UCONN
SCHOOL OF PHARMACY

2025 Updates on Management of Hypertension in Adults

CE Finale 2025

William L. Baker, Pharm.D., FCCP, FACC, FHFSA
Professor
University of Connecticut School of Pharmacy
Department of Pharmacy Practice
william.baker_jr@uconn.edu

1

Disclosures

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

UCONN
SCHOOL OF PHARMACY

2

Learning Objectives

1) Review the 2025 hypertension guidelines

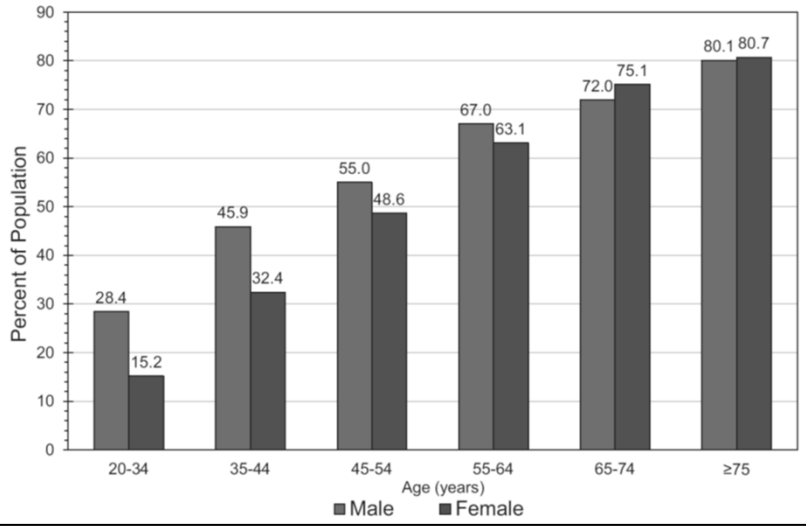
2) Compare the updated recommendations to the prior guidelines

3) Review the evidence for emerging antihypertensive drug therapies

UCONN SCHOOL OF PHARMACY

3

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

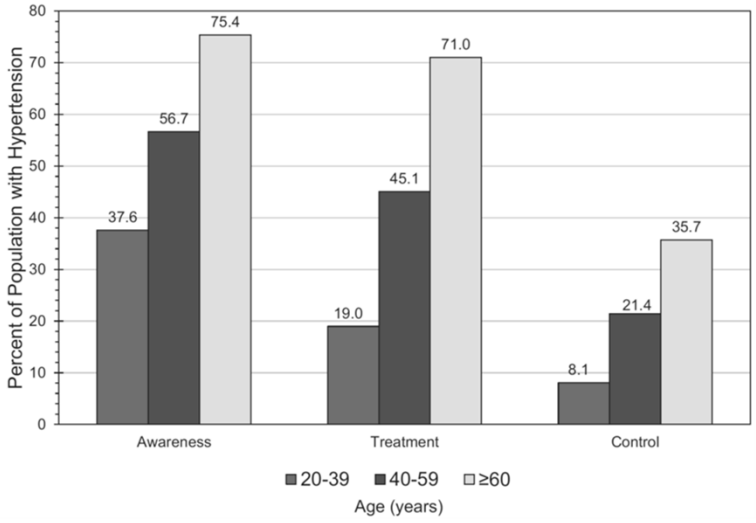


Martin SS, et al. *Circulation*. 2025;151:e41-e660.

UCONN SCHOOL OF PHARMACY

4

Extent of Awareness, Treatment, and Control of High Blood Pressure (NHANES 2017-2020)



Martin SS, et al. *Circulation*. 2025;151:e41-e660.

UCONN SCHOOL OF PHARMACY

5

CLINICAL PRACTICE GUIDELINE

2025 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

Developed in Collaboration With and Endorsed by American Academy of Physician Associates; American Association of Nurse Practitioners; American College of Clinical Pharmacy; American College of Preventive Medicine; American Geriatrics Society; American Medical Association; American Society of Preventive Cardiology; Association of Black Cardiologists; National Medical Association; Preventive Cardiovascular Nurses Association; and the Society of General Internal Medicine.

Writing Committee members

Daniel W. Jones, MD, FAHA, *Chair*
Keith C. Ferdinand, MD, FACC, FAHA, FASPC, *Vice Chair*
Sandra J. Taler, MD, FAHA, *Vice Chair*
Heather M. Johnson, MD, MS, FAHA, FACC, FASPC, *JC Liaison*†
Daichi Shimbo, MD, *JC Liaison*†
Marwah Abdalla, MD, MPH, FAHA, FACC‡
M. Martine Altieri, PA-C, MHSc‖
Nisha Bansal, MD, MAS, FAHA
[illegible], MD, MPH, FACC
Adam P. Bress, PharmD, MS‖
[illegible], MD, MS#
Jordana B. Cohen, MD, MSCE, FAHA
Karen J. Collins, MBA
Yvonne Commodore-Mensah, PhD, MHS, BSN, RN, FAHA, FPCNA¶
Leslie L. Davis, PhD, ANP-BC, FACC, FAHA
Brent Egan, MD, FAHA**
Sadiya S. Khan, MD, MSc, FACC, FAHA
Donald M. Lloyd-Jones, MD, ScM, FAHA, FACC
Bernadette Mazurek Melnyk, PhD, APRN-CNP, FAANP††
Eva A. Mistry, MBBS, MSCI, FAHA
Modele O. Ogunniyi, MD, MPH, FACC, FAHA‡‡
Stacey L. Schott, MD, MPH§§
Sidney C. Smith Jr., MD, FAHA, MACC
Amy W. Talbot, MPH
Wanpen Vongpatanasin, MD, FAHA, FACC
Karol E. Watson, MD, PhD, FACC, FAHA, FASPC‖‖
Paul K. Whelton, MB, MD, MSc, FAHA
Jeff D. Williamson, MD, MHS, AGSF¶¶

