Hypertension

COMMENTARY

# Implementing the 2025 Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: Leveraging Evidence to Push the Boundaries of Clinical Care

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In 2017, the American College of Cardiology (ACC)/American Heart Association (AHA) high blood pressure (BP) guideline lowered the diagnostic threshold for hypertension to ≥130/80 mm Hg.[1] This change instantly reclassified 31 million Americans (14% of the adult population) as having hypertension,[2] making them potentially eligible for lifestyle and pharmacological treatment if considered high risk for cardiovascular disease (CVD) events. Despite this innovative 2017 guideline, the contemporary burden of hypertension in the United States remains high (46%), and hypertension control remains dismal at 23%.[3] By 2060, 162 million US adults are projected to have hypertension.[4]

On this sobering background, along with the accrual of new evidence, the updated 2025 ACC/AHA high BP guideline is most welcome.[5] BP categories remain the same as in 2017 (normal, elevated, stage 1, and stage 2 hypertension), as does the diagnostic BP threshold for hypertension (≥130/80 mm Hg). Initiation of pharmacological BP-lowering therapy is again recommended for all individuals with stage 2 hypertension (BP ≥140/90 mm Hg).

However, significant changes have been made to the management of stage 1 hypertension (BP, 130–139/80–89 mm Hg) compared with the 2017 ACC/AHA guideline. Notably, the Predicting Risk of Cardiovascular Disease Events (PREVENT) equations have replaced the pooled cohort equations for assessing CVD risk.[6] There are several advantages to this approach. The PREVENT equations were derived using contemporary data from over 3 million diverse adults and incorporate additional variables, such as estimated glomerular filtration rate and statin use, to predict not just atherosclerotic CVD but also heart failure. Accordingly, the PREVENT equations are better calibrated with estimates that are more closely aligned with observed events, whereas the pooled cohort equation overestimated risk by 2-fold.[6] With this update, the 10-year CVD risk threshold to define high CVD risk has been reduced from 10% by the pooled cohort equation to ≥7.5% by PREVENT. This threshold corresponds to a Framingham Risk Score of ≥15%, which was the inclusion criterion used in the Systolic Blood Pressure Intervention Trial.[7,8] Therefore, the 2025 ACC/AHA guideline recommends initiating BP-lowering therapy for individuals with stage 1 hypertension and clinical CVD, chronic kidney disease, diabetes, or a PREVENT 10-year total CVD risk of ≥7.5%.

Though both the 2025 ACC/AHA and 2024 European Society of Cardiology guidelines recommend pharmacological treatment for all individuals with BP ≥140/90 mm Hg and for individuals with both BP of 130 to 139/80 to 89 mm Hg and high CVD risk,[9] a difference emerges with regards to management of lower risk individuals with BP of 130 to 139/80 to 89 mm Hg. While lifestyle measures alone are recommended by the 2024 European Society of Cardiology guideline,[9] the





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2025 ACC/AHA guideline has introduced a new class 1 guidance, recommending initiation of BP-lowering medications for low CVD risk adults whose BP remains ≥130/80 mm Hg after 3 to 6 months of lifestyle changes. This will dramatically increase the proportion of US adults eligible for BP-lowering therapy, with approximately three-quarters of those with stage 1 hypertension qualifying for treatment if their BP remains ≥130/80 mm Hg despite lifestyle interventions.[8] Clinicians undoubtedly will be wondering if this is justified. To support this recommendation, the guideline writers cite the PREVER-Prevention trial (Prevention of Hypertension in Patients With Prehypertension) published in 2014,[10] which demonstrated that among individuals without prior CVD and a BP of 120 to 139/80 to 89 mm Hg despite lifestyle intervention, initiation of BP-lowering treatment reduced progression to hypertension by almost 50% and reduced left ventricular mass as estimated by ECG.[10] It is also worth highlighting that a large individual participant data meta-analysis demonstrated that the relative risk reduction in CVD events for a fixed BP reduction is consistent across a wide spectrum of predicted CVD risk (including among low-risk individuals); however, the absolute risk reduction is greater with higher baseline predicted risk.[11] Put simply, even low-risk individuals with stage 1 hypertension will likely derive benefit from BP-lowering treatment with respect to CVD event prevention; however, the net benefits will be much more modest, and the number needed to treat is higher. Ultimately, we think that shared decision-making becomes even more important for medical decision-making in low-risk individuals with stage 1 hypertension. Whether clinicians and patients will embrace this provocative recommendation to initiate pharmacological therapy in low-risk adults with systolic BP of 130 to 139 mm Hg remains to be seen.

