

New blood pressure guideline could prevent 3 million cardiovascular events over 10 years

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In 2017, the American College of Cardiology and the American Heart Association released new blood pressure guidelines, lowering hypertension threshold to 130/80 mm Hg from the previous 140/90 mm Hg. A new study predicts that achieving and maintaining the 2017 guideline blood pressure goals could prevent more than 3 million cardiovascular disease events over ten years. The results of the study will appear online in the November 19 issue of *Circulation*.

"Treating [high blood pressure](#) is a major public health opportunity to protect health and quality of life for tens of millions of Americans," said the study's lead author Adam Bress, Pharm.D., M.S., assistant professor in Population Health Sciences at University of Utah Health. "Achieving these lower goals will be challenging."

Bress and his team wanted to explore the impact of achieving and maintaining the lower guideline-recommendations on the public compared to earlier blood [pressure](#) and treatment levels, as well as patients' ability to achieve and maintain earlier guideline recommendations.

The team predicted the number of cardiovascular events averted in middle-age adults based on the blood pressure goals of the [2017 blood pressure guidelines](#) (JNC7) guidelines (JNC8) guidelines (140/90 mg Hg for patients younger than 60 and 150/90 mm Hg for patients older than 60).

Their analysis projects 3.3 million fewer cardiovascular disease events after achieving and maintaining the 2017 blood pressure goals compared to current blood pressure levels. They also found that achieving and maintaining the JNC7 and JNC8 recommended blood pressure goals would prevent 2.6 and 1.6 million cardiovascular disease events, respectively.

This study made these predictions using several contemporary, population-based databases. The [NHANES](#) dataset is a national representative survey of the U.S. adult population and provides population sizes of hypertension treatment groups by blood pressure levels and chronic conditions. The [REGARDS](#) database provides a source for the risk of fatal and nonfatal cardiovascular events. A recent meta-analysis of 42 randomized blood pressure-lowering [clinical trials](#), consisting of more than 140,000 participants, provides the risk reduction predictions for cardiovascular events based on achieving and maintaining different blood pressure treatment targets.

The majority of cardiovascular disease events prevented came from those with current blood pressure levels above 140/90 mm Hg. Models assumed that patients achieved and maintained blood pressure goals over the course of the simulation.

Previous studies suggest the initial upfront investment for treating more adults for hypertension leads to health gains and cost savings over the lifetime of treatment. But change does not always come easily.

"A change in longstanding clinical guidelines is disruptive to patients and providers who are accustomed to clinical practice patterns that integrate the earlier guidelines," said Andrew Moran, M.D., M.P.H., associate professor of Medicine at the Columbia University Irving Medical Center and senior author on the paper. "It is important to project and quantify the range of potential benefits and risks expected if we make these

fundamental changes to the way health care providers practice."

Treating more patients to achieve lower blood pressure goals does have risks. Bress notes that medications often come with side effects, which need to be monitored and managed.

"The number of medication-related adverse events was roughly equivalent to the number of cardiovascular disease events prevented," Moran said. "But the adverse events tend to be minor and transient, while the avoided cardiovascular events can lead to serious life time health problems and are sometimes even fatal."

The results are based on a database that is not representative of the diversity in the country, including information for only white and black patients that are at least 45 years old. It also does not directly account for future changes in [blood](#) pressure or changes in antihypertensive medications through time.

"A conversation and shared decision making between provider and patient about benefits and risks of increasing the dose of a medication or adding a new medication to achieve a lower target are important," Bress said. "Benefits to reduce the risk of heart attacks, stroke and heart failure are clear and may often outweigh risk of minor, transient side-effects."

Provided by University of Utah

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