*Writing committee members are required to recuse themselves from voting on sections to which their specific relationships with industry may apply; see Appendix 1 for detailed information.
†ACC/AHA Joint Committee on Clinical Practice Guidelines.
‡Association of Black Cardiologists Representative.
§American Academy of Physician Associates Representative.
‖American College of Clinical Pharmacy Representative.
¶Society of General Internal Medicine Representative.
#Preventive Cardiovascular Nurses Association Representative.
**American Medical Association Representative.
††American Association of Nurse Practitioners Representative
‡‡National Medical Association Representative
§§American College of Preventive Medicine Representative.
‖‖American Society of Preventive Cardiology Representative.
¶¶American Geriatrics Society Representative.

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

UCONN SCHOOL OF PHARMACY

6

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

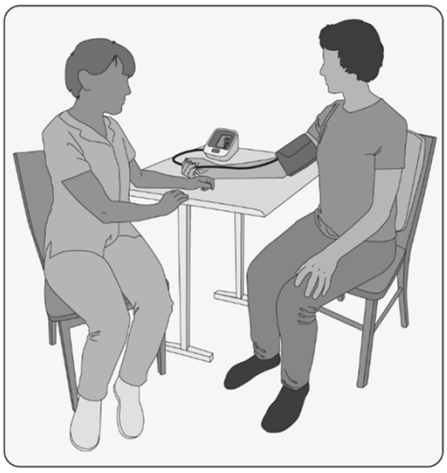
Individuals with SBP and DBP in 2 categories should be designated to the higher BP category.
Based upon the average of 2 or more values on 2 or more visits.

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

UCONN SCHOOL OF PHARMACY

7

Checklist for Accurate Measurement of BP



Office Blood Pressure Measurement

1. The patient should avoid caffeine, exercise, and smoking for at least 30 minutes before measurement. Ensure the patient has emptied their bladder.
2. Use a blood pressure device that has been validated for accuracy (validatebp.org).
3. Use the correct cuff size on a bare arm.
4. The patient's arm should be supported at heart level.
5. Have the patient relax, sitting in a chair (feet on floor, legs uncrossed, and back supported) for more than 5 minutes of rest.
6. Neither the patient nor the clinician should talk during the rest period or during the measurement. The patient should not be using their phone.
7. Blood pressure measurement should be taken in a temperature-controlled room.
8. Take 2 or more blood pressure measurements at least 1 minute apart. Average the readings, and provide the patient their blood pressure readings both verbally and in writing.

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

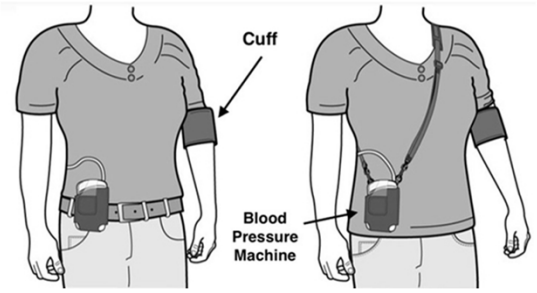
BP indicates blood pressure; DBP, diastolic blood pressure; and SBP, systolic blood pressure.

UCONN SCHOOL OF PHARMACY

8

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

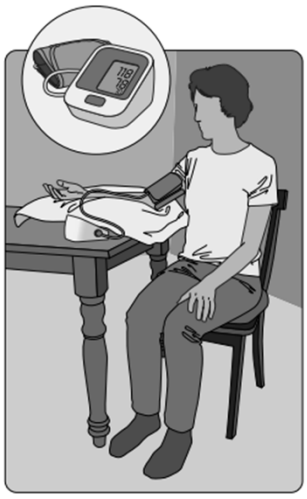


Jones DW, et al. *Hypertension*. 2025;82:e212-e316.

UCONN SCHOOL OF PHARMACY

9

Home Blood Pressure Monitoring



Home Blood Pressure Monitoring

Device and blood pressure cuff
Use a blood pressure device that has been validated for accuracy. Check with your clinician or other members of your care team, and the following website for devices: www.validatebp.org.

Use the correct cuff size matched to the size of your arm.

Patient preparation

Avoid smoking, caffeinated beverages, or exercise within 30 minutes before blood pressure measurements.

Positioning of patient and cuff

Place the cuff on a bare arm, and your arm should be supported at heart level.

The bottom of the cuff should be placed directly above the bend of the elbow.

