State of the Nation

2015 Kidney Health Week

Chronic Kidney Disease in Australia

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Contents

Foreword

"State of the Nation: Chronic Kidney Disease in Australia" is an annual opportunity to present up to date information to the public and to kidney stakeholders about what is happening in the kidney world. Much of this information is not readily available to the non-medical community and yet is of vital importance in keeping perspectives on progress on kidney conditions and treatments in front of a wider audience. This report highlights trends over time in the delivery of dialysis and transplantation and draws heavily on the remarkable and unique database known as the Australian and New Zealand Dialysis and Transplant Registry (ANZDATA) that has maintained records of all kidney failure patients treated since these treatments became available 50 years ago.

State of the Nation (2015) also references a series of five reports by the National Centre for Monitoring Vascular Diseases at the Australian Institute of Health and Welfare (AIHW) that describe the combined burden of chronic kidney disease (CKD), cardiovascular disease and diabetes. These reports are critical as they highlight the significant negative impact of these diseases in Australia, and they reflect the intricate nature in which the development, progression and management of these conditions are inherently linked.

The Report presents a mixed picture of CKD in this country. We can take heart that the number of new patients starting dialysis or receiving a transplant has not increased over the last five years, and the survival of people on kidney replacement programs in Australia is close to the world's best. The downside is that significant inequalities based on ethnicity and area of residence still exists. Indigenous Australians and people residing in areas of low socioeconomic status are at increased risk of developing CKD, and have a heightened risk of mortality and morbidity as their kidney function deteriorates. Also of particular interest is the unexplained variation between dialysis units in the pattern of delivery of various types and locations of dialysis that may be disadvantaging some people.

CKD remains a highly under-diagnosed condition. Without obvious signs and symptoms CKD often falls below the public radar, and because of that, an individual may be less likely to ask his or her doctor for a check of their kidney function. This lack of awareness is concerning, because kidney disease kills. The mortality rate from CKD has not improved over the last decade, in contrast with the improvement in death rates that is recorded for cardiovascular disease and stroke, which are decreasing at a rate of 4.5% and 3.6% each year respectively. We believe that up to one in ten people visiting their general practitioner for any reason already have a degree of kidney disease but are unaware that their kidney function is impaired. Testing the kidneys must become a routine part of preventive health assessments in individuals at increased risk.

To this end, State of the Nation (2015) includes a focus on blood pressure, as hypertension is an easily recognisable sign of failing kidney health. A striking 96% of Australian adults are unaware that high blood pressure and kidney disease are linked. Six out of every ten people with CKD have hypertension, and in over one-third of these people the high blood pressure has either not been detected or is not being managed according to the recommended treatment targets. Early detection and ongoing management is the key to reducing the number of cardiovascular events (such as heart attacks and stroke) occurring each year while also reducing the incidence of CKD and diabetes.

State of the Nation is produced each year for release during Kidney Health Week. Copies are downloadable from www.kidney.org.au. Any ideas for topics for inclusion next year would be welcome.

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CKD is common

Around 1.7 million Australians (1 in 10) aged 18 years and over have clinical evidence of chronic kidney disease (CKD)[1]. It is also estimated that 1 in 3 adult Australians are at increased risk of developing CKD[2]. However, as CKD typically has no symptoms, only 1 in 12 of the people with CKD are aware they have this condition[3].

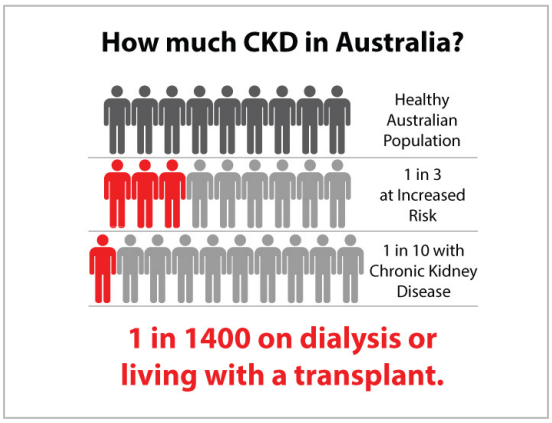

Figure 1. Estimation of risk and prevalence of kidney disease in Australia

CKD is frequently accompanied by cardiovascular disease and/or diabetes. In 2011-12, 51% of people with CKD also had cardiovascular disease and/or diabetes (Figure 2)[4]. An estimated 4.9 million Australian adults (29%) had CVD, diabetes or CKD; 7% (1.2 million) had at least two of these conditions and 1% (182,000) had all three conditions.

CKD comorbidity increases with age. People aged 45 to 64 years are 4 to 10 times as likely to have one combination of CKD/cardiovascular disease/diabetes comorbidity recorded as are people aged 18 to 44 years. For those aged 65 years or more, this difference increases to between 16 and 45 times the rate of those aged 18–44[4].

People with CKD are up to 20 times more likely to die from cardiovascular disease than they are to receive dialysis or a transplant[5].

