

# Anaemia and chronic kidney disease



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Kidney disease can lead to a shortage of red blood cells in your body. This is known as renal anaemia or anaemia of kidney disease. Anaemia is more common in advanced kidney disease and affects most patients on dialysis. This leaflet gives more information about anaemia and its treatment.



## How does kidney disease cause anaemia?

**Anaemia is a very common side effect of chronic kidney disease (CKD).**

If your kidneys are damaged, they produce less of a hormone called erythropoietin which is needed to make red blood cells. This results in fewer cells being made and causes anaemia. Red blood cells contain haemoglobin which carries oxygen around your body.

Kidney disease also affects the way in which your body uses iron. If you have kidney disease you may therefore need more iron to make the same amount of haemoglobin as people without kidney disease.

You can also become anaemic for the same reasons as people without kidney disease – blood loss, inflammation, infections, poor nutrition or problems with your bone marrow. Your doctor might think about these causes of anaemia as well.



## What are the symptoms of anaemia?

### Symptoms can include:

- Feeling more tired than normal
- Lacking energy
- Shortness of breath, especially after exercise
- Headaches
- Dizziness
- Awareness of the heart beating
- Chest pain
- Feeling cold

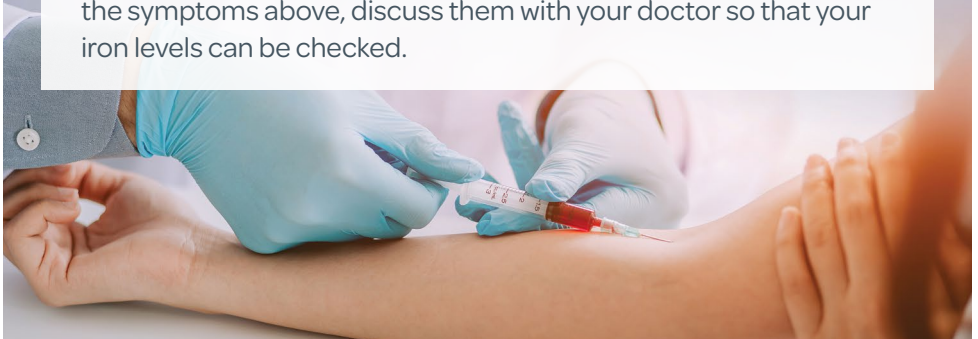
These symptoms can develop for other reasons and you should discuss them with your doctor.

Diagnosing anaemia early is important because it can affect your quality of life. Anaemia can also put extra strain on your other organs, including the heart.

## How is anaemia diagnosed?

Anaemia is diagnosed by blood tests. These will measure your blood count (haemoglobin), iron levels (including ferritin) and levels of vitamin B12 and folate (a type of vitamin B). This can confirm the type and severity of anaemia.

If you are having dialysis, you will be monitored for anaemia regularly. If you are not having dialysis and you experience any of the symptoms above, discuss them with your doctor so that your iron levels can be checked.





## How is anaemia treated?

**Mild anaemia may not need any treatment, particularly if you do not have any symptoms. If you are low on vitamin B12 or folate, your doctor may prescribe you supplements as either tablets or injections.**

For more severe anaemia, the main treatments are iron supplements and, if needed, injections of ESA (also called EPO), a replacement for the erythropoietin hormone that was previously made by your kidneys.

An alternative for some people are HIF-PH inhibitors, such as roxadustat and dapradustat. These tablets boost production of red blood cells and levels of haemoglobin in the blood.

In earlier stages of kidney disease, iron may be given as tablets. However, if you have advanced kidney disease, or if you are receiving dialysis, you are likely to need iron infusions given into a vein (intravenously), rather than iron tablets.

ESA treatment can be injected (at home or in hospital), but for haemodialysis patients, it is often given via the dialysis machine.

You are likely to have regular blood pressure monitoring while on ESA or HIF therapy at either your GP's or in clinic, probably monthly at first until your results are stable and then every 6-12 weeks. You also will need regular blood tests every 2-4 weeks until your dose is stable.

## Are there any side effects of anaemia treatment?

Iron tablets can cause nausea (feeling sick), indigestion, constipation and dark stools (black poo). Iron injections can give you a temporary metallic taste in your mouth, and, rarely, an allergic reaction, which can be serious.

Most people respond well to ESA and HIF inhibitors, but some people can develop high-blood pressure, flu-like symptoms and skin reactions at the injection site (with ESA). People with kidney disease can vary in how well they respond to ESA and frequently require dose adjustments.

The main aim of iron, ESA and HIF treatments is to improve your quality of life by reducing your symptoms.

## What about blood transfusions?

If you have severe anaemia, suffer complications or the treatments described above are not working, then your doctor may recommend a blood transfusion to replace the red blood cells your body cannot produce.

Blood transfusions are avoided, where possible, due to the risk of allergic reactions, iron overload and to reduce the risk of producing antibodies that might limit the donors you could receive a transplant from.



## What can I do to help manage my anaemia?

Changes to diet can sometimes help to prevent anaemia, but always speak to your doctor or dietitian first. **A high iron diet is not recommended for people living with CKD.**

It is important to follow the treatment recommended by your doctor. Store iron supplements or ESA injections as recommended by the manufacturer (some products need to be stored in the fridge, for example).

You should let your doctor or nurse know immediately if you notice any bleeding or if you continue to experience anaemia symptoms.

## Anaemia and CKD

- Anaemia is common, particularly in advanced kidney disease, and affects almost all patients receiving dialysis.
- Anaemia can affect your quality of life and general health, so should be treated where possible.
- Treatment usually consists of iron supplements, ESA injections or HIF inhibitors.
- People respond differently to treatment, often requiring dose adjustments.
- Blood transfusions are rarely used and given only if there is no improvement or a bad reaction to other treatments.

## Where can I find more information?

- NHS Choices - Anaemia:  
[www.nhs.uk/conditions/iron-deficiency-anaemia/](http://www.nhs.uk/conditions/iron-deficiency-anaemia/)
- Kidney Care UK:  
<https://www.kidneycareuk.org/about-kidney-health/conditions/anaemia/managing-anaemia-and-chronic-kidney-disease/>  
[www.kidneycareuk.org/about-kidney-health/treatments/medication/medicines-anaemia-and-mineral-bone-disease/](http://www.kidneycareuk.org/about-kidney-health/treatments/medication/medicines-anaemia-and-mineral-bone-disease/)  
[www.kidneycareuk.org/about-kidney-health/conditions/anaemia/iron-levels-dialysis/](http://www.kidneycareuk.org/about-kidney-health/conditions/anaemia/iron-levels-dialysis/)






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Publication date 09/2023  
Review date 09/2026



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