You should relax, and sit in a chair (feet on floor, legs uncrossed, and back supported) for at least 5 minutes.

Blood pressure measurement

While relaxing and measuring your blood pressure, please do not talk, use your phone, or watch TV.
You should take 2 readings 1 min apart twice a day (for a total of 4 readings):
2 readings in the morning after emptying your bladder (urinating) and before taking your medication and eating; and 2 readings at bedtime before sleep.

Check blood pressure for 3 days (minimum) to 7 days (preferred) before your appointment or interaction with your clinician.

Document your daily blood pressure measurements in writing or electronically.

Share your readings with the clinician taking care of you.

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

UCONN SCHOOL OF PHARMACY

10

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) **

Jones DW, et al. *Hypertension*. 2025;82:e212-e316.
Stergiou GS, et al. *J Hypertens*. 2022;40:1449-60.

UCONN SCHOOL OF PHARMACY

11

Causes of Hypertension: Environmental, Behavioral, & Genetic

Dietary Intake Factors	Nondietary Factors
• Higher sodium intake • Lower potassium intake • Lower calcium/magnesium intake • Lower diet quality • Alcohol intake	• Genetic variants • Overweight/obesity • Lower physical activity/fitness • Sleep disturbances (duration, quality, regularity, disordered breathing) • Psychosocial stressors • Air pollution

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

UCONN SCHOOL OF PHARMACY

12

White-Coat & Masked Hypertension

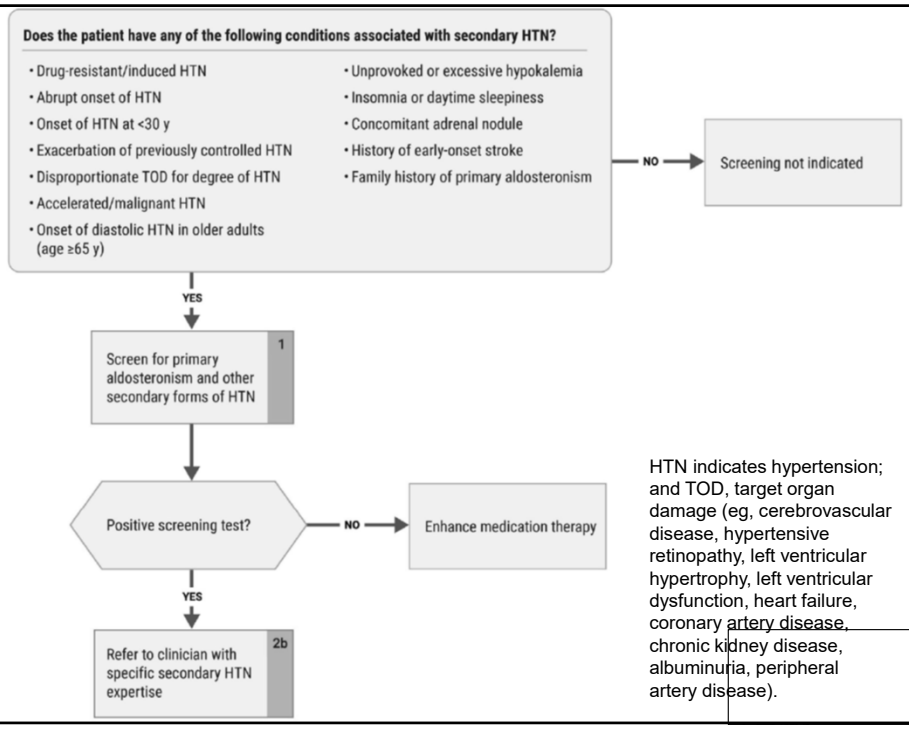
- White-coat hypertension
  - Normal out-of-office BP, high in-office BP
  - BP readings often higher in the office
  - Patients anxious/nervous/annoyed/rushed
  - Readings not taken optimally
- Masked hypertension
  - Normal in-office BP, high out-of-office BP
  - “Masked” because clinicians only see normal in-office readings
  - True hypertension isn’t detected unless OOO readings collected

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

UCONN SCHOOL OF PHARMACY

13

Screening for Features Suggesting Secondary Hypertension



HTN indicates hypertension; and TOD, target organ damage (eg, cerebrovascular disease, hypertensive retinopathy, left ventricular hypertrophy, left ventricular dysfunction, heart failure, coronary artery disease, chronic kidney disease, albuminuria, peripheral artery disease).

