KNIGHT CARDIOVASCULAR Institute

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What's New in the 2025 Multisociety High Blood Pressure Guidelines

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57th Annual Primary Care Review | February 9, 2026

Disclosures

None

Objectives

- Apply the PREVENT calculator in management of high blood pressure and appropriate initiation of medication therapy
- Recognize blood pressure targets when treating pregnant individuals
- Recognize the benefits and risks of blood pressure treatment in the elderly

SGIM
Society of General Internal Medicine

AMA

American Heart Association.

AMERICAN COLLEGE of CARDIOLOGY

National Medical Association
Service. Excellence. Accountability.

ABC Association of Black Cardiologists, Inc.

AGS Geriatrics Healthcare Professionals
Leading Change. Improving Care for Older Adults.

AAPA

PCNA
Preventive Cardiovascular Nurses Association

ASPC
The American Society for Preventive Cardiology

American Association of Colleges of Pharmacy AACP

AANP American Association of NURSE PRACTITIONERS

ACPM
American College of Preventive Medicine
physicians dedicated to prevention

CLINICAL PRACTICE GUIDELINES

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

METHODS: A comprehensive literature search was conducted from December 2023 to June 2024 to identify clinical studies, reviews, and other evidence performed on human subjects that were published since February 2015 in English from MEDLINE (through PubMed), EMBASE, the Cochrane Library, the Agency for Healthcare Research and Quality, and other selected databases relevant to this guideline.

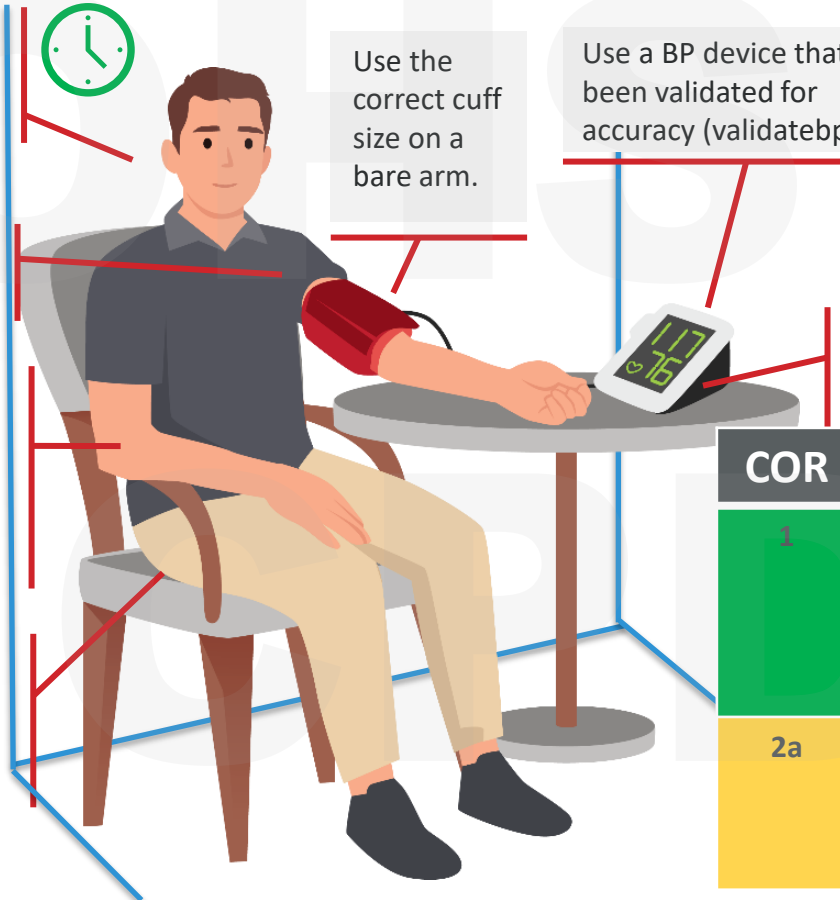
Accurate Blood Pressure Measurement

Avoid caffeine, exercise, and smoking for at least 30 minutes before.

The patient's arm should be supported at heart level.

Patient should be relaxed, sitting in a chair (feet flat, legs uncrossed, and back supported) for at least 5 minutes.

Neither patient nor clinician should talk during the rest or measurement. No use of phones.



Use the correct cuff size on a bare arm.

Use a BP device that has been validated for accuracy (validatebp.org).

BP measurement should be done in a temperature-controlled room.

Take 2 or more BP measurements at least 1-minute apart.

COR	RECOMMENDATIONS
1	When diagnosing and managing high BP in adults, standardized methods are recommended for the accurate measurement and documentation of in-office BP.
2a	When measuring in-office BP in adults, it is reasonable to use the oscillometric method with an automated device over the auscultatory method.

Jones DW et al. Circulation. 2025;152:e114–e218.

Blood Pressure Classification

Category	SBP (mmHg)		DBP (mmHg)
Normal Blood Pressure	< 120	and	< 80
Elevated Blood Pressure	120-129	and	< 80
Stage 1 Hypertension	130-139	or	80-89
Stage 2 Hypertension	≥140	or	≥ 90
Severe Hypertension	>180	and/or	>120
Hypertensive Emergency*	>180	and/or	>120

* With symptoms (chest pain, shortness of breath, back pain, numbness, weakness, vision change, or difficulty speaking)

Case 1

A 52-year-old man with no known cardiovascular disease (CVD), diabetes, or chronic kidney disease presents for a routine exam. His average blood pressure (based on multiple readings over 3 visits and home monitoring) is 138/86 mm Hg. He has been trying lifestyle changes (diet, exercise, weight loss, and reduced sodium) for 4 months without meaningful improvement. According to the 2025 ACC/AHA high blood pressure guideline, what is the most appropriate next step in management?

