




# Hypertension Management 2025: Translating the New AHA/ACC Guidelines into Practice

Matthew C Tattersall, DO, MS  
Associate Professor  
Director, Section of Preventive Cardiology  
Director, UW Comprehensive Advanced Hypertension Center  
Medical Director, Cardiac Rehabilitation  
Division of Cardiovascular Medicine  
UW School of Medicine and Public Health



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## Disclosure

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In relation to this conference, the speaker has a Scientific Advisory Board relationship with AstraZeneca. All relevant financial relationships listed have been mitigated.

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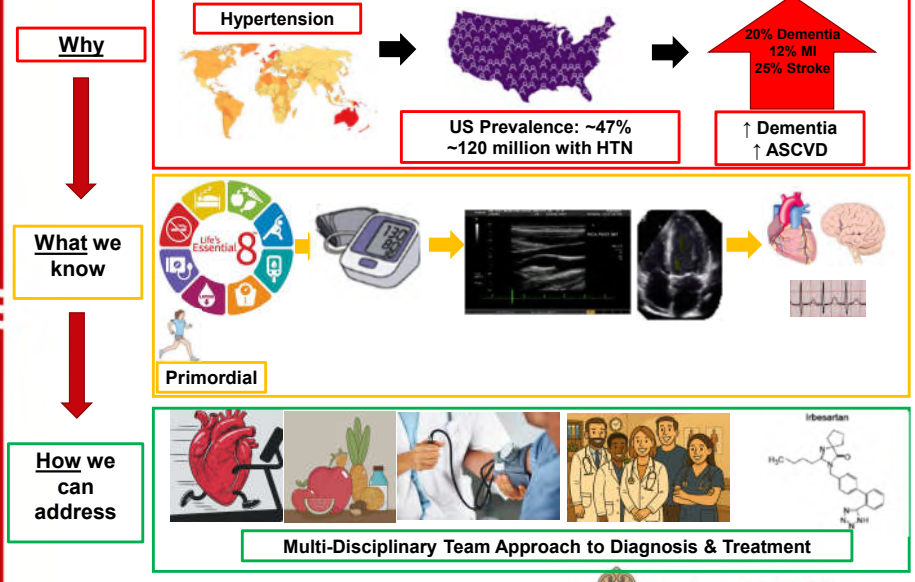
### Learning Objectives

1. Describe burden of hypertension
2. Explain the pathophysiological mechanisms underlying hypertension and its impact on target organs
3. Identify barriers in recognizing hypertension
4. Describe the major changes in hypertension classification and treatment thresholds introduced in the 2025 guidelines compared to 2017
5. Implement team-based care and home BP monitoring strategies to improve hypertension control