14

Secondary Forms of Hypertension

- Common Causes:
  - Obstructive sleep apnea
  - Chronic kidney disease
  - Primary aldosteronism
  - Drug/alcohol induced
  - Renovascular hypertension
- Uncommon causes
  - Hypo/hyperthyroidism
  - Pheochromocytoma
  - Cushings syndrome
  - Acromegaly

Nonprescription Drugs/Substances

- Alcohol
- Caffeine
- Decongestants (eg, phenylephrine, pseudoephedrine)
- Herbal supplements (eg, Ma Huang, ephedra, St. John's wort)
- Black licorice
- NSAIDs
- Recreational drugs (eg, cocaine, methamphetamine)

Prescription Drugs

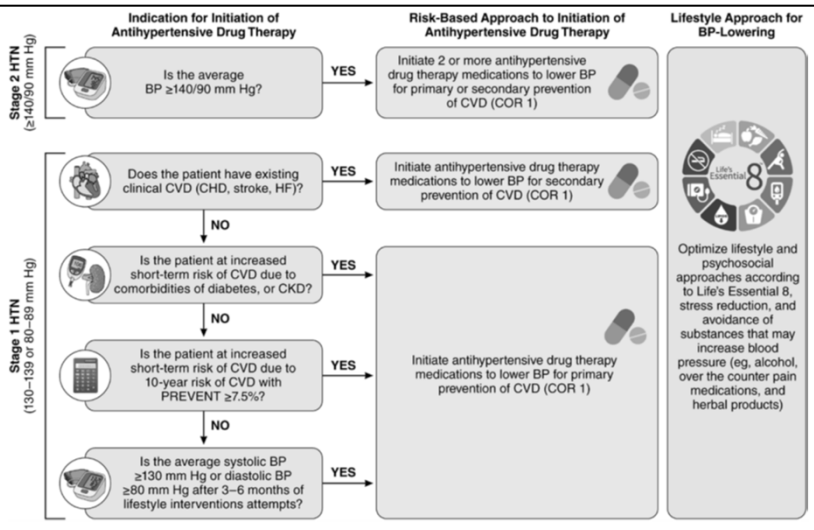
- Amphetamines
- Antidepressants (eg, MAOIs, SNRIs, TCAs)
- Immunosuppressants (eg, cyclosporine, tacrolimus)
- Oral contraceptives
- Systemic corticosteroids
- Angiogenesis inhibitors/tyrosine kinase inhibitors

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

UCONN SCHOOL OF PHARMACY

15

Risk-Based Thresholds for Initiation of BP Treatment in Adults

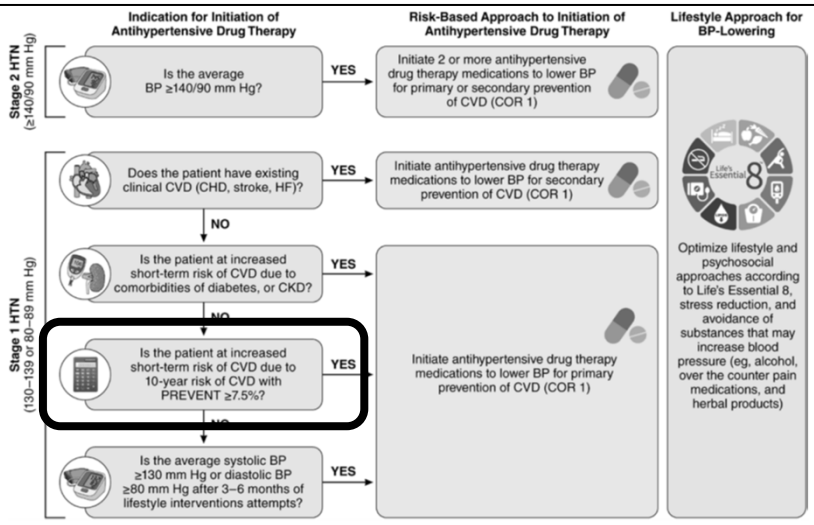


Jones DW, et al. *Hypertension*. 2025;82:e212-e316.

UCONN SCHOOL OF PHARMACY

16

Risk-Based Thresholds for Initiation of BP Treatment in Adults



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

UCONN SCHOOL OF PHARMACY

17

AHA's Predicting Risk of CVD EVENTs (PREVENT)

ORIGINAL RESEARCH ARTICLE

Development and Validation of the American Heart Association's PREVENT Equations

Sadiya S. Khan, MD, MSc; Kunihiro Matsushita, MD, PhD; Yingying Sang, MSc; Shoshana H. Ballew, PhD; Morgan E. Grams, MD, PhD; Aditya Surapaneni, PhD; Michael J. Blaha, MD, MPH; April P. Carson, PhD; Alexander R. Chang, MD, MS; Elizabeth Ciemins, MPH, PhD; Alan S. Go, MD; Orlando M. Gutierrez, MD; Shih-Jen Hwang, PhD; Simerjot K. Jassal, MD, MAS; Csaba P. Kovesdy, MD; Donald M. Lloyd-Jones, MD, ScM; Michael G. Shlipak, MD, MPH; Latha P. Palaniappan, MD, MS; Laurence Sperling, MD; Salim S. Virani, MD, PhD; Katherine Tuttle, MD; Ian J. Neeland, MD; Sheryl L. Chow, PharmD; Janani Rangaswami, MD; Michael J. Pencina, PhD; Chiadi E. Ndumele, MD, PhD; Josef Coresh, MD, PhD; for the Chronic Kidney Disease Prognosis Consortium and the American Heart Association Cardiovascular-Kidney-Metabolic Science Advisory Group*

BACKGROUND: Multivariable equations are recommended by primary prevention guidelines to assess absolute risk of cardiovascular disease (CVD). However, current equations have several limitations. Therefore, we developed and validated the American Heart Association Predicting Risk of CVD EVENTs (PREVENT) equations among US adults 30 to 79 years of age without known CVD.