A. Continue lifestyle changes alone; pharmacologic therapy is not indicated yet.
B. Initiate antihypertensive medication to achieve a target BP < 130/80 mmHg.
C. Initiate antihypertensive medication only if his systolic BP rises above 140 mmHg.
D. Defer any treatment and re-evaluate in 6 months if he remains asymptomatic.

Case 1 - Answer

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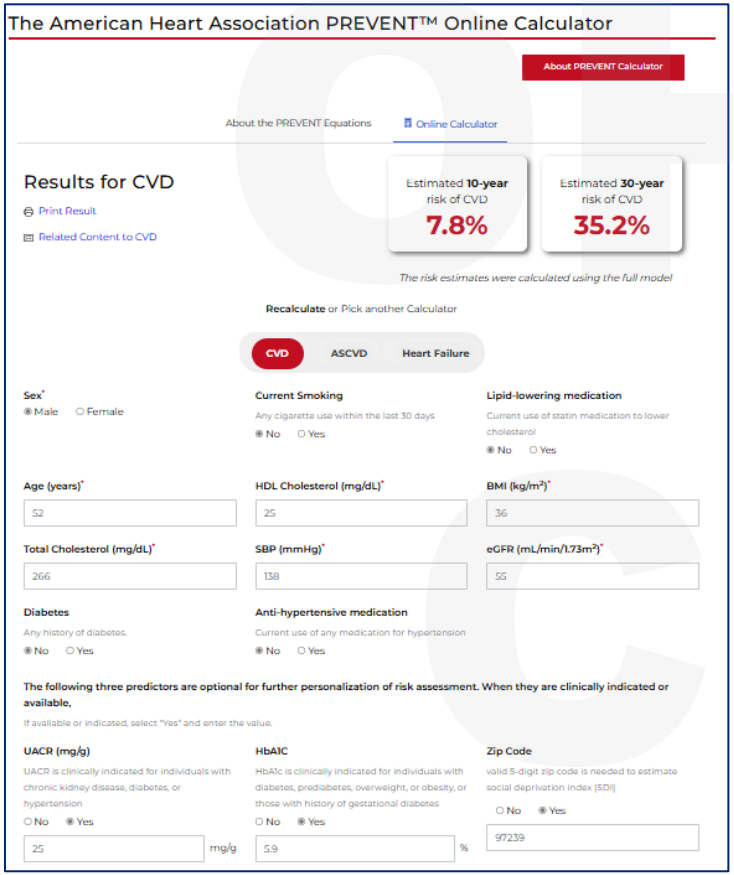
Risk Calculators

- 2025 Guidelines use PREVENT
  - Developed by the American Heart Association in 2023, the Predicting Risk of Cardiovascular Disease EVENTs (PREVENT) equations estimate 10-year and 30-year risk for total cardiovascular disease (CVD), including atherosclerotic CVD (ASCVD) and heart failure (HF)
  - It is the first risk tool to combine cardiovascular, kidney, and metabolic health measures to guide primary prevention-focused treatment decisions.
  - New optional socioeconomic determinants using zip code
  - Risk stratification
    - Low risk: <5%
    - Borderline risk: 5% to 7.4%
    - Intermediate risk: 7.5% to 19.9%
    - High risk: ≥20%

