3.9 Chronic kidney disease

The kidneys filter and remove waste from the blood. Kidney disease occurs when the nephrons (the functional units in the kidneys that filter blood) are damaged. Chronic kidney disease (CKD) is where evidence of kidney damage and/or reduced kidney function lasts at least 3 months. The most severe form of CKD is end-stage kidney disease (ESKD), for which people usually need kidney replacement therapy (KRT)—a kidney transplant or dialysis—to survive.

Many cases of CKD are preventable, as several of its risk factors—such as high blood pressure, insufficient physical activity, overweight and obesity, and tobacco smoking—are modifiable. Simple tests of a person's blood and urine can identify most cases of CKD when the disease is in its early stages, enabling treatment to prevent or slow its progression.

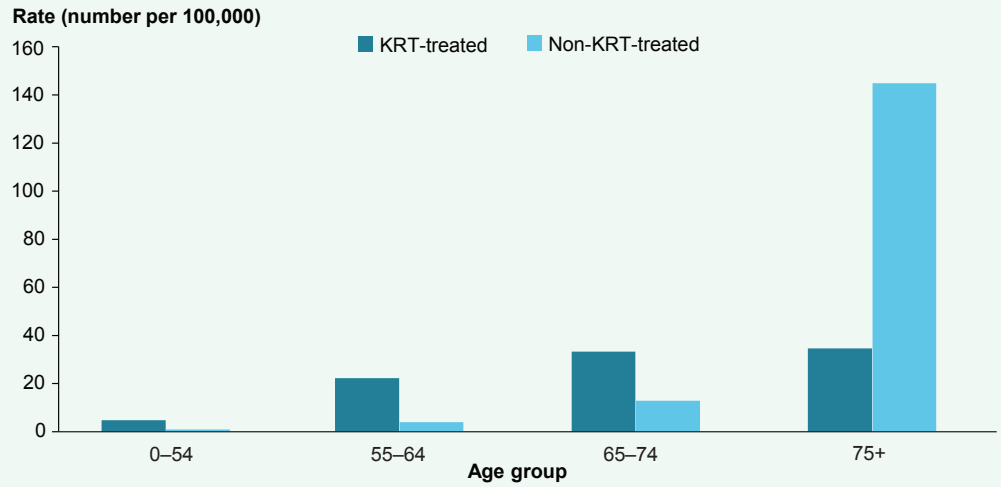
How common is chronic kidney disease?

In 2011–12, an estimated 1 in 10 people (1.7 million Australians) aged 18 and over had biomedical signs of CKD. The risk of CKD increases rapidly with age, affecting around 2 in 5 (42%) people aged 75 and over.

There were around 5,100 new cases of ESKD in Australia in 2013, which equates to around 14 new cases per day. Of these, around 50% were receiving KRT.

The rate of new cases of KRT-treated and non-KRT-treated ESKD increased with age for all age groups up to age 74. From age 75, rates of non-KRT-treated ESKD rose rapidly—an 11-fold increase from ages 65–74 (from 13 to 145 per 100,000 population) (Figure 3.9.1).

Figure 3.9.1: Incidence rate of ESKD, by age and treatment status, 2013



Sources: AIHW analysis of linked Australia and New Zealand Dialysis and Transplant Registry, National Mortality Database and National Death Index; Table S3.9.1.

Between 1997 and 2013, the number of new cases of KRT-treated and non-KRT-treated ESKD increased by 71% and 35%, respectively. However, the rate for both treatment groups has remained relatively stable since 2001—an average of 10 per 100,000 population per year.

Impact

Burden of disease

In 2011, CKD was responsible for 0.9% of the total burden of disease and injury in Australia (see Chapter 4.4 'Contribution of selected risk factors to burden of disease' for definitions of burden of disease). The burden of CKD increased rapidly with age from ages 35–39, with CKD being the eighth leading cause of burden among people aged 85 and over.

CKD is also a risk factor for other diseases. In 2011, it was responsible for 19% of peripheral vascular disease burden, 8.4% of dementia burden and 7.2% of stroke burden. If the health loss from both CKD and other diseases for which CKD is a risk factor is considered, the burden due to CKD doubles.

Deaths

CKD contributed to around 17,000 (11%, or 1 in 9) deaths in 2016, with 75% of these recording CKD as an associated cause of death. CKD is more often listed as an associated cause as the disease itself may not lead directly to death. When CKD was an associated cause of death, coronary heart disease (21%), heart failure and cardiomyopathy (7.4%), and dementia and Alzheimer disease (7.0%) were the most common underlying causes of death (Supplementary Table S3.9.3).

Treatment and management

Hospitalisations

In 2015–16, CKD was recorded as the principal and/or additional diagnosis in around 1.7 million hospitalisations—16% of all hospitalisations in Australia.

Of these, 81% (1.4 million) were for regular dialysis treatment, making dialysis the most common reason for hospitalisation in Australia. On average, dialysis patients attend 3 sessions per week. Age-standardised rates for dialysis have increased by 24% over the last decade, from 4,200 per 100,000 population in 2005–06 to 5,200 per 100,000 in 2015–16.

There were more than 300,000 hospitalisations for CKD excluding dialysis in 2015–16. Most (87%) had CKD as an additional diagnosis. Age-standardised rates have increased by 22%, from 138 per 100,000 population in 2005–06 to 169 per 100,000 in 2015–16.

Kidney replacement therapy

In 2015, around 23,000 people received KRT. Of these, 54% had dialysis while 46% had a kidney transplant. The number of people receiving KRT has more than doubled in the last 2 decades, from around 9,300 to 23,000 (ANZDATA 2016).

Variations among population groups

The impact of CKD varies among population groups, with rates being 2.1–7.3 times as high among Aboriginal and Torres Strait Islander people as among non-Indigenous Australians and 1.8–2.3 times as high in *Remote/Very remote* areas compared with *Major cities.* Generally, the impact of CKD increases with increasing socioeconomic disadvantage. Rates were 1.6–2.0 times as high in the lowest socioeconomic areas compared with the highest.

Comparing rates for:	**Indigenous** / non-Indigenous	**Remote and Very remote** / Major cities	**Lowest** / highest **socioeconomic areas**
Having CKD	2.1×	n.a.	1.6×
Hospitalised for CKD (excluding dialysis)	5.0×	2.3×	1.9×
Dying from CKD	3.7×	1.8×	1.7×
Burden of disease (DALYs)	7.3×	n.a.	2.0×

n.a. not available

What is missing from the picture?

Currently, there are only two surveys that provide reliable national data on biomedical signs of CKD. Regular data collection would allow for more timely prevalence estimates and the reporting of trends. Further, while there are national data on new cases of ESKD, there are no national data on new cases of CKD.

Where do I go for more information?

More information on CKD is available at <www.aihw.gov.au/reports/chronic-kidney-disease/chronic-kidney-disease-compendium/contents/how-many-australians-have-chronic-kidney-disease>.

Find interactive maps on *Geographical variation in chronic kidney disease.*

These reports on CKD can be downloaded for free: *Incidence of end-stage kidney disease in Australia 1997–2013* and the *Cardiovascular disease, diabetes and chronic kidney disease—Australian facts* series (Mortality; Prevalence and incidence; Morbidity—hospital care; Risk factors; Indigenous Australians).

Reference

ANZDATA (Australian and New Zealand Dialysis and Transplant Registry) 2016. *ANZDATA 39th annual report 2016.* Adelaide: ANZDATA.