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2025 Updates on Management of Hypertension in Adults

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Disclosures

• William L. Baker, Pharm.D., FCCP, FACC, FHFSA has no financial relationships with ineligible companies.

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1

Learning Objectives

- 1) Review the 2025 hypertension guidelines
- 2) Compare the updated recommendations to the prior guidelines
- 3) Review the evidence for emerging antihypertensive drug therapies

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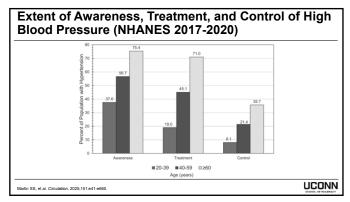
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Prevalence of Hypertension in US Adults >20 Years of Age (NHANES 2017-2020)

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2025 AHA/ACC/AANP/AAPA/ABC/
ACCP/ACPH/ACS/AMA/ASPC/NMA/
PCNA/SGIM Guideline for the Prevention,
Detection, Evaluation, and Management of High Blood Pressure in Adults
About 12 Amount of the Guideline for the Prevention,
Detection, Evaluation, and Management of High Blood Pressure in Adults
About 12 Amount 12 Amount

Categories of BP in Adults

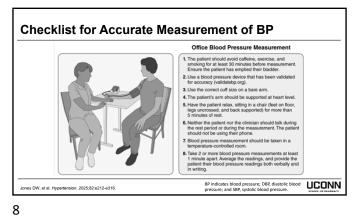
BP Category	SBP		DBP
Normal	< 120 mm Hg	and	<80 mm Hg
Elevated	120-129 mm Hg	and	<80 mm Hg
Hypertension			•
Stage 1	130-139 mm Hg	or	80-89 mm Hg
Stage 2	≥ 140 mm Hg	or	≥ 90 mm Hg

Individuals with SBP and DBP in 2 categories should be designated to the higher BP category.

Based upon the average of 2 or more values on 2 or more visits.

7

Jones DW, et al. Hypertension. 2025;82:e212-e318.



Recommendations for Out-Of-Office BP Screening

- HTN screening & management has historically relied on office BP measurements
- OOO measurements are recommended to confirm HTN diagnosis
 - Home blood pressure monitoring
 - If taken properly, can be helpful for longitudinal antihypertensive medication monitoring & titration
 - Ambulatory blood pressure monitoring

 Recommended to confirm HTN diagnosis when it's suspected

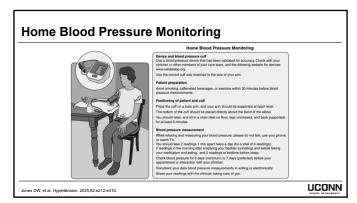
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Jones DW. et al. Hypertension, 2025;82:e212-e316.



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Cuffless BP Devices: AKA Smart Watches

- Guidelines: In adults, the use of cuffless BP devices is not recommended for the diagnosis or management of high BP
- Questions remain on their accuracy, performance, and appropriate implementation (e.g., require individual cuff calibration)



** Sept 9th, 2025, Apple announced new BP monitor feature which has been FDA cleared to screen for HTN (analyze BP over 30-day period & alert users if HTN) **



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W, et al. Hypertension. 2025;82:e212-e316.

Causes of Hypertension: Environmental, Behavioral, & Genetic

Dietary Intake Factors

- Higher sodium intake
- Lower potassium intakeLower calcium/magnesiu
- Lower calcium/magnesium intake
- Lower diet quality
- Alcohol intake

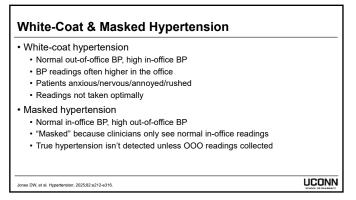
Jones DW, et al. Hypertension. 2025;82:e212-e316

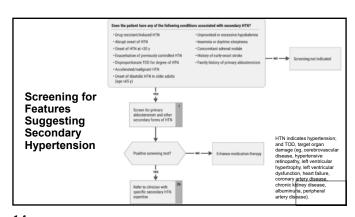
Nondietary Factors

- Genetic variants
- Overweight/obesity
- Lower physical activity/fitness
- Sleep disturbances (duration, quality, regularity, disordered breathing)
- Psychosocial stressors
- Air pollution

