CORRESPONDENCE

# Incidence of Chronic Kidney Disease among Adults with Diabetes, 2015–2020

**TO THE EDITOR:** The prevalence of kidney failure warranting dialysis or transplantation more than doubled between 2000 and 2019 to nearly 800,000 persons in the United States, with diabetes as the leading cause in 47% of those affected.[1,2] The incidence of chronic kidney disease (CKD) among patients with diabetes is unknown, yet such data are vital for identifying high-risk populations, determining the effectiveness of interventions, and assessing the effects on health care delivery and public health responses.

In the current study, we aimed to estimate the incidence of CKD among adults with diabetes documented between 2015 and 2020 in two U.S. health care systems. In the Center for Kidney Disease Research, Education, and Hope (CURE-CKD) registry — an electronic health record–based registry from Providence Health and University of California, Los Angeles Health — 654,459 adults 20 years of age or older with diabetes were identified according to glycated hemoglobin or blood glucose levels, use of glucose-lowering medications, or administrative codes (Fig. S1 and Table S1 in the Supplementary Appendix, available with the full text of this letter at NEJM.org).[3] Incident CKD was identified by at least two positive results on laboratory tests performed at least 90 days apart or by an administrative code; a positive result was a glomerular filtration rate lower than 60 ml per minute per 1.73 $m^2$ of body-surface area (estimated according to the 2021 Chronic Kidney Disease Epidemiology Collaboration creatinine equation), a urinary albumin-to-creatinine ratio (with albumin measured in milligrams and creatinine measured in grams) of 30 or higher, or a urinary protein-to-creatinine ratio (with protein measured in milligrams and creatinine measured in grams) of 150 or higher (Table S2). The overall incidence of CKD was standardized to the 2010 U.S. Census Bureau population according to age, race and ethnic group, and sex, and incidence was stratified according to race and ethnic group and adjusted for age and sex.

The mean (±SD) age of adults with diabetes in our study population was 61±15 years, and 55.2% were women (Table S3). Incidence rate ratios for chronic kidney disease were higher among Native Hawaiian or other Pacific Islander patients than among White patients (1.56; 95% confidence interval [CI], 1.38 to 1.77), as were the incidence rate ratios among Black patients (1.41; 95% CI, 1.33 to 1.50), American Indian or Alaska Native patients (1.33; 95% CI, 1.19 to 1.50), and Hispanic or Latinx patients (1.25; 95% CI, 1.20 to 1.30); however, the rate ratio was lower among Asian patients than among White patients (0.87; 95% CI, 0.82 to 0.92) (Fig. 1). The overall incidence of CKD declined from 81.6 cases per 1000 person-years (95% CI, 78.0 to 85.2) during 2015 and 2016 to 64.0 cases per 1000 person-years (95% CI, 62.2 to 65.9) during 2019 and 2020, and similar trends were seen across demographic subgroups of age, race and ethnic group, and sex (Fig. S2 and Table S4). In a comparison between the CURE-CKD registry and the general U.S. population, the CURE-CKD registry showed higher percentages of Asian or Pacific Islander patients and White patients with

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diabetes and lower percentages of Black patients and Hispanic or Latinx patients with diabetes (Table S5); we speculate that these differences reflect a Western regional population and possible differences in health care access.

Despite a recent decline, the persistently high incidence of CKD in the United States is troubling, given the large increase in the prevalence of diabetes and its accompanying high rates of kidney failure.[1,4] Moreover, among patients with early-stage kidney disease, less than 10% are aware of having CKD at this point in the disease course, when therapies that prevent progression are most effective.[5] Inclusive strategies for prevention, detection, and intervention are needed to reduce the risk of CKD among persons with diabetes.

Our study shows that despite a recent decline, a high incidence of CKD persists in the United States. The incidence was lower among White adults with diabetes than among most other adults with diabetes.

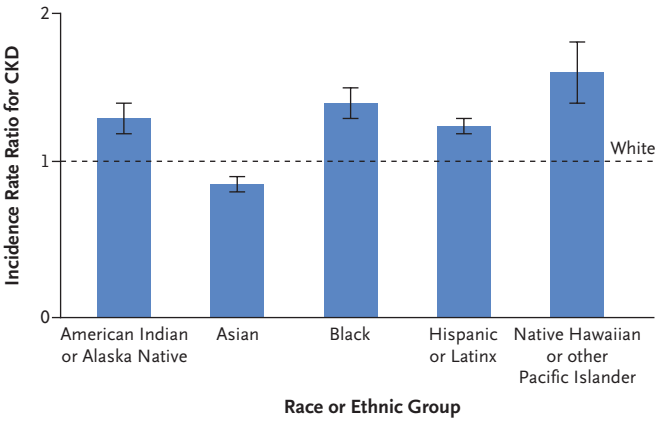


**Figure 1. Incidence Rate Ratios for CKD among Patients with Diabetes.**
Shown are the incidence rate ratios for chronic kidney disease (CKD) among patients with diabetes, stratified according to race and ethnic group, between 2015 and 2020. The dashed line represents the incidence rate ratio among White patients (reference group). The analysis was adjusted for age and sex. I bars indicate 95% confidence intervals.

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Disclosure forms provided by the authors are available with the full text of this letter at NEJM.org.

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# Vaccine-Induced Immune Thrombocytopenia and Thrombosis after the Sputnik V Vaccine

**TO THE EDITOR:** Since February 2021, very rare cases of thrombosis with thrombocytopenia syndrome, later named vaccine-induced immune thrombocytopenia and thrombosis (VITT) have been reported after receipt of the adenoviral-vector vaccines ChAdOx1 nCoV-19 (Oxford–Astra-



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