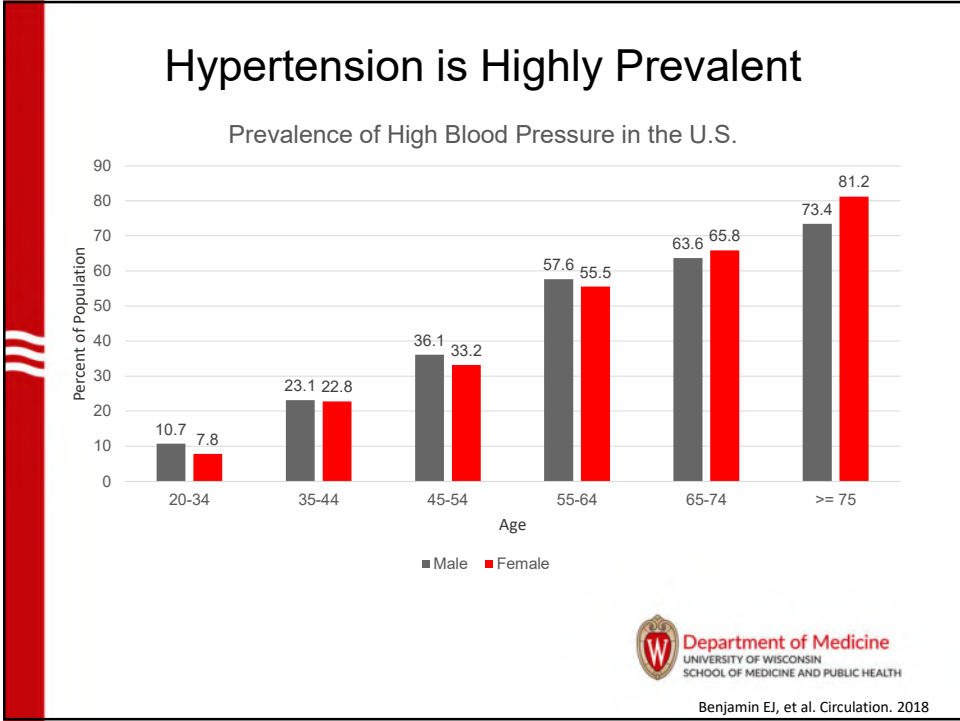


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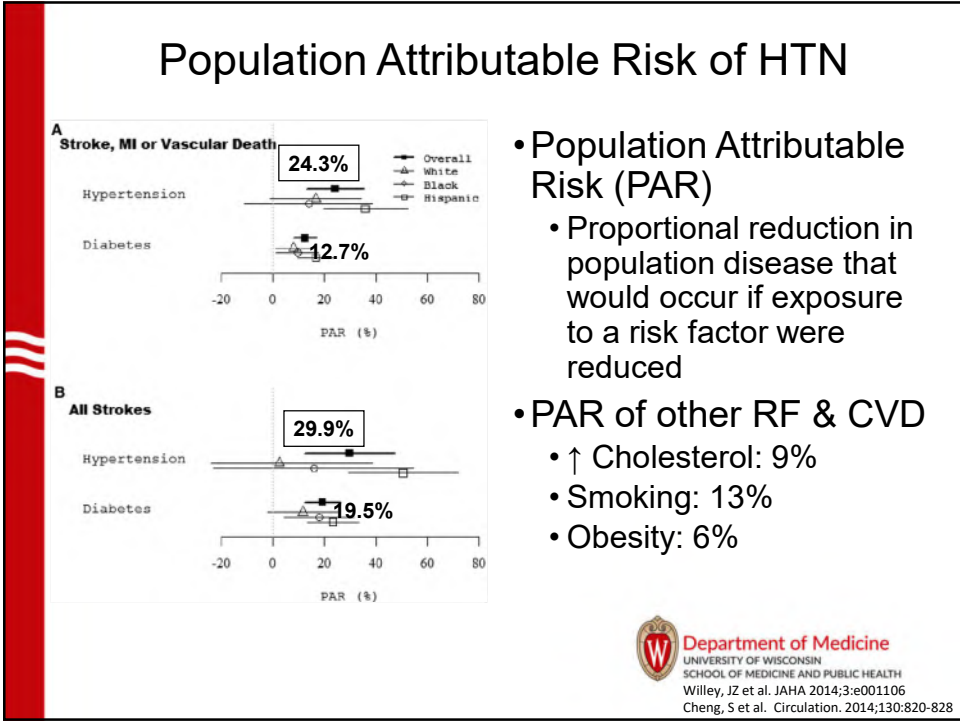
### Presentation Overview: "Why, What & How"



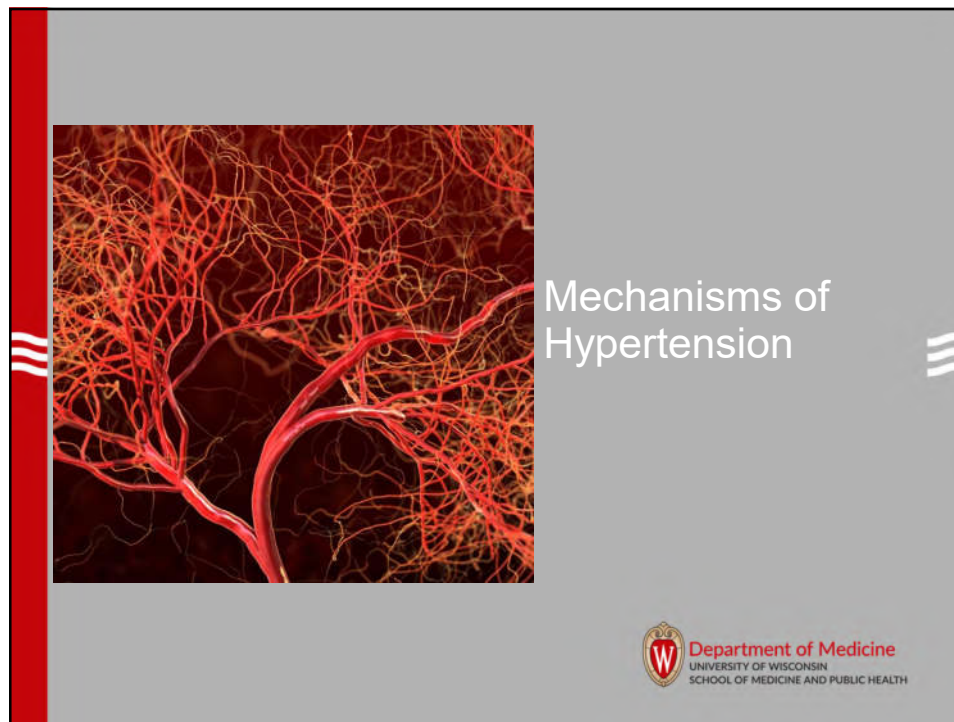
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## Types of Hypertension

- **Essential (Primary) Hypertension** ~95% of hypertension
  - Routine Labs:
    - Complete Blood Count
    - Basic metabolic panel with eGFR
    - Lipid panel
    - Fasting glucose or A1c
    - TSH
    - UA
    - Urine albumin-to-creatinine ration, protein-to-creatinine ratio
    - ECG
- **Secondary Causes Exist**
  - Features that should provoke screening
    - Resistant HTN
    - Abrupt Onset/Accelerated/Malignant
    - Age < 30 years
    - Disproportionate target organ damage
    - Diastolic HTN  $\geq$  65 years
    - New update: Screen for 1° Aldosteronism regardless of K+ in resistant HTN
    - Daytime sleepiness
    - Adrenal nodule
    - Family history of early stroke
    - Family history of 1° Aldosteronism

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### 2° Causes of Hypertension

