

INVESTMENT IN RESEARCH SAVES LIVES AND MONEY

Chronic Kidney Disease (CKD)

Chronic kidney disease, also known as CKD, is a progressive condition that results in a gradual loss of kidney function over time. Kidneys work as a filter for our bodies, removing waste products and excess fluid out of our bloodstreams. This process also regulates a person's salt, potassium, and other mineral levels. CKD means that the kidneys can't filter blood the way they should, causing waste to build up and contribute to other health problems, such as high blood pressure, anemia, and increased risk for stroke and heart attack.^{1,2} There are 5 stages of CKD with stage 1 being normal kidney function and stage 5 being kidney failure.³ Early CKD has no signs or symptoms, and many people with CKD are unaware of their condition. In the event of total kidney failure, dialysis or kidney transplant are required.^{1,2} Kidney failure treated with dialysis or a transplant is called end-stage renal disease (ESRD) or end-stage kidney disease (ESKD).⁴

COST⁵

\$114 billion:

Medicare costs for people with all stages of CKD in 2016

\$23,558:

Amount spent by Medicare per person to care for someone with non-ESKD CKD

\$89,000:

Medicare cost per dialysis patient

TODAY

Almost

1 in 3

people with diabetes has CKD.¹

Every 24 hours, about

340 people

in the US begin dialysis treatment for kidney failure.⁴

Over

37 million American adults

may have CKD, and most are undiagnosed.^{2,4}

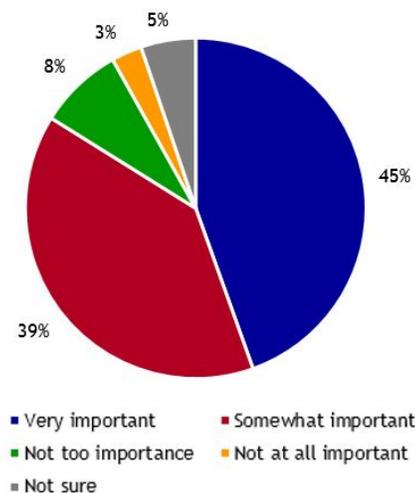
Research Delivers Solutions

A clinical trial examined patients with CKD who have developed **anemia**, a common complication characterized by low hemoglobin, or lack of healthy red blood cells to carry enough oxygen through the body. Researchers tested for the best dosage of erythropoietin (which increases red blood cell production) by studying 1,432 patients treated with high or low dosages of erythropoietin. They found that the group given higher amount of erythropoietin to treat the anemia had more instances of death, heart problems, or stroke than the low dosage group. This led them to conclude that the lower dosage of erythropoietin is better for treatment of anemia in CKD patients.⁶

The more protein waste there is in the blood, the harder the kidneys have to work, causing them to wear out faster.⁷ Researchers have looked into the effects of **low-protein diets, or LPDs**, on patients with CKD. In one study of 122 patients, patients on LPDs had fewer days of hospitalization compared to those on normal diets, and LPDs had the potential to postpone the start of dialysis for six months. This lifestyle change shows promise in slowing progression of the disease in a significantly cost-saving way.⁸

Another study looked at 262,619 patients who were newly diagnosed with **nonalcoholic fatty liver disease (NAFLD)**, a condition where there is buildup of extra fat in the liver cells. The NAFLD patients had a 41% increased chance of developing advanced CKD (stages 3-5) compared to people who did not have NAFLD. The researchers concluded that NAFLD is associated with an increased risk for advanced CKD regardless of age and gender, revealing a connection between the liver and kidneys that can help diagnose more CKD patients.⁹

How important is it for the President and Congress to assign a high priority to ensuring faster medical progress?



Source: A Research!America poll of U.S. adults conducted in partnership with Zogby Analytics in January 2019

Chronic Kidney Disease (CKD)

Then. Now. Imagine.

THEN

The first dialyzer, or artificial kidney, was constructed in 1943 by Dr. Willem Kolff.¹⁰

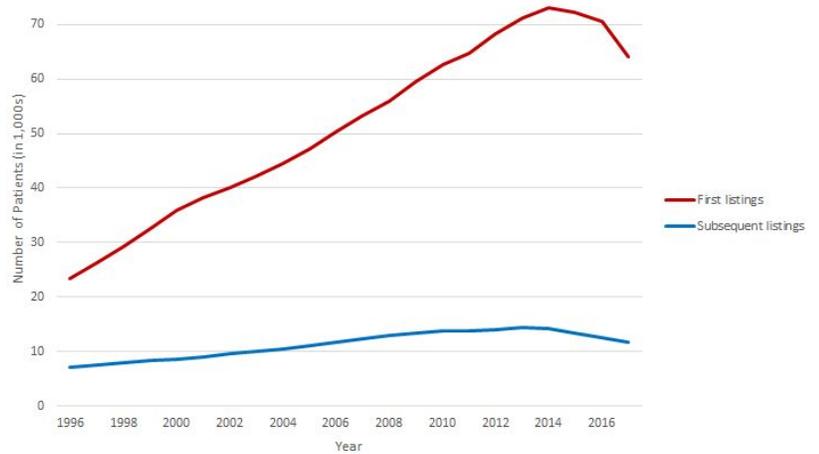
NOW

In 2016, over 500,000 patients received dialysis treatment, and over 200,000 lived with a kidney transplant.⁵

