

# Updated Guidelines for Management of High Blood Pressure Recommendations, Review, and Responsibility

Howard Bauchner, MD; Phil B. Fontanarosa, MD, MBA; Robert M. Golub, MD

**Hypertension is a common** major risk factor for cardiovascular disease and stroke. It is estimated that in 2010, nearly 78 million US adults (aged  $\geq 20$  years) had high blood pressure, but in approximately 50%, hypertension was not adequately controlled.<sup>1</sup> Most patients with hypertension are treated by primary care physicians; treatment is effective and includes



Editorials



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both lifestyle interventions and relatively inexpensive medications. The importance of detecting and treating hypertension is well-recognized by professional societies and federal agencies.

In their article published in *JAMA*, the panel members appointed to the Eighth Joint National Committee (JNC 8) report their Evidence-Based Guideline for the Management of High Blood Pressure in Adults.<sup>2</sup> This guideline has been long-awaited and much anticipated, with the last revision of the blood pressure guidelines, the JNC 7 report, having been published in *JAMA* in 2003.<sup>3</sup> An update of this decade-old guideline is overdue, considering that about half of the major recommendations in guidelines become outdated in approximately 6 years.<sup>4</sup>

As the panel members describe in the report,<sup>2</sup> the JNC 8 committee was appointed in 2008 by the National Heart, Lung, and Blood Institute (NHLBI) and was charged with reviewing and synthesizing the most recent available scientific evidence, updating existing clinical recommendations, and providing guidance for clinicians on the best approaches to manage and control high blood pressure to minimize the risk of cardiovascular events and other complications. The panel used rigorous evidence-based methods and developed evidence statements and recommendations for blood pressure treatment based on a systematic review of available randomized controlled trials. The panel focused on 3 critical questions that address thresholds and goals for pharmacologic treatment of hypertension: (1) in adults with hypertension, does initiating antihypertensive pharmacologic therapy at specific blood pressure thresholds improve health outcomes? (2) in adults with hypertension, does treatment with antihypertensive pharmacologic therapy to a specified blood pressure goal lead to improvements in health outcomes? and (3) in adults with hypertension, do various antihypertensive drugs or drug classes differ in comparative benefits and harms on specific health outcomes?

In addition to the 9 recommendations and the treatment algorithm based on their systematic review of the evidence and included in their article,<sup>2</sup> the authors also provide the com-

prehensive evidence review and methods in an online supplement. Importantly, despite the care in formulating their evidence-based guideline, **the panel members clearly acknowledge that their recommendations are not a substitute for clinical judgment and emphasize that decisions about care of patients with hypertension must carefully consider and incorporate the clinical characteristics and circumstances of each individual patient.**

The guideline underwent extensive review. But reviewing guidelines is different from reviewing other original research reports. It is very difficult, if not impossible, for any peer reviewer or professional society to review the evidence in the same way that a guideline committee aggregated, analyzed, and synthesized the data. A committee, comprising methodologists, statisticians, and content experts, is required to write a high-quality guideline, so expecting a single individual or a professional society to repeat that process is not practical. So how are guidelines reviewed? In this case, as detailed in the report,<sup>2</sup> the guideline underwent rigorous initial review by numerous experts and relevant organizations, and based on those reviews, was revised prior to being submitted to *JAMA*. At *JAMA* there was broad unanimity among the external peer reviewers and internal editorial reviewers that the guideline was comprehensive, concise, and clear and that it appropriately acknowledged the areas of controversy. The evidence tables and supplemental material were also reviewed and were thought to be comprehensive. In addition, the reviewers were impressed with the diligence with which the committee adhered to the recommendations of the Institute of Medicine for how guidelines should be developed. Following this review, suggestions to improve the guideline were incorporated and inconsistencies were eliminated; the revised guideline is published along with the supporting evidence. In addition, the authors have indicated that they will make the extensive comments from the presubmission guideline review process available to readers on request.

Even though these guidelines are generally based on a rigorous assessment of the available clinical trial evidence for treatment of high blood pressure, some elements of these guidelines may be controversial and most likely will spark discussion. Two other related editorials provide perspectives about these recommendations in the broader context of effect on clinical care and policy. Drs Peterson, Gaziano, and Greenland (the 3 *JAMA* cardiology editors) discuss the clinical and practical implications of the recommendations, including issues surrounding the threshold for blood pressure treatment, and suggest that the recommendations in the hy-

pertension guideline should be harmonized with other cardiovascular risk recommendations into a single coherent prevention strategy.<sup>5</sup> In another editorial, Sox<sup>6</sup> examines whether the hypertension guideline fulfills the Institute of Medicine criteria for quality standards for practice guidelines<sup>7</sup> and is sufficiently trustworthy that clinicians should have confidence in the recommendations. He applauds the process the panel followed and their willingness to make the reviewers' comments and the panel's responses available on request.

