

Tools Underestimate Cardiovascular Event Risk in People with HIV

NIH trial reveals need for more accurate screening in Black people and cisgender women.

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The elevated cardiovascular disease risk among people with HIV is even greater than predicted by a standard risk calculator in several groups, including Black people and cisgender women, according to analyses from a large international clinical trial primarily funded by the National Institutes of Health and presented at the 2024 Conference on Retroviruses and Opportunistic Infections (CROI) in Denver. The risk of having a first major cardiovascular event was also higher than previously predicted for people from high-income regions and those whose HIV replication was not suppressed below detectable levels.

Researchers examined the incidence of major adverse cardiovascular events in people who did not take pitavastatin or other statins during the Randomized Trial to Prevent Vascular Events in HIV (REPRIEVE) trial, a large clinical trial to test whether pitavastatin—a cholesterol-lowering drug known to prevent cardiovascular disease—could prevent major adverse cardiovascular events, such as heart attacks and strokes, in people with HIV. The scientists compared the incidence of cardiovascular events in the trial to the incidence predicted by standard estimates, which use the American College of Cardiology and American Heart Association’s Pooled Cohort Risk Equations (PCE) score.

They found that the rate of cardiovascular events occurring in many groups of people differed from predicted rates, even considering that people with HIV have a higher overall risk of cardiovascular disease than people without HIV, including double the risk of major adverse cardiovascular events. Notably, in high-income regions—as defined by the global burden of disease classification system—including North and South America and Europe, cardiovascular event rates were higher overall, with cisgender women experiencing about two and a half times more events than predicted, and Black participants having more than 50% higher event rates than predicted.

A second, related analysis defined risk factors contributing to the occurrence of major adverse cardiovascular events, such as heart attacks and strokes, in people with HIV in the trial. Using an analysis that considers many varying factors at once, the study team assessed risk factors contributing to these events. They found that the risk of experiencing a first major adverse cardiovascular event was higher for people with HIV from high-income regions; older than 50

years; Black; current or former cigarette smokers; with hypertension or a family history of early cardiovascular disease onset; or with a detectable HIV viral load, the amount of HIV in the blood. Viral load is detectable when viral replication is not fully suppressed by HIV antiretroviral therapy.

The REPRIEVE trial was the largest trial to test a strategy for primary prevention of major adverse cardiovascular events in people with HIV, and enrolled 7,769 people with HIV aged 40 to 75 years across five continents. The participant group was diverse with respect to race and gender, and was assessed to be at a low-to-moderate risk of cardiovascular disease using PCE scores. The primary analysis of this trial, [published in 2023](#), showed that people with HIV who took pitavastatin calcium had a [35% lower risk](#) of major adverse cardiovascular events than those taking a placebo. These results led to the February 2024 release of recommendations for the use of statin therapy in people with HIV in the [HHS clinical practice guidelines\(link is external\)](#). As demonstrated by these new analyses, data from the trial continue to address knowledge gaps about cardiovascular health in people with HIV.

The results of these two analyses reveal that while all people with HIV are at an elevated risk of cardiovascular events, the cardiovascular risk for some people may be underestimated by the current standard tools used to measure risk. The authors note that both traditional and HIV-related risk factors are associated with increased risk of cardiovascular disease among people with HIV. They suggest that updated tools are needed to facilitate precision, high-quality care of the diverse population living with HIV. Importantly, these studies underscore the necessity for representative inclusion in clinical trials.

The REPRIEVE trial was primarily supported by the National Institute of Allergy and Infectious Diseases (NIAID) and National Heart, Lung, and Blood Institute (NHLBI), both part of NIH, with additional support from other partners. The trial was conducted at more than 100 sites internationally, including the entire Advancing Clinical Therapeutics Globally for HIV/AIDS and Other Infections (ACTG) network, a global NIH-funded clinical trials network.

On Wednesday, March 6 at 6 p.m. EST, an overview of the REPRIEVE trial, new findings and guidelines updates will be presented at the [CROI symposium](#), “Follow Your Heart: Managing Cardiovascular Disease Risk in HIV.” Additional information about the REPRIEVE trial is available at <https://www.reprievetrial.org>.

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