Khan SS, et al. *Circulation*. 2024;149:430-49.

UCONN SCHOOL OF PHARMACY

18

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."

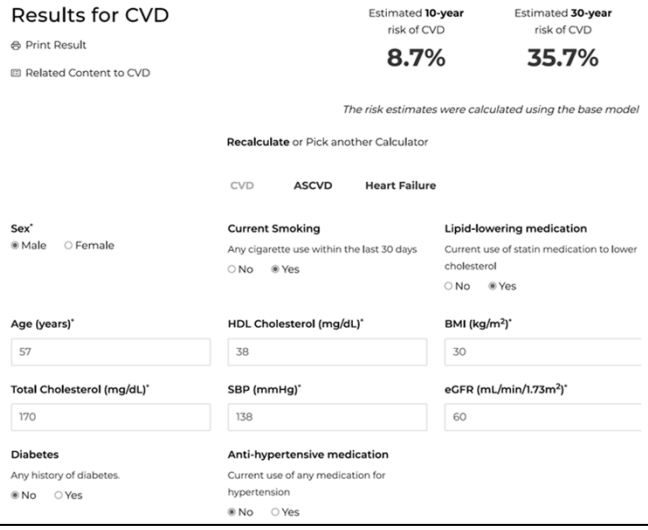
American Heart Association PREVENT Risk Score:

https://professional.heart.org/en/guidelines-and-statements/prevent-risk-calculator/prevent-calculator

UCONN SCHOOL OF PHARMACY

19

The American Heart Association PREVENT™ Online Calculator

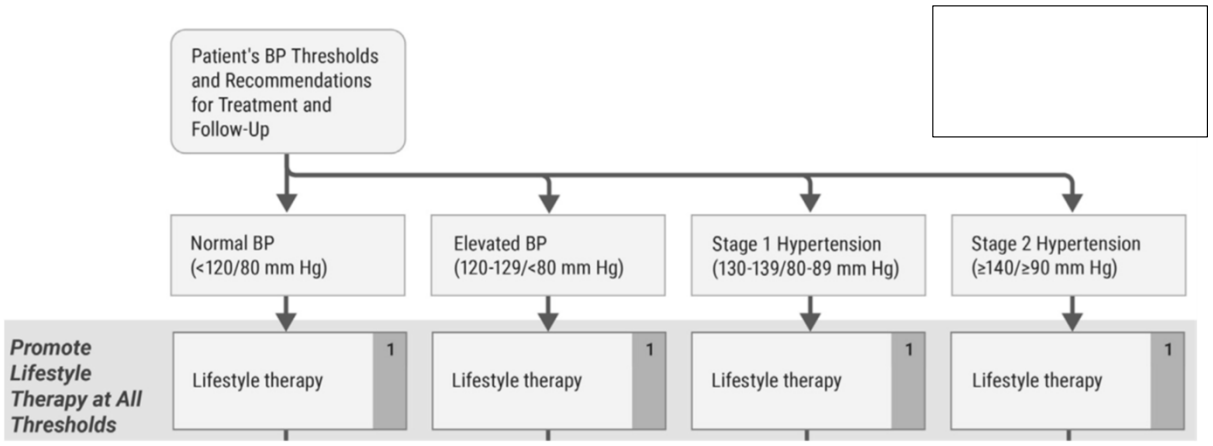


https://professional.heart.org/en/guidelines-and-statements/prevent-calculator. Accessed 22 November, 2025

UCONN SCHOOL OF PHARMACY

20

Initial Recommendations for Treatment



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

UCONN SCHOOL OF PHARMACY

21

Hypertension Treatment: Lifestyle & Psychosocial Approaches

Modification	Approximate SBP Reduction
Weight reduction	1 mmHg per kg weight lost
Adopt DASH eating plan (includes substantial potassium intake)	5-8 mmHg
Reduce sodium intake	6-8 mmHg
Potassium supplementation	~6 mmHg
Physical activity	2-10 mmHg
Moderation of alcohol consumption (Drink = 24 oz beer, 10 oz wine, or 3 oz 80 proof whiskey)	4-6 mmHg

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

UCONN SCHOOL OF PHARMACY

22

Initial Medication Selection for Treatment of Primary Hypertension

COR	LOE	Recommendation
1	A	1. 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.

Thiazide-type Diuretics
- Chlorthalidone
- HCTZ
- Indapamide

Long-Acting DHP CCBs
- Amlodipine
- Felodipine
- Isradipine
- Nicardipine SR
- Nifedipine LA
- Nisoldipine

ACE Inhibitors
- Benazepril
- Enalapril
- Lisinopril
- Quinapril
- Ramipril
- Trandolapril

ARBs
- Candesartan
- Irbesartan
- Losartan
- Olmesartan
- Telmisartan
- Valsartan

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

UCONN SCHOOL OF PHARMACY

23

Choice of Initial Monotherapy Versus Initial Combination Drug Therapy

COR	LOE	Recommendations
1	B-R	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 control and adherence.
2a	C-EO	2. In adults with stage 1 hypertension (SBP 130 to 139 mm Hg and DBP 80 to 89 mm Hg), initiation of 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.
3: Harm	A	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.