Since the publication of the prior guidelines, additional trials including STEP (Strategy of Blood Pressure Intervention in the Elderly Hypertensive Patients),[12] ESPRIT (Effects of Intensive Systolic Blood Pressure Lowering Treatment in Reducing Risk of Vascular Events),[13] and, more recently, BPROAD (Blood Pressure Control Target in Diabetes)[14] have demonstrated benefit of intensive BP control for the prevention of CVD events. In light of these landmark trials, the 2025 ACC/AHA guideline has again recommended a target systolic BP of <130 mm Hg but now with further encouragement to achieve a systolic BP of <120 mm Hg. This is similar but arguably even more intensive to the 2024 European Society of Cardiology guideline, which recommends a systolic BP target of 120 to 129 mm Hg with 120 mm Hg being the optimal target.[9] In light of these recent trials, this more intensive target is justifiable for most patients while also keeping in mind that trial populations can be selective, and close vigilance for treatment tolerance is needed.

Several other updates are noteworthy. Based on the CHAP trial (Chronic Hypertension and Pregnancy),[15] there is a new class 1 recommendation to achieve a BP target of <140/90 mm Hg for pregnant individuals with chronic hypertension. New recommendations regarding screening for primary aldosteronism and around the management of acute intracerebral hemorrhage provide welcome guidance in these arenas. There are other notable similarities to the 2024 European Society of Cardiology guidelines, including a more emphatic endorsement for single-pill combination therapy for the treatment of hypertension and a new class 2b recommendation for renal denervation in patients with uncontrolled hypertension despite optimal treatment or intolerable side effects to medication management.

All in all, the comprehensive new 2025 ACC/AHA hypertension guideline sets the current benchmark for managing hypertension, incorporating the most current and rigorous available evidence. Of note, the ACC/AHA has announced plans to dynamically revise guideline sections after publication to integrate the latest practice-changing evidence. Future updates might provide more clarity on the management of frail adults and those aged >85 years in whom there is little evidence from modern intensive treatment to target trials. Ultimately, however, even the best guidelines can only benefit patients if the scientific evidence is translated into actual changes in clinical practice. It is time to rise to this challenge.



## ARTICLE INFORMATION

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## REFERENCES

1. Whelton PK, Carey RM, Aronow WS, Casey DE, Collins KJ, Dennison Himmelfarb C, DePalma SM, Gidding S, Jamerson KA, Jones DW, et al. 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA guideline for the prevention, detection, evaluation, and management of high blood pressure in adults: a report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *Hypertension*. 2018;71:e13–e115. doi: 10.1161/hyp.0000000000000065
2. Muntner P, Carey RM, Gidding S, Jones DW, Taler SJ, Wright JT Jr, Whelton PK. Potential U.S. population impact of the 2017 ACC/AHA high blood pressure guideline. *J Am Coll Cardiol*. 2018;137:109–118. doi: 10.1161/circulationaha.117.032582
3. Hardy ST, Jaeger BC, Foti K, Ghazi L, Wozniak G, Muntner P. Trends in blood pressure control among US adults with hypertension, 2013-2014 to 2021-2023. *Am J Hypertens*. 2025;38:120–128. doi: 10.1093/ajh/hpae141

