



## 3.8 Kidney disease

The kidneys filter and remove waste from the blood. Kidney disease occurs when the nephrons (functional units inside the kidney that filter the blood) are damaged. Kidney disease is often called a 'silent disease', as up to 90% of kidney function can be lost before symptoms appear. As a result, many people are unaware that they have the condition.

When a person has evidence of kidney damage and/or reduced kidney function lasting at least 3 months, this is referred to as chronic kidney disease, or CKD. The most severe form of CKD is end-stage kidney disease (ESKD), where people usually require kidney replacement therapy—a kidney transplant or dialysis—to survive. Kidney disease may also present as an acute condition, such as acute kidney injury (AKI), where an abrupt loss of kidney function causes the body to accumulate waste products and become unable to maintain electrolyte, acid–base and water balance.

CKD is largely preventable, as many of its risk factors—such as smoking, high blood pressure, overweight and obesity, and impaired glucose regulation—are modifiable. Further, 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 down, its progression. In contrast, AKI is often the consequence of injury or trauma restricting blood supply to the tissues or as a result of severe inflammation.

CKD and AKI are risk factors for each other and they are both risk factors for cardiovascular disease.

### 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 (ABS 2013). Of these, only 10% were aware they had the condition based on self-reported data, reflecting that this is a highly under-diagnosed condition.
- In 2014, there were around 22,100 people with treated ESKD—55% of patients were on dialysis while 45% were living with a functioning transplant.
- There were around 2,600 new cases of treated ESKD in 2014—7 new treated cases per day.
- Diabetic nephropathy—damage to the blood-filtering capillaries in the kidneys caused by high blood sugar levels—was the leading cause of treated ESKD, accounting for 37% of new cases in 2014 (ANZDATA 2015).

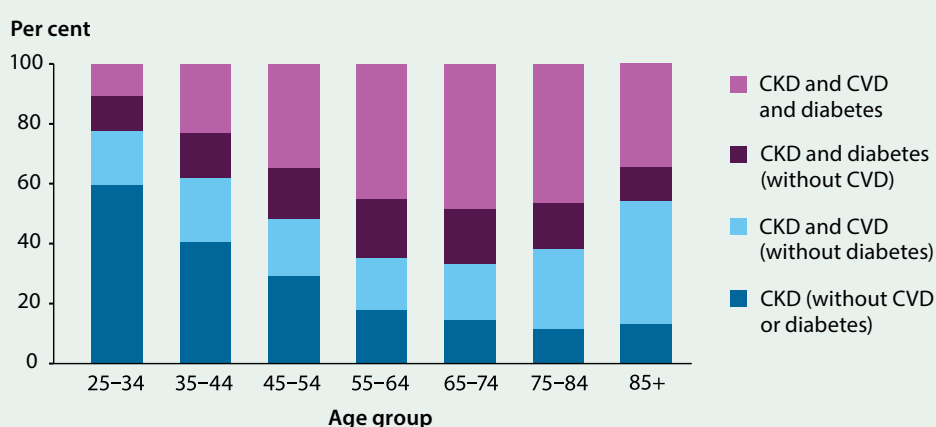
### Hospitalisations

- Of the 1.6 million hospitalisations for CKD in 2013–14, 81% were for regular dialysis treatment. Dialysis is the most common reason for hospitalisation in Australia, and age-standardised rates have increased by 37% over the last decade, from 3,800 to 5,200 per 100,000 population, between 2003–04 and 2013–14.



- In 2013–14, there were more than 300,000 hospitalisations for CKD (excluding dialysis). The vast majority of these (87%) were for CKD as an additional diagnosis. Age-standardised rates have increased substantially between 2003–04 and 2013–14, from 128 to 164 per 100,000 population.
- CKD often occurs with other conditions such as cardiovascular disease and diabetes, as they share common risk factors. Of hospitalisations with CKD in 2012–13, 66% also had a diagnosis of cardiovascular disease, 57% a diagnosis of diabetes, and 41% had both.
- The proportion of CKD hospitalisations with either cardiovascular disease or diabetes or both increased with age—from 40% of people aged 25–34 to 88% of people aged 75–84 (Figure 3.8.1).
- In 2013–14, there were around 146,600 hospitalisations where AKI was the principal and/or additional diagnosis. The number and rates of hospitalisations for AKI almost doubled between 2003–04 and 2013–14.