Cause	Clinical Clues	Initial Screening Tests
Primary Aldosteronism	Resistant HTN, +/- hypokalemia, adrenal mass, family history of early stroke	Aldosterone/Renin Ratio
Renal Artery Stenosis	Abrupt onset, renal bruit, flash pulmonary edema	Renal Doppler US, CT/MR Angiography
Obstructive Sleep Apnea	Snoring, daytime sleepiness, large neck, resistant HTN	STOP-Bang, Overnight Oximetry, Polysomnography
Chronic Kidney Disease	Diabetes, abnormal urinalysis, elevated creatinine	Serum Creatinine, Urinalysis, Renal Ultrasound
Drug/Substance Induced	NSAIDs, steroids, alcohol, decongestants, oral contraceptives, cocaine	Medication History, Urine Drug Screen
Pheochromocytoma	Paroxysmal HTN, spells (sweating, palpitations), adrenal mass	Plasma/Urine Metanephrines
Cushing's Syndrome	Central obesity, striae, muscle weakness	Dexamethasone Suppression Test
Thyroid Disorders	Hypo: fatigue, weight gain; Hyper: tremor, weight loss	TSH, Free T4
Coarctation of Aorta	HTN in young adults, BP difference in limbs, absent femoral pulses	Echocardiogram, CT/MR Angiography
Other Endocrine Causes (1° Hyperparathyroidism, congenital adrenal hyperplasia, acromegaly, mineralocorticoid excess syndromes)	Based on specific condition	Based on specific condition (labs/imaging)

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### Mechanisms of Primary Hypertension

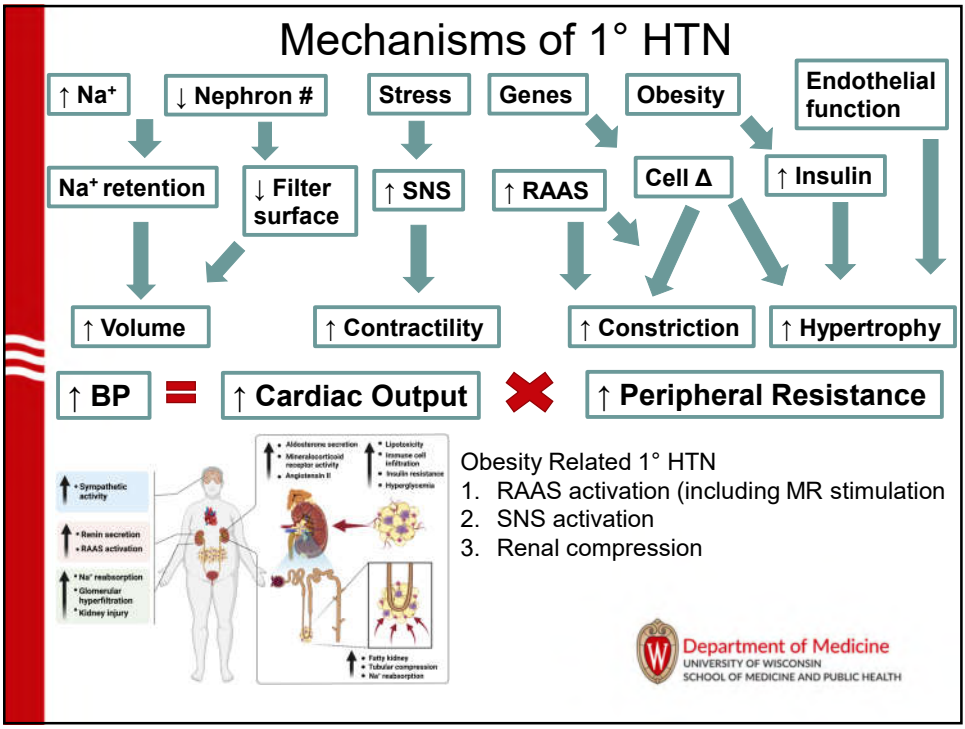
**Blood pressure = cardiac output x systemic vascular resistance**  
 (BP = CO x SVR), where (CO=stroke volume x heart rate)

Younger patients with primary hypertension tend to have greater cardiac output and higher heart rates

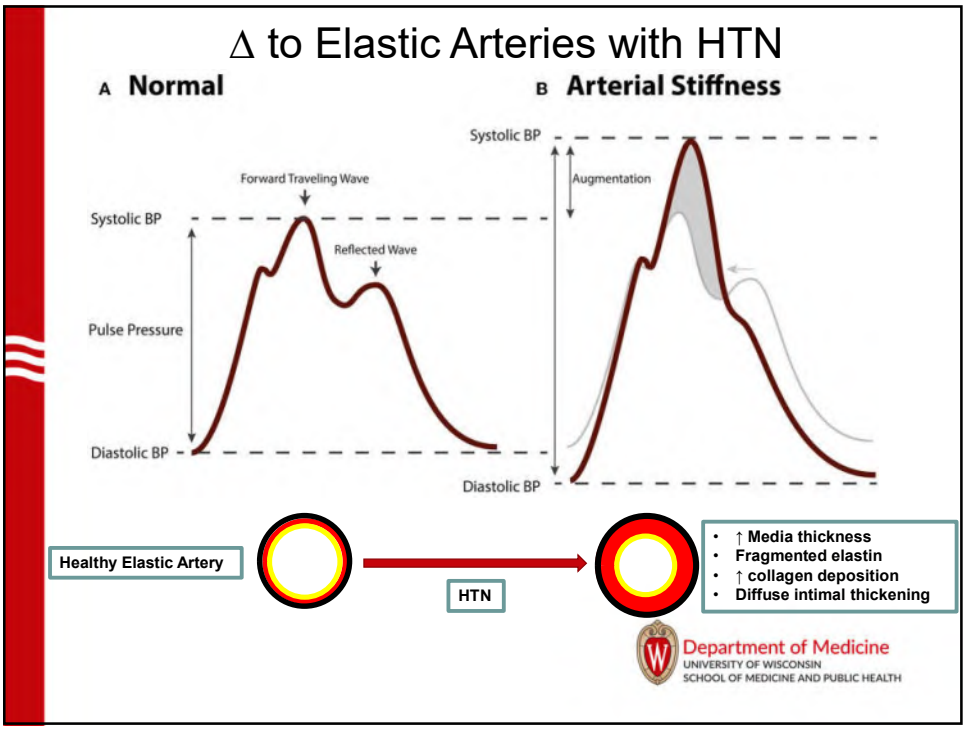
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Lilly LS, ed. *Pathophysiology of Heart Disease*. 4th ed. Baltimore, MD: Lippincott Williams & Wilkins; 2007:318