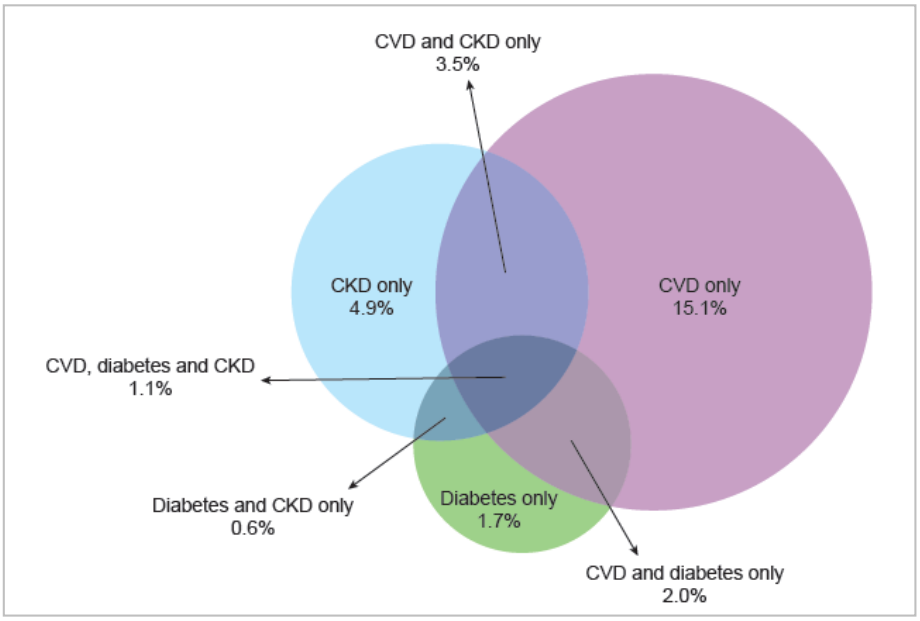

Figure 2. Prevalence of cardiovascular disease, diabetes, CKD, and their comorbidity, among persons aged 18 and over, 2011–12[4]

Latest data from the Australian and New Zealand Dialysis and Transplant Registry (ANZDATA) shows that in 2013 2,544 people commenced kidney replacement therapy (dialysis or kidney transplant) for end stage kidney disease. The number of ***new dialysis or kidney transplant patients in Australia each year has stabilised in the last decade*** compared with linear growth in previous years (Figure 3).

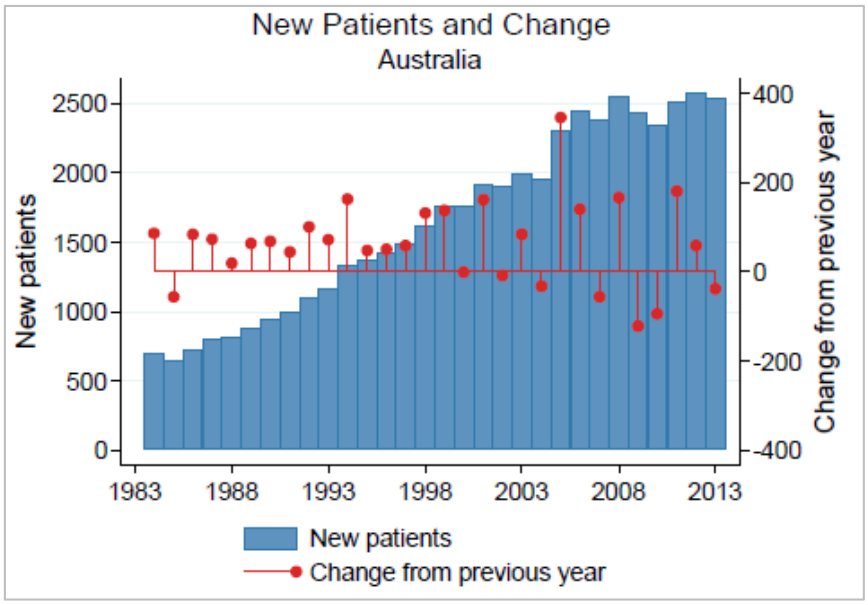

Figure 3. Total number of incident kidney replacement therapy patients in Australia and change from previous year, 1983-2013[6]

The ***total number of people on dialysis or living with a kidney transplant continues to grow*** in Australia, although the growth has slowed in recent years (Figure 4).

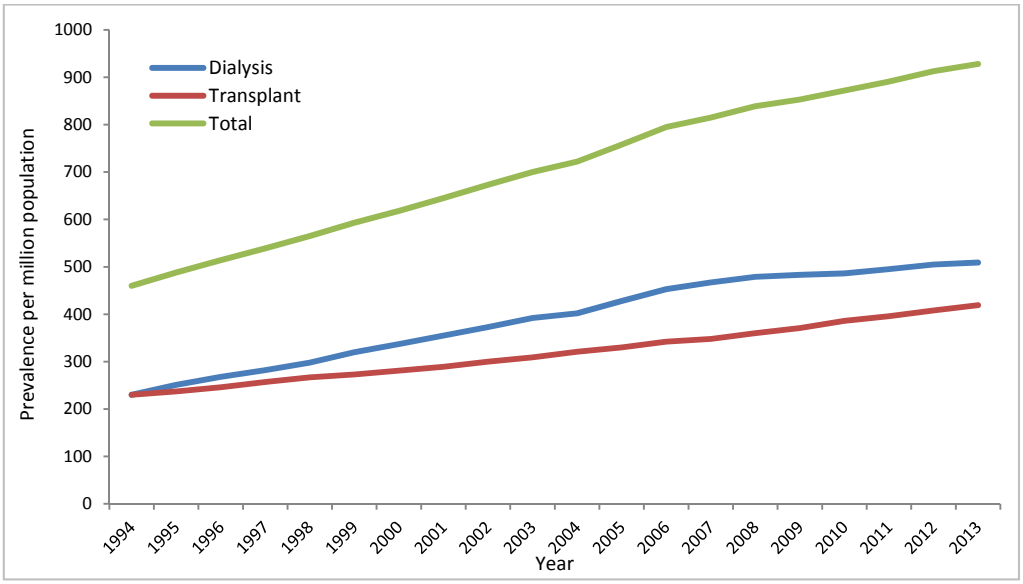

Figure 4. Prevalence (per million population) of kidney replacement therapy, 1994-2013[6]

Despite this, projections forecast the ***number of people on dialysis and transplantation is expected to rise by 60%*** between 2011 and 2020 (19,780 patients in 2011 to 31,589 in 2020), although the Australian population will only increase by 13% over this period[7].