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

UCONN SCHOOL OF PHARMACY

24

Examples of Effective Drug Combinations

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

UCONN SCHOOL OF PHARMACY

25

Drug Combinations- Use with Caution/Avoid Use due to Potential Harm

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

UCONN SCHOOL OF PHARMACY

26

Antihypertensive Medication Adherence Strategies

COR	LOE	Recommendations
1	B-R	1. In adults with hypertension, antihypertensive medication dosing once daily rather than multiple times daily is beneficial to improve medication adherence.
1	B-R	2. In adults with hypertension, the use of a SPC to reduce pill burden rather than taking separate pills is effective to improve medication adherence.
2a	B-R	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.

UCONN SCHOOL OF PHARMACY

27

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. *Hypertension*. 2025;82:e212-e316.

UCONN SCHOOL OF PHARMACY

28

Recommendations for Blood Pressure Goal for Patients With Hypertension

COR	LOE	Recommendations
1	A	1. In adults with confirmed hypertension who are at increased risk* for CVD, an SBP goal of at least <130 mm Hg, with encouragement to achieve SBP <120 mm Hg, is recommended to reduce the risk of cardiovascular events and total mortality.
2b	B-NR	2. In adults with confirmed hypertension who are not at increased risk* for CVD, an SBP goal of <130 mm Hg, with encouragement to achieve SBP <120 mm Hg, may be reasonable to reduce risk of further elevation of BP.
1	B-R	3. In adults with confirmed hypertension who are at increased risk* for CVD, a DBP target of <80 mm Hg is recommended to reduce the risk of cardiovascular events and total mortality.
2b	B-NR	4. In adults with confirmed hypertension who are not at increased risk* for CVD, a DBP target of <80 mm Hg may be reasonable to reduce the risk of cardiovascular events.

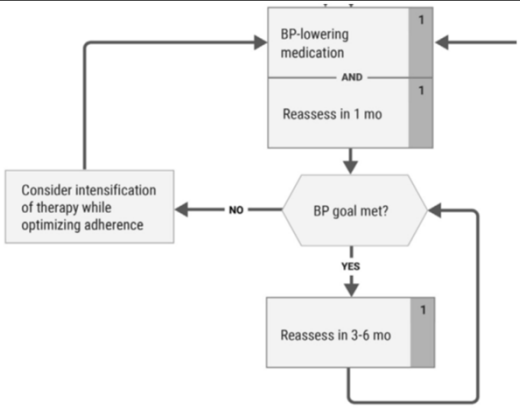
*Increased risk is defined as a 10-year predicted risk for CVD events of ≥7.5% using

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

UCONN SCHOOL OF PHARMACY

29

Follow-Up Timing After Medication Initiation/Modification



Follow-Up After Initial BP Evaluation and Initiation of Antihypertensive Therapy		
1	B-R	4. Adults with uncontrolled hypertension placed on new or intensified medical therapy should have follow-up evaluations for medication adherence and response to treatment at monthly intervals until control is achieved.

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

UCONN SCHOOL OF PHARMACY

30

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

UCONN SCHOOL OF PHARMACY

31

UCONN SCHOOL OF PHARMACY

Recommendations for Hypertension Treatment in Patients with Comorbidities

32

Management of HTN in Diabetes

COR	LOE	Recommendations
1	A	1. 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	2. 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	3. 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/min/1.73 m^2 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.

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

UCONN SCHOOL OF PHARMACY

33

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, dihydropyridine calcium channel blockers [CCB], long-acting thiazide diuretics, and/or mineralocorticoid receptor antagonists) added as needed to optimize BP control

CCD = chronic coronary disease; GDMT = guideline-directed medical therapy; MI = myocardial infarction

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

UCONN SCHOOL OF PHARMACY

34

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/1.73m^2 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	2. For adults with hypertension and CKD as identified by eGFR <60 mL/min/1.73m^2 with albuminuria of ≥30 mg/g, RAASi (either with ACEi or ARB but not both) is recommended to decrease CVD and delay progression of kidney disease.

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

UCONN SCHOOL OF PHARMACY

35

Management of HTN in Secondary Stroke Prevention

COR	LOE	Recommendations
1	A	1. In patients with hypertension who have experienced an ischemic stroke, transient ischemic attack (TIA), 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	2. 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	3. 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.

ICH = intra-cranial hemorrhage; TIA = transient ischemic attack

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

UCONN SCHOOL OF PHARMACY

36

Hypertension and Pregnancy

COR	LOE	Recommendations
1	A	1. 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	2. Individuals with hypertension who are planning a pregnancy or who become pregnant should be counseled about the benefits of low-dose (81 mg/day) aspirin to reduce the risk of preeclampsia and its sequelae.
1	B-R	3. 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 <160/<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	5. 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.

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

UCONN SCHOOL OF PHARMACY

37

UCONN SCHOOL OF PHARMACY

What is New vs. The 2017 Hypertension Guidelines?

38

What is New For 2025?

