ARE YOU AT INCREASED RISK FOR CHRONIC KIDNEY DISEASE?

National Kidney Foundation®

www.kidney.org

National Kidney Foundation's Kidney Disease Outcomes Quality Initiative

Did you know that the National Kidney Foundation's Kidney Disease Outcomes Quality Initiative (NKF-KDOQI™) has guidelines and commentaries that help your doctor and healthcare team make important decisions about your medical treatment? The information in this booklet is based on the NKF-KDOQI recommended guidelines.

Stages of Kidney Disease

There are 5 stages of kidney disease. They are shown in the table below. Your doctor determines your stage of kidney disease based on the presence of kidney damage and your glomerular filtration rate (GFR), which is a measure of your level of kidney function. Your treatment is based on your stage of kidney disease. Speak to your doctor if you have any questions about your stage of kidney disease or your treatment.

STAGES OF KIDNEY DISEASE

Stage	Description	Glomerular Filtration Rate (GFR)*
1	Kidney damage (e.g., protein in the urine) with normal GFR	90 or above
2	Kidney damage with mild decrease in GFR	60 to 89
3a	Moderate decrease in GFR	45 to 59
3b	Moderate decrease in GFR	30 to 44
4	Severe reduction in GFR	15 to 29
5	Kidney failure	Less than 15

*Your GFR number tells your doctor how much kidney function you have. As chronic kidney disease progresses, your GFR number decreases.

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Did you know...?

Having chronic kidney disease (CKD) increases your chance of early death. This is because people with CKD are more likely to get heart and blood vessel disease.

- Heart disease is the number one cause of death among kidney patients.
- 1 in 7 American adults—has kidney disease—and most don't know it. Millions of others are at increased risk for getting CKD and the problems it causes.
- Your doctor should order 2 simple tests to see if you have CKD. High blood pressure and diabetes are the two leading causes of kidney disease.
- Early detection and treatment can slow or prevent the progression of kidney disease, and prevent problems like kidney failure, heart disease, and early death.

This booklet will help you learn what to do about your increased risk of kidney problems.

Why are the kidneys so important to good health?

Your kidneys do these important jobs to keep your body healthy:

- **Remove excess fluid** from your blood to make urine. Your kidneys make about one to two quarts of urine a day.
- **Balance important minerals** in your blood, such as sodium, potassium, phosphorus, and calcium.
- **Remove wastes** from your blood. These wastes come from the breakdown of foods you eat and from normal muscle activity.
- **Remove drugs and toxins** from your body.
- **Release hormones** into your blood, which:
  - control blood pressure
  - make red blood cells
  - keep your bones healthy

What is chronic kidney disease?

Chronic kidney disease (CKD) decreases your kidneys' ability to do the jobs listed on page 5 and keep you healthy. **High blood pressure and diabetes are the two leading causes of kidney disease.** Diabetes occurs when your blood sugar is too high, and harms many organs in your body, including the kidneys, heart, blood vessels, eyes, and nerves. High blood pressure occurs when the pressure of blood against the walls of your blood vessels increases. **If uncontrolled, or poorly controlled, high blood pressure can be a leading cause of CKD, heart attacks, and strokes.** CKD can also cause high blood pressure.

Many other conditions can harm the kidneys. These include:

- **heart and blood vessel disease**
- **glomerulonephritis**, a disease that causes inflammation in the kidneys
- diseases you are born with, like **polycystic kidney disease**, which causes cysts to form in the kidneys

If CKD gets worse, wastes and fluid build up in your blood and make you feel sick. You may get other problems like high blood pressure, anemia, weak bones, poor nutrition, and nerve damage. Anemia means there is a short supply of red blood cells in the body, which can make you feel tired and have little energy.

CKD also increases your risk of worsening heart and blood vessel disease. CKD may progress slowly over a long time. In fact, many people don't even know they have kidney disease until it is very bad. If it is found and treated early, CKD may often be slowed or stopped. If it keeps getting worse, however, it may lead to kidney failure. This means your kidneys no longer work well enough to keep you alive, and you need a treatment like dialysis or a kidney transplant.

How do I know if I am at increased risk for chronic kidney disease?

Your doctor or clinic should check to see if you have any risk factors for CKD. These include:

- diabetes
- high blood pressure
- heart or blood vessel problems
- a family history of kidney failure
- being age 60 or older

CKD is also more common in African Americans, Hispanics, Asians, Pacific Islanders, and American Indians.

Why are African Americans and other ethnic groups at increased risk for chronic kidney disease?

Diabetes, the leading cause of CKD, is more common in these groups. Also, high blood pressure, the second leading cause of CKD, appears more often in African Americans. Many experts think this and other population groups are born with a higher chance of getting these diseases. When combined with other factors, such as being overweight, this may lead to kidney disease. Staying at a normal weight and getting enough exercise are very important for these groups to help prevent diabetes and high blood pressure.

What should I do if I am at increased risk for chronic kidney disease?

You should visit your doctor or clinic and get tested. Your checkup should include:

- **Having your blood pressure checked**.
- **Having a simple test for protein in your urine**. Protein is an important building block in your body. Any protein is that goes through your

kidneys will be reused by your body. But when your kidneys are damaged, protein leaks into your urine. There are different tests to find protein in your urine. If you have two positive tests over several weeks, you are said to have persistent protein in your urine. This is a sign of CKD.

- **Having a simple blood test for creatinine**, a waste product that comes from muscle activity. The results of your blood creatinine test should be used to estimate your glomerular filtration rate, or GFR. Your GFR tells how much kidney function you have. A low level of GFR may mean your kidneys are no longer working as well as they should to remove wastes from your body.

What are the symptoms of chronic kidney disease?

Most people do not have severe symptoms until the disease gets worse. However, you may:

- have less energy
- have trouble thinking clearly
- have a poor appetite
- have trouble sleeping
- have dry, itchy skin
- have muscle cramping at night
- have swollen feet and ankles
- have puffiness around your eyes, especially in the morning
- need to urinate more often, especially at night

What happens if my test results show I may have chronic kidney disease?

Your doctor will try to find the cause of your CKD and will also check your kidney function to help plan your treatment. The doctor may do the following:

- Calculate your **glomerular filtration rate (GFR)**, which is the best way to tell how much kidney function you have. You do not need to have another test to know your GFR. Your doctor can calculate it from your blood creatinine, your age, body size and gender. Your GFR tells your doctor your stage of kidney disease and helps the doctor plan your treatment.

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- Perform an **ultrasound or CT scan** to get a picture of your kidneys and urinary tract. This tells your doctor whether your kidneys are too large or small, whether you have a kidney stone or tumor, and whether there are any problems in the structure of your kidneys and urinary tract.
- Your doctor may ask you to see a kidney doctor who will consult on your case and help manage your care.
- Order a **kidney biopsy**, which is done in some cases to check for a specific type of kidney disease, to see how much kidney damage there is, and to help plan treatment. To do a biopsy, the doctor removes a very small piece of the kidney and looks at it under a microscope.

What should I do if I am at increased risk but I do not have chronic kidney disease yet?

You should visit your doctor or clinic for regular checkups and tests for CKD.

You should also ask your doctor what you can do to lower your chances of getting kidney disease. Your doctor may tell you to:

- Carefully **follow prescribed treatments** to control diabetes, high blood pressure, or both.
- **Lose excess weight** by following a healthy diet and regular exercise program.
- **Stop smoking** if you are a smoker.
- Avoid taking large amounts of over-the-counter **pain relievers**, called NSAIDs (non-steroidal anti-inflammatory drugs).
- Make some **changes in your diet**, such as eating less salt and less protein.
- **Limit your intake** of beer, wine and liquor.

If I have chronic kidney disease, can I keep it from getting worse?

Most likely. Early detection and treatment can often slow or stop CKD. The degree to which your treatment can achieve this goal depends on:

- Your stage of CKD when you start treatment. The earlier you start, the better off you are.
- How carefully you follow your treatment plan. Learn all you can about CKD and treatment for it, and make sure to follow all the steps of your treatment faithfully.
- The cause of your kidney disease. Some kidney diseases are harder to control.

How is chronic kidney disease treated?

The type of treatment depends on your stage of CKD, cause of CKD, and other health problems you may have. Ask your doctor about how to:

- **Control high blood pressure.** You may need to take one or more medications to reach your target blood pressure. Your doctor may prescribe high blood pressure medications called angiotensin converting enzyme (ACE) inhibitors or angiotensin receptor blockers (ARBs). Studies show that these medicines help protect your kidneys. You may also need to lose excess weight and **limit the amount of salt** in your diet to help control high blood pressure.
- **Control blood sugar** if you have diabetes. Studies have shown that strict control of blood sugar may help slow CKD progression.
- **Follow a diet plan** that controls the amount of protein you eat. Your doctor can refer you to a registered dietitian who can help plan your meals, so that you're eating the right foods and amounts to keep you at a healthy weight.