The number of people on dialysis or living with a kidney transplant aged 75 years and over is projected to double between 2011 and 2020 (Figure 5), as are the number of people whose end stage kidney disease is caused by diabetes (Figure 6)[7].

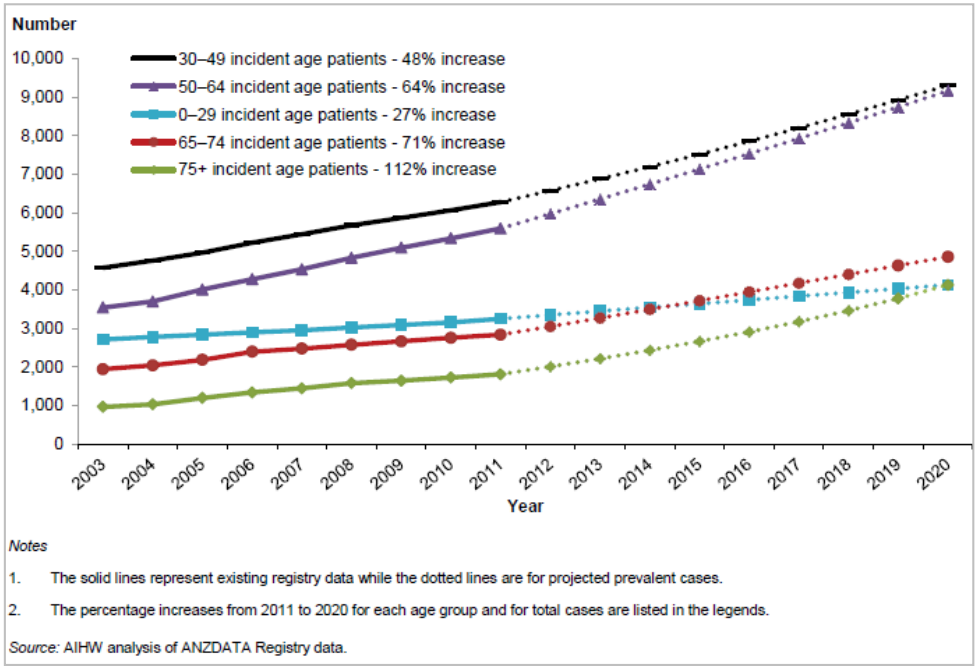

Figure 5. Prevalence of registered and projected treated-ESKD, by incident age, 2003-2020[7]

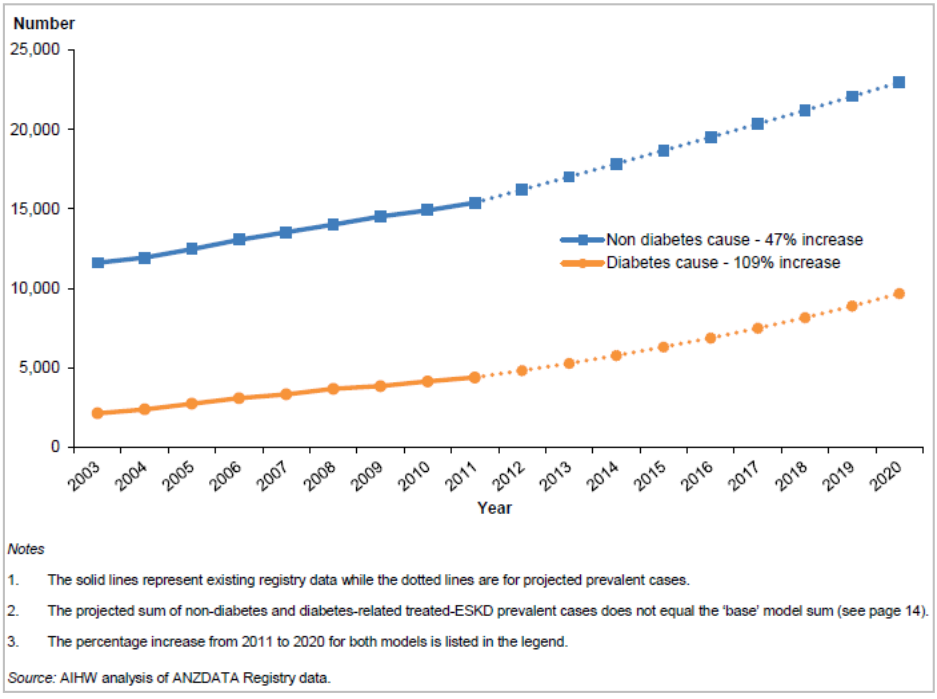

Figure 6. Prevalence of registered and projected treated-ESKD, by primary cause of treated-ESKD (diabetes versus non-diabetes), 2003–2020[7]

The method and location of dialysis for the past five years in Australia is shown in Figure 7. Over this time period the ***prevalence of satellite and hospital haemodialysis has grown***, compared to home therapies (peritoneal dialysis and home haemodialysis) which have remained relatively stable.

