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## 2025 American College of Cardiology/American Heart Association Joint Committee Clinical Practice Guideline Update

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Hypertension is the most common cause of cardiovascular disease (CVD).<sup>1</sup> About 46.7% of the United States population has a diagnosis of, or is receiving therapy for, hypertension. Even with many antihypertensive treatment options, many people are not obtaining goal blood pressure (BP) levels. High blood pressure, defined as levels at or above 130/80 mm Hg, are associated with an increased risk of CVD, kidney disease, coronary heart disease (CHD), heart failure (HF), aortic and peripheral vascular disease, ischemic and hemorrhagic stroke, dementia, and cognitive impairment.<sup>1</sup> Early identification and treatment of hypertension is important to decrease risk of irreversible vascular damage and prevent further damage after treatment is initiated.

New recommendations from the American College of Cardiology (ACC)/American Heart Association (AHA) Joint Committee on Clinical Practice Guidelines replaces recommendations from the previous 2017 publication on the prevention, detection, evaluation and management of high BP in adult patients.<sup>1</sup> Evidence from February 2015 to June 2024 was included. Nineteen recommendations were new or revised and 10 take home messages were emphasized. There were new or updated recommendations for treatment goals and drug therapy in people with diabetes, elevated CVD risk, chronic kidney disease (CKD), mild cognitive impairment and dementia, and pregnancy. This newsletter will focus on guideline recommendations related to drug therapies, including when to initiate therapy and goal BP levels.

### Grading of Recommendations

Recommendations provided by the ACC/AHA were given a Class of Recommendation (COR) and Level of Evidence (LOE) grading (**Table 1**).<sup>1</sup>

**Table 1. Class of Recommendation and Level of Evidence Designation from the ACC/AHA<sup>1</sup>**

Class of Recommendation	
Class 1 (Strong)	Benefit >>> Risk
Class 2a (Moderate)	Benefit >> Risk
Class 2b (Weak)	Benefit > Risk
Class 3: No Benefit (Moderate)	Benefit = Risk
Class 3: Harm (Strong)	Risk > Benefit
Level (Quality) of Evidence	
Level A	High quality evidence from more than 1 RCT or meta-analyses of high-quality RCTs

Level B-R (Randomized)	Moderate quality evidence from RCTs
Level B-NR (Nonrandomized)	Moderate quality evidence from nonrandomized controlled trials
Level C-LD (Limited Data)	Observational or registry data
Level C-EO (Expert Opinion)	Consensus data
Abbreviation: RCT = randomized controlled trial	

### Risk Estimation

The ACC/AHA recommends the PREVENT (Predicting Risk of CVD EVENTS) equation for estimation of 10-year risk for total CVD for adults with hypertension without clinical CVD.<sup>1</sup> PREVENT estimates risk for total CVD (myocardial infarction [MI], stroke, and heart failure [HF]) and recommends that antihypertensives be initiated in patients that have a 10-year CVD risk at or above 7.5%. The risk calculator is available online at: <https://professional.heart.org/en/guidelines-and-statements/prevent-risk-calculator/prevent-calculator>.

### Lifestyle Modifications for Blood Pressure

Lifestyle modifications are recommended to help lower blood pressure and reduce stress. Systolic blood pressure can decrease from 5 to 10 mm Hg, depending on the lifestyle modification. Interventions that are suggested are:

- ❖ Weight loss
- ❖ Heart healthy diet (DASH diet)
- ❖ Reduced sodium intake
- ❖ Use of salt substitute
- ❖ Enhanced intake of potassium
- ❖ Reduced alcohol intake
- ❖ Exercise
- ❖ Meditation
- ❖ Breathing control

### Thresholds for Initiating Antihypertensive Therapy

BP treatment thresholds to guide medication initiation are outlined in **Table 2**.<sup>1</sup> For all patients and all stages of hypertension, lifestyle modifications to lower blood pressure is recommended.