Producing guidelines in the United States has become increasingly more complicated and contentious. This likely reflects the strongly held beliefs of many stakeholders, including physicians and patients. For instance, the Infectious Diseases Society of America was embroiled in complicated legal proceedings after producing guidelines for the management of Lyme disease.<sup>8</sup> There was a great deal of reaction from health professionals and the public after the US Preventive Services Task Force released updated recommendations regarding mammography screening in women. Recently, in June 2013, the NHLBI announced its decision to discontinue its participation in the development of clinical guidelines,<sup>9</sup> including the hypertension guideline. (Accordingly, as the authors clearly in-

dicade, "This report is therefore not an NHLBI sanctioned report and does not reflect the views of NHLBI."<sup>2</sup>) Instead, the NHLBI has partnered with and shifted the responsibility for generating guideline products to selected specialty organizations,<sup>9</sup> such as the American College of Cardiology and the American Heart Association, whose recently released guidelines on assessment of cardiovascular risk<sup>10</sup> and treatment of blood cholesterol to reduce atherosclerotic cardiovascular risk<sup>11</sup> have been met with controversy.

Rigorously developed, thoroughly reviewed, evidence-based, trustworthy guidelines are critical to advance clinical medicine and improve health, and biomedical journals have a responsibility to disseminate important guidelines in an objective manner. We are pleased to publish the "2014 Evidence-Based Guideline for the Management of High Blood Pressure in Adults" from the panel members appointed to the Eighth Joint National Committee (JNC 8). We anticipate debate and discussion about the clinical application of these recommendations and the related policy issues. *JAMA* welcomes this responsibility, and indeed, embraces the opportunity to provide evidence-based recommendations to help clinicians improve the care of their patients.

#### ARTICLE INFORMATION

**Author Affiliations:** Dr Bauchner is Editor in Chief, Dr Fontanarosa is Executive Editor, and Dr Golub is Deputy Editor, *JAMA*.

**Corresponding Author:** Phil B. Fontanarosa, MD, MBA, *JAMA*, 330 N Wabash Ave, Chicago, IL 60611 (phil.fontanarosa@jamanetwork.org).

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#### REFERENCES

1. Go AS, Mozaffarian D, Roger VL, et al; American Heart Association Statistics Committee and Stroke Statistics Subcommittee. Heart disease and stroke statistics—2013 update: a report from the American Heart Association. *Circulation*. 2013;127(1):e6-e245.
2. James PA, Oparil S, Carter BL, et al. 2014 evidence-based guideline for the management of high blood pressure in adults: report from the panel members appointed to the Eighth Joint National Committee (JNC 8). *JAMA*. doi:10.1001/JAMA.2013.284427.
3. Chobanian AV, Bakris GL, Black HR, et al; National Heart, Lung, and Blood Institute Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure; National High Blood Pressure Education Program Coordinating Committee. The seventh report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure: the JNC 7 report. *JAMA*. 2003;289(19):2560-2572.
4. Shekelle PG, Ortiz E, Rhodes S, et al. Validity of the Agency for Healthcare Research and Quality clinical practice guidelines: how quickly do guidelines become outdated? *JAMA*. 2001;286(12):1461-1467.
5. Peterson ED, Gaziano JM, Greenland P. Recommendations for treating hypertension: what are the right goals and purpose? *JAMA*. doi:10.1001/jama.2013.284430.
6. Sox HC. Assessing the trustworthiness of the Guideline for Management of High Blood Pressure in Adults. *JAMA*. doi:10.1001/jama.2013.284429.
7. Institute of Medicine. *Clinical Practice Guidelines We Can Trust*. Washington, DC: National Academies Press; 2011.
8. Johnson L, Stricker RB. The Infectious Diseases Society of America Lyme guidelines: a cautionary tale about the development of clinical practice guidelines. *Philos Ethics Humanit Med*. 2010;5:9. doi:10.1186/1747-5341-5-9.
9. Gibbons GH, Shurin SB, Mensah GA, Lauer MS. Refocusing the agenda on cardiovascular guidelines: an announcement from the National Heart, Lung, and Blood Institute. *Circulation*. 2013;128(15):1713-1715. <http://circ.ahajournals.org/content/early/2013/06/18/CIRCULATIONAHA.113.004587.full.pdf>.
10. Goff DC, Lloyd-Jones DM, Bennett G, et al. 2013 ACC/AHA Guideline on the Assessment of Cardiovascular Risk [published online November 12, 2013]. *Circulation*. doi:10.1161/01.cir.0000437741.48606.98.
11. Stone NJ, Robinson JG, Lichtenstein AH, et al. 2013 ACC/AHA Guideline on the Treatment of Blood Cholesterol to Reduce Atherosclerotic Cardiovascular Risk in Adults [published online November 12, 2013]. *Circulation*. doi:10.1161/01.cir.0000437738.63853.7a.