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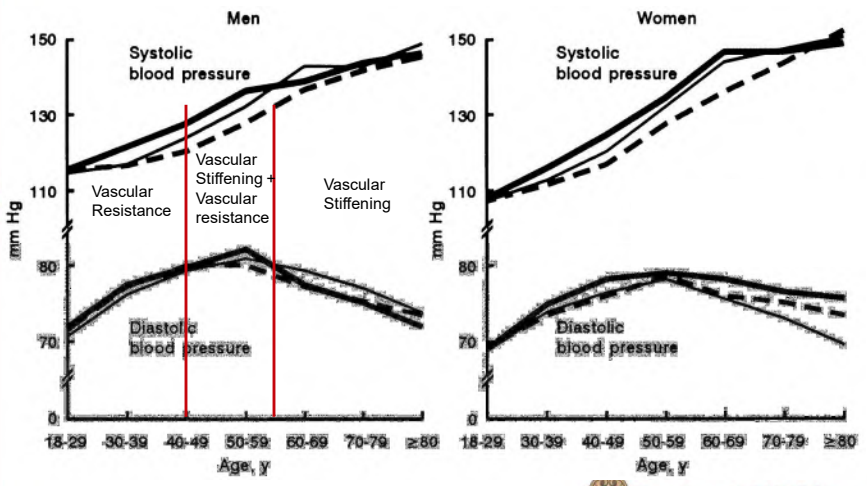


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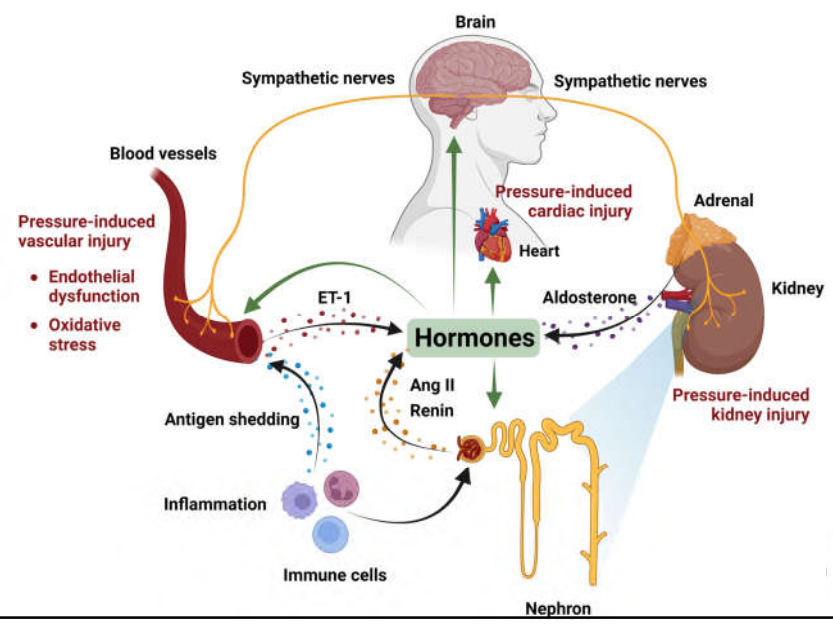
### Aging and Blood Pressure: Framingham Study



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 Franklin SS, et al. Circulation. 1997;96:308-315  
 Burt VL, et al. Hypertension. 1995;25:305-313

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### Complex Interplay of Organ Systems in HTN



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### Diagnosis of HTN

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## Blood Pressure Classifications

Blood Pressure Classification	Systolic Blood Pressure (mmHg)	Diastolic Blood Pressure (mmHg)
Normal	<120	and <80
Elevated*	120-129	and <80
Stage 1 Hypertension	130-139	or 80-89
Stage 2 Hypertension	≥140	or ≥90

\*Earlier guideline versions: "pre-hypertension"  
 Diagnosis: based upon ≥2 blood pressure measurements on ≥2 visits. CONFIRM with out of office measures. Oscillometric method with automated device > auscultatory method (Class 2A)

Blood Pressure Measure	Hypertension Definition
Office-Based	≥130/80 mmHg
Home Measured	≥130/80 mmHg
Ambulatory BP monitor	≥125/75 mmHg

Jones DW et al. Circulation 2025 152:e114–e218  
 Whelton PK, et al. Hypertension. 2018 Jun;71(6):1269-1324.  
 Roger VL, et al. Circulation. 2012;125:e2-e220. American Heart Association. <http://www.heart.org/>

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## Classify Hypertension Status

BP category	High BP in office	High BP outside of office
Sustained Normotension	No	No
Sustained Hypertension	Yes	Yes
Masked Hypertension	No	Yes
White-Coat Hypertension	Yes	No

Step	Instructions
Device Selection	Use a validated automated upper arm cuff device (No wrist, finger or cuffless devices)
Preparation	Rest for 5 minutes. No caffeine, exercise or smoking < 30 min
Position	Upright back supported feet flat arm at heart level
Measurement	Measure 2 readings 1 minute apart (4 total) AM/PM for 3-7 days