**Table 2. Recommendations for Medication Treatment based on Blood Pressure Thresholds<sup>1</sup>**

BP Level	Population	Recommendation
Normal BP ( <b>&lt;120/80 mm Hg</b> )		Reassess in 1 year
Elevated BP ( <b>120-129/&lt;80 mm Hg</b> )		Reassess in 3-6 months
Stage 1 HTN ( <b>130-39/80-89 mm Hg</b> )	DM, CKD, or 10-year CVD risk $\geq 7.5\%^*$	Antihypertensive medication
	No DM or CKD, and 10-year CVD risk $< 7.5\%^*$	Reassess in 3-6 months
Stage 2 HTN ( <b><math>\geq 140/ \geq 90</math> mm Hg</b> )	Antihypertensive medication	
Key: * Risk of CVD based on PREVENT risk $\geq 7.5\%$ Abbreviations: BP = blood pressure; CKD = chronic kidney disease; CVD = cardiovascular disease; DM = diabetes; HTN = hypertension; PREVENT = Predicting Risk of CVD EVENTS		

Strong recommendations for use of antihypertensives are based on high-quality supporting evidence for the reduction of CVD events and total mortality.<sup>1</sup> The following recommendations are designated as COR Level 1 and LOE A:

- In adults, medications should be initiated when average systolic blood pressure (SBP) is  $\geq 140$  mm Hg and/or the diastolic blood pressure (DBP) is  $\geq 90$  mm Hg.
- In adults with an average SBP  $\geq 130$  mm Hg, initiation of antihypertensive medications is recommended for people with:
  - o clinical CVD
  - o diabetes
  - o chronic kidney disease (CKD)
  - o increased short-term risk of CVD (i.e., risk of 10-year CVD  $\geq 7.5\%$  based on PREVENT) but without clinical CVD.

Medication to lower blood pressure is recommended in adults with DBP  $\geq 80$  mm Hg based on COR 1 and LOE C-LD for people with clinical CVD, diabetes, CKD, or with 10-year CVD risk  $\geq 7.5\%$  based on PREVENT.<sup>1</sup>

In adult patients with type 2 diabetes (T2D) and hypertension, therapy should be initiated at SBP  $\geq 130$  mm Hg with a target of  $< 130$  mm Hg and less than 120 mm Hg if possible (COR 1; LOE A).<sup>1</sup> Those with T2D and hypertension and a DBP  $\geq 80$  mm Hg should receive treatment with a goal of  $< 80$  mm Hg (COR 1; LOE C-LD).<sup>1</sup> All first-line therapies are an effective choice for patients that also have T2D. In those with hypertension, T2D and CKD (estimated glomerular filtration rate [eGFR]  $< 60$  mL/min/1.73 m<sup>2</sup> or albuminuria  $\geq 30$  mg/g), an ACEi or ARB should be considered to prevent progression of diabetes related kidney disease (COR 1; LOE A).<sup>1</sup>

## Antihypertensive Therapy Selection

Initial antihypertensive therapies should be based on patient comorbidities, such as presence of CAD, HF, stroke, diabetes and/or CKD. First-line antihypertensive classes recommended are: thiazide-type diuretics, long-acting dihydropyridine calcium channel blockers (CCB) and angiotensin-converting enzyme inhibitor (ACEi) or angiotensin receptor blockers (ARBs).<sup>1</sup> All first-line treatments have high-quality evidence for BP lowering, CVD prevention and tolerability.<sup>1</sup> Preferred medications for fee-for-service (FFS) members are outlined in **Figure 1**.<sup>2</sup>

In adult patients with stage 2 hypertension (SBP  $> 140$  mm Hg or DBP  $> 90$  mm Hg), starting treatment with 2 first-line therapies from different classes is recommended to improve BP (COR 1; LOE B-R).<sup>1</sup> Therapies combined in a single-pill is suggested to improve adherence and observational data suggests reduced CV events and all-cause deaths when compared to an equivalent multiple-pill combination. Current FDA approved combinations are: ACEi or ARB + thiazide-type diuretic, ACEi or ARB + CCB, potassium-sparing diuretic + thiazide-type diuretic, mineralocorticoid receptor antagonist (MRA) + thiazide-type diuretic, and ARB + CCB + thiazide-type diuretic.<sup>1</sup> Antihypertensive single pill combinations that are preferred for FFS members are outlined in **Figure 2**.<sup>2</sup>

## Specific Recommendations Pertaining to Medication Use or Avoidance

Simultaneous use of an ACEi, ARB and/or renin inhibitor in combination is not recommended due to harm (i.e., CVD, kidney disease and hyperkalemia).<sup>1</sup> Non-dihydropyridine CCBs should not be used in patients with HF with reduced ejection fraction (HFrEF). Beta-blockers should not be used first-line unless the patient has coronary heart disease (CHD) or HF. Non-selective beta blockers should be avoided in patients with reactive airway disease. Aliskiren should not be used in combination with ACEi or ARB. Central alpha-2-agonists and other centrally acting antihypertensives are not recommended due to adverse central nervous system (CNS) effects.

