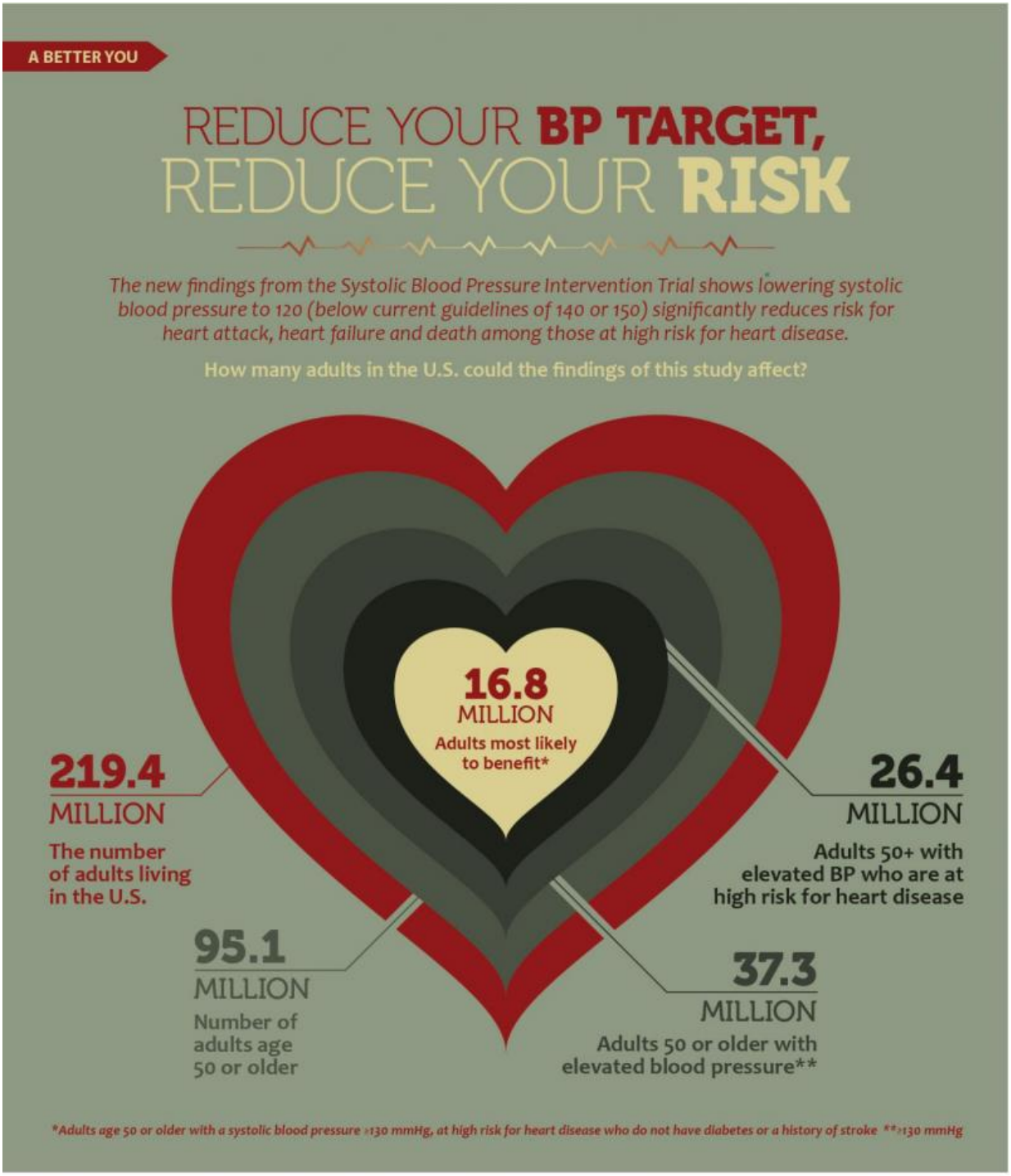
How low to go for blood pressure? Lower target could affect millions of Americans

November 9 2015



Generalizability of results from the Systolic Blood Pressure Intervention Trial (SPRINT) to the US adult population

Journal of the American College of Cardiology online, No. 9, 2015

UNIVERSITY OF UTAH HEALTH CARE
healthfeed.uofuhealth.org

The new findings from the Systolic Blood Pressure Intervention Trial shows lowering systolic blood pressure to 120 (below current guidelines of 140 or 150) significantly reduces risk for heart attack, heart failure and death among those with high risk for heart disease. How many adults in the US could the findings of the study affect? Credit: University of Utah Health Sciences

A new study finds that at least 16.8 million Americans could potentially benefit from lowering their systolic blood pressure (SBP) to 120 mmHg, much lower than current guidelines of 140 or 150 mmHg. The collaborative investigation between the University of Utah, University of Alabama at Birmingham, and Columbia University, will be published Nov. 9 online in the *Journal of the American College of Cardiology (JACC)*.