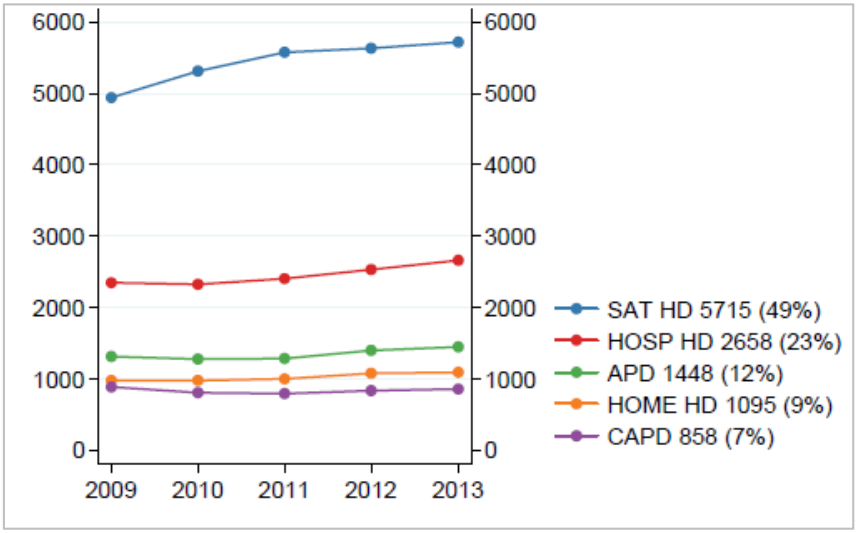

Figure 7. Method and location of dialysis in Australia, 2009-2013[6]

The ***utilisation of home therapies varies markedly across Australia*** (Figure 8). While interstate variability in home therapies may be influenced by state-specific funding differences, demographics and geography, intrastate unit-by-unit variation is more likely due to active policy implementation and the presence of home dialysis 'champions'[8].

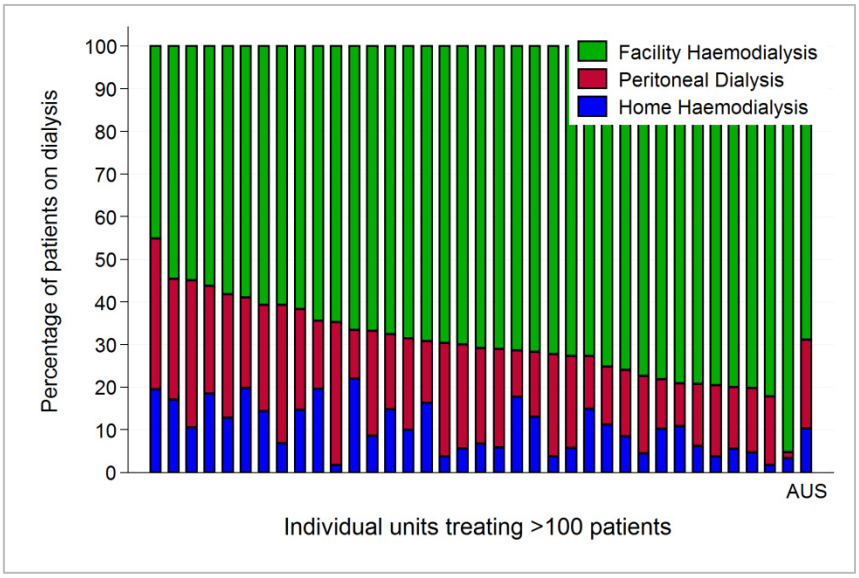

Figure 8. Patients on hospital (facility) dialysis, peritoneal dialysis and home haemodialysis as a percentage of patients on dialysis, in individual units treating >100 patients, 2013[9]

Kidney donation and transplantation

The number of ***kidney transplants from deceased donors increased steadily*** from 2007 to 2012, although this has slowed in recent years. In 2014, 659 kidney transplants came from deceased donors – a 2% increase from 2013 (Figure 9)[10]. ***Live kidney donor rates*** have been steadily decreasing since 2008. This trend has reversed in the past two years, with ***annual increases of 5% and 7% for 2013 and 2014*** respectively. It is positive to see the increase in live donors, which coincides with the introduction of the *Leave for Living Organ Donors Support Scheme* designed to support potential live donors.

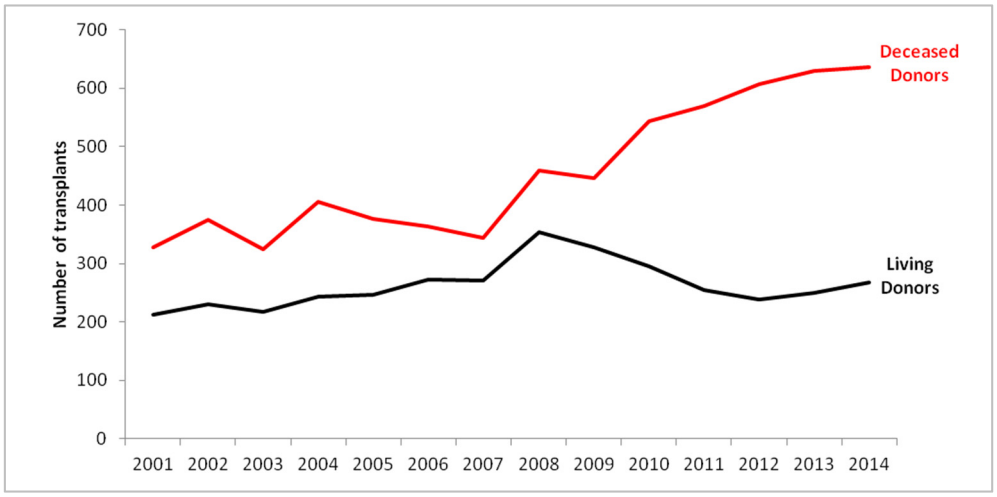

Figure 9. Australian kidney transplants by source, 2011-2014[10]

