

## Adult and Elderly Hypertension: A M.A.P. for Improving Blood Pressure Control

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## Michael Rakotz, MD, FAAFP, FAHA

Vice President of Chronic Disease Prevention, American Medical Association (AMA), Chicago, Illinois.

At the AMA, Dr. Rakotz oversees efforts to develop and implement national quality improvement initiatives aimed at improving blood pressure control and preventing type 2 diabetes. He is the AMA's clinical lead of Target: BP®, a nationwide, multi-year collaboration with the American Heart Association (AHA) that is designed to reduce the number of American adults living with uncontrolled hypertension. A practicing family physician for more than 20 years, Dr. Rakotz recently served as the Director of Population Health and Virtual Medicine at Northwestern Medical Group in Chicago, Illinois. In 2014, his office was one of 30 sites in the United States to earn designation as a Million Hearts® Hypertension Control Champion. He fulfills his passion for educating medical students and residents, and for promoting innovative health care technology by serving as Assistant Clinical Professor of Family and Community Medicine at the Feinberg School of Medicine at Northwestern University, Chicago, Illinois, and as a fellow for the Office of the National Coordinator for Health Information Technology (ONC).

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## Katherine Kirley, MD

Director of Chronic Disease Prevention, Improving Health Outcomes group, American Medical Association (AMA), Chicago, Illinois

After graduating from the University of Michigan Medical School, Ann Arbor, Dr. Kirley completed her family medicine residency at the University of Illinois at Chicago (UIC)/Illinois Masonic Medical Center. She subsequently completed a research fellowship at the University of Chicago. Currently, she serves as the lead clinician for the AMA's diabetes prevention initiatives. Prior to joining the AMA, Dr. Kirley was a practicing family physician and health services researcher at NorthShore University HealthSystem, and a clinical assistant professor in the University of Chicago's Department of Family Medicine. She also served as assistant director of NorthShore's Quality and Patient Safety Fellowship and as assistant director of the Ambulatory Primary Care Innovations Group, a practice-based research network.

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## Learning Objectives

1. Consider current management of hypertension in adult patients, as compared to current JNC 8 guidelines and AAFP/USPSTF screening recommendations.
2. Counsel patients on how to make healthy behavior changes to reduce their risk for developing hypertension or prehypertension.
3. Address barriers to care among patients in your practice, especially elderly and minority patients, and identify or develop tools to help address hypertension.
4. Prepare treatment regimens of antihypertensive medications and tools with an emphasis on patient adherence.

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## Associated Session(s)

- Adult and Elderly Hypertension: Ask the Expert

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## Audience Engagement System

Step 1

Step 2

Step 3

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## Agenda

1. Describe current epidemiology of hypertension (HTN) in U.S. adults and barriers to care for patients in your practice
2. Define current AAFP/USPSTF recommendations for HTN screening in adult patients and confirmation of diagnosis
3. Recognize variations in practice compared to JNC 8/AAFP-ACP recommendations for the management of HTN
4. Apply the M.A.P. framework for improving blood pressure control in your practice

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## Prevalence of HTN In U.S. Adults

Distribution by age and gender

Variation by race and ethnicity

Source: AHA Heart Disease and Stroke Statistics—2017 Update: Chapter 9

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## Clinical Epidemiology of HTN in the U.S. 1999–2012

Legend: Prevalence (orange), Aware (blue), Control (green), Treatment (purple)

Source: Egan, et al. Circulation. 2014;130:1692-1699.

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## Clinical Epidemiology of HTN in the U.S. 2012–2014

**85.7 million US adults have hypertension**  
 But many aren't aware or treated (shaking in embarrassment and only about half know it continues)

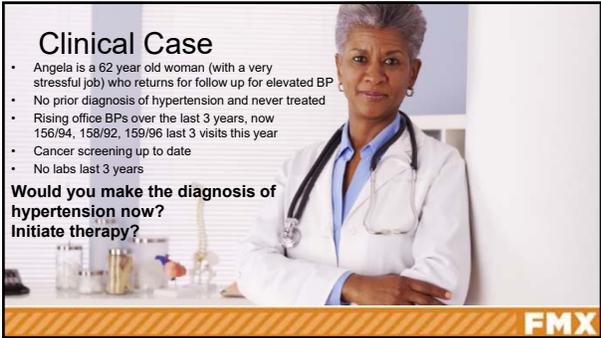
Source: AHA Heart Disease and Stroke Statistics—2017 Update: Chapter 9

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### Clinical Case

- Angela is a 62 year old woman (with a very stressful job) who returns for follow up for elevated BP
- No prior diagnosis of hypertension and never treated
- Rising office BPs over the last 3 years, now 156/94, 158/92, 159/96 last 3 visits this year
- Cancer screening up to date
- No labs last 3 years

**Would you make the diagnosis of hypertension now? Initiate therapy?**



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### AES POLL QUESTION

When you suspect a new diagnosis of HTN in one of your patients, how often do you use either 24-hour ambulatory BP monitoring (ABPM) or home blood pressure monitoring (HBPM) to confirm the diagnosis?

- A. Never
- B. Rarely
- C. Frequently
- D. Always

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### Recommendations for screening and diagnosis



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### JNC-7 Definition of Hypertension

*The average of two or more properly measured, seated BP readings  $\geq$  140/90 mm Hg on each of two or more office visits*

A.V. Chobanian, G.L. Bakris, H.R. Black, W.C. Cushman, L.A. Green, J.L. Izzo Jr., D.W. Jones, B.J. Materson, S. Oparil, J.T. Wright Jr., The seventh report of the joint national committee on prevention, detection, evaluation, and treatment of high blood pressure: the JNC 7 report, *Jama* 289 (19) (2003) 2560-2571

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### Screening for Hypertension in Adults

Recommendation Summary		
Population	Recommendation	Grade (What's This?)
Adults aged 18 years or older	The USPSTF recommends screening for high blood pressure in adults aged 18 years or older. The USPSTF recommends obtaining measurements outside of the clinical setting for diagnostic confirmation before starting treatment (see the Clinical Considerations section).	<b>A</b>

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### The problem with office BP measurement

*"The disadvantages of diagnosing hypertension solely in the office setting include measurement errors, the limited number of measurements that can be made conveniently, and the confounding risk for isolated clinic hypertension"*

Piper MA, Evans CV, Burda BU, Margolis KL, O'Connor E, Smith N, et al. Screening for High Blood Pressure in Adults: A Systematic Evidence Review for the U.S. Preventive Services Task Force. Evidence Synthesis No. 101. AHRQ Publication No. 13-09194-EP-1.

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## The problem with office BP measurement

*15% to 30% of the population believed to have hypertension may have lower blood pressure outside of the office setting = white-coat hypertension*

Piper MA, Evans CV, Burda BU, Margolis KL, O'Connor E, Smith N, et al. Screening for High Blood Pressure in Adults: A Systematic Evidence Review for the U.S. Preventive Services Task Force. Evidence Synthesis No. 121. AHRQ Publication No. 13-05194-EF-1.

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## ABPM may be used to confirm a diagnosis of HTN

- USPSTF found convincing evidence that 24-hour ambulