Chronic Kidney Disease in the United States, 2021

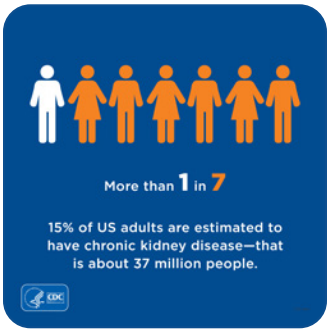
Accessible Version: https://www.cdc.gov/kidneydisease/publications-resources/CKD-national-facts.html

When people develop **chronic kidney disease (CKD)**, their kidneys become damaged and over time may not clean the blood as well as healthy kidneys. If kidneys do not work well, toxic waste and extra fluid accumulate in the body and may lead to high blood pressure, heart disease, stroke, and early death. However, people with CKD and people at risk for CKD can take steps to protect their kidneys with the help of their health care providers.

CKD Is Common Among US Adults

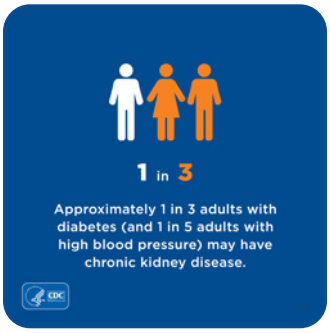
Fast Stats

- More than 1 in 7, that is 15% of US adults or 37 million people, are estimated to have CKD.†
- As many as 9 in 10 adults with CKD **do not know** they have CKD.
- About 2 in 5 adults with severe CKD **do not know** they have CKD.



CKD Risk Factors

Diabetes and high blood pressure are the more common causes of CKD in adults. Other risk factors include heart disease, obesity, a family history of CKD, inherited kidney disorders, past damage to the kidneys, and older age.



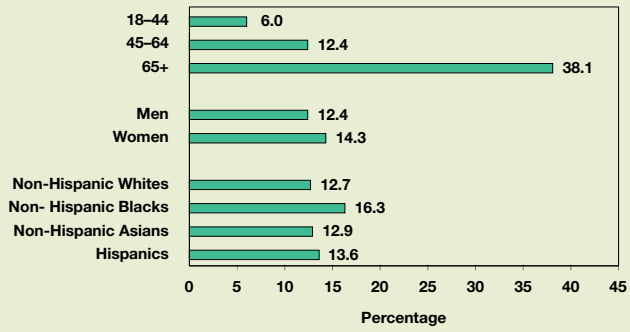
Managing blood sugar and blood pressure can help keep kidneys healthy.

CKD by Age, Sex, and Race/Ethnicity

According to current estimates:†

- CKD is more common in people aged 65 years or older (38%) than in people aged 45–64 years (12%) or 18–44 years (6%).
- CKD is slightly more common in women (14%) than men (12%).
- CKD is more common in non-Hispanic Black adults (16%) than in non-Hispanic White adults (13%) or non-Hispanic Asian adults (13%).
- About 14% of Hispanic adults have CKD.

Percentage of US Adults Aged 18 Years or Older With CKD,† By Age, Sex, and Race/Ethnicity



†CKD stages 1–4 using data from the 2015–2018 National Health and Nutrition Examination Survey and the CKD Epidemiology Collaboration (CKD-EPI) equation. For more details on the methods, see 'How the Estimates Were Calculated.'

†**How the estimates were calculated:** Percentage of CKD stages 1–4 among US adults aged 18 years or older using data from the 2015–2018 National Health and Nutrition Examination Survey and the CKD Epidemiology Collaboration (CKD-EPI) equation. CKD stage 5 (that is, kidney failure) was not included. These estimates were based on a single measure of albuminuria or serum creatinine; they do not account for persistence of albuminuria or levels of creatinine that are higher than normal as indicated by the Kidney Disease Improving Global Outcomes recommendations. Thus, CKD in this report might be overestimated. Estimates by sex and race/ethnicity were age-standardized using the 2000 US census population; the overall percentage is unadjusted. The number of adults with CKD stages 1–4 was estimated by applying the overall percentage to the 2019 US Census population aged 18 years or older. Blood pressure-lowering medications included angiotensin-converting enzyme inhibitors or angiotensin II receptor blockers; diagnosed diabetes was self-reported.

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Centers for Disease Control and Prevention

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Ways to Prevent CKD

- *Manage* risk factors for CKD:
  - High blood pressure.
  - High blood sugar levels.