The ***882 kidney transplants*** performed in Australia in 2013 represents the ***highest number ever performed***. Transplant outcomes in Australia are excellent, and are improving over time (Figure 10).

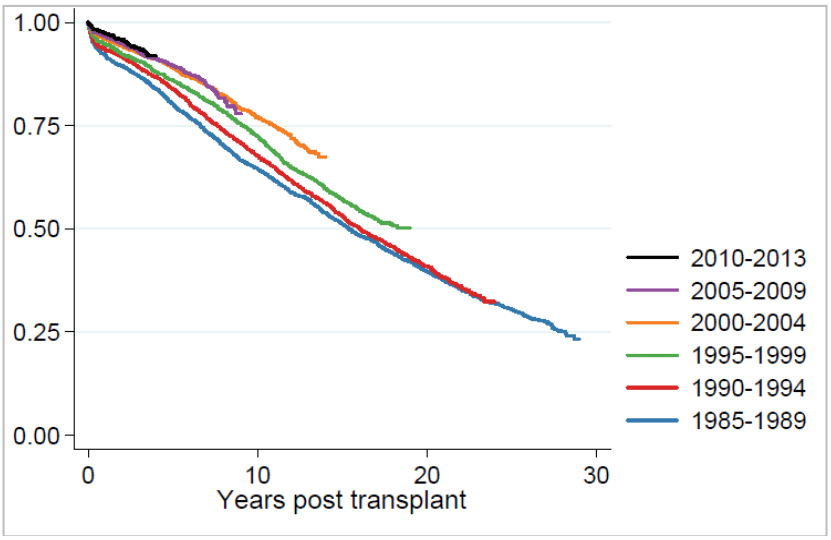

Figure 10. Patient survival following deceased donor transplant, Australia and New Zealand[6]

CKD is harmful

Mortality

In Australia, someone dies with kidney related disease ***every 25 minutes.*** Kidney-related disease kills more people each year than breast cancer, prostate cancer or even road traffic accidents. In 2011, CKD was listed as an underlying or associated cause of death in ***10% of all deaths*** in that year (14,842 cases)[11].

The age-standardised ***mortality rate for CKD*** as the underlying or associated cause of death has ***remained stable*** between 1997 and 2011[11] (Figure 10). This is ***in contrast to the improvements in death rates*** that have been recorded for cardiovascular disease and stroke, which are decreasing at a rate of 4.5% and 3.6% each year respectively.

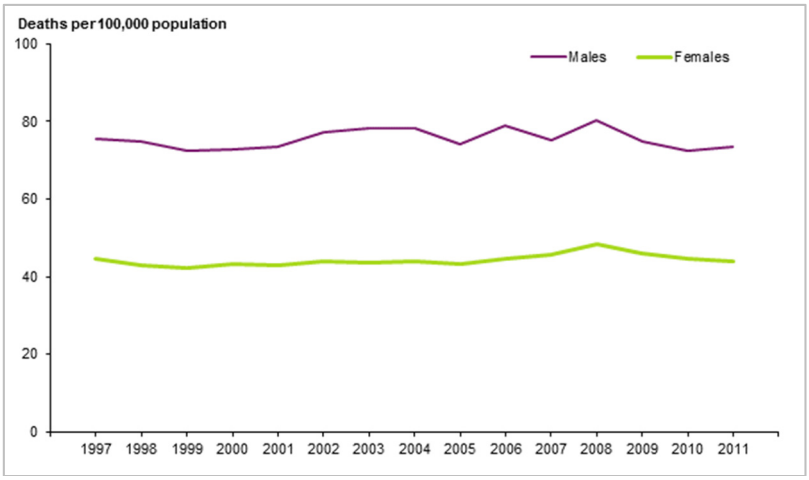

Figure 10. Death rates with CKD as the underlying or associated cause of death, by sex, 1997-2011[11]

The risk of death from CKD increases if[11]:

- You are ***male*** - men are more likely than women to die from CKD (14 versus 10 deaths per 100,000 population)
- You live in an area of ***low socioeconomic status*** - CKD deaths in the lowest socioeconomic group are almost twice as high as deaths in the highest socioeconomic group (15 versus 8 deaths per 100,000 population) (Figure 11)
- You live in a remote area: People living in ***remote and very remote areas*** have a CKD death rate twice as high as people in major cities (23 versus 12 deaths per 100,000 population)
- The higher proportion of Indigenous Australians in remote areas only partly explains the higher CKD death rates in *Remote and very remote* areas, since other geographical, environmental and social factors can contribute to the poorer health of people living in remote areas[12]