New or Revised	Section Title	2017 Recommendation	2025 Recommendation
New terminology	N/A	Hypertensive urgency	Severe hypertension
New recommendation	5.1. Lifestyle and Psychosocial Approaches	N/A	COR 2a: In adults with or without hypertension, potassium-based salt substitutes can be useful to prevent or treat elevated BP and hypertension, particularly for patients in whom salt intake is related mostly to food preparation or flavoring at home, except in the presence of CKD or use of drugs that reduce potassium excretion where additional monitoring is probably indicated.

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

UCONN SCHOOL OF PHARMACY

39

What is New For 2025?

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 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 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 (ie, ≥7.5% based on PREVENT), initiation of medications to lower BP is recommended when average SBP is ≥130 mm Hg and average DBP is ≥80 mm Hg to reduce the risk of CVD events and total mortality.

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

UCONN SCHOOL OF PHARMACY

40

What is New For 2025?

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	COR 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 SBP remains ≥130 mm Hg or average DBP remains ≥80 mm Hg after a 3- to 6-month 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/min/1.73m2 or albuminuria ≥30 mg/g and should be considered when mild albuminuria (<30 mg/g) is present to delay progression of diabetic kidney disease.

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

UCONN SCHOOL OF PHARMACY

41

What is New For 2025?

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 <140/90 mm Hg to prevent maternal and perinatal morbidity and mortality.
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.	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.

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

UCONN SCHOOL OF PHARMACY

42

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
C. The goal of antihypertensive drug therapy is < 140/90 mmHg
D. Individuals without BP ≥130/80 mmHg, no CVD, and a 10-year CVD risk ≥7.5% should start antihypertensive medication

UCONN SCHOOL OF PHARMACY

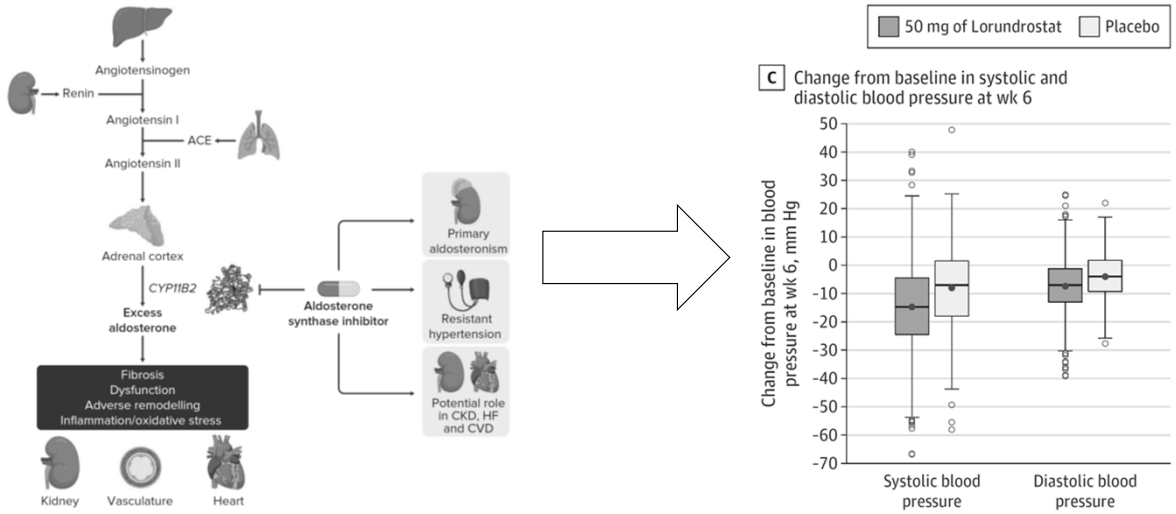
43

UCONN SCHOOL OF PHARMACY

Is Anything New On The Hypertension Horizon?

44

Aldosterone Synthase Inhibitor: Lorundrostat

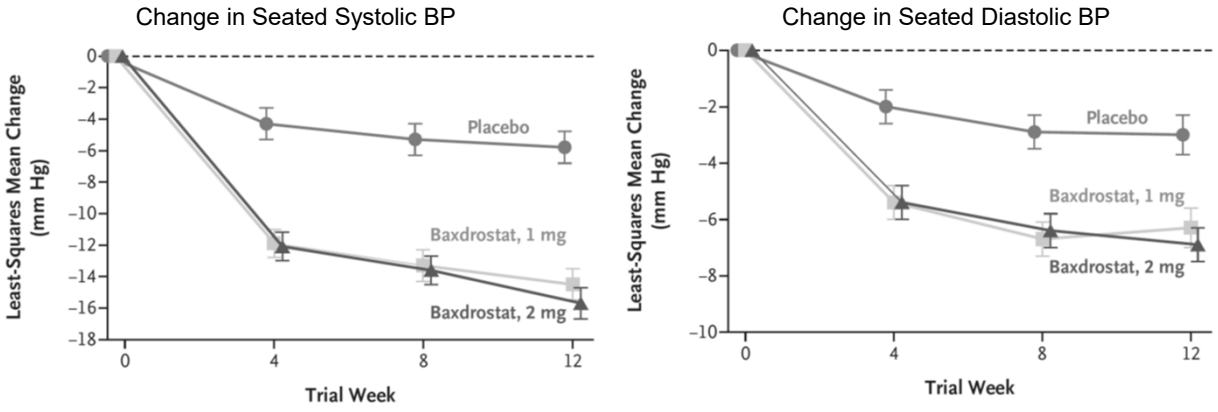


Patel SK, et al. *Card Fail Rev*. 2025;11:e20.
Saxena M, et al. *JAMA*. 2025;334:409-18.