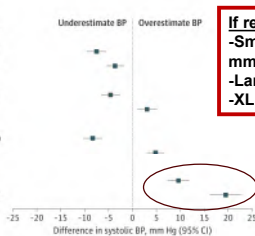
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## Importance of Cuff Sizing

- Cuff(SZ) Randomized Cross-Over Trial
  - N=195 community dwelling adults
  - 4 sets of triplicate BP measures with various cuff sizes

A Systolic BP differences

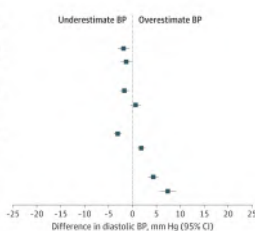
Appropriate BP cuff size	Difference in systolic BP, mm Hg (95% CI)
Small size	
Large used	-7.5 (-9.6 to -5.5)
Regular used	-3.6 (-5.6 to -1.7)
Regular size	
Large used	-4.6 (-6.6 to -2.6)
Small used	3.0 (0.9 to 5.2)
Large size	
Extra large used	-8.3 (-10.4 to -6.2)
Regular used	4.8 (3.0 to 6.6)
Extra-large size	
Large used	9.6 (7.3 to 11.9)
Regular used	19.5 (16.1 to 22.9)



**If requiring (all measures SBP):**  
 -Small Cuff but used regular: -3.6 (95% CI -5.6, -1.7) mmHg  
 -Large cuff but used regular: 4.8 (95% CI 3.0-6.6) mmHg  
 -XL cuff but used regular: 19.5 (95% CI 16.1-22.9) mmHg

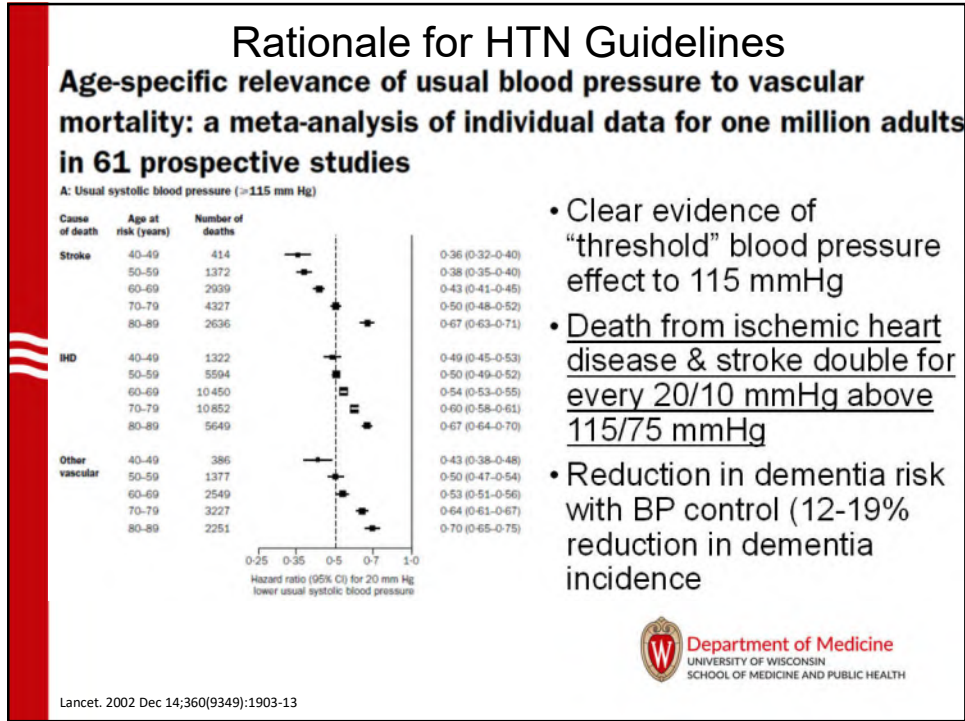
B Diastolic BP differences

Appropriate BP cuff size	Difference in diastolic BP, mm Hg (95% CI)
Small size	
Large used	-1.9 (-3.1 to -0.7)
Regular used	-1.3 (-2.4 to -0.2)
Regular size	
Large used	-1.7 (-2.7 to -0.7)
Small used	0.7 (-0.4 to 1.7)
Large size	
Extra large used	-3.1 (-3.9 to -2.3)
Regular used	1.8 (1.1 to 2.6)
Extra-large size	
Large used	4.3 (3.3 to 5.4)
Regular used	7.4 (5.7 to 9.1)