Risk Calculators - PREVENT



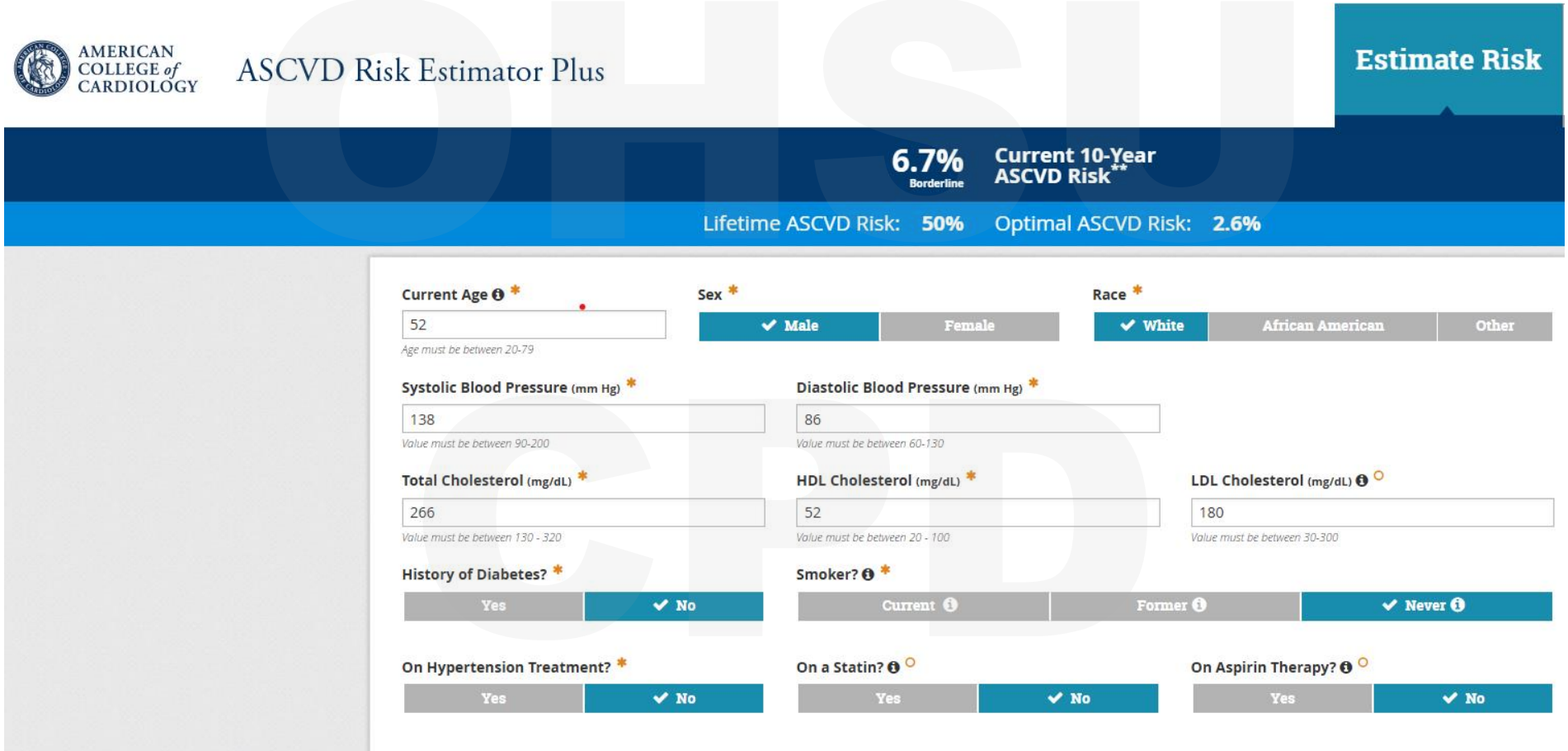
Recommendation

In adults with average blood pressure >130/80 mmHg and at lower 10-year cardiovascular disease risk defined by PREVENT ≥7.5%, initiation of medication therapy to lower blood pressure is.

Risk Calculators

Pooled Cohort Equations	PREVENT Equation
• 20,338 White • 4,288 Black	• 3.2 million • more diverse sample of racial/ethnic groups
1960s-1990s	1992-2022
Estimates risk for atherosclerotic cardiovascular disease (MI, stroke)	Estimates risk for **total** cardiovascular disease (MI, stroke, HF)
Applicable to adults 40-79 yo not on statin therapy	• Applicable to adults 30-79,yo • Includes statin therapy as a predictor
In a contemporary sample of 3.3 million US adults: overpredicted risk by 2-fold	Incorporates kidney function, place-based social risk

Risk Calculators – Pooled Cohort



Risk Calculators – MESA

MESA 10-Year CHD Risk with Coronary Artery Calcification

1. Gender	Male ◉ Female ○				
2. Age (45-85 years)	52	Years			
3. Coronary Artery Calcification	12	Agatston			
4. Race/Ethnicity	Caucasian				
5. Diabetes	Yes ○ No ◉				
6. Currently Smoke	Yes ○ No ◉				
7. Family History of Heart Attack (History in parents, siblings, or children)	Yes ○ No ◉				
8. Total Cholesterol	266	mg/dL	or	6.9	mmol/L
9. HDL Cholesterol	25	mg/dL	or	0.6	mmol/L
10. Systolic Blood Pressure	138	mmHg	or	18.4	kPa
11. Lipid Lowering Medication	Yes ○ No ◉				
12. Hypertension Medication	Yes ○ No ◉				

Calculate 10-year CHD risk

Using the Coronary Artery Calcium Score

10 Year risk of a CHD Event	Coronary Age	Difference from Chronologic Age
7.0%	63	+11

Without Considering the Coronary Artery Calcium Score

10 Year risk of a CHD Event	Coronary Age	Difference from Chronologic Age
7.6%	65	+13

Case 2

- A 35-year-old G2P1 woman presents at 22 weeks gestation for routine prenatal care
  - chronic hypertension diagnosed several years ago
  - Average home blood pressure readings: 148–152/92–96 mmHg despite lifestyle measures
  - Currently taking labetalol 200 mg twice daily
- Clinic exam in clinic today
  - blood pressure is 150/94 mm Hg (confirmed on repeat measurement)
  - No headaches, visual changes, chest pain, or right-upper-quadrant pain
  - Fundal height is appropriate for dates
  - Urinalysis shows no proteinuria

Case 2 - Continue

- According to the 2025 AHA/ACC hypertension guideline recommendations for pregnancy, what is the best next step in management?

A. Continue current regimen and re-evaluate at the next routine prenatal visit in 4 weeks; no change in therapy is needed
B. Discontinue labetalol because her blood pressure is below “severe” range and most antihypertensives worsen fetal growth; observe only
C. Increase antihypertensive therapy to better achieve a target blood pressure 140/90 mmHg by adding or uptitrating a pregnancy-safe agent
D. Convert labetalol to an ACE inhibitor to improve maternal blood pressure control and reduce long-term cardiovascular risk

Case 2 - Answer

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D. Convert labetalol to an ACE inhibitor to improve maternal blood pressure control and reduce long-term cardiovascular risk

