People with chronic kidney disease (CKD) are at higher risk for anemia, a condition in which you lack enough healthy red blood cells to carry sufficient oxygen throughout your body.

Anemia of CKD is a specific type of anemia that happens because your kidneys aren’t able to produce enough erythropoietin, which is a hormone responsible for helping your body make healthy red blood cells.

Who Is at Highest Risk?

Risk of anemia of CKD increases with advancing stages of CKD. By Stage 5 CKD, ~7 out of 10 people have anemia.

In addition to CKD stage, other factors that can increase your anemia of CKD risk include:

- Infections.
- Inflammation.
- Iron, B₁₂ or folate deficiencies.

What Are the Symptoms of Anemia of CKD?

If you think you might have anemia based on some of these symptoms, talk to your healthcare provider. Keep in mind that some people with anemia of CKD may not have any symptoms, and your provider may still want to test you for anemia periodically, even if you feel fine.
How Is Anemia of CKD Diagnosed?

Anemia of CKD is usually diagnosed with blood tests, which can check for different signs of anemia.

In addition to the lab work, your health care provider will likely want to do a thorough evaluation, including discussing your medical history and a physical exam.

If the tests indicate that you have anemia, your health care provider may order additional tests to try to determine the cause of your anemia.

How Is Anemia of CKD Treated?

Your health care provider will discuss treatment options with you based on the cause of your anemia. Treatment options include:

- **Optimizing Kidney Function**
  - The better your kidney function is, the less chance you will need alternative treatment for anemia.

- **Treat Infection**
  - Infection in the body can slow the effect of the other anemia treatments.

- **Erythropoiesis-Stimulating Agents, Also Called ESAs**
  - These drugs mimic the hormone erythropoietin and can help your body make more red blood cells.
  - They are given by injections under the skin or intravenously, depending on whether you are already on dialysis. The timing of ESAs and how often it is administered depends on what type of ESA is used and how well your body responds to the treatment.
  - ESAs take time to work, and follow-up lab work and monitoring will be needed to adjust the ESA dosage to stabilize your anemia.

Blood Count Tests, Also Called Complete Blood Counts or CBCs

CBCs test your blood to check the number and size of your red blood cells, as well as the level of hemoglobin, which is necessary for carrying oxygen in the blood.

Iron Tests, Also Called Iron Status Tests

Iron tests evaluate the amount of ferritin, which is the protein that stores iron, and transferrin, which is the protein that carries iron in the blood.

Blood Tests to Check B₁₂ and Folate Levels

Hypoxia-Inducible Factor Prolyl Hydroxylase Inhibitors, Also Known as HIF-PHIs

- This medication is taken orally (by mouth) to help promote erythropoiesis (red cell production).
- This medication was approved by the FDA on February 1, 2023, for adult patients with anemia of CKD who have been on dialysis for at least four months.

Iron

- Iron is important for making red blood cells, and treatment with oral or intravenous iron can help your body make these cells, especially if you are receiving ESAs.

B₁₂/Folate

- If needed, supplemental oral or injectable B₁₂ or folate can be used as well.

Blood Transfusion

- A blood transfusion quickly increases the amount of red blood cells and can improve symptoms of anemia. Transfusions are typically only used to stabilize a person with severe anemia, since the use of other treatments takes time.

Where Can I Learn More?

- Centers for Disease Control and Prevention: CKD Basics: [cdc.gov/kidneydisease/basics.html](cdc.gov/kidneydisease/basics.html)
- National Kidney Foundation: Anemia and Chronic Kidney Disease Stages 1-4: [kidney.org/sites/default/files/docs/anemia.pdf](kidney.org/sites/default/files/docs/anemia.pdf)