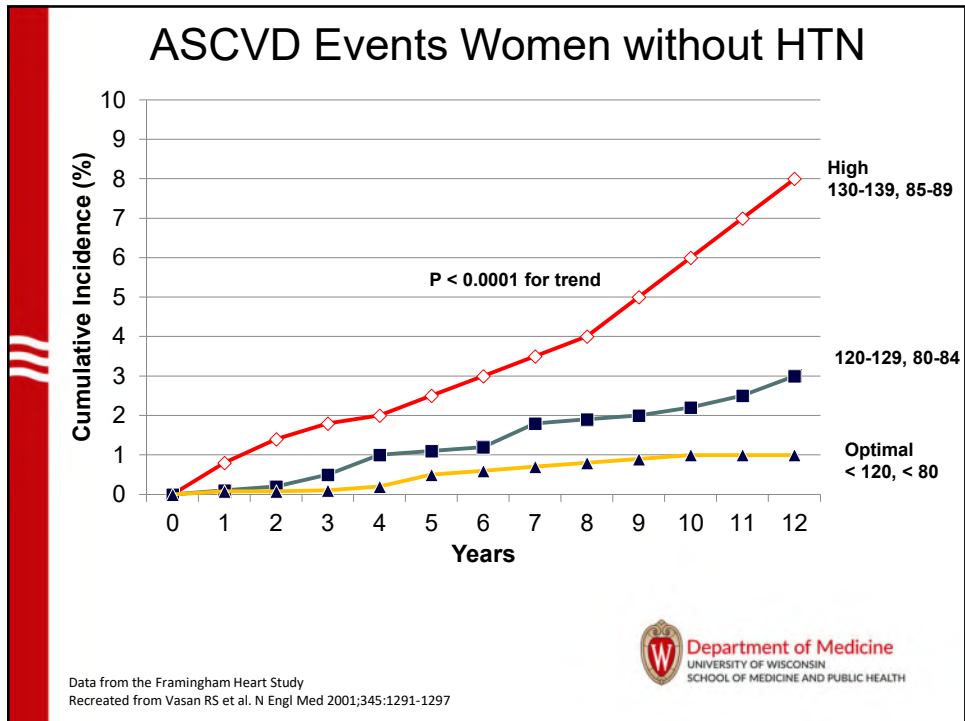


JAMA Intern Med 2023;183(10):1061-1068.

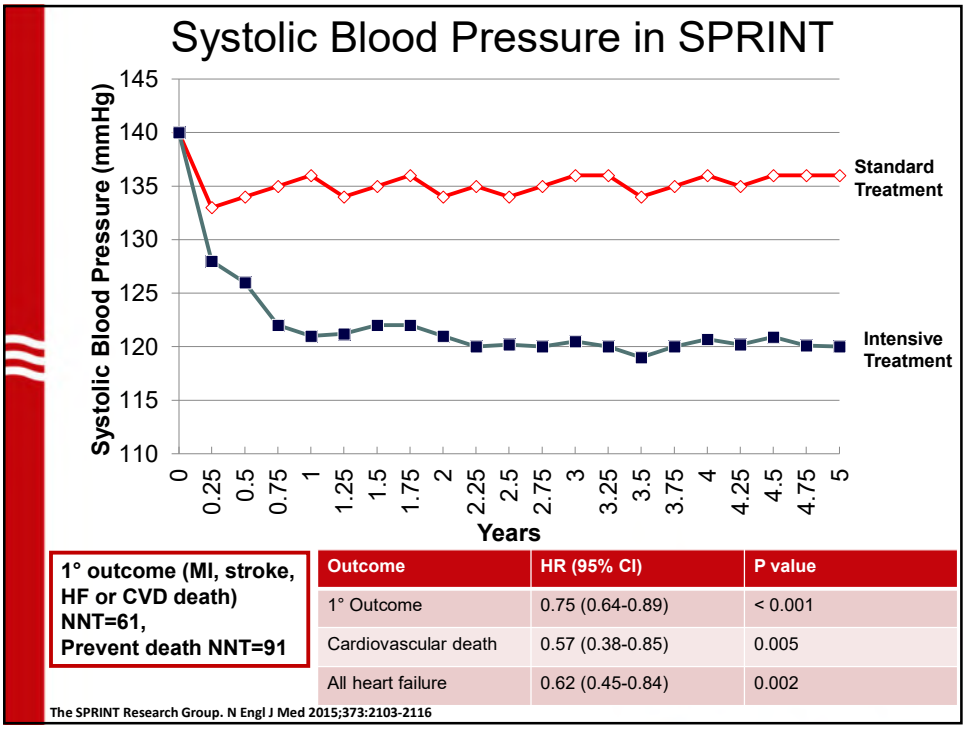
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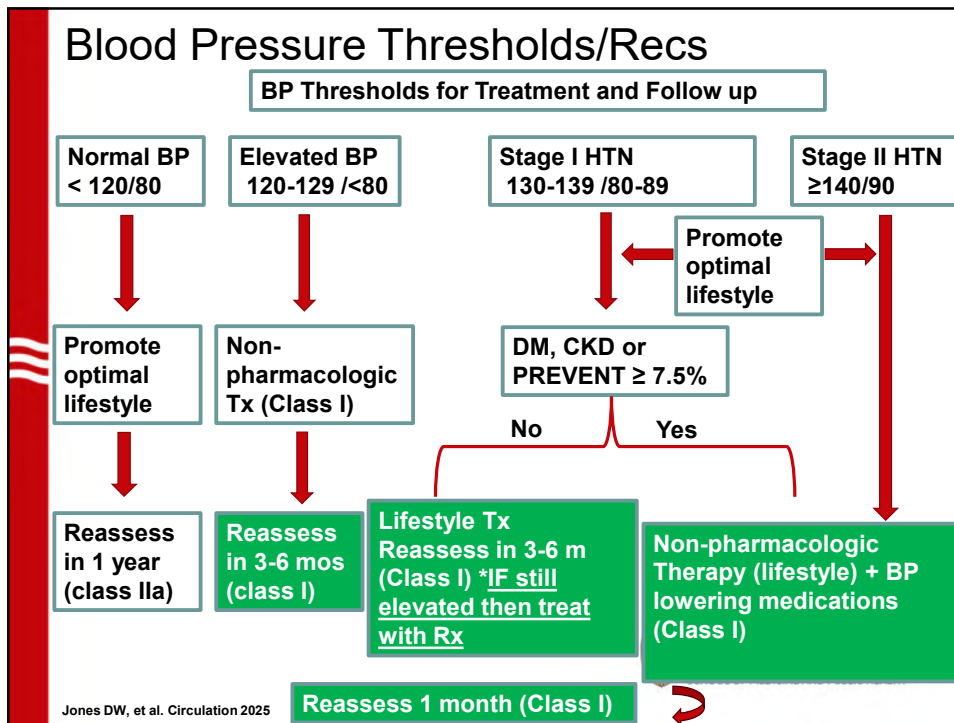
## 2025 AHA/ACC Hypertension Guidelines (Focused Overview of updates in adult outpt non-pregnant patients)