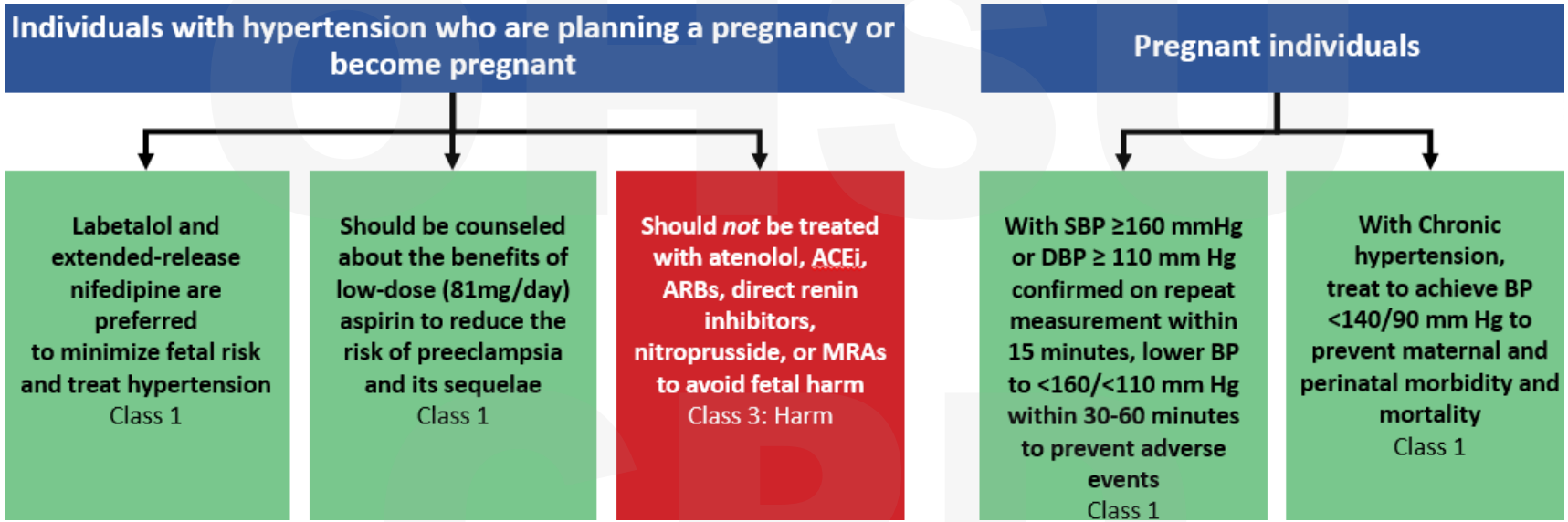
HTN in Pregnancy in Primary Care Clinic

Chronic hypertension	Diagnosis prior to pregnancy or at <20 weeks gestation
Gestational hypertension	De novo hypertension at ≥20 wks' gestation in the absence of proteinuria or other signs of preeclampsia
Preeclampsia	Gestational hypertension with proteinuria or other maternal end-organ dysfunction including neurologic findings, pulmonary edema, hematologic findings, acute kidney injury, hepatic dysfunction
Preeclampsia superimposed on chronic hypertension	Preeclampsia in a woman with a history of hypertension before pregnancy or before 20 weeks' gestation

HTN in Pregnancy

Drug	Dose	Comments	Onset of Action
Labetalol	10-20mg IV, then 20-80mg q10-30min to max 300mg OR constant infusion 1-3mg/min	Tachycardia is less common with fewer adverse effects. Avoid in women with asthma, preexisting myocardial disease, decompensated cardiac function, heart block, and bradycardia.	1-2 minutes
Hydralazine	5mg IV or IM, then 5-10mg IV q20-40 min to max 20mg OR constant 0.5-10mg/hr	Higher or frequent dosage associated with maternal hypotension, headaches, and abnormal fetal heart tracing; may be more common than other agents	10-20 minutes
Nifedipine (immediate release)	10-20 mg orally, repeat in 20 min if needed, then 10-20mg every 2-6h to max daily dose of 180 mg	May observe reflex tachycardia and headaches	5-10 minutes

HTN and Pregnancy



Jones DW et al. Circulation. 2025;152:e114–e218.

Case 3

- 88 yo male with hypertension diagnosed 30 years ago, hyperlipidemia, diabetes, prior tobacco use, NSTEMI in 2017 s/p LAD PCI, LVEF 55-60% and aortic sclerosis on echo in November 2024, who presents for routine follow-up. He has fallen twice during the past month. BP at home consistently has been >150/90 mmHg
- Current medications: lisinopril 40 mg daily, atorvastatin 80 mg daily, aspirin 81 mg daily, metformin 1000 mg BID
- Temp 98.2, HR 62 bpm, BP 160/84 mmHg, BMI 32 kg/m^2
- JVP 6 cmH20, S1S2 RRR, 2/6 early peaking systolic murmur in the RUSB, Lungs CTA, LE no edema
- Na 140 mmol/L, K 3.9 mmol/L Cr 1.3 mg/dL , eGFR 56 $mL/min/1.73m^2$, Total cholesterol 187 mg/dL, HLD 39 mg/dL, LDL 59 mg/dL, urine albumin/creatinine ratio: 45 mg/g, Hba1c 7.0%

Case 3 - Continue

According to the 2025 high blood pressure guideline, what is the next best step?

A. Add another medicine to achieve BP < 120/80 mmHg
B. Add another medicine to achieve BP < 130/80 mmHg
C. Add another medicine to achieve BP < 140/90 mmHg
D. Calculate the CVD and ASCVD risk using the PREVENT, if risk is <7.5%, encourage more strict lifestyle modification
E. Calculate the CVD and ASCVD risk using the PREVENT, if risk is ≥7.5%, add medicine

Case 3 - Answer

According to the 2025 high blood pressure guideline, what is the next best step?