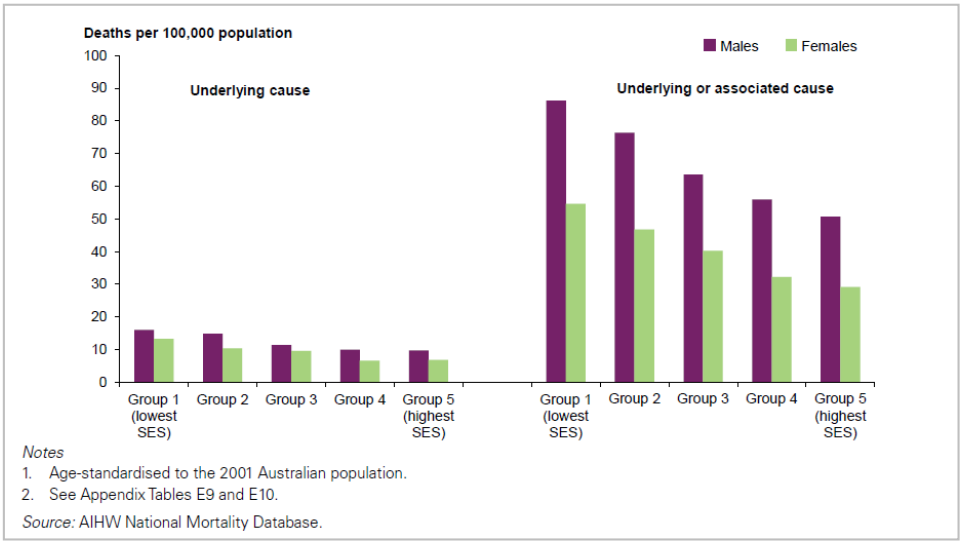

Figure 11. Deaths with CKD as the underlying or associated cause of death, by socioeconomic status of area of residence and sex, 2011[11]

Morbidity

In 2012-13 there were ***37,960 hospitalisations for CKD*** diagnoses (excluding attendances for regular dialysis). Altogether, CKD as the principal diagnosis accounted for ***14% of all visits to hospitals*** in Australian during this time.

Between 2002-03 and 2012-13, the number of ***hospitalisations for CKD excluding dialysis in Australia increased by 42%***, with this trend similar for males and females (Figure 12)[13].

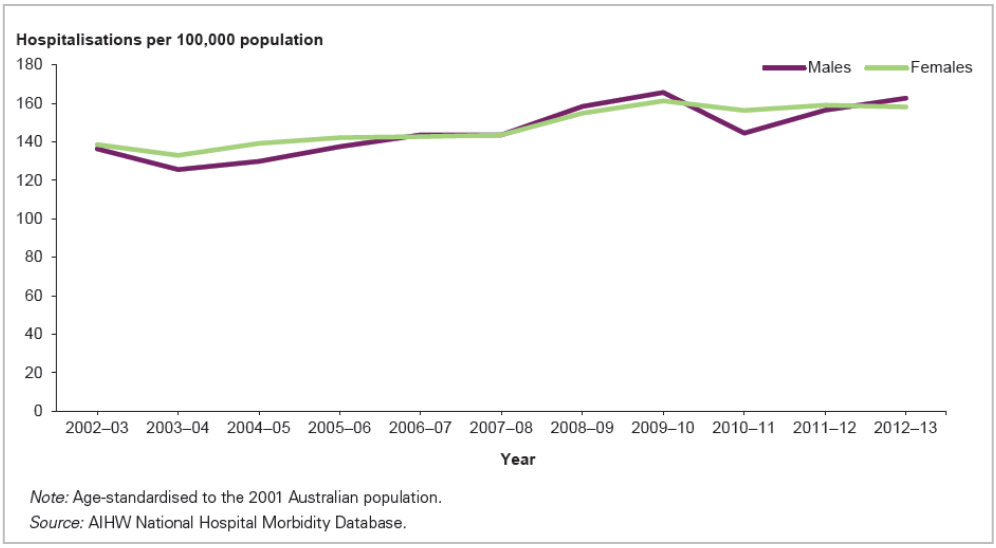

Figure 12. Trends in hospitalisation rates for CKD as the principal diagnosis, by sex, 2002-03 to 2012-13[13]

The risk of hospitalisation from CKD increases if you live in a remote area[13]:

- In 2012-13, the hospitalisation rate where CKD was recorded as the principal and/or additional diagnosis (excluding dialysis) was twice as high in Remote and very remote compared with Major cities
- ***Indigenous Australians account for 54% of CKD hospitalisations in Remote areas*** despite making up 15% of the population[14]
- Despite males having higher rates of CKD, the ***hospitalisation rates for CKD were higher in females*** than males in Remote and very remote areas (Figure 13)
- People living in Remote and very remote areas were ***2.5 times more likely to attend hospital for regular dialysis*** as those living in Major cities
- This gap was higher for females, ***with females living in Remote or very remote areas 4.4 times more likely to visit hospital for dialysis than females living in Major cities***

