Chronic Kidney Disease

What is Chronic Kidney Disease?
In chronic kidney disease (CKD), the kidney function declines over time.\(^1\)

What is the primary role of the kidneys?
To filter blood to remove waste and excess water from the body.\(^2\) Half a cup of blood is filtered every minute to make urine.\(^2\)

It is a **progressive** disease with 5 stages of severity.\(^3\)

Early stages = Usually no symptoms.\(^4\)
Patients may not realise they have the disease until it’s advanced.\(^5, 6\)

Up to 2 of 3 CKD cases are caused by diabetes and high blood pressure.\(^5\)

Associated complications

CKD is known as a “disease multiplier” as it often occurs in the context of multiple comorbidities.\(^7\)

As kidney function continues to decline, patients face an increased risk of developing other complications, including anaemia and hyperkalaemia.

Progression of the disease might be slowed but no cure exists.\(^4\)
### Hyperkalaemia

Hyperkalaemia is characterised by **too much potassium** in the blood.\(^8\) As kidney function declines, the kidneys are less able to remove excess potassium.\(^8\)

Elevated potassium (especially at higher levels) is associated with increased risk of cardiovascular (CV) events and death.\(^9\)

### Anaemia

Anaemia happens when there aren’t **enough red blood cells**.\(^10\) As kidney function declines, anaemia develops because the body does not properly signal that it should produce enough red blood cells.\(^10\)

Anaemia in CKD can be associated with hospitalisation and higher risk of death.\(^11, 12\)

### Bone disease

Bone disease happens when there is **too much phosphorus** in the blood. When kidney function declines, phosphorus is less able to be removed properly, causing the body to pull calcium from your bones.\(^13\)

Elevated phosphorus has been associated with an increased risk of death in CKD patients undergoing dialysis.\(^14\)

### Heart disease

Heart disease (heart attack, heart failure, stroke, arrhythmias, peripheral vascular disease) can develop when damaged kidneys **fail to help the body regulate** blood pressure.\(^15-17\)

Patients with stage 5 CKD have been estimated to have 3.4x higher risk of CV events than patients with stage 1 or 2.\(^18\)

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**Global impact of CKD**

- **nearly doubled**
  - from **0.6 million in 1990** to **1.2 million in 2016**.\(^19\)

**In 2017, approximately**

- **35.8 million healthy years of life** were lost globally due to disability caused by CKD.\(^20\)

**2 – 3%**

- of the annual healthcare budget is spent on end-stage kidney disease treatment in high-income countries.\(^21\)
References


