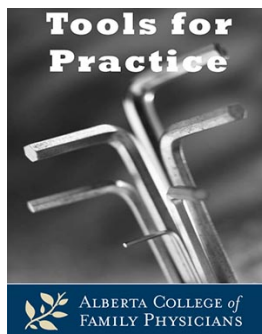


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Reviewed: March 25, 2016
Evidence Updated: Meta-analyses & SPRINT, changes throughout
Bottom Line: Large change
First Published: November 22, 2010



SPRINT don't walk to Evidence for Specific BP Targets?

Clinical Question: What is the evidence for blood pressure (BP) targets lower than 140/90?

Bottom-line: Evidence supports BP targets of <140/90 for general hypertension and diabetic/renal subgroups. However, in patients with cardiovascular disease (CVD) risk $\geq 20\%$ over 10 years, targets ~ 120 can be (carefully) considered. This does not include diabetics or post-stroke and standing BP should be monitored.

Evidence:

- Outcomes Statistically Significant:
 - SPRINT:¹ Randomized Controlled Trial (RCT) of 9,361 patients (CVD risk $\sim 20\%$ over ten years), target <140 versus <120, x3.3 years. Attained BP 136/76 versus 121/68 and average patient on 2.8 versus 1.8 medications.
 - CVD: 25% Relative Risk Reduction (RRR), Number Needed to Treat (NNT)=61.
 - Death: 27% RRR, NNT=90.
 - Similar benefits elderly (age ≥ 75) and other groups (example renal).
 - No diabetics, post-stroke, ejection fraction <35%, GFR <20, or standing BP <110.
 - General Hypertension, three Systematic Reviews (SR).²⁻⁴
 - Seven RCTs (22,089 patients)² x3.8 years: Intense BP 4/3 lower.
 - No statistical differences in outcomes.
 - Nineteen RCTs (44,989 patients) x3.8 years:³ Attained BP 133/76 versus 140/81.
 - Death: No statistical difference.
 - CVD: RRR 14% (if CVD risk $\sim 20\%$ over 10 year, NNT=36).
 - Sixteen RCTs (52,235 patients)⁴ x3.7 years: Intense BP 8/3 lower, "standardized" to 10/5.
 - CVD: 25% RRR (if CVD risk $\sim 20\%$ over 10 years, NNT=28).

- Limits: Some early trials not “intense” (example ≤ 150 systolic versus ≤ 180).^{3,4}
- Type II Diabetes: Two SR of five RCTs (7,314 patients) x4.5 years.^{5,6} BP Systolic target RCTs 119/64 versus 135/83 and diastolic target RCTs 128/76 versus 133/70.
 - Stroke: RRR 35%, NNT ~31 over ten years.
 - Death and other CVD: No statistical difference.
 - Two SR examined attained BP.^{7,8}
 - Benefits for reduction < 140 but ≤ 130 minimal stroke reductions lost against increased CVD mortality⁷ or serious adverse events.⁸
- Renal Disease: Two SR of 3-11 RCTs (2,272-9,287 patients)^{9,10} ~3 years. Systolic BP ~10 lower in intense.
 - Mortality or any CVD: No statistical difference.
 - Prevent worsening renal function:⁹ RRR 18%, NNT=247.

Context:

- Harms (intense versus standard):¹ Hypotension (Number Needed to Harm (NNH)=72), syncope (NNH=91), acute kidney injury (NNH=56).
- Large SR demonstrate absolute benefits of BP reduction are driven largely by baseline risk.^{11,12}
- Guideline¹³ recommended Systolic BP targets vary between 130-150.
- If lower targets used: Advise of potential harms, monitor carefully, check standing BP.

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As this was a full rewrite of the article, a new peer review was conducted by two external reviewers prior to publication.

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