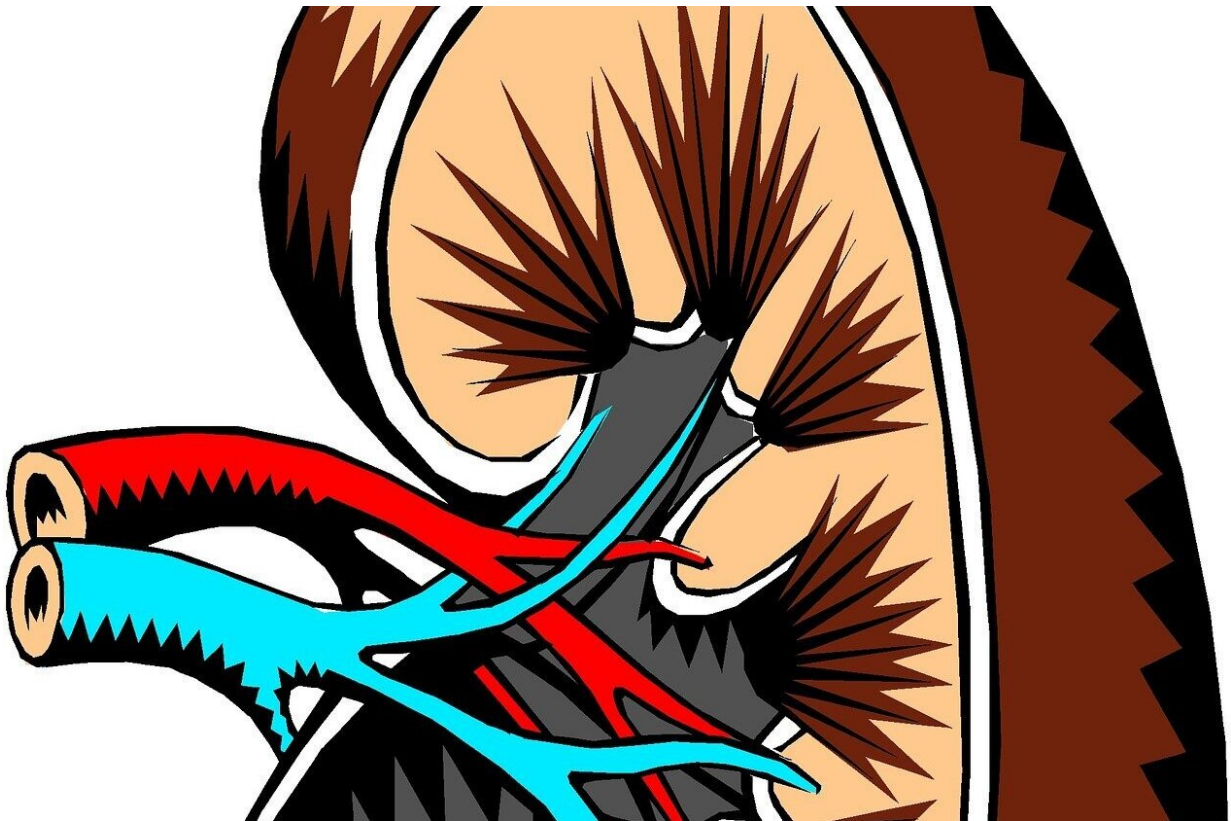


Alternative to using race in kidney function test found

September 23 2021



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Researchers have identified an approach to remove race from equations used to estimate a person's kidney function. These equations have been criticized for potentially perpetuating racial health disparities. The

findings, reported September 23 in the *New England Journal of Medicine*, are expected to inform National Kidney Foundation–American Society of Nephrology Task Force guidelines on evaluating kidney function.

"Our research showed that if you use a blood cystatin C test, instead of a blood creatinine test, you don't need to include [race](#) to get a similarly accurate estimate of [kidney](#) function," said the study's co-senior author, Alan S. Go, MD, a senior research scientist at the Kaiser Permanente Division of Research in Northern California.

Testing for blood creatinine levels is currently the most commonly used way to measure kidney function. Since the 1990s, mathematical equations that include a person's age, sex, and race along with their creatinine level have been used to determine estimated glomerular filtration rate, known as GFR. Race—classified as Black or non-Black—was added because studies showed that, on average, creatinine levels are higher in people who are self-reported Black versus self-reported non-Black, even when kidney function is the same. Over the past year, the [equation](#)'s use of Black race has been used by reporters and activists as a prominent example of possible medical racism.

Cystatin C is a less-widely used test for kidney function. The new study showed that when cystatin C test results were substituted for creatinine test results, race could be taken out of the equation.

"Cystatin C solves the scientific problem of maintaining comparable accuracy and it achieves the social and scientific goal of getting rid of the need to consider race," said the study's co-lead author Chi-yuan Hsu, MD, a nephrologist at the University of California, San Francisco and an adjunct investigator with the Kaiser Permanente Division of Research.

Tests for cystatin C are currently available but are not routinely used

because they are not fully standardized. They also are significantly more expensive. If cystatin C became more reliable and widely used, the cost of the test would likely come down, the researchers said.

The study also found that race could not be removed from the equation currently used to measure GFR. Drs. Go, Hsu, and their fellow Chronic Renal Insufficiency Cohort Study Investigators showed that independent of age, sex, and measured kidney function, Black race was associated with a 10.7% higher serum creatinine level. They also showed that when genetic African ancestry was substituted for race, each 10% increase in genetic African ancestry was associated with a 1.3% higher creatinine result. In other words, the equation that used creatinine was more accurate if Black race or genetic ancestry was included.

"Our results show that race and genetic ancestry are linked to a person's creatinine level, and we can't erase that even if we account for a wide range of other factors, such as [muscle mass](#), dietary protein intake, and other factors that are believed to influence blood [creatinine](#) level independent of [kidney function](#)," said Dr. Go. "We believe that changing to the cystatin C [test](#) will promote more equity for people of all racial and ethnic backgrounds."

More information: Chi-yuan Hsu et al, Race, Genetic Ancestry, and Estimating Kidney Function in CKD, *New England Journal of Medicine* (2021). [DOI: 10.1056/NEJMoa2103753](https://doi.org/10.1056/NEJMoa2103753)

Provided by Kaiser Permanente

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