**Figure 3.8.1: CKD hospitalisations with one or more diagnoses of cardiovascular disease, diabetes and CKD, by age, 2012–13**



Note: Hospitalisations were for adults aged 25 and over only.  
Source: AIHW National Hospital Morbidity Database.

## Deaths

- In 2013, CKD contributed to 15,900 (11%) of all deaths in Australia, with 76% of these recorded as an associated cause of death. CKD was commonly listed as an associated cause of death where the underlying cause was coronary heart disease (23%), heart failure and cardiomyopathy (7%), and dementia and Alzheimer disease (6%).
- There were around 5,300 deaths where AKI was recorded as the underlying or associated cause of death in 2013. As for CKD, there is also a strong association between AKI and cardiovascular disease—cardiovascular disease was the leading cause of death in 28% of deaths where AKI was an associated cause of death.



## Variations among population groups

Compared with non-Indigenous Australians, **Indigenous Australians** were:



- 2.1 times as likely to have biomedical signs of CKD
- 4.8 times as likely to hospitalised for CKD (excluding dialysis)



- 3.2 times as likely to die from CKD
- 5.0 times as likely to have ESKD, but less likely to be treated with a functioning kidney transplant for their ESKD (12% compared with 48% for non-Indigenous people).

Compared with those living in *Major cities*, people in **combined Remote and Very remote areas** were:



- 2.2 times as likely to be hospitalised for CKD
- 1.7 times as times as likely to die from CKD.

Compared with those living in the highest socioeconomic areas, people living in the **lowest socioeconomic areas** were:



- 1.6 times as likely to have biomedical signs of CKD
- 1.9 times as likely to be hospitalised for CKD
- 1.6 times as likely to die from CKD.

## What is missing from the picture?

Although nearly all people with ESKD in Australia who receive kidney replacement therapy are recorded in the Australian and New Zealand Dialysis and Transplant Registry (ANZDATA), there is a lack of information on people with ESKD who are not receiving kidney replacement therapy. Data linkage of ANZDATA and mortality data has provided some information on people not receiving kidney replacement therapy (AIHW 2011). Further linkage with hospitalisation data would allow a greater capture of untreated ESKD and provide improved estimates on the incidence of ESKD in Australia; however, national linkage is currently not possible.

There is also a lack of reliable national data on the prevalence and incidence of AKI in Australia. Hospital and deaths data may underestimate the burden of AKI given that standardised definitions of AKI have only appeared in the last decade, that it is clinically under-recognised and that its definition is still evolving.

## Where do I go for more information?

The following reports can be downloaded for free: the *Cardiovascular disease, diabetes and chronic kidney disease—Australian facts series* ([Mortality](#); [Prevalence and incidence](#); [Morbidity—hospital care](#); [Risk factors](#); [Indigenous Australians](#)), [Acute kidney injury in Australia: a first national snapshot](#) and [Chronic kidney disease: regional variation in Australia](#).

## References

ABS (Australian Bureau of Statistics) 2013. Australian Health Survey: biomedical results for chronic diseases, 2011–12. ABS cat. no. 4364.0.55.005. Canberra: ABS.

AIHW 2011. End-stage kidney disease in Australia: total incidence, 2003–2007. Cat. no. PHE 143. Canberra: AIHW.

ANZDATA (Australian and New Zealand Dialysis and Transplant) 2015. ANZDATA 38th Annual report 2015. Adelaide: Australia and New Zealand Dialysis and Transplant Registry.