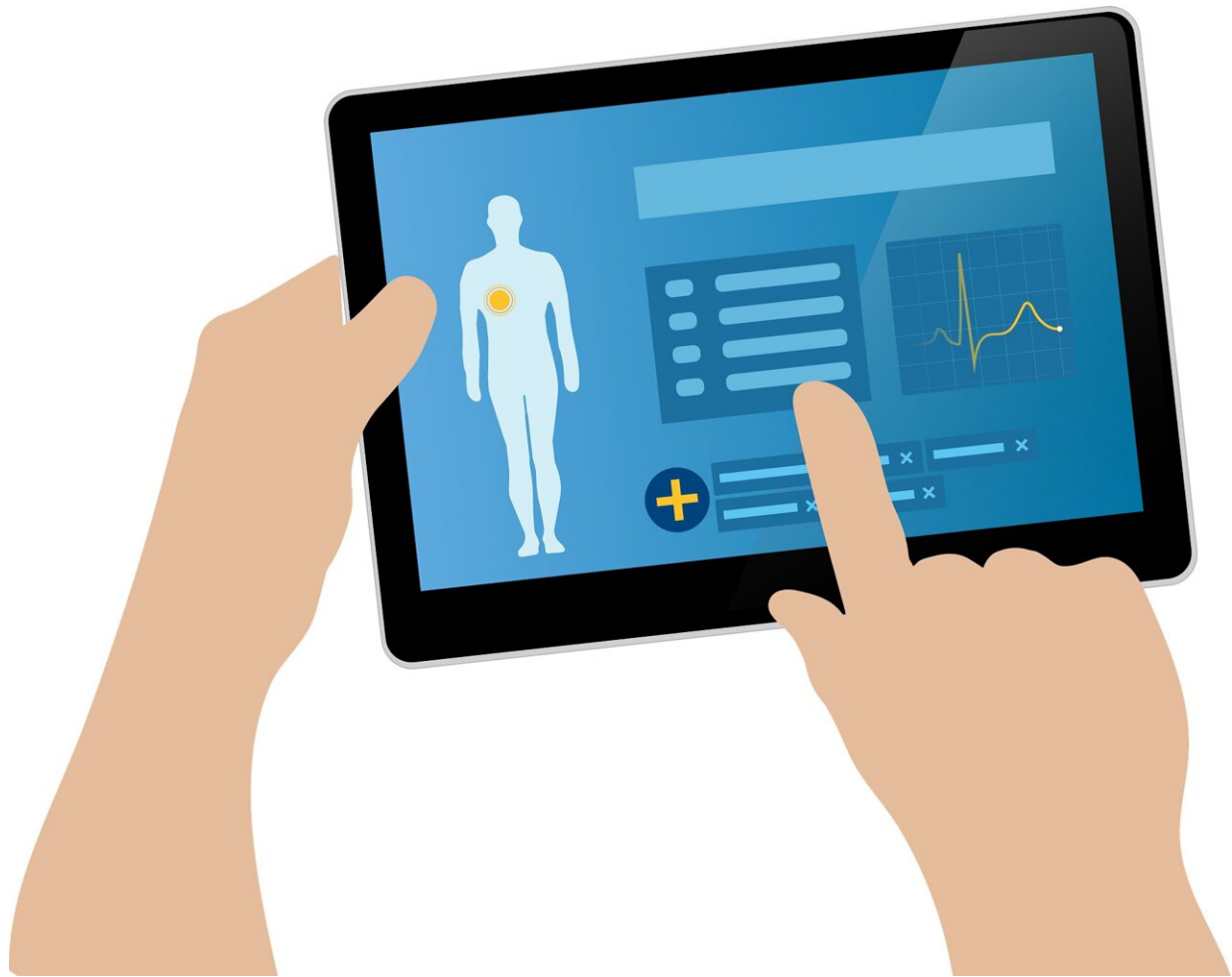


# Race, racism and risk prediction for cardiovascular disease

March 13 2024, by Keith Churchwell and Sadiya S. Khan

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When clinicians are discussing long-term health with a patient, we often find ourselves struggling with how a patient's race may inform their risk for cardiovascular disease, which claims more than 2,500 lives per day in the U.S., and disproportionately affects minoritized groups.