- In resistant HTN screening for 1° aldosteronism regardless of K+, and can continue most anti-HTN (except MRA) for screening
- K+ based salt substitutes can be useful (in absence of CKD) to prevent or treat HTN
- Added PREVENT equation to risk assessment
- If PREVENT < 7.5% and BP remains ≥130/80 mmHg after 3-6 months lifestyle start meds to limit organ damage
- In adults with hypertension, a goal of <130 mm Hg SBP is recommended to prevent mild cognitive impairment and dementia
- All patients with hypertension who are being considered for RDN should be evaluated by a multidisciplinary team with expertise in resistant hypertension and RDN



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## Blood Pressure Thresholds/Recs



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### Pharmacologic Treatment Approaches

COR	LOE	Recommendation
1	A	Initiating Tx thiazide-like diuretics, long acting dihydropyridine CCB, and ACEi or ARB recommended first line
1	B	In stage II HTN initiation of 2 first line agents of different classes recommended
2	A	In stage I can initiate single agent with titration or addition
3: HARM	A	Never use simultaneous ACEi, ARB and/or renin inhibitor in combo

COR	LOE	Recommendation
1	A	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.
2	B	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.
2	A	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.
2	B	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.

Use long-acting meds, lower dose combos work better than max dose of one agent




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### Non-Pharmacologic Interventions

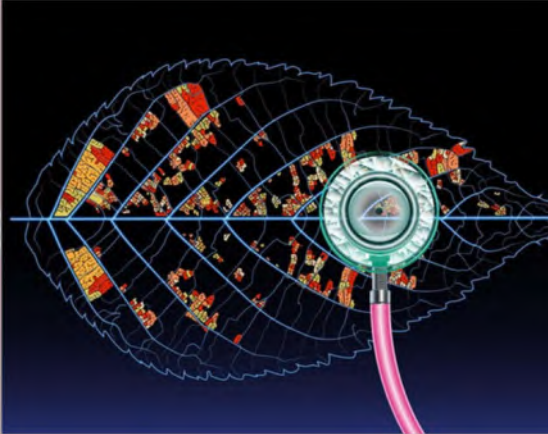
	Intervention	Dose	Approximate Impact on SBP	
			Hypertension	Normotension
Weight loss	Weight/body fat	Best goal is ideal body weight, but aim for at least a 1-kg reduction in body weight for most adults who are overweight. Expect about 1 mm Hg for every 1-kg reduction in body weight.	-5 mm Hg	-2/3 mm Hg
Healthy diet	DASH dietary pattern	Consume a diet rich in fruits, vegetables, whole grains, and low-fat dairy products, with reduced content of saturated and total fat.	-11 mm Hg	-3 mm Hg
Reduced intake of dietary sodium	Dietary sodium	Optimal goal is <1500 mg/day but aim for at least a 1000-mg/d reduction in most adults.	-5/6 mm Hg	-2/3 mm Hg
Enhanced intake of dietary potassium	Dietary potassium	Aim for 3500–5000 mg/d, preferably by consumption of a diet rich in potassium.	-4/5 mm Hg	-2 mm Hg



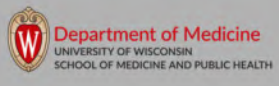
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Whelton PK, et al. Hypertension. 2017

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Team-Based Approach



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### Team Based Approach to HTN Care


COR	LOE	Recommendation
1	A	For adults with uncontrolled hypertension, a team-based care approach is recommended to achieve and maintain BP control
1	C	For adults with uncontrolled hypertension, an evidence-based care plan utilizing HBPM, and team-based care that is responsive to addressing adverse SDOH, is recommended to achieve and maintain BP control
1	B	For adults with uncontrolled hypertension, an integrated treatment model that includes accurate BP measurement, prompt treatment, patient engagement, and ongoing review of HBPM is recommended to improve BP control
1	B	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

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### Team Based Approach to HTN Care

Team Member	Primary Responsibilities
<b>Primary Care Physician/PA/NP</b>	Routine and complex hypertension care, managing primary care issues. Diagnose hypertension, initiate treatment, coordinate care, monitor BP and comorbidities.
<b>HTN Specialist (cardiology, endocrine, nephrology)</b>	Manage complex or resistant hypertension, Management of complex hypertension care, especially due to secondary causes assess CVD risk, guide advanced therapy.
<b>Nurse</b>	Accurate assessment of BP, medication reconciliation, patient education, self management, lifestyle modification, and adherence
<b>Pharmacist</b>	Comprehensive medication management, identification of medication-related interactions, and educating patients on their medication regimen
<b>Clinical Nutritionist</b>	Provide dietary counseling (e.g., DASH diet), sodium reduction strategies.
<b>Social Worker</b>	Assess for psychosocial, cultural, and financial barriers and find solutions to overcome these barriers.
<b>Community Health Worker</b>	Support patient engagement, address social determinants, assist with access to care.
<b>Obstetrician (if pregnant)</b>	Manage hypertension in pregnancy, ensure maternal-fetal safety.