- **Treat anemia**. Drugs called erythropoiesis-stimulating agents (also called ESAs for short) and iron supplements may be used. ESAs help your body make a hormone called erythropoietin (EPO), which your body needs to make red blood cells. Not having enough EPO is the most common cause of anemia in patients with kidney disease. Your body also needs iron to make red blood cells. Without enough iron, your ESA treatment will not work.

- **Prevent mineral and bone disease** by keeping your phosphorus level in balance. Phosphorus is an important mineral in your body. Your kidneys normally remove excess amounts of phosphorus from your blood. When your kidneys are not working well, phosphorus can build up in your blood stream. This leads to calcium loss, which weakens your bones and allows them to break easier. It can also lead to heart disease. To help prevent this, your doctor may tell you to limit the amount of high-phosphorus foods you eat, take a type of medication called a phosphate binder with your meals and snacks, and take a special prescription form of vitamin D.

- **Follow an exercise program** approved by your doctor.
- **Take steps to prevent heart problems**. This may include treating diabetes, high blood pressure and anemia, and lowering your cholesterol level if it is too high.
- **Stop smoking** if you are a smoker. Smoking makes heart and kidney disease worse.
- **Visit your doctor or clinic regularly**. This should include checking your GFR, urine protein, and nutritional health. Ask your doctor about your results and keep track of them (see page 22).

Is there anything else I should know?

Studies show that if you have persistent protein in your urine, you also have an increased chance of having heart problems. **You should speak to your doctor about how to reduce your risk of heart disease**. This may include steps such as:

- controlling diabetes and high blood pressure
- treating anemia

- lowering a high cholesterol level (To do this, you may need to follow a diet and exercise program and possibly take medications to lower cholesterol.)

Depending on your symptoms, your doctor may order more tests to check on your heart.

Key points to remember:

- Some things can increase your risk for CKD. If you have any of the risk factors listed on page 8, make sure to visit your doctor or clinic and get tested. Early detection and treatment can slow or prevent the progression of CKD.
- People who are at increased risk for CKD should have their blood pressure checked. They should also have a simple test for protein in the urine and a blood test for creatinine.
- Persistent protein in the urine (two positive tests over several weeks) is an early sign of CKD. Your doctor will want to know the cause of your CKD and check your kidney function to help plan your treatment.
- The best way to check your kidney function is to estimate your GFR

(glomerular filtration rate). You do not need another test to do this. Your doctor can calculate your GFR from the results of your blood creatinine test and your age, body size and gender.

- If you are at increased risk for CKD, you should ask your doctor how to reduce your chances of getting kidney disease.
- If you have persistent protein in your urine, you may also be at risk for heart disease. Speak to your doctor about how to lower your risk for heart disease.

What other information is available?

If you have questions, speak with your healthcare team. They know you and can answer questions about you.

If you want to read more about kidney disease, the National Kidney Foundation has more than 50 other publications that cover many subjects, such as:

- CKD risk factors like diabetes and high blood pressure
- Complications of chronic kidney disease, such as heart disease, anemia, or bone problems

- Nutrition for CKD patients, with information about carbohydrates, protein, sodium, phosphorus, and potassium
- Treating kidney disease early
- Treating kidney failure with transplantation or dialysis.

For free single copies of brochures, call the NKF Cares Patient Help Line toll free at **855.NKF.CARES** (855.653.2273) or email **nkfcares@kidney.org**

Learn more at **www.kidney.org**

Becoming an educated patient is very important to being healthy!

Know your GFR and other important numbers

Test	Results/Date	Results/Date	Results/Date
GFR			
Urine protein			
Blood pressure			
Blood sugar (glucose)			
Other			

The **National Kidney Foundation** is the leading organization in the U.S. dedicated to the awareness, prevention, and treatment of kidney disease for hundreds of thousands of healthcare professionals, millions of patients and their families, and tens of millions of Americans at risk.

Help fight kidney disease.
Learn more at **www.kidney.org**

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Awareness. Prevention. Treatment.