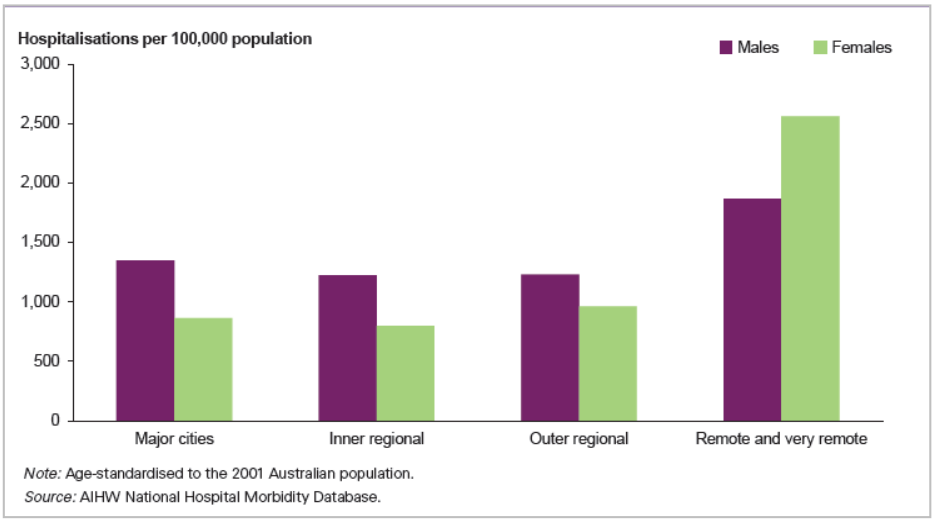

Figure 13. Hospitalisation rates with CKD, as the principal and/or an additional diagnosis, by remoteness and sex, 2012-13[13]

The risk of hospitalisation from CKD increases if you live in an area of low socioeconomic status[13]:

- In 2012-13, rates of hospitalisation for CKD (excluding dialysis) were 1.7 times (males) and 2.1 times (females) higher in the lowest versus the highest socioeconomic groups (based on area of usual residence)
- The pattern was similar for hospitalisations for dialysis – 1.7 times higher (males) and 2.2 times higher (females) in the lowest versus the highest socioeconomic groups

The risk of hospitalisation from CKD increases if you are of Aboriginal or Torres Strait Islander origin[13]:

- In 2012-13, hospitalisation rates (excluding dialysis) were nearly 5 times higher for Indigenous versus non-Indigenous Australians
- The disparity was even greater for females, with ***Indigenous females 6.3 times as likely to be hospitalised for CKD as non-Indigenous females*** (Figure 14)

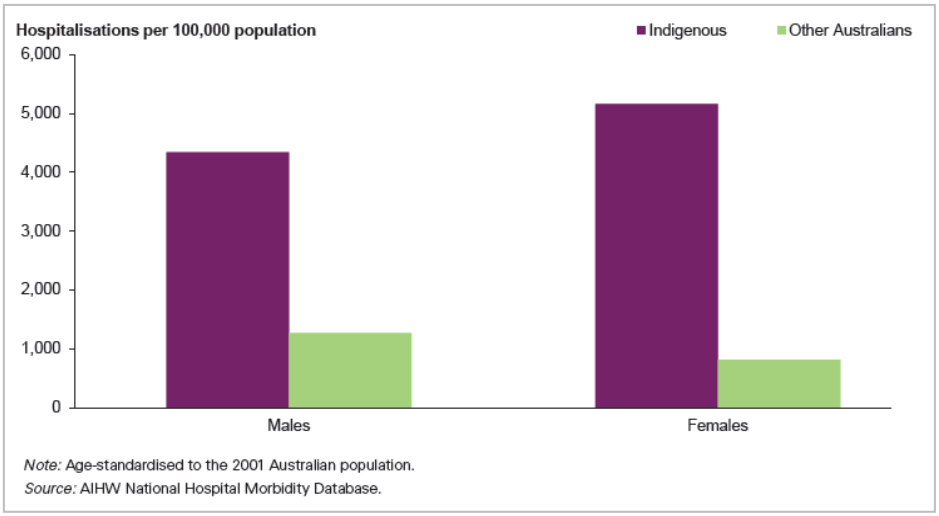

Figure 14. Hospitalisation rates with CKD, as the principal and/or an additional diagnosis, by Indigenous status and sex, 2012–13[13]

- ***Indigenous Australians were 10 times more likely than non-Indigenous Australians to attend hospital for dialysis***
- The gap was higher for females, with ***Indigenous females 14.9 times more likely to attend hospital for dialysis than non-Indigenous females*** (Figure 15)

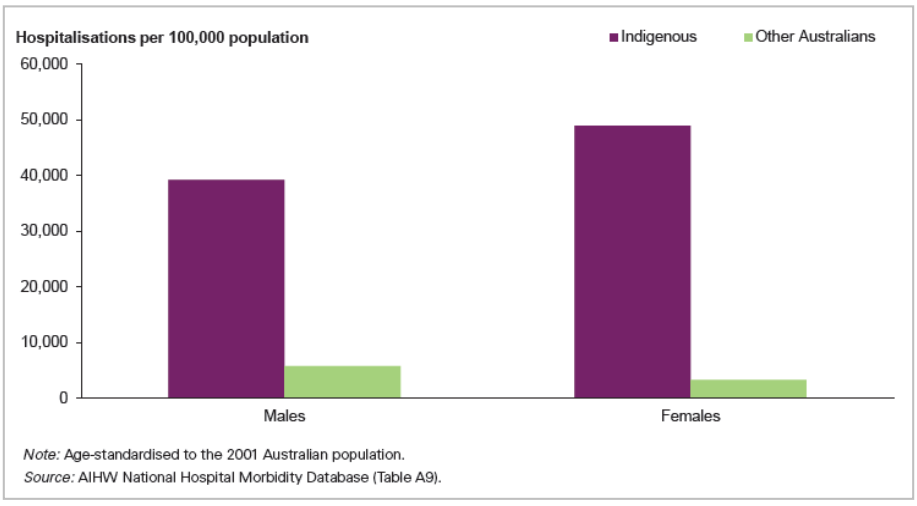

Figure 15. Dialysis hospitalisation rates, as the principal diagnosis, by Indigenous status and sex, 2012–13[13]

Risk of CKD can be reduced – focus on blood pressure

Data from the ANZDATA Registry shows that the three most common causes of kidney disease requiring kidney replacement therapy (dialysis or transplant) in Australia in 2013 were diabetes, glomerulonephritis (inflammation of the kidney) and hypertension (high blood pressure) (Figure 16)[6].

