific schedule for renal patients seemed to be one way to help address this. A schedule of immunisations for children with advanced kidney disease was introduced by Starship staff in 2013, and for adult patients by Peter Sizeland in Waikato the following year. There was support for a national guideline from The National Renal Transplant Leadership Service, and the New Zealand nephrology group as a whole.

The following guideline was developed for vaccination of adult renal transplant candidates and recipients in New Zealand. The aim was to clarify which vaccines are available and when they can and should be safely given with a plan that each transplanting centre and unit would develop the best way to implement this locally. This schedule has been endorsed by immunisation specialists from New Zealand and

from overseas and by the New Zealand nephrology group, and will be reviewed and updated as needed by the National Renal Transplant

It is also important to note the new provisions for household contacts for immunocompromised adults. Whilst ideally every patient having a transplant would be fully immunized, there will always be individuals who do not complete their immunizations through individual choice or by chance, and some who, although immunized, mounted a sub optimal response. Children of non immune adults are now funded for varicella vaccination.

Hopefully in the future influenza will also be included in ring fencing. However the increased access to funded immunisation is a great step forward for reducing vaccine preventable disease and their complications in the growing population with end stage kidney disease in New Zealand

References

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