

Global Implications of Blood Pressure Thresholds and Targets

Guideline Conversations From the World Hypertension League

Daniel T. Lackland, Lawrence J. Beilin, Norm R.C. Campbell, Marc G. Jaffe, Marcelo Orias, C. Venkata Ram, Michael A. Weber, Xin-Hua Zhang; on behalf of the World Hypertension League

See related article, pp e13–e115

Global high blood pressure control and prevention is a major goal of the World Hypertension League (WHL), which strives to support and promote population strategies for the reduction in risks of hypertension-related outcomes. The implementation of hypertension management protocols and recommendations based on evidence from clinical studies is associated with the risk reduction in stroke, as well as cardiovascular and renal disease.¹ The impact of the structured hypertension guidelines can be seen in the Figure where the risks of elevated blood pressure identified in the 1920s and the benefit of blood pressure reduction from the Veterans Administration studies was associated with declines in population stroke mortality.^{2–5} As evidence in the Table, the decline in stroke mortality coincides with the reduction of population blood pressure pressures which was consistent with the lowered blood pressure thresholds and targets described in the sequential recommendations from the Guidelines.^{6–12}

The current 2017 Guidelines with lower thresholds and blood pressure targets are consistent with the WHL global health goals with a focus on evidence-based risk reduction with the lowering of blood pressure.^{13–15} As infectious and communicable diseases are controlled, hypertension-related outcomes including stroke, heart failure, and kidney disease will become more prevalent. Thus, there is a critical need for the implementation of evidence-based global strategies with proven impact.

Further, recommendations should be broad such that they can be adapted for the specific needs and resources of a target population. The thresholds and targets from the current Guidelines emphasize the importance of blood pressure reductions for the lowering of cardiovascular and stroke risks. This focused population-based risk reduction approach complements the impact of the missions of WHL partners RESOLVE (Resolve to Save Lives Initiative) and the Global Hearts Initiative.^{16,17} The unified message of high blood pressure prevention and control can have a high significant impact. But in order for such programs and interventions to be effective, it must be based on solid evidence that will be convincing for implementation in the clinical and population setting. The Guidelines provide solid evidence for the importance of blood pressure reduction and risk reduction. Further, we note the extensive man-hours and due diligence by the Writing Committee and Evidence Rating Committee in the development of the recommendation of threshold and target blood pressure levels. Realistically, some parts of the new guidelines such as the strong recommendation to use ambulatory or home blood pressure measurements to confirm the clinical diagnosis of hypertension may not be affordable in some major geographic regions of interest to the WHL; and the Guidelines' new aggressive <130/80 mmHg universal treatment target may also be difficult to achieve in some communities. Further, there remains a concern that in the real world of clinical practice lower thresholds for diagnosing hypertension and treatment goals might result in excessive pharmacological treatment in some patients with low overall cardiovascular risk and some elderly patients that may cause side effects.

We emphasize that specific detail for the manner to accomplish hypertension management and prevention is based on the needs, available resources and practice behaviors of a particular population. Appropriately, the Guidelines reinforce the importance of high priority of hypertension control and provide additional options to use and implement for the reduction of blood pressure and hypertension-related risks. Certainly, the Guidelines do not resolve all the high blood pressure treatment, control, and prevention issues and concerns for all global populations. Gaps in knowledge, behavior, and outcomes remain in global hypertension management. And WHL fully supports continued research and study to provide further evidence for resolution, while simultaneously strongly endorsing and implementing the guidelines' focus on blood pressure reduction and management for global risk reduction.

The opinions expressed in this editorial are not necessarily those of the editors or of the American Heart Association.

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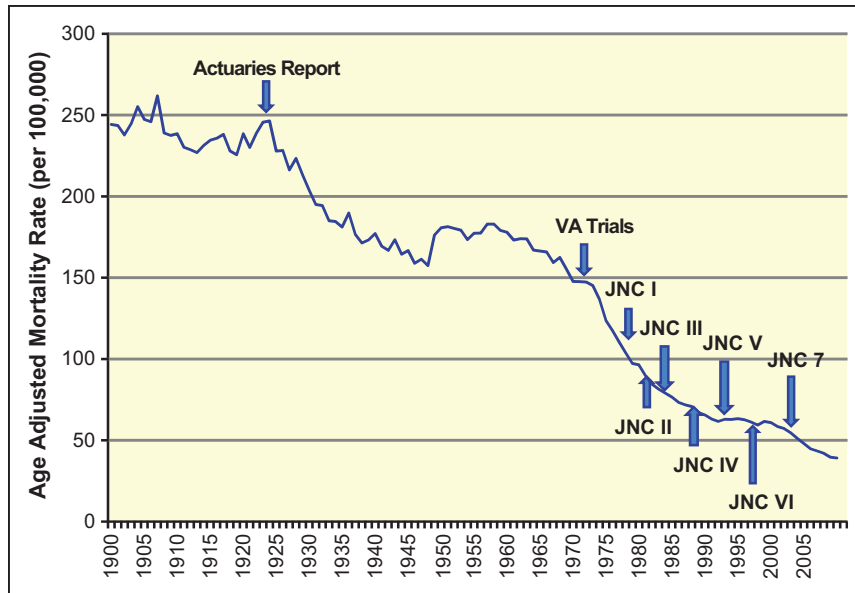


Figure. Age-adjusted stroke mortality rate per 100 000 population for the United States 1900–2005 with blood pressure landmark studies and Joint National Committee (JNC) reports identified. Per 100 000 population standardized to the United States 2000 standard population. Diseases were classified to the International Classification of Disease codes in use at the time the deaths were reported. Data derived from Lackland et al.⁵

Table. Mean and 90th Percentile Systolic Blood Pressure by Time Period and Age Group, United States

Years	18–29 y		30–59 y		60–74 y	
	Median	90th Percentile	Median	90th Percentile	Median	90th Percentile
1960–1962	119 mm Hg	137 mm Hg	127 mm Hg	155 mm Hg	148 mm Hg	188 mm Hg
2001–2008	113 mm Hg	126 mm Hg	118 mm Hg	138 mm Hg	129 mm Hg	156 mm Hg

Data derived from Lackland et al.⁵

Disclosures

N.R.C. Campbell was a paid consultant to the Novartis Foundation (2016–2017) to support their program to improve hypertension control in low- to middle-income countries which includes travel support for site visits and a contract to develop a survey. N.R.C. Campbell has provided paid consultative advice on accurate blood pressure assessment to Midway Corporation (2017) and is an unpaid member of World Action on Salt and Health. M.G. Jaffe is a shareholder and senior physician of The Permanente Medical Group, South San Francisco, CA.

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