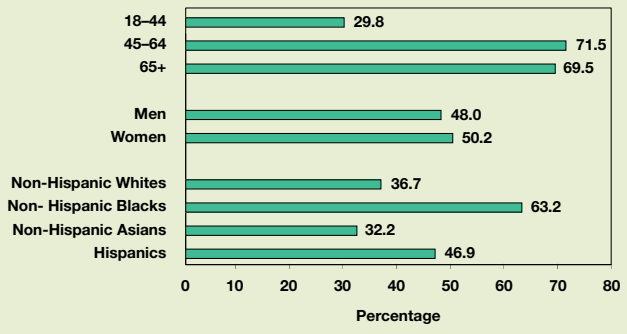
Keeping a healthy body weight through a balanced diet and physical activity may help manage blood pressure and blood sugar levels in people with diabetes or in people at risk of developing type 2 diabetes.

Preventing type 2 diabetes can help prevent CKD and kidney failure.

Treatment to Lower Blood Pressure

- Blood pressure–lowering medications are recommended for people with diabetes and CKD. However, the percentage of adults with CKD and diagnosed diabetes who are prescribed blood pressure–lowering medications is less than ideal.
  - Prescription of blood pressure–lowering medications is higher in people with CKD and diagnosed diabetes aged 45 years or older (about 70%) than in those aged 18–44 years (30%).
  - Prescription of blood pressure–lowering medications is similar in adult women and men with CKD and diagnosed diabetes (about 50%).
  - Prescription of blood pressure–lowering medications is higher in non-Hispanic Black adults with CKD and diagnosed diabetes (63%) than in non-Hispanic White adults (37%) or non-Hispanic Asian adults (32%).
  - About 47% of Hispanic adults with CKD and diagnosed diabetes are prescribed blood pressure–lowering medications.

Percentage of US Adults Aged 18 Years or Older With CKD and Diagnosed Diabetes Who Were Prescribed Blood Pressure–Lowering Medications,† by Age, Sex, and Race/Ethnicity



†Angiotensin-converting enzyme inhibitors or angiotensin II receptor blockers using data from the 2015–2018 National Health and Nutrition Examination Survey. For more details on the methods, see 'How the Estimates Were Calculated.'

Testing and Treatment: Find it Early, Treat it Early

- *Test* for CKD regularly in people who have diabetes, high blood pressure, or other risk factors for CKD. People with CKD may not feel ill or notice any symptoms until CKD is advanced.
- The only way to find out if people have CKD is through simple blood and urine tests. The blood test checks for the level of creatinine, a waste product produced by muscles, to see how well the kidneys work. The urine test checks for protein, which may indicate kidney damage.
- Following a healthy diet and taking medicine for diabetes, medicine for high blood pressure, and other medications to protect the kidneys may keep CKD from getting worse and may prevent other health problems such as heart disease.

CKD-Related Health Problems

As CKD worsens over time, related health problems become more likely. However, CKD-related health problems can improve with treatment.

Heart Disease and Stroke

- Having CKD increases the chances of having heart disease and stroke.
- Managing high blood pressure, blood sugar, and cholesterol levels—all factors that increase the risk for heart disease and stroke—is very important for people with CKD.

Early Death

Adults with CKD are at a higher risk of dying earlier than adults of similar age without CKD.

Health Problems Due to Low Kidney Function

- Anemia or low red blood cell count, which can cause fatigue and weakness.
- Extra fluid in the body, which can cause high blood pressure, swelling in the legs, or shortness of breath.
- A weakened immune system, which make it easier to develop infections.
- Loss of appetite or nausea.
- Decreased sexual response.
- Confusion, problems with memory and thinking, or depression.
- Low calcium levels and high phosphorus levels in the blood, which can cause bone disease and heart disease.
- High potassium levels in the blood, which can cause an irregular or abnormal heartbeat and lead to death.

Kidney Failure

Kidney failure happens when kidney damage is severe and kidney function is very low. Dialysis or a kidney transplant is then needed for survival. Kidney failure treated with dialysis or a kidney transplant is called **end-stage renal disease (ESRD)**. CKD is more likely to lead to kidney failure, especially in older adults, if the kidneys are damaged by the inability to manage risk factors, repeated kidney infections, or drugs or toxins that are harmful to the kidneys. Social factors such as lower income and related factors of food insecurity and poorer access to quality health care are also associated with worsening CKD. However, not everyone with CKD develops kidney failure. If CKD is detected early, treatment may slow the decline in kidney function and delay kidney failure. In some cases, kidney failure develops even with treatment.