This has occurred for us and other [health care professionals](#) while using an important tool to estimate a patient's 10-year risk for [heart disease](#) and stroke. The tool, called the Pooled Cohort Equations, or PCEs, was built using data from about 25,000 Black and white individuals. The PCEs have different equations for Black people and [white people](#) to account for the higher risk for heart disease and stroke among Black populations.

Recently there have been concerns that different equations for Black and white people may perpetuate harmful stereotypes or lead to inappropriate inferences that race itself has a biologic basis or contributes to disease.

There has also been a growing interest in developing clinical algorithms that are inclusive of and relevant to individuals from all races and ethnicity groups. At the same time, we want to be sure that new assessment tools do not perpetuate inequities in health care or create the inference that racial disparities no longer exist.

In November, the American Heart Association released a [new equation](#) for estimating people's 10- and 30-year risk of heart failure, heart attack and stroke. The need to develop new risk equations was based on growing recognition of adverse cardiovascular-kidney-metabolic (CKM) health in the diverse U.S. population. The Predicting Risk of [cardiovascular disease](#) EVENTS (PREVENT) calculator factors in age, cholesterol, blood pressure, body mass index, diabetes, social determinants of health, smoking and kidney function.

It does not include race as a risk predictor. We understand that many in the [medical community](#) have doubts that removing race from cardiovascular risk assessment is a positive move, especially for Black patients.

During development we had similar concerns that there could be unintended consequences in the accuracy and precision of the calculator by not including race in the models. Since race serves as a proxy for a variety of lived experiences that contribute to differential health outcomes, such as experiences of discrimination and structural racism, we did not want to underpredict risk in a group that is disproportionately affected by heart disease. Decisions about which variables to include in the equations were driven by data and careful assessment.

We found through [testing and validation](#) that the new PREVENT calculator was accurate in people of all races and ethnicities sampled. Other benefits of using PREVENT compared to the PCEs include:

- Kidney and metabolic health measures incorporate health factors that will help prioritize specific health needs and treat the conditions that systemic inequities impact. Black Americans are more likely to have chronic kidney disease and diabetes that contribute to their risk for CVD.
- A ZIP-code based social deprivation index reflects geographic contributors to cardiovascular disease risk. Social determinants of health drive racial disparities in CVD, so including them in risk prediction acknowledges this fact.
- Not including race as a predictor helps to emphasize that race is associated with disease, not a cause of disease.

PREVENT is based on data from two large groups of more than 3 million people each—one group to create the equations and another group for validation. These datasets include people of varied races and

ethnicities and equal numbers of women and men. It is a much better representation of the U.S. population today compared to the data used for the PCEs.

To be clear, a more accurate risk calculator does not eliminate unconscious bias or overt injustices that individuals of certain races and ethnicities experience when seeking health care. There is more work to be done to dismantle structural racism in medicine. As there continue to be waves of anti-diversity laws and policies, we want to emphasize that not including race as a predictor does not erase the deeply entrenched effects of systemic racism that exist in the access to and delivery of health care.

Black people have faced exclusion and disenfranchisement for centuries. Adverse health effects of racism, not race itself, are tied to disease risk. Other minoritized groups, such as Hispanic, American Indian and Asian people, or those experiencing adverse social factors such as unstable housing, face health disparities for the same reasons.

PREVENT is a beginning—a first step in creating more equitable tools in cardiovascular care that incorporate social determinants of health. For scientists who are working on these tools, their efforts are part of broader endeavors to identify and eliminate structural racism in medicine. Risk estimation will evolve as scientists continue to evaluate PREVENT and other clinical equations, and work to better understand the health impact of social and environmental factors.

Do we have better markers or predictors that represent the lived experience of being a person of color in America? Is there a better way to measure social influences on health? And, importantly, does the model work? Does it work well? Is it working equally well no matter how you identify, how much you earn or where you live?

Three research groups have begun work to answer these last three questions. Thanks to a grant to the American Heart Association from the Doris Duke Foundation, they will spend the next year assessing PREVENT among different [race](#), ethnic, geographic and sociodemographic groups using health system data from across the U.S.

Provided by American Heart Association

Citation: Race, racism and risk prediction for cardiovascular disease (2024, March 13) retrieved 27 April 2024 from <https://medicalxpress.com/news/2024-03-racism-cardiovascular-disease.html>

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