UCONN SCHOOL OF PHARMACY

45

Aldosterone Synthase Inhibitor: Baxdrostat



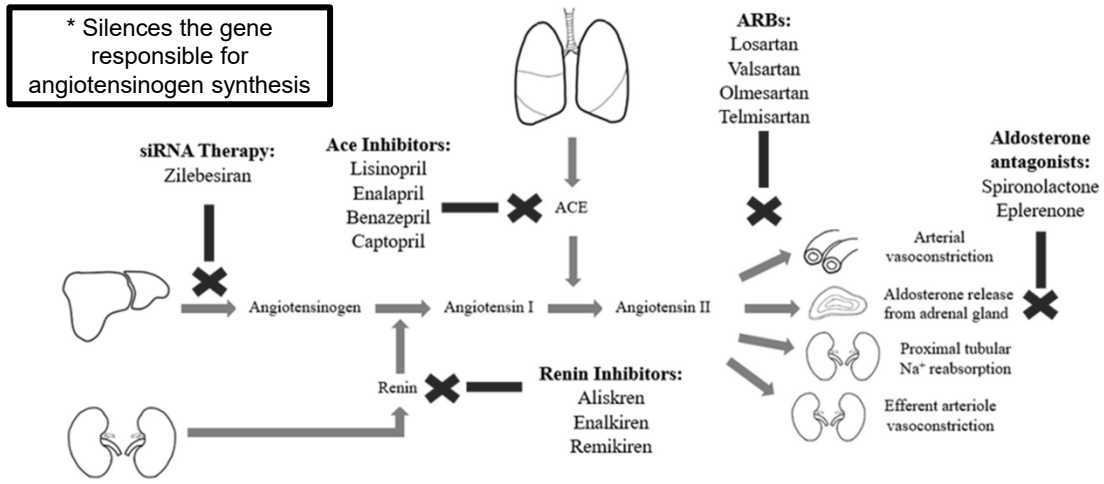
- Once-daily baxdrostat vs. placebo in adults with hard-to-control HTN (SBP 140-170 mmHg on 2-3 maximally tolerated meds)
- Proportion with controlled BP at week 12: baxdrostat = 39.4%, placebo 18.7%
- Most common ADEs = hyperkalemia, hyponatremia, hypotension, dizziness, muscle spasms

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

UCONN SCHOOL OF PHARMACY

46

More RAAS Inhibition: RNA Interference Agent

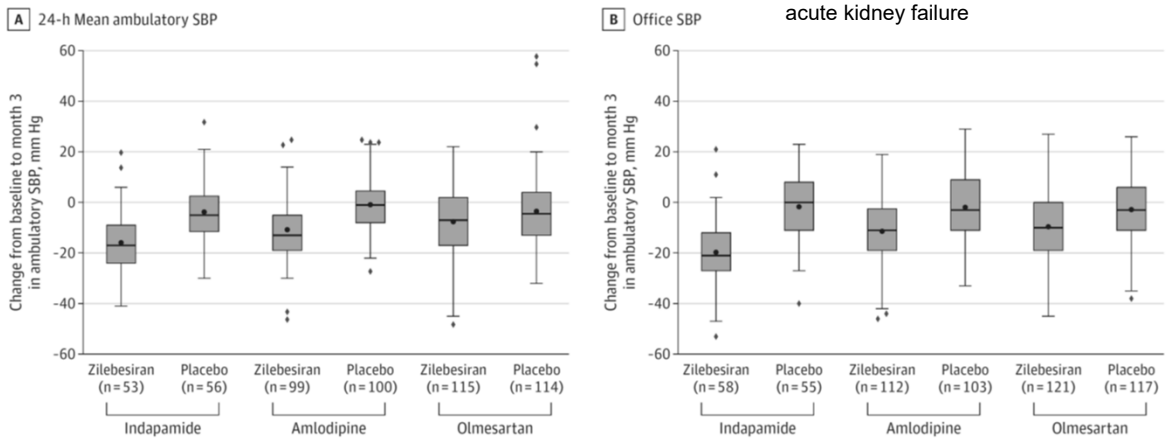


Khan RS & Frishman WH. *Cardiol Rev*. 2025;33:279-84.

UCONN SCHOOL OF PHARMACY

47

RNA Interference Agent: Zilebesiran



- ADEs = hyperkalemia, hypotension, acute kidney failure

Desai AS, et al. *N Engl J Med*. 2023;389:228-38.
Desai AS, et al. *JAMA*. 2025;334:46-55.

- Adults with untreated/uncontrolled HTN
- Single-dose SQ injection (? q6 months)

UCONN SCHOOL OF PHARMACY

48

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
B. 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

UCONN SCHOOL OF PHARMACY

49

UCONN SCHOOL OF PHARMACY

Thank You For Your Attention

Session code:

50