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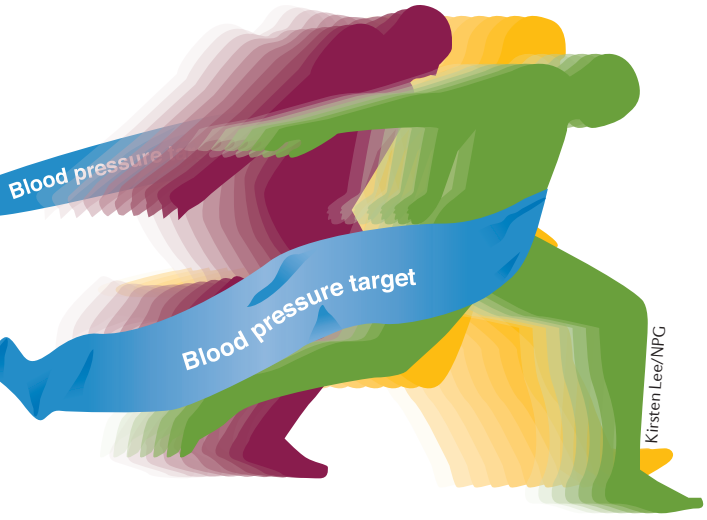
HYPERTENSION

# SPRINTing towards a new target for blood-pressure control

> The results of SPRINT add substantially to the evidence of benefits of lowering systolic blood pressure …

Although isolated systolic hypertension is an independent predictor for coronary disease, stroke, and heart failure, the most appropriate systolic blood pressure (SBP) target for reducing cardiovascular morbidity and mortality has not been defined. The SPRINT Research Group now report that in nondiabetic patients at high risk of cardiovascular events, a SBP target of <120 mmHg, compared with a SBP target of <140 mmHg, decreases the rates of both fatal and nonfatal cardiovascular events. These findings were presented at the AHA Scientific Sessions 2015 in Orlando, Florida, USA and simultaneously published in *The New England Journal of Medicine*.

SPRINT was a randomized, controlled trial conducted at 102 clinical sites across the USA and Puerto Rico. The SPRINT investigators hypothesized that a lower SBP goal would reduce the rate of cardiovascular events more than the current standard goal (<140 mmHg).




Patients enrolled into the trial had SBP of 130–180 mmHg, and were at high risk of cardiovascular events. Patients with diabetes mellitus or previous stroke were excluded from the study. Eligible patients were randomly assigned to a blood-pressure target of <120 mmHg (intensive-treatment group) or <140 mmHg (standard-treatment group). The primary outcome was the composite of myocardial infarction, acute coronary syndrome not resulting in myocardial infarction, stroke, acute decompensated heart failure, or death from a cardiovascular cause.

A total of 4,678 patients were assigned to the intensive-treatment group, and 4,683 patients were assigned to the standard-treatment group. The trial was stopped early, after a median follow-up of 3.26 years. During the follow-up period, the mean SBP in patients undergoing standard antihypertensive treatment was 134.6 mmHg, compared with 121.5 mmHg in patients receiving intensive antihypertensive treatment. A primary outcome event occurred in 243 patients (1.65% per year) in the intensive-treatment group and in 319 patients (2.19% per year) in the standard-treatment group (HR 0.75, 95% CI 0.64–0.89, $P<0.001$). A higher number of deaths from any cause also occurred in the standard-treatment group compared with the intensive-treatment group (155 versus 210, respectively; HR 0.73, 95% CI 0.60–0.90, $P=0.003$). Intensive antihypertensive therapy resulted in a 43% lower relative risk of death from cardiovascular causes compared with standard therapy ($P=0.005$).

"The results of SPRINT add substantially to the evidence of benefits of lowering systolic blood pressure, especially in older patients with hypertension," conclude the SPRINT Research Group. In an accompanying editorial, Vlado Perkovic and Anthony Rodgers note that "the benefits seen in SPRINT are also consistent with those seen in previous trials of more intensive versus less intensive blood-pressure control". Furthermore, they believe that the findings from this study provide a "cautionary reminder about using data from nonrandomized trials of biologic plausibility to assess efficacy and safety" and remind readers that "real-word data, such as J-curve associations, can be really wrong".

The generalizability of results from the SPRINT trial to the adult population in the USA has been assessed in a separate study. Bress and colleagues performed a cross-sectional, population-based study, enrolling nondiabetic patients with a SBP of 130–180 mmHg and at high risk of cardiovascular events. In total, 16.8 million (95% CI 15.7–17.8) adults in the USA, and 8.2 million (95% CI 7.6–8.8) patients with treated hypertension met the eligibility criteria for SPRINT. The study investigators propose that "this large population may be eligible for antihypertensive treatment initiation or intensification based on the results of SPRINT".

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**ORIGINAL ARTICLES** The SPRINT Research Group. A randomized trial of intensive versus standard blood-pressure control. *N. Engl. J. Med.* doi:10.1056/NEJMoa1511939
Bress, A. P. *et al.* Generalizability of results from the Systolic Blood Pressure Intervention Trial (SPRINT) to the US adult population. *J. Am. Coll. Cardiol.* doi:10.1016/j.jacc.2015.10.037