In patients with HF or moderate-to-severe CKD loop diuretics are the preferred diuretic choice. Metoprolol succinate and bisoprolol are preferred in patients with HFrEF. The combined alpha and beta blocker, carvedilol, is preferred in patients with HFrEF. Consider using alpha-1 blockers as second-line agents in patients with symptomatic benign prostatic hypertrophy. Aprocritentan is a dual endothelin receptor antagonist that should be reserved for add-on therapy when patients have uncontrolled blood pressure on other therapies due to risk of mild-to-moderate fluid retention with aprocritentan use.

**Figure 1. Recommended First-Line Antihypertensives that are on the Preferred Drug List for FFS Members<sup>2</sup>**

<u>Thiazide-Type Diuretics</u> : hydrochlorothiazide and indapamide
<u>Long-Acting Dihydropyridine CCBs</u> : amlodipine, nifedipine, and nifedipine extended release
<u>ACE Inhibitors</u> : benazepril, enalapril, fosinopril, lisinopril, quinapril, and ramipril
<u>ARBs</u> : candesartan, irbesartan, losartan, olmesartan, telmisartan, and valsartan

**Figure 2. Combination Antihypertensive that are on the Preferred Drug List for FFS Members<sup>2</sup>**

- Amlodipine/Olmesartan
- Benazepril/HCTZ
- Enalapril/HCTZ
- Lisinopril/HCTZ
- Losartan/HCTZ
- Olmesartan/HCTZ
- Olmesartan/amlodipine/HCTZ
- Telmisartan/HCTZ
Abbreviation: HCTZ - hydrochlorothiazide

### Hypertension and Pregnancy

Women with hypertension that are pregnant or planning on becoming pregnant should be on antihypertensives to minimize fetal risk. Labetalol and extended-release nifedipine are recommended as options (COR 1; LOE A).<sup>1</sup> Atenolol, ACEi, ARB, direct renin-inhibitors, nitroprusside, or MRA should be avoided as they may cause fetal harm.<sup>1</sup> Higher BP goals are recommended to prevent fetal risk if BP is too low (**Table 3**).

### Monitoring and Follow-up

In patients that have normal blood pressure measurements, yearly reassessment is recommended.<sup>1</sup> Patients with elevated blood pressure or Stage 1 hypertension without comorbidities or CVD risk should be seen for follow-up in 3-6 months. BP should reassessed 1 month after initiating antihypertensive medication and in 3-6 months if goal BP are met.<sup>1</sup> For most patients except people who are pregnant, the recommended goal blood pressure is < 130/80 mm Hg (**Table 3**).<sup>1</sup>

**Table 3. ACC/AHA Goal Blood Pressure Recommendations for Adults with Hypertension<sup>1</sup>**

Indication	Recommendation	Evidence
HTN	SBP < 130 mm Hg DBP < 80 mm Hg	COR: 2b LOE: B-NR
HTN and increased risk of CVD	SBP < 130 mm Hg	COR: 1 LOE: A
	DBP < 80 mm Hg	COR: 1 LOEL B-R
HTN and T2D	<130 mm Hg SBP	COR: 1 LOE: A
	< 80 mm Hg DBP	COR 1 LOE: C-LD
HTN and Prevention of HF	SBP < 130 mm HG DPB < 80 mm Hg	COR: 1 LOE: B-R
HTN and CKD	SBP < 130 mm Hg	COR: 1 LOE: A
HTN and secondary stroke prevention	SBP < 130 mm Hg DBP < 80 mm Hg	COR: 1 LOE: B-R
HTN and mild cognitive impairment	SBP < 130 mm Hg	COR: 1 LOE: A
HTN and pregnancy	SBP < 140 mm Hg DBP < 90 mm Hg	COR: 1 LOE: B-R

### Conclusions

There is conclusive evidence that obtainment of BP levels to target goals helps to reduce risk of CVD and events in those with established disease. There are many proven antihypertensives available to assist patients in meeting their blood pressure goals. Patients may require multiple antihypertensives and regular reassessment to obtain target blood pressures. The use of first-line therapies should be maximized to reduce the risk of CVD and mortality.

*Peer Reviewers: John MacKay, PharmD, BCPS, Clinical Pharmacist, Advanced Heart Failure and Heart Transplant, Providence Medical Group*

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