



## Communicating With Patients Around Blood Pressure Risk

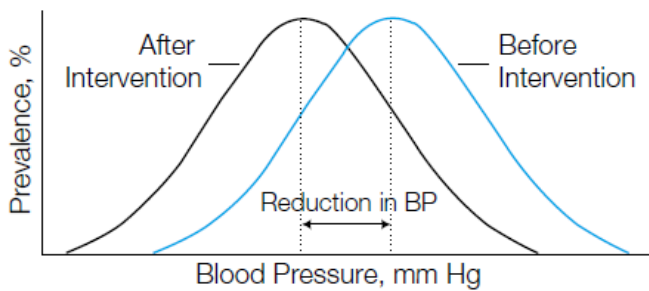
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People often do not recognize the risk elevated blood pressure has on their health. In many instances, this is because there are no symptoms. People often do not understand that even a few mmHg drop in blood pressure can have a significant positive impact on health outcomes. This risk sheet may help providers communicate this important information with patients.

1. Risk begins at blood pressure levels below recommended targets. Based on observational studies this risk begins with blood pressure (BP) > 115/75.
2. Hypertension (HTN) is the single most controllable risk factor for cardiovascular disease (CVD)/cerebrovascular accident (CVA).
3. There is now also compelling evidence that targeting BPs < 130/80 mmHg can substantially reduce the risk of BP-related morbidity compared to targeting higher levels of BP control (< 140/90 mmHg, <150/90 mmHg, or higher levels).
4. A little reduction goes a long way. It takes only small reductions to produce large benefits. As such, blood pressure that is “close”, for example 142/80, should still be addressed. You will also note a graded positive response to cardiovascular outcomes with lower blood pressures. See following charts.

**Figure.** Systolic Blood Pressure Distributions



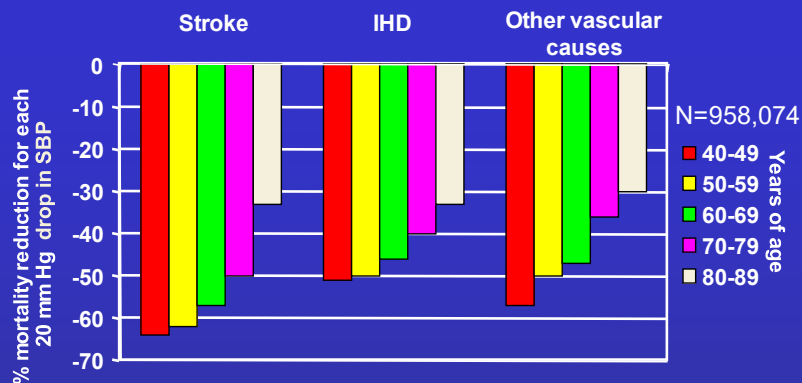
Reduction in BP, mm Hg	% Reduction in Mortality		
	Stroke	CHD	Total
2	-6	-4	-3
3	-8	-5	-4
5	-14	-9	-7

BP indicates blood pressure; CHD, coronary heart disease. Adapted from *Arch Intern Med*,<sup>7</sup> with additional data from Stamler.<sup>16</sup>

Source: Whelton PK, He J, Appel LJ, et al. Primary prevention of hypertension: clinical and public health advisory from The National High Blood Pressure Education Program. *JAMA*. 2002;288(15):1882-1888. doi:10.1001/jama.288.15.1882

Figure 1: Systolic Blood Pressure Distributions

## Lowering of SBP by 20 mm Hg Reduces Cardiovascular Risk by Half



\*Data from a meta-analysis of 1 million adults in 61 prospective studies who had no prior vascular disease. Lewington S et al. *Lancet*. 2002;360:1903-1913.

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Figure 2: Observational Data Relating Relative Risk of CVD and SBP By Age Group

(Note: Relative risk decreases in age group < age 60, though absolute risk (# of events increases dramatically with increasing age). IHD, ischemic heart disease.