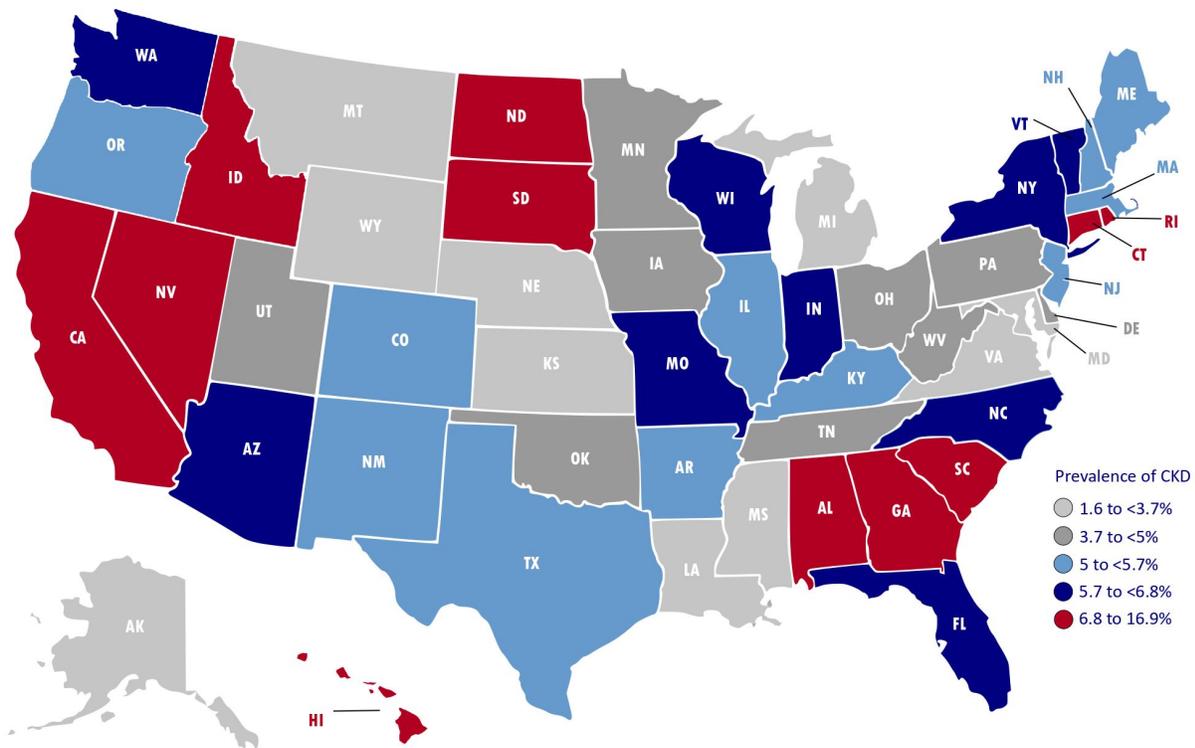
IMAGINE

A cure.

Number of patients wait-listed for a kidney transplant, 1996-2017*



Prevalence of CKD by state, 2016 in patients aged 22 and over*
(Optum Clinformatics™† database)



1. "What is Chronic Kidney Disease?" NIDDK. 2017.
2. "About Chronic Kidney Disease." NKF. n.d.
3. "Kidney Disease Can be Treated." NKF. 2016.
4. "Chronic Kidney Disease Basics." CDC. 2019.
5. "Kidney Disease: The Basics." NKF. N.d.
6. Singh et al. "Correction of anemia with epoetin alfa in chronic kidney disease." *N Engl J Med.* 2006;355:2085-2098.
7. "CKD Diet: How much protein is the right amount?" NKF. n.d.
8. Eyre et al. "Positive effects of protein restriction in patients with chronic kidney disease." *J Renal Nutrition.* 2008;18(3):269-280.
9. Park et al. "Nonalcoholic fatty liver disease increases risk of incident advanced chronic kidney disease: A propensity-matched cohort study." *J Intern Med.* 2019;286(6):711-722.
10. "The History of Dialysis." DaVita. N.d.
11. United States Renal Data System. 2019 USRDS annual data report: Epidemiology of kidney disease in the United States. NIH, NIDDK, Bethesda, MD, 2019.

*The data reported here have been supplied by the United States Renal Data System (USRDS). The interpretation and reporting of these data are the responsibility of the author(s) and in no way should be seen as an official policy or interpretation of the U.S. government.¹¹

† Optum Clinformatics™ is a national database of de-identified patient and provider health information

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