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E. Calculate the CVD and ASCVD risk using the PREVENT, if risk is ≥7.5%, add medicine

HTN in the Elderly

US POPULATION (million)							
Age	2020	2030	2040	2050	2060	Number	%
≥ 65 years	49.2	73.1	80.8	85.7	94.7	↑45.4	↑92.3
≥ 85 years	6.7	9.1	14.4	18.6	19.0	↑12.6	↑198.1
≥ 100 years	0.1	0.1	0.2	0.4	0.6	↑0.5	↑618.3

SPRINT-SENIOR (n=2,636, age ≥ 75 years)

- SBP < 120 mmHg vs SBP < 140 mmHg
- 34% ↓in MACE (CV death, nonfatal MI, ACS, or decompensated HF
- 33% ↓ in all-cause mortality

Vespa J et al. US Census Bureau Reports. 2020;P25-1144; Williamson JD et al. JAMA. 2026;315:2673-2682

HTN in the Elderly

TABLE 1 Randomized Trials of Intensive vs Standard Blood Pressure Control in Older Adults

	Year	N	Age Range, y	Target SBP, mm Hg	Follow-Up, y	Main Outcome	Comment
ACCORD	2010	4,733	Mean 62.9	<120	4.7	12% ↓ in CV death, MI, CVA	Difference not significant Similar in <65 vs ≥65
SPRINT	2015	9,361	≥50 Mean 67.9	<120	3.26	25% ↓ in CV death, MI, ACS, CVA, HF	Similar in <75 vs ≥75
STEP	2021	8,511	60-80 Mean 66.2	110-130	3.34	26% ↓ in CV death, ACS, ADHF, CVA, AF, coronary artery revascularization	Similar in 60-69 vs 70-80 No patients ≥80
ESPRIT	2024	11,255	≥50 Mean 64.6	<120	3.4	12% ↓ in CV death, MI, CVA, HHF, coronary artery revascularization	Similar in <60, 60-70, ≥70 ≥80 not reported
BPROAD	2025	12,821	≥50 Mean 63.8	<120	4.2	21% ↓ in CV death, MI, CVA, HHF	Similar in <80 vs ≥80 but small (n = 177)

ACS = acute coronary syndrome; ADHF = acute decompensated heart failure; AF = atrial fibrillation; CV = cardiovascular; CVA = cerebrovascular accident; HF = heart failure; HHF = hospitalization for heart failure; MI = myocardial infarction; SBP = systolic blood pressure; SPRINT = Systolic Blood Pressure Intervention.

Supiano MA et al. JACC: Advances. 2025;4:102306

HTN in the Elderly - Dementia

SBP goal <130 mmHg in adults to prevent mild cognitive impairment and dementia (Class IA)

Study	Type of Study	n	Target	Outcomes
SPRINT-MIND SPRINT Research Group	RTC US and Puerto Rico	Intensive: 4,678 Standard: 4,683	Intensive: SBP<120 mmHg Standard: SBP<140 mmHg	• 17% ↓ incident dementia (p=0.10) • 19% ↓ mild cognitive impairment (p=0.007) • 15% ↓ combined (p=0.01)
Peters R 2022	Meta-analysis of 5 RCTs*	28,008	SBP <150 mmHg SBP <160 mmHg or ↓20 mmHg (SHEP)	13% ↓ dementia (95% CI 0.75-0.99)
He, J 2025	RTC Rural China	33,995	SBP <130 mmHg	All-cause dementia (HR 0.85, 95% CI 0.76-0.95, p=0.0035)

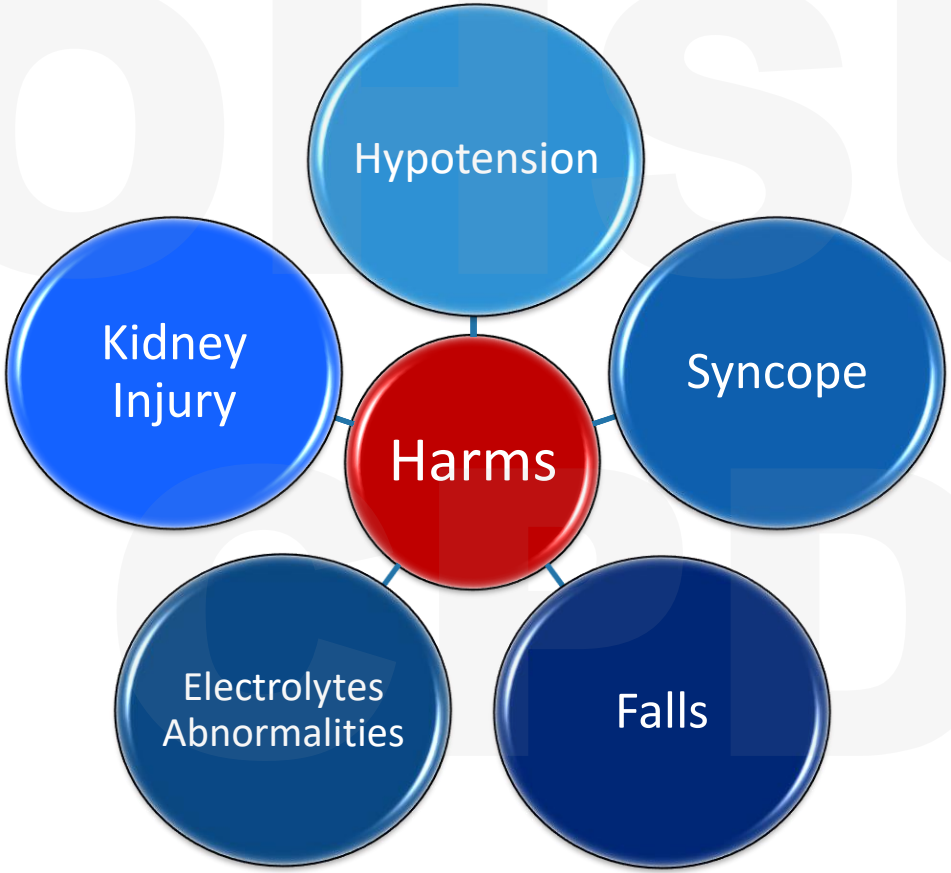
*ADVANCE, HYVET, PROGRESS, SHEP, SYST-EUR; Patients >80 years under-represented