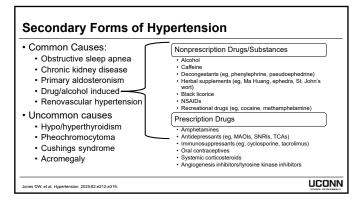
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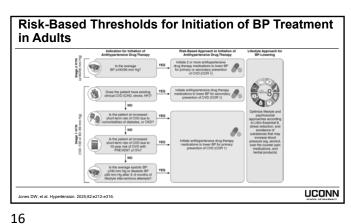
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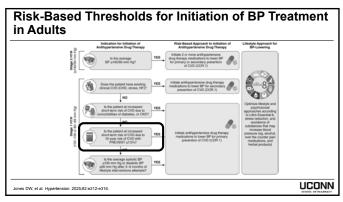


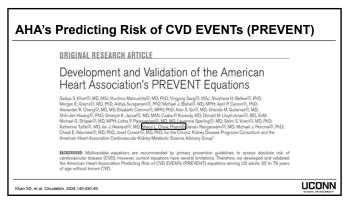
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Risk-Based Antihypertensive Treatment

 "... a risk-based strategy for targeting antihypertensive therapy in primary prevention patients is more effective than a BP-alone based strategy in terms of events avoided in number-needed-to-treat to prevent 1 CVD event."

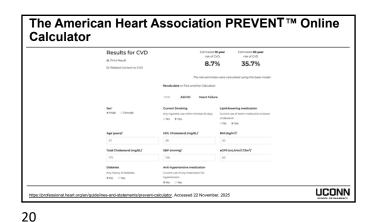
American Heart Association PREVENT Risk Score:

 $\frac{\text{https://professional.heart.org/en/guidelines-and-statements/prevent-risk-}{\text{calculator/prevent-calculator}}$

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Initial Recommendations for Treatment Patent's BP Thresholds and Recommendations for Treatment and Follow-Up Normal BP (120-129/-80 mm Hg) (120-129/-80 mm Hg) Stage 1 Hypertension (130-139/80-99 mm Hg) Promote Lifestyle therapy Lifestyle therapy

Hypertension Treatment: Lifestyle & Psychosocial Approaches Modification Approximate SBP Reduction Weight reduction 1 mmHg per kg weight lost Adopt DASH eating plan (includes 5-8 mmHg substantial potassium intake) Reduce sodium intake 6-8 mmHg Potassium supplementation ~6 mmHg Physical activity 2-10 mmHc Moderation of alcohol consumption (Drink = 24 oz beer, 10 oz wine, or 3 oz

80 proof whiskey)

Jones DW, et al. Hypertension. 2025;82:e212-e316

22

Initial Medication Selection for Treatment of Primary Hypertension COR LOE Recommendation For adults initiating antihypertensive drug therapy, thiazide-type diuretics, long-acting dihydropyridine CCB, and ACEi or ARB are recommended as first-line therapy to prevent CVD. Long-Acting DHP CCBs Thiazide-type Diuretics ACE Inhibitors ARBs Amlodipine Felodipine Benazepril Enalapril Lisinopril Quinapril Candesartan Irbesartan Indapamide Isradipine Losartan Nicardipine SR Olmesartan Nifedipine I A Ramipril
 Trandolapril Telmisartan UCONN Jones DW, et al. Hypertension. 2025;82:e212-e316

Choice of Initial Monotherapy Versus Initial **Combination Drug Therapy** COR LOE 1. In adults with stage 2 hypertension (SBP≥140 mm Hg and DBP≥90 mm Hg), initiation of antihypertensive drug therapy with 2 first-line agents of different classes, ideally in a single-pill combination (SPC), is recommended to improve BP B-R control and adherence. 2. In adults with stage 1 hypertension (SBP 130 to 139 mm Hg and DBP 80 to 89 mm Hagh, initiation of antihypertensive drug therapy with a single first-line antihypertensive drug therapy with a single first-line antihypertensive drug is reasonable, with dosage titration and sequential addition of other agents as needed to achieve BP control. 2a с-ео 3. In adults with hypertension, simultaneous use of an ACEi, ARB, and/or renin inhibitor in combination is not recommended due to the potential for harm. 3: Harm UCONN Jones DW, et al. Hypertension. 2025;82:e212-e316