The scientists calculated the potential impact of preliminary results from the Systolic Blood Pressure Intervention Trial (SPRINT) that will be presented in full at the American Heart Association meeting and published online in the *New England Journal of Medicine*, also on Nov. 9. The initial analysis of SPRINT, reported in Sept., 2015, showed that using antihypertensive medications to reach a lower SBP target of 120 mmHg could greatly reduce risk for heart failure, heart attack, and death, compared to a target of 140 mmHg (SBP is the top number in a blood pressure reading). It's estimated that one in three U.S. adults have high blood pressure, or hypertension, a significant health concern.

"SPRINT could have broad implications," says lead author Adam Bress, Pharm.D., M.S., assistant professor of pharmacotherapy at the University of Utah College of Pharmacy. "Millions of Americans whose blood pressure is under control according to current guidelines may be considered uncontrolled if new guidelines adopt the intensive target of less than 120 mmHg studied in SPRINT."

While new medical guidelines for treating hypertension could be months to years away, this research finds that more than 16.8 million Americans, 7.6 percent of the population, could be recommended for intensive blood pressure management if guidelines incorporate a new, lower, SBP target based on SPRINT results. The number represents Americans who meet the same criteria as SPRINT participants: they are age 50 or older, have an SBP between 130-180 mmHg, are at high risk for cardiovascular disease, and do not have diabetes or a history of stroke, among other inclusion and exclusion criteria.

The current study also reports that new guidelines may affect some segments of the population more than others. Compared to Caucasians, African Americans and Hispanics were less likely to meet SPRINT eligibility criteria (9 percent vs. 4.8 percent, 4.3 percent). The differences are largely due to the fact that these minority populations have a higher prevalence of diabetes and other health conditions that could preclude them from being SPRINT eligible. Men were also more likely to be eligible for SPRINT than women (8.8 percent vs. 6.5 percent), in part because unlike men, women tend not to show increased risk for cardiovascular disease until they are over 65.

However in practice, it's common for physicians to prescribe treatments to patients who may have not been eligible for a clinical trial that demonstrated the efficacy and safety of a particular treatment. For example, some physicians may deviate from SPRINT eligibility by aggressively treating the blood pressure of any adult over 50, even if they do not have a high risk of cardiovascular disease. "Physicians are going to need to decide how far outside the SPRINT inclusion criteria to go," says co-author Rachel Hess, M.D., M.S., also a professor of internal medicine and population health sciences at the University of Utah School of Medicine. "It's going to be a tough decision."

The numbers of Americans meeting each sequential SPRINT eligibility

requirement are:

- 219 million adults
- 95.1 million age 50 or older
- 37.3 million with elevated blood pressure (?130 mmHg)
- 26.4 million at high risk for cardiovascular disease
- 16.8 million with no diabetes, history of stroke, or other SPRINT exclusion criteria

Potential impacts of SPRINT results on the U.S. population were based on analyzing data from the 16,260 participants in the National Health and Nutrition Examination Survey (NHANES) between 2007—2012 who met certain SPRINT inclusion and exclusion criteria. NHANES includes a representative cross-section of the American population, allowing for projection of these findings to the overall population. Most, but not all, SPRINT inclusion and exclusion criteria were accounted for in NHANES. For example information on subclinical cardiovascular disease and a history of medical non-adherence are not represented in the national survey.

New blood pressure guidelines will have to weight potential adverse effects that could overshadow its benefits, and whether increasing blood pressure medications over the course of multiple years is cost-effective. But the numbers obtained in this study offer a glimpse into the potentially wide ranging impact of changing blood pressure guidelines.

"Given that millions of U.S. adults meet SPRINT eligibility criteria, the implementation of SPRINT recommendations could have a profound impact on how blood pressure is treated in this country," says senior author Paul Muntner, Ph.D., a professor of epidemiology at the University of Alabama. "Even more important, is its potential for greatly reducing the incidence of cardiovascular disease."

More information: "Generalizability of results from the Systolic Blood Pressure Intervention Trial (SPRINT) to the US adult population" will be published online in the *Journal of the American College of Cardiologists* on Nov. 9, 2015. content.onlinejacc.org/article.aspx?doi=%2010.1016/j.jacc.2015.10.037

Provided by University of Utah Health Sciences