HTN in the Elderly - Long-term Care Residents

- RETREAT-FRAIL Trial (RCT)
- n=1,048 nursing home residents age ≥ 80 years
- Randomized ≥ 2 meds with SBP goal <130 mmHg vs de-escalation of antihypertensive medications
- Mean age 90 ± 5.3 years
- Follow-up: 38.4 months
- Δ 4.1 mmHg
- No difference in all-cause mortality or adverse events

Benetos A et al. NEJM. 2025;393;1990-2000.

HTN in the Elderly – Potential Harms

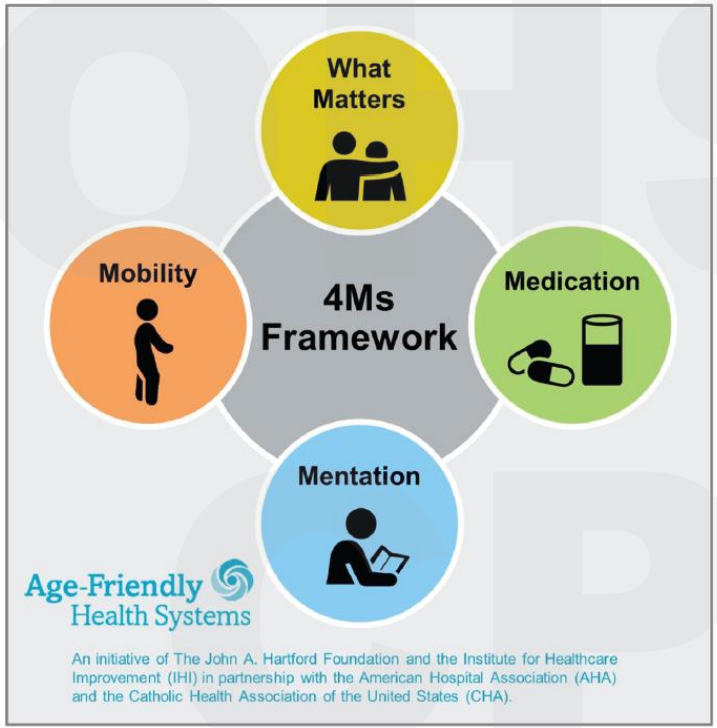


HTN in the Elderly with Frailty

- ESPRIT Trial, Post-hoc analysis
- N=11,255, mean age 64.6 years
  - 38.8% non-frail
  - 46.7% moderately frail
  - 14.5% severely frail
- Frail groups had higher risk of serious adverse events (hypotension, syncope, electrolytes abnormities, injurious falls, AKI)
- Intensive BP treatment (SBP <120 mmHg) did not increase MACE (MI, HF hospitalization, stroke, CVD death) compared to standard therapy (SBP<140 mmHg)

Li S et al. JACC. 2026;87:4-16.

4Ms- Framework in the Care of the Elderly



What Matters

Know and align care with each older adult's specific health outcome goals and care preferences including, but not limited to, end-of-life care, and across settings of care.

Medication

If medication is necessary, use Age-Friendly medication that does not interfere with What Matters to the older adult, Mobility, or Mentation across settings of care.

Mentation

Prevent, identify, treat, and manage dementia, depression, and delirium across settings of care.