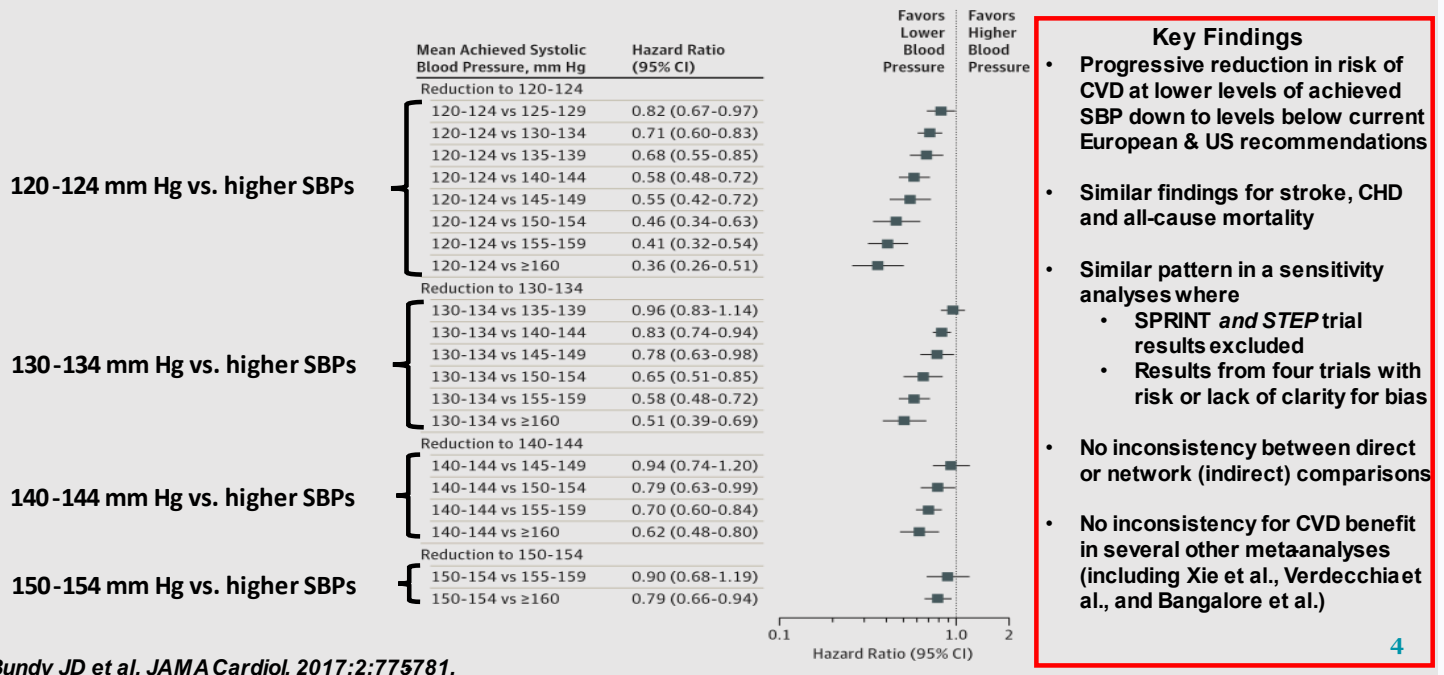
Trial (n)	Achieved SBP	Primary Outcome	Composite CVD	Stroke	Heart Failure	MI	CV Mortality
<b>SBP &lt; 150-160 mmHg vs Higher Target</b>							
SHEP <sup>3</sup> (4,736)	144 vs 155	35%↓**	32%↓	36%↓**	54%↓	20%↓	20%↓
Sys-Eur <sup>4</sup> (4,695)	151 vs 161	42%↓**	31%↓**	42%↓**	29%↓	30%↓	27%↓
HYVET <sup>5</sup> ‡ (3,845)	143 vs 158	30%↓	34%↓	30%↓	64%↓**	28%↓	23%↓
<b>SBP &lt; 140 mmHg vs. &lt; 160 mmHg</b>							
Three clinical outcome trials, JATOS <sup>6</sup> (n = 4,418), VALISH <sup>7</sup> (n = 3,260), and CARDIO-SIS <sup>8</sup> (n = 1,111) were conducted between 2008 and 2010 to assess the safety and tolerability of the < 140/90 mmHg in patients aged 60 and over on cardiovascular outcomes. The number of clinical events collected were adequate to establish safety of the treatment targets but were too small for statistical comparison for benefit							
<b>SBP &lt; 120 mmHg vs. &lt; 140 mmHg</b>							
SPRINT <sup>9</sup> (9,361)	119 vs 136	27%↓**	27%↓**	11%↓	37%↓**	28%↓**	42%↓**
<b>SBP &lt; 130 vs. &lt; 150 mmHg</b>							
STEP <sup>10</sup> (8,511)	128 vs 135	26%↓**	26%↓**	33%↓*	73%↓*	33%↓†	28%↓

**Table 1: Clinical Outcome Trials Comparing SBP targets**

\* p<0.05, \*\* p<0.01; Stopped by DSMB; † includes both MI and acute coronary syndrome; ‡ trial discontinued based on the recommendation of the trial's independent Data Safety and Monitoring Board that benefit of the lower SBP no longer justified continuing the higher SBP target.

### Hazard Ratios (95% CI) for Major Cardiovascular Disease at Different Levels of Achieved Systolic BP

Network Meta-analysis (42 RCTs: N = 144,220)



Bundy JD et al. JAMA Cardiol. 2017;2:775781.

Figure 3: Meta-Analysis Comparing Mean Achieved SBPs in Clinical Outcome Trials

## References

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