

SPRINT to evidence for specific blood pressure targets

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Clinical question

What is the evidence for blood pressure (BP) targets below 140/90 mm Hg?

Bottom line

Evidence supports systolic BP (SBP) targets below 140 mm Hg for hypertension and subgroups with diabetes (DM) or renal disease. In patients with a 10-year risk of cardiovascular disease (CVD) of 20% or more, targets of about 120 mm Hg (or 125 to 130 mm Hg in office) can be considered. This does not include those with DM or previous stroke, and standing BP should be monitored.

Evidence

Statistically significant outcomes include the following:

- The SPRINT RCT¹ (N=9361, 10-year CVD risk of about 20%) compared target SBP below 140 versus below 120 mm Hg over 3.3 years; groups attained BPs of 136/76 and 121/68 mm Hg, respectively. The relative risk reduction (RRR) was 25% for CVD (NNT=61) and 27% for mortality (NNT=90). Similar benefits were seen for the elderly and other groups. Exclusion criteria were DM, stroke, ejection fraction below 35%, glomerular filtration rate below 20 mL/min, or standing SBP below 110 mm Hg.
- Two systematic reviews (SRs) examined hypertension.^{2,3}
 - In 7 to 19 RCTs (22089 to 44898 patients) over 3.8 years, BP was 4/3 to 7/5 mm Hg lower for intensive versus standard targets. Smaller BP reductions did not reduce CVD.² Larger reductions gave about a 14% RRR for CVD.³ If CVD risk was about 20% over 10 years, the NNT was 36. Some trials did not have intensive target groups.³
 - For DM, in 2 SRs of 5 RCTs (N=7314) over 4.5 years,^{4,5} the SBP RCTs reported BPs of 119/64 versus 135/83 mm Hg and the diastolic BP RCTs reported BPs of 128/76 versus 133/70 mm Hg for intensive versus standard targets.
 - For stroke, RRR was 35% (NNT about 31 over 10 years).
 - There were no differences in death or CVD.
 - Two SRs^{6,7} found minimal stroke reductions for SBP below 140 mm Hg, but at 130 mm Hg or less, there was increased CVD mortality⁷ or serious adverse events.⁸
 - For renal disease, 2 SRs of 3 to 11 RCTs (2272 to 9287 patients)^{8,9} over about 3 years found SBP was about 10 mm Hg lower for intensive versus standard SBP targets.

-There were no differences in mortality or CVD.

-There was an 18% RRR for renal dysfunction (NNT=247).⁹

Context

- For intensive targets,¹ harms were syncope (NNH=91), hypotension (NNH=72), and kidney injury (NNH=56).
- Large SRs show that the absolute benefits of BP reduction are driven by baseline risk.¹⁰
- Canadian¹¹ recommended SBP targets range from 120 to 150 mm Hg.

Implementation

An SBP target of about 120 mm Hg is suggested in SPRINT for those with a 20% or greater 10-year CVD risk. Estimating risk is essential for lipid level and CVD screening.¹² However, SPRINT used automated office BP monitors that read 5 to 10 mm Hg below actual BP. Office targets of 125 to 130 mm Hg might be appropriate. Lower targets do not apply to patients with DM. In SPRINT, diastolic BP was kept above 65 mm Hg and standing SBP was 110 mm Hg or greater.

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Competing interests

None declared

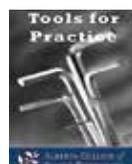
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