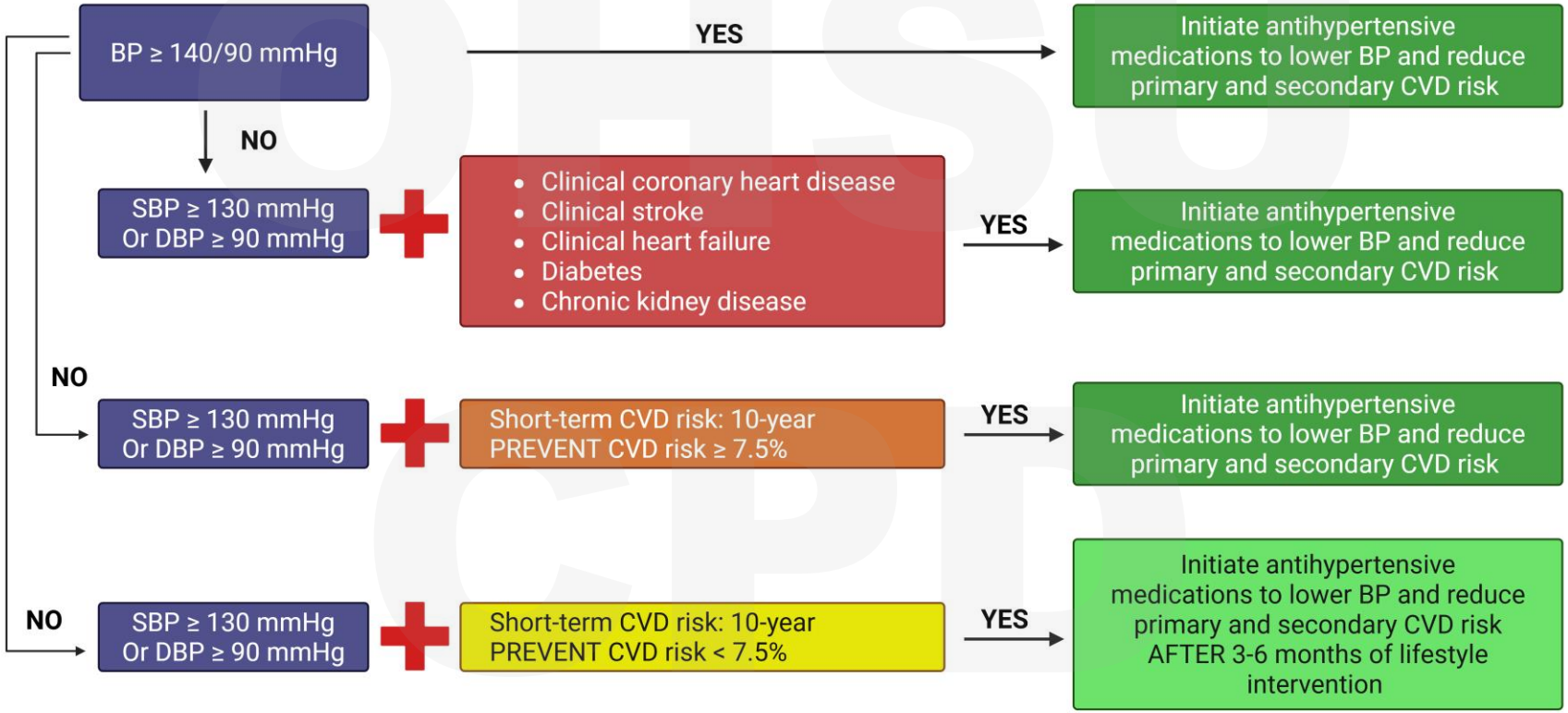
Mobility

Ensure that older adults move safely every day in order to maintain function and do What Matters.

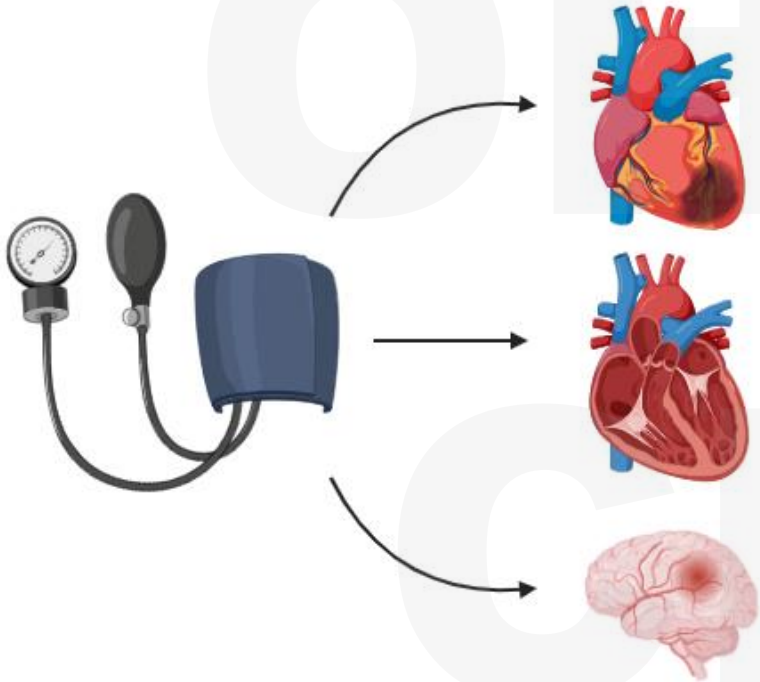
The 4 Ms model provides a framework for delivering patient-centered care to older adults with acute and chronic medical conditions, including hypertension (see text for details) (https://www.ihi.org/partner/initiatives/age-friendly-health-systems; accessed 9/10/2025) (with permission from ihi.org).

Supiano MA et al. JACC: Advances. 2025;4:102306

Algorithm Summary



Take-Home Message #1



High blood pressure is the most prevalent and modifiable risk factor for development of cardiovascular diseases

Take-Home Message #2

1

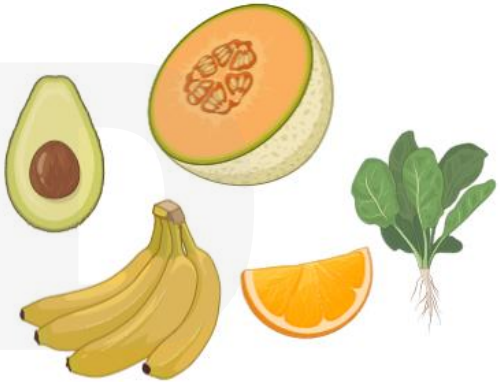
- High blood pressure ≥ 130/80 mmHg and 10-year cardiovascular disease risk <7.5% using PREVENT calculator
- 3-to-6 months of lifestyle modification and then initiate medication if BP ≥ 130/80 mmHg