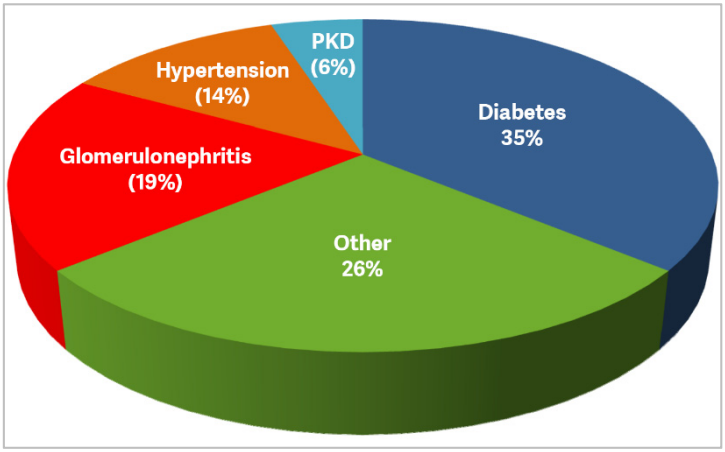

Figure 16. Primary kidney disease of new patients, 1 Jan 2013 to 31 Dec 2013[6]

The Australian Health Survey (2011-12) showed that around one in five people aged 18 years and over (21.5%) had high blood pressure (≥140/90 mmHg or higher)[15]. Recent Australian data demonstrated that 96% of adults do not know there is a link between high blood pressure and kidney disease[16].

The likelihood of having high blood pressure increases if:

- You have ***CKD*** - 59% of people with CKD are either taking medication for high blood pressure, or have measured high blood pressure (Figure 17)[17]
- You are ***male*** - *Men were more likely to have high blood pressure than women* (23.4% and 19.5% respectively)
- You are ***aged 65 years or over*** - 42.6% of persons aged 65 years and over had measured high blood pressure, compared with 5.5% of people aged 18-24 years

Data from the Australian Health Survey reveals an estimated 35% of people with CKD (545,100 people) have high blood pressure which is either not detected (prescribing gap) or not managed appropriately (treatment gap) (Figure 17)[18]. This equates to 58% of people with CKD and hypertension.

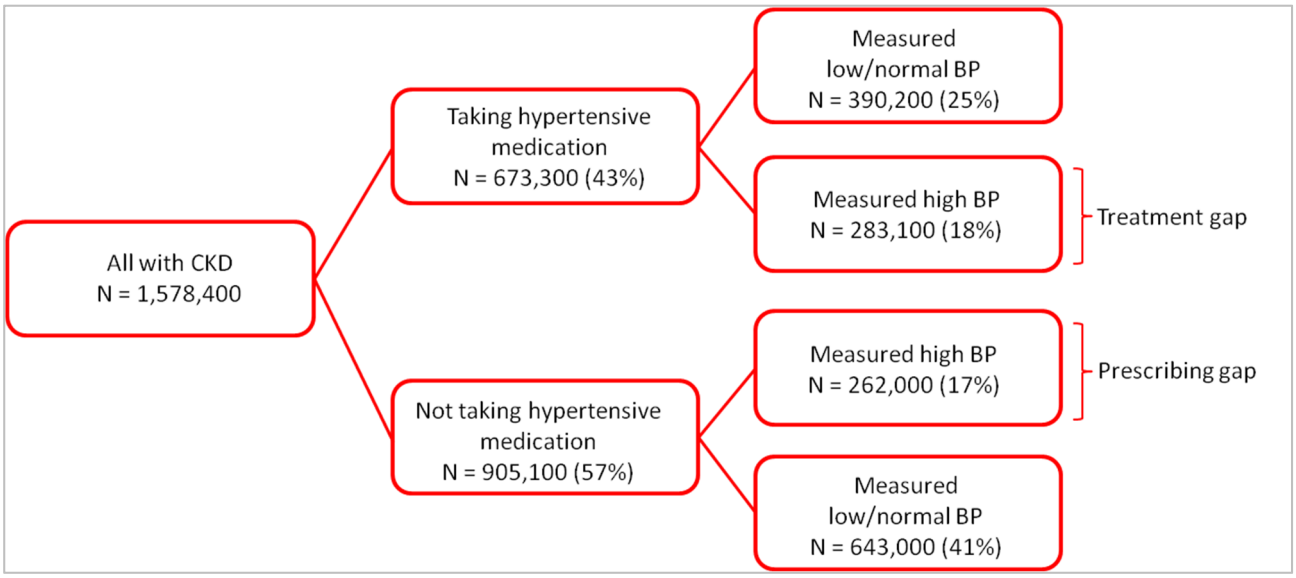

Figure 17. High blood pressure prescribing and treatment gaps among people with CKD

Acknowledgements

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