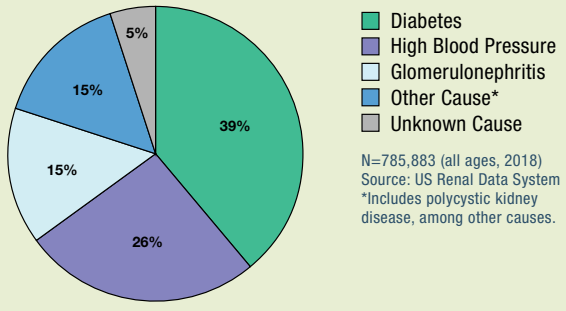
Renal is a medical term meaning "having to do with the kidneys."

Talk to a kidney doctor about treatment options if CKD is severe and kidney function is very low.

Facts About ESRD

- In 2018, about 131,600 people in the United States started treatment for ESRD.
- Nearly 786,000 people in the United States, or 2 in every 1,000 people, are currently living with ESRD: 71% are on dialysis and 29% are living with a kidney transplant.
- For every 2 women who develop ESRD, 3 men develop ESRD.
- For every non-Hispanic White person who develops ESRD, 3 non-Hispanic Black people develop ESRD.
- For every 3 non-Hispanic people who develop ESRD, 4 Hispanic people develop ESRD.
- Among adults aged 18 years or older in the United States, diabetes and high blood pressure are the main causes of ESRD.
- Among children and adolescents younger than 18 years in the United States, polycystic kidney disease and glomerulonephritis (inflammation of the kidneys) are the main causes of ESRD.

Reported Causes of End-Stage Renal Disease in the United States



N=785,883 (all ages, 2018)
Source: US Renal Data System
*Includes polycystic kidney disease, among other causes.

People with CKD Can Lower Their Risk for Kidney Failure

- *Learn* about CKD from a primary care doctor or a kidney doctor (nephrologist) to better understand treatment options and protect the kidneys. People with glomerulonephritis, polycystic kidney disease, or other kidney disease should talk about specific treatment options with a kidney doctor.
- *Monitor and manage* blood sugar and blood pressure.
  - Have blood sugar and blood pressure checked regularly.
  - Use medicines if prescribed to lower blood sugar and blood pressure.
- *Manage* CKD:
  - Make lifestyle changes (e.g., healthy eating, physical activity) to prevent more kidney damage. Meet with a dietitian to create a kidney-healthy eating plan that is low in salt and fat and has the right amount and source of protein. As CKD gets worse, the plan may also include limiting phosphorus and potassium.
  - Use medicines as directed to slow the decline in kidney function.
  - Stop smoking or do not start smoking.
  - Avoid exposures that can harm the kidneys or cause kidney function to suddenly get worse:
    - Certain medicines:
      - Over-the-counter pain medicines like ibuprofen and naproxen, which are also called non-steroidal anti-inflammatory drugs.
      - Some antibiotics.
    - Certain herbal supplements.
    - Excessive alcohol intake.
  - Review with health care providers all prescription and over-the-counter medications to make sure they are safe for the kidneys. Always talk to a doctor before taking any supplements.
  - Check with a doctor about other behaviors or substances that can harm the kidneys or about special precautions to take when doing medical tests or procedures, such as imaging studies or colonoscopies.

People with diabetes, high blood pressure, or CKD need to talk to their doctor about how to protect their kidneys.

Acknowledgments

The following organizations** collaborated in developing and reviewing this fact sheet. Check their websites for CKD online resources for patients or providers:

Centers for Disease Control and Prevention
www.cdc.gov/kidneydisease

Centers for Medicare & Medicaid Services
www.cms.gov

US Department of Defense
www.health.mil

US Department of Veterans Affairs
www.va.gov/health

US Food & Drug Administration
www.fda.gov

Kidney Interagency Coordinating Committee
www.niddk.nih.gov/about-niddk/advisory-coordinating-committees/kuh-icc/kicc

National Heart, Lung, and Blood Institute of the National Institutes of Health
www.nhlbi.nih.gov

National Institute of Diabetes and Digestive and Kidney Diseases of the National Institutes of Health
www.niddk.nih.gov

United States Renal Data System
www.usrds.org

American Association of Kidney Patients
www.aakp.org

American Society of Nephrology
www.asn-online.org

National Kidney Foundation
www.kidney.org

University of California, San Francisco, and University of California, San Francisco Center for Vulnerable Populations
www.ucsf.edu

University of Michigan, Division of Nephrology, Department of Internal Medicine, and University of Michigan Kidney Epidemiology and Cost Center
www.med.umich.edu/intmed/nephrology

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