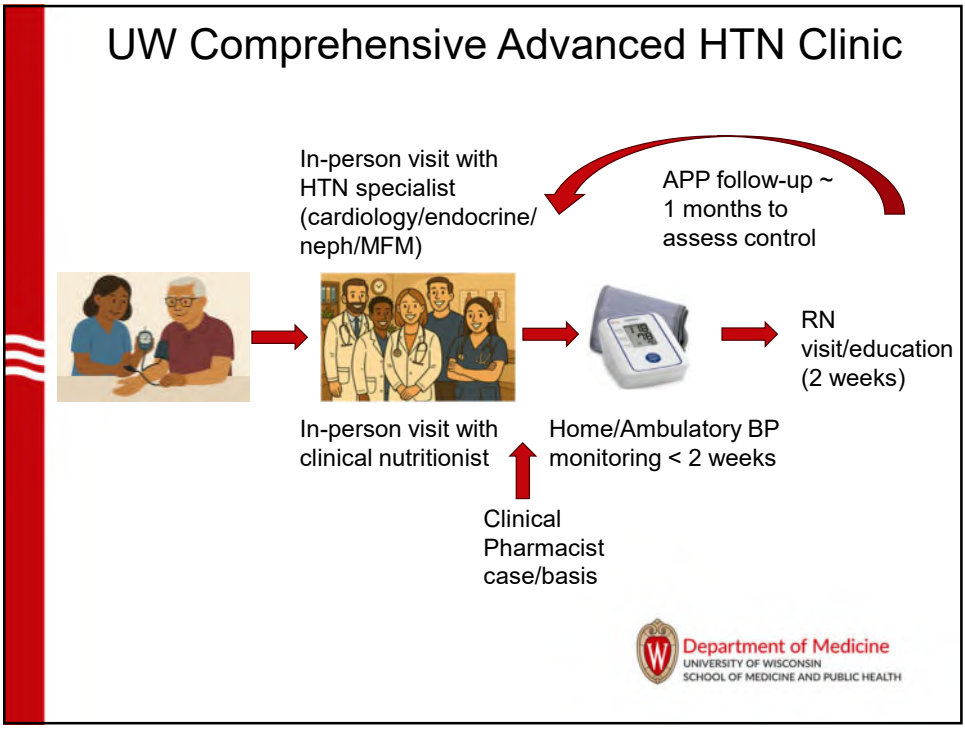


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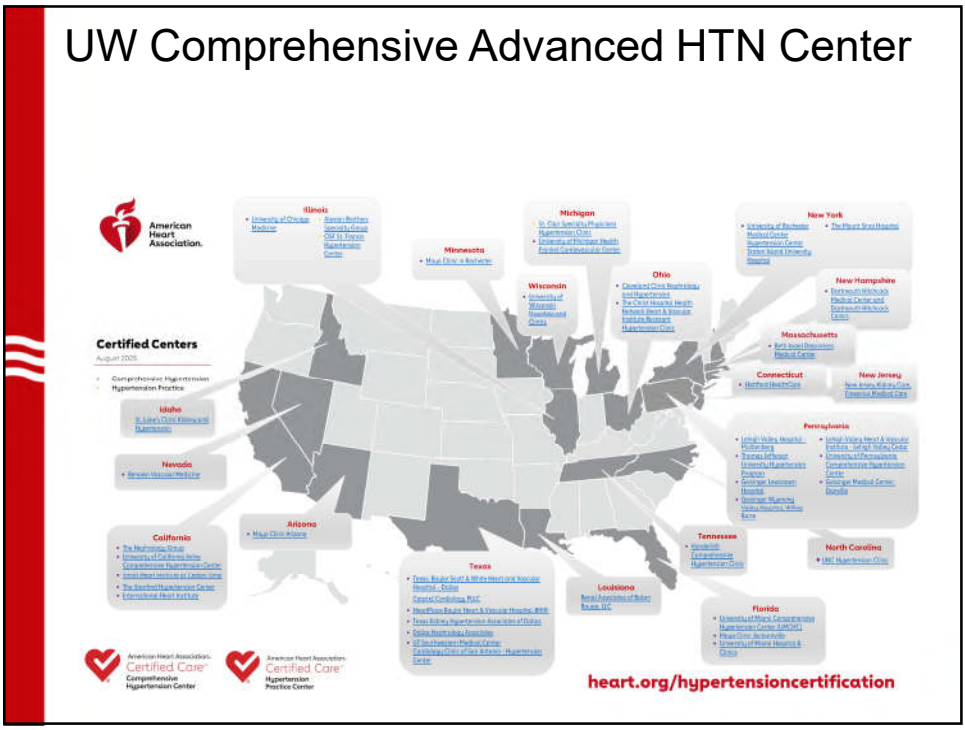
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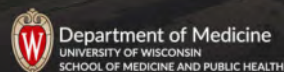
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## Summary

- Hypertension is highly prevalent particularly with age
- 1° HTN is most common, but low threshold to screen for 2° particularly if resistant HTN
- Within 1° HTN there are distinct clinical phenotypes (age, vessel compliance, obesity related etc)
- Protocols which support continuous education for BP management are vital both in and out of the office
- Home monitoring is essential to care
- Evolving link of the vascular contributions to cognition and brain health
- 2025 Guidelines promote options for earlier treatment to lower risk of end-organ manifestations
- Guidelines endorse team-based approach, which pragmatically there remain many barriers



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