



# Getting tested for anaemia of chronic kidney disease

Anaemia of CKD & Me is a series of guides for people with chronic kidney disease (CKD). They have been created with patient organisations and a renal anaemia nurse to make sure they cover information that may be important to you. This guide tells you about the different tests which can help to diagnose anaemia, which is a common symptom of CKD. This information can help you talk about anaemia with your doctor or nurse if you want to.

## Tests for anaemia

Anaemia is a condition when the body does not have enough healthy red blood cells to carry oxygen around the body. A blood test shows if you have anaemia. If you have already received an anaemia diagnosis, the same tests may be used to monitor it.

There are some common tests used to diagnose anaemia and figure out what is causing it.



### Haemoglobin (Hb) test

This blood test measures the amount of Hb in your blood. Hb is the part of a red blood cell that carries oxygen around the body.

#### What do the results mean?

If your Hb levels are too low, it means your body isn't making enough Hb. There are two common reasons why this happens for people with CKD – **iron deficiency** or **a low level of a hormone called erythropoietin (EPO)**.

This table shows how anaemia is diagnosed using the Hb test. If your Hb level is below the number in the table, it is likely you will be anaemic. In the table you will see that there are different numbers for 'Hb level for anaemia diagnosis' due to age and sex. The reason why there are different Hb levels for age is because children tend to have lower average Hb levels than adults. The reason why there are different Hb levels for sex is because men tend to have higher Hb levels than women, due to different hormone levels.

Age (years)	Sex	Hb level for anaemia diagnosis (g/dL = grams per decilitre or g/L = grams per litre)
0.5-5	All	Under 11.0 g/dL or 110 g/L
5-11	All	Under 11.5 g/dL or 115 g/L
12-14	All	Under 12.0 g/dL or 120 g/L
Over 15	Male	Under 13.0 g/dL or 130 g/L
Over 15	Female	Under 12.0 g/dL or 120 g/L

This resource has been developed based on insights from an Astellas advisory board with kidney patient organisations. We would like to thank Juan Carlos Julian (European Kidney Patients' Federation), Laurie Cuthbert (Kidney Care UK) and Bintu Bangura (Renal Anaemia Clinical Nurse Specialist) for their role in creating this guide for the patient community.

MAT-UK-NON-2023-00251 | July 2023 © 2023 Astellas Pharma Inc. or its affiliates



Developed by Astellas Pharma Europe Ltd



## Complete blood count (CBC)

This test checks the types and numbers of cells in your blood, including red blood cells, white blood cells and platelets. To diagnose anaemia, the number and size of the red blood cells are important. The test aims to:

- Count the total number of red blood cells
- Determine the number of red blood cells compared to plasma (plasma is the watery part of the blood)
- Work out the average Hb level in the red cells
- Measure the average size of the red blood cells

### What do the results mean?

For people with anaemia of CKD, a CBC test usually shows that you are not making enough new red blood cells, but the cells are a normal size and colour. This can happen because your kidneys are not making enough EPO.

If your red blood cells are an unusual size or colour, it could mean other factors are contributing to anaemia. For example, not having enough of the vitamins and minerals that help make red blood cells.



## Iron status: Ferritin test and Transferrin saturation (TSAT) test

Ferritin and TSAT tests measure how much iron you have stored and how much is available for your body to use. This is your 'iron status'.

### What do the results mean?

If your ferritin and TSAT levels are very low, it can mean that your body does not have enough iron. This is known as 'iron deficiency' and can mean your body can't make Hb or red blood cells. If it isn't treated, iron deficiency can mean some treatments for anaemia of CKD do not work as well.

There is no clear guidance on exactly what ferritin or TSAT levels are considered 'iron deficiency' in anaemia of CKD. This is because there are many factors that influence the scores. But for most people living with CKD:

- A ferritin level of less than 30 micrograms per litre is a sign of severe iron deficiency
- A ferritin level of more than 300 micrograms per litre means you may have a normal amount of iron stored in your body
- A ferritin level of more than 100 micrograms per litre and a TSAT score below 20% means you have functional iron deficiency. Functional iron deficiency means that the body has iron in its stores but is not released or transported to the bone marrow because it is stopped by chronic inflammation.

# How often will I be tested for anaemia of CKD?

If you have CKD, you should get tested if you are showing signs and symptoms of anaemia. If you have CKD and have not been diagnosed with anaemia, it is recommended that you get regular Hb tests to check for anaemia. How often this should happen depends on how severe your CKD is and whether you are receiving dialysis. **Ask your doctor if you are not sure if you have been tested.**

For people living with CKD who do not have anaemia	
Stage of CKD	How often to do Hb testing
Stages 1-2	When needed for medical reasons
Stage 3	At least once a year
Stages 4-5 (non-dialysis-dependent)	At least twice a year
Stage 5 (haemodialysis-dependent or peritoneal dialysis-dependent)	At least every three months

If you have been diagnosed with anaemia your Hb may be tested more regularly. See our 'Managing anaemia of chronic kidney disease' guide for more information on how it is checked.

## Talk to your doctor about your test results

If you do not understand your test results, ask your doctor to explain what they mean.



### Ask your doctor or nurse these questions:

- What do my test results mean?
- Have I got anaemia?
- What are the main signs and symptoms that mean I should get tested for anaemia?
- What is causing my anaemia?
- What can I do to manage my anaemia?
- When is my next blood test to check for anaemia?



### The other guides in the Anaemia of CKD & Me series are:

- About anaemia of chronic kidney disease
- Symptoms of anaemia and chronic kidney disease
- Who anaemia of chronic kidney disease affects
- Managing anaemia of chronic kidney disease
- Anaemia of chronic kidney disease and your body and mind
- Symptoms checker for anaemia and chronic kidney disease

# Word checker

Red blood cells:	One of the types of cells that make up your blood. They carry oxygen from your lungs to the rest of your body.
Haemoglobin (Hb):	A protein found inside red blood cells that allows them to carry oxygen. Your body needs iron to make Hb.
Iron:	Iron is a metal, and in very small amounts it is also an essential mineral your body needs to function. The body gets iron from the food that you eat and by recycling dead red blood cells in your body.
Iron deficiency:	Is when the body isn't getting enough iron to make healthy red blood cells, which leads to anaemia.
Erythropoietin (EPO):	A hormone that your kidneys make that tells your bone marrow to make red blood cells.
Low EPO:	When the body isn't making enough EPO to make enough healthy red blood cells. When your kidneys are damaged they make less EPO, which can lead to anaemia.
Ferritin:	A protein in your body that absorbs and stores iron.
Transferrin:	A protein in your blood that attaches to iron to make it available for your body to use.

For more information visit the Astellas website at:  
[www.astellas.com/eu/patient-focus/patient-partnerships](http://www.astellas.com/eu/patient-focus/patient-partnerships).

Please contact us at [eupatientpartners-sm@astellas.com](mailto:eupatientpartners-sm@astellas.com) if you need this document in an alternative format. References are also available upon request.