4. Mohebi R, Chen C, Ibrahim Nasrien E, McCarthy Cian P, Gaggin Hanna K, Singer Daniel E, Hyle Emily P, Wasfy Jason H, Januzzi James L. Cardiovascular disease projections in the United States based on the 2020 census estimates. *J Am Coll Cardiol*. 2022;80:565–578. doi: 10.1016/j.jacc.2022.05.033
5. Jones DW, Ferdinand KC, Taler SJ, Johnson HM, Shimbo D, Abdalla M, Altieri MM, Bansal N, Bello NA, Bress AP, et al. AHA/ACC/AANP/AAPA/ABC/ACCP/ACPM/AGS/AMA/ASPC/NMA/PCNA/SGIM guideline for the prevention, detection, evaluation, and management of high blood pressure in adults: a report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. *Hypertension*. 2025;82:xxx–xxx. doi: 10.1161/HYP.0000000000000249.
6. Khan SS, Matsushita K, Sang Y, Ballew SH, Grams ME, Surapaneni A, Blaha MJ, Carson AP, Chang AR, Ciemins E, et al; for the Chronic Kidney Disease Prognosis Consortium and the American Heart Association Cardiovascular-Kidney-Metabolic Science Advisory Group. Development and validation of the American Heart Association's PREVENT equations. *Circulation*. 2024;149:430–449. doi: 10.1161/circulationaha.123.067626
7. Wright JT Jr, Williamson JD, Whelton PK, Snyder JK, Sink KM, Rocco MV, Reboussin DM, Rahman M, Oparil S, Lewis CE, et al. A randomized trial of intensive versus standard blood-pressure control. *N Engl J Med*. 2015;373:2103–2116. doi: 10.1056/NEJMoa1511939
8. Muntner P, Jaeger BC, Foti K, Ghazi L, Bundy JD, Chen L, Safford MM. Predicted cardiovascular risk by the PREVENT equations in US adults with stage 1 hypertension. *Hypertension*. 2024;81:1976–1985. doi: 10.1161/hypertensionaha.124.22998
9. McEvoy JW, McCarthy CP, Bruno RM, Brouwers S, Canavan MD, Ceconi C, Christodorescu RM, Daskalopoulou SS, Ferro CJ, Gerdts E, et al. 2024 ESC guidelines for the management of elevated blood pressure and hypertension. *Eur Heart J*. 2024;45:3912–4018. doi: 10.1093/eurheartj/ehae178
10. Fuchs SC, Poli-de-Figueiredo CE, Figueiredo Neto JA, Scala LC, Whelton PK, Mosele F, de Mello RB, Vilela-Martin JF, Moreira LB, Chaves H, et al. Effectiveness of chlorthalidone plus amiloride for the prevention of hypertension: the PREVER-prevention randomized clinical trial. *J Am Heart Assoc*. 2016;5:e004248. doi: 10.1161/jaha.116.004248
11. Blood Pressure Lowering Treatment Trialists' Collaboration. Blood pressure-lowering treatment based on cardiovascular risk: a meta-analysis of individual patient data. *Lancet*. 2014;384:591–598. doi: 10.1016/s0140-6736(14)61212-5
12. Xie S, Huang J, Zhang Y, Cai W, Zhang X. Effect of substrate types on the structure of vertical graphene prepared by plasma-enhanced chemical vapor deposition. *Nanomaterials*. 2021;11:1268. doi: 10.3390/nano11051268
13. Liu J, Li Y, Ge J, Yan X, Zhang H, Zheng X, Lu J, Li X, Gao Y, Lei L, et al. Lowering systolic blood pressure to less than 120 mm Hg versus less than 140 mm Hg in patients with high cardiovascular risk with and without diabetes or previous stroke: an open-label, blinded-outcome, randomised trial. *Lancet*. 2024;404:245–255. doi: 10.1016/S0140-6736(24)01028-6
14. Bi Y, Li M, Liu Y, Li T, Lu J, Duan P, Xu F, Dong Q, Wang A, Wang T, et al. Intensive blood-pressure control in patients with type 2 diabetes. *N Engl J Med*. 2025;392:1155–1167. doi: 10.1056/NEJMoa2412006
15. Tita AT, Szychowski JM, Boggess K, Dugoff L, Sibai B, Lawrence K, Hughes BL, Bell J, Aagaard K, Edwards RK, et al. Treatment for mild chronic hypertension during pregnancy. *N Engl J Med*. 2022;386:1781–1792. doi: 10.1056/NEJMoa2201295