Take-Home Message #3

1

- Sodium intake to <2,300 mg/day with ideal limit of <1,500 mg/day

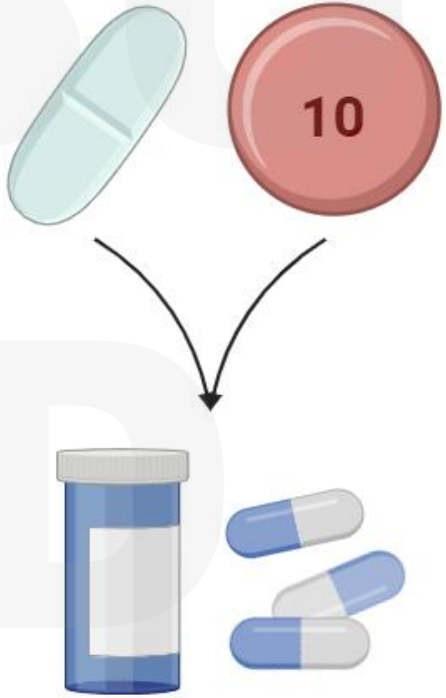
- Potassium intake 3,500 mg – 5,000 mg/day through food sources if kidney disease is absent
  - Max BP reduction with 30 mmol/day
  - Primary prevention of heart failure



Take-Home Message #4

1

- Stage 2 HTN: Initiate medication when blood pressure is ≥ 140/90 mmHg to reduce cardiovascular events and mortality
- Start 2 different first-line agents
  - Hydrochlorothiazide/chlorthalidone
  - ACEi
  - ARB
- Single-pill combination to improve adherence



Take-Home Message #5

1

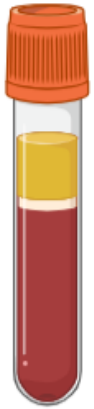
- Pregnancy & <20 weeks gestation
- BP ≥ 140/90 mmHg
- Start labetolol and extended-release nifedipine to achieve goal <140/90 mmHg
- Remind patients that HTN is one of the adverse pregnancy outcomes
- Pre-existing HTN – pt to remind OB for collaborative care

Take-Home Message #6

1

Hypertension & cardiovascular-kidney-metabolic syndrome

eGFR < 60 mL/min/1.73 m^2
start ACEi or ARB



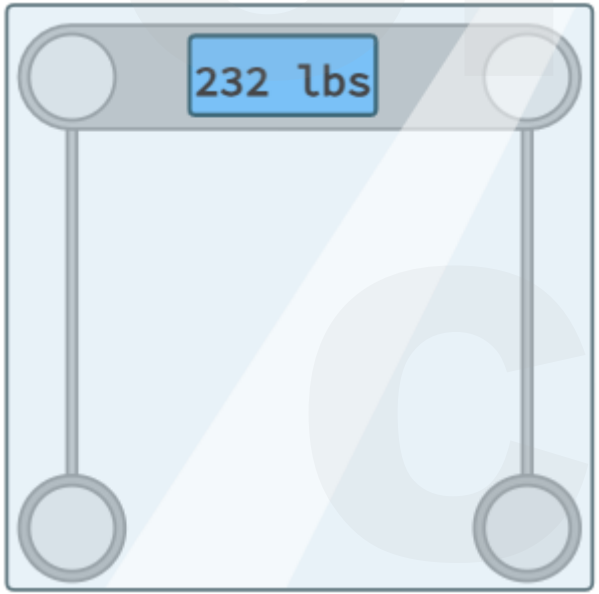
Urine albumin-to-creatinine ratio >30 mg/g

Start ACEi or ARB

Take-Home Message #7

2a

- High blood pressure & overweight or obesity
- Weight reduction of ≥ 5%



Take-Home Message #8

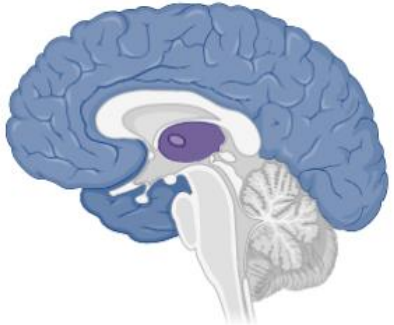
1

Hypertension & Healthy Cardiovascular Aging

Treat systolic blood pressure to <130 mmHg

- to prevent mild cognitive impairment and dementia
- To prevent orthostatic hypotension

2a



Take-Home Message #9

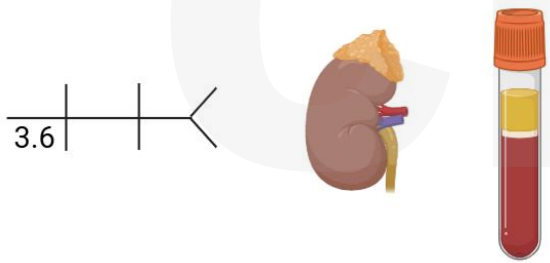
- Blood pressure >180/120 mmHg w/o symptoms
  - 2013: hypertensive emergency
  - 2017: hypertensive urgency
  - 2025: severe hypertension
- Nonpregnant
- No acute target organ damage
- Treat in outpatient setting

Take-Home Message #10

1

Secondary hypertension

- Measure aldosterone/renin ratio even when hypokalemia is absent
- Discontinue mineralocorticoid receptor antagonist ≥ 4 weeks before test



Features Suggesting Secondary HTN

- Drug-resistant/induced HTN
- Abrupt onset of HTN
- Onset of HTN <30 years
- Exacerbation for previously controlled HTN
  Accelerated/malignant HTN
- Onset DBP HTN in adults ≥ 65 years
- Unprovoked or excessive hypokalemia
- Insomnia or daytime somnolence
- Concomitant adrenal nodule
- Early-onset stroke
- Family history of primary Hyperaldosteronism
- Disproportionate target organ damage (CVD, hypertensive retinopathy, LVH, LV dysfunction, HF, CAD, CKD, PAD, albuminuria)

Take-Home Message #11

- Multidisciplinary team approach
- Electronic health records, decision support tools
- Out-of-office measurements with validated BP cuff
- Avoid cuffless devices, including smart watches

References

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Thank You

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