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Antihypertensive Medication Class Combination	Medication Combination	Generic Available	Select Available Doses	
ACEi/ARB + Thiazide- type diuretic	Lisinopril + HCTZ (Prinzide® or Zestoretic®)	Yes	10 mg / 12.5 mg 20 mg / 25 mg	
	Azilsartan + chlorthalidone (Edarbyclor®)	No	40 mg / 12.5 mg 40 mg + 25 mg	
	Candesartan + HCTZ (Atacand HCT®)	Yes	16 mg / 12.5 mg 32 mg / 25 mg	
ACEi/ARB + CCB	Benazepril + amlodipine (Lotrel®)	Yes	10 mg / 2.5 mg 20 mg / 5 mg	
	Valsartan + amlodipine (Exforge®)	Yes	160 mg / 5 mg 320 mg / 10 mg	
K-sparing diuretic + Thiazide-type diuretic	Triamterene + HCTZ (Dyazide® or Maxzide®)	Yes	37.5 mg / 25 mg 75 mg / 50 mg	
ARB + CCB + Thiazide- type diuretic	Olmesarten + amlodipine + HCTZ (Tribenzor®)	Yes	20 mg / 5 mg / 12.5 mg 40 mg / 10 mg / 25 mg	

First Drug	Combined with	Comment
Combinations to	use with care	
Non-DHP CCB	Beta-blocker	Increased risk of heart block
ACEI or ARB	K-sparing diuretic	Increased risk of hyperkalemia
Combinations to	avoid	
ACEI	ARB	Increased risk of renal dysfunction and hyperkalemia
		- Injpontation a

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adherence.

3. In adults with hypertension, use of medication reminder aids and educational or self-management interventions can be useful to improve medication adherence.

SPC = single pill combination

Jones DW, et al. Hypertension. 2025;82:e212-e316.

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27

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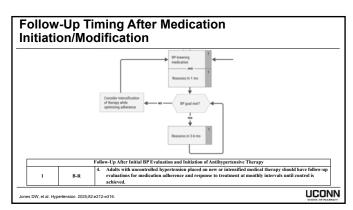
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Evidence-Based Strategies for Improving Antihypertensive Medication Adherence

- Dose consolidation (QD vs. BID)
- · Single pill combination rather than separate pills
- Education/coaching by pharmacists and other health professionals
- Electronic/home BP monitoring & feedback
- Integration of patient preferences and values/shared decision-making into management plan
- Medication synchronization and reminder aids
- Mindfulness-based stress reduction or counseling for high stress, anxiety, and/or depression
- · Self-management interventions

Jones DW, et al. *Hyperlension*. 2025;82:e212-e316.

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Self-Assessment Question #1

According to the 2025 Hypertension guidelines, which of the following would not be an appropriate initial combination to start in a patient with stage 2 hypertension?

- A. Lisinopril + amlodipine
- B. Olmesartan + chlorthalidone
- C. Verapamil + hydrochlorothiazide
- D. Valsartan + chlorthalidone

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32 31

Management of HTN in Chronic Coronary Disease

COR	LOE	Recommendations
1	A	1. In adults with CCD, nonpharmacologic strategies are recommended as first-line therapy to lower BP in those with elevated BP (120-129/<80 mm Hg)
1	B-R	2. In adults with CCD who have hypertension, a BP target of <130/<80 mm Hg is recommended to reduce CVD events and all-cause death.
1	B-R	3. In adults with CCD and hypertension (systolic BP ≥130 and/or diastolic BP ≥80 mm Hg), in addition to nonpharmacological strategies, GDMT angiotensin-converting enzyme (ACE) inhibitors, angiotensin receptor blockers (ARB), or beta blockers are recommended as first-line therapy for compelling indications (eg. recent MI or angina), with additional antihypertensive medications (eg. dhydropyridine calcium channel blockers [CCB], long-acting thiazide diureties, and/or mineralocorticoid receptor antagonists) added as needed to onlinize BP control

Jones DW, et al. Hypertension. 2025;82:e212-e316. Virani SS, et al. J Am Coll Cardiol. 2023;82:833-955.

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Recommendations for

with Comorbidities

Hypertension Treatment in Patients

34

Management of HTN in Diabetes

COR	LOE	Recommendations
1	A	 In adults with T2D and hypertension, antihypertensive drug treatment should be initiated at an SBP of ≥130 mm Hg with a treatment goal of <130 mm Hg, with encouragement to achieve an SBP <120 mm Hg to reduce CVD morbidity and mortality.
1	C-LD	 In adults with T2D and hypertension, antihypertensive drug treatment should be initiated at a DBP of ≥80 mm Hg with a treatment goal of <80 mm Hg to reduce CVD morbidity and mortality.
1	A	 In adults with T2D and hypertension, all first-line classes of antihypertensive agents (ie, thiazide-type diuretics, long-acting CCB, ACEi, and ARB) are useful and effective for BP lowering.
1	A	4. In adults with diabetes and hypertension, ACEi or ARB are recommended in the presence of CkD as identified by eGFR <60 mL/min1.73 m² or albuminuria ≥30 mg/g and should be considered when mild albuminuria (<30 mg/g) is present to delay progression of diabetes-related kidney disease.

33

Management of HTN in Chronic Kidney Disease

COR	LOE	Recommendations
1	A	1. For adults with hypertension and CKD as identified by eGFR <60 mL/min/1.73m² or albuminuria ≥30 mg albumin/g creatinine, treatment should target an SBP goal of <130 mm Hg to decrease all-cause mortality
1	B-R	 For adults with hypertension and CKD as identified by eGFR <60 mL/min/1.73m² with albuminuria of ≥30 mg/g, RAASi (either with ACE) or ARB but not both) is recommended to decrease CVD and delay progression of kidney disease.

UCONN Jones DW, et al. Hypertension. 2025;82:e212-e316.

Management of HTN in Secondary Stroke Prevention

COR	LOE	Recommendations
1	A	 In patients with hypertension who have experienced an ischemic stroke, transient ischemic attack (TLA), or ICH, treatment with a thiazide-type diuretic ACEi, or ARB is recommended for lowering BP and reducing recurrent stroke and ICH risk.
1	B-R	In patients with hypertension who have experienced an ischemic stroke, TIA, or ICH, an office SBP/DBP goal of <130/80 mm Hg is recommended to reduce the risk of recurrent stroke, ICH, and other vascular events.
2a	B-R	 In patients with no history of hypertension who have experienced an ischemic stroke, TIA, or ICH and have an average office SBP/DBP of ≥130/80 mm Hg, antihypertensive medication treatment can be beneficial to reduce the risk of recurrent stroke, ICH, and other vascular events.

COR	LOE	Recommendations
con	LOE	
1	A	 For individuals with hypertension who are planning a pregnancy or who become pregnant, labetalol and extended-release nifedipine are preferred agents to treat hypertension and minimize fetal risk.
1	B-R	Individuals with hypertension who are planning a pregnancy or who become pregnant shoul be counseled about the benefits of low-dose (81 mg/day) aspirin to reduce the risk of preeclampsia and its sequelae.
1	B-R	 Pregnant individuals with SBP ≥160 mm Hg or DBP ≥110 mm Hg confirmed on repeat measurement within 15 minutes should receive antihypertensive medication (Table 23) to lower BP to >1600×110 mm Hg within 30 to 60 minutes to prevent adverse events.
1	B-R	4. Pregnant individuals with chronic† hypertension (defined as prepregnancy hypertension or SBP 140 to 159 mm Hg and/or DBP 90 to 109 mm Hg prior to 20 weeks' gestation) should receive antihypertensive therapy to achieve BP <140.90 mm Hg to prevent maternal and perinatal morbidity and mortality.
3: Harm	C-LD	 Individuals with hypertension who are planning a pregnancy or who become pregnant should not be treated with atenolol, ACEI, ARB, direct renin inhibitors, nitroprusside, or MRA to avoid fetal harm.

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What is New vs. The 2017 Hypertension Guidelines?

37 38

N/A		
	Hypertensive urgency	Severe hypertension
5.1. Litestyle and Psychosocial Approaches	IN/A	COR 2a: In adults with or without hypertension, potassium-based sall substitutes can be useful to preven or treat elevated BP and hypertension, particularly for patients in whom salt intake is related mostly to food preparation flavoring at home, except in the presence of CKD or use of drugs that reduce potassium excretion where additional monitoring is probably indicated.
	5.1. Lifestyle and Psychosocial Approaches	

New or Revised	Section Title	2017 Recommendation	2025 Recommendation
Revised recommendation	5.2.2. BP Treatment Threshold and the Use of CVD Risk Estimation to Guide Drug Treatment of Hypertension (utilizing PREVENT instead of PCE)	COR I: Use of BP-lowering medications is recommended for secondary prevention of recurrent CVD events in patients with clinical CVD and an average of SBP ≥130 mm Hg or an average DBP ≥80 mm Hg and for primary prevention in adults with an estimated 10-year ASCVD risk of ≥10% and an average SBP ≥130 mm Hg or an average SBP ≥80 mm Hg or an average DBP ≥80 mm Hg	COR 1: In adults with hypertension without clinical CVD but with diabetes or CKD or at increased 10-year CVD risk (ic, ≥7.5% based on PREVENT), initiation of medications to lower BP is recommended when average SBP is ≥130 mm Hg and average DBP is ≥800 mm Hg to reduce the risk of CVD events and total mortality.

39 40

New or Revised	Section Title	2017 Recommendation	2025 Recommendation
Revised recommendation	5.2.2 BP Treatment Threshold and the Use of CVD Risk Estimation to Guide Drug Treatment of Hypertension (utilizing PREVENT instead of PCE)	COR 1: Use of BP-lowering medication is recommended for primary prevention of CVD in adults with no history of CVD and with an estimated 10-year ASCVD risk <10% and an SBP≥140 mm Hg or a DBP ≥90 mm Hg	IGOR 1: In adults with hypertension without clinical CVD and with estimated 10-year CVD risk < 7.5% based on PREVENT, initiation of medications to lower BP is recommended if average SBI remains < 130 mm Hg or average DBP remains < 280 mm Hg after a 3 - to 6-mont trial of lifestyle intervention to prevent target organ damage and mitigate further increases in BP.
Revised recommendation	5.3.1. Diabetes	COR 2b: In adults with diabetes and hypertension, ACEi or ARB may be considered in the presence of albuminuria.	COR 1: In adults with diabetes and hypertension, ACEi or ARB are recommended in the presence of CKD as identified by eGFR <60 mL/min11.3ma. car albumiumiz=30 mg/g and should be considered when mild albuminuria (<30 mg/g) is present to delay progression of diabetic kidney disease.

New or Revised	Section Title	2017 Recommendation	2025 Recommendation
New recommendation	5.5. Hypertension and Pregnancy	N/A	COR 1: Pregnant individuals with chronic hypertension (defined as prepregnancy hypertension or SBP 140 to 159 mm Hg and/or DBP 90 to 109 mm Hg prior to 20 weeks gestation) should receive antihypertensive therapy to achieve BP < 140,99 mm Hg to prevent maternal and perinatal
Revised recommendation	5.5. Hypertension and Pregnancy	COR 3 Harm: Women with hypertension who become pregnant should not be treated with ACEi or direct renin inhibitors.	morbidity and mortality. COR 3 Harm: Individuals with hypertension who are planning a pregnancy or who become pregnant should not be treated with atenolol, ACEi, ARB, direct renin inhibitors, nitroprusside, or MRA to avoid fetal harm.

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Self-Assessment Question #2

Which of the following represents a new recommendation in the 2025 Hypertension guideline that was not in the previous (2017) version?

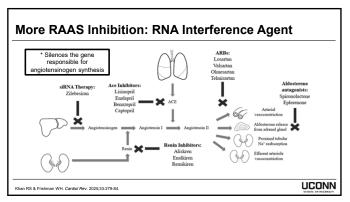
- A. Start initial combination therapy for anyone with stage 2 hypertension
- B. ACEi/ARB, CCB, and diuretics are first-line therapies unless contraindicated
- The goal of antihypertensive drug therapy is < 140/90 mmHg
- Individuals without BP ≥130/80 mmHg, no CVD, and a 10-year CVD risk ≥7.5% should start antihypertensive medication

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Aldosterone Synthase Inhibitor: Lorundrostat 50 mg of Lorundrostat Placebo UCONN

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RNA Interference Agent: Zilebesiran ADEs = hyperkalemia, hypotension, acute kidney failure UCONN

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Is Anything New On The **Hypertension Horizon?**

Aldosterone Synthase Inhibitor: Baxdrostat

cebo in adults with hard-to-control HTN (SBP 140-170 mmHg on 2-3 m

Change in Seated Diastolic BP

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Change in Seated Systolic BP

Proportion with controlled BP at week 12: baxdrostat = 39.4%, placebo 18.7% Most common ADEs = hyperkalemia, hyponatremia, hypotension, dizziness, muscle s

Flack JM, et al. N Engl J Med. 2025;393:1363-74

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Self-Assessment Question #3

Which of the following is most accurate about emerging drug treatments for hypertension?

- A. Trials have exclusively been conducted in newly-diagnosed adult patients
- Mechanisms of emerging drugs have targeted attenuation of the sympathetic nervous system
- C. Novel therapies have not been shown to improve blood pressure control over existing drug therapies
- D. Emerging drug therapies, while effective, have concerns for hyperkalemia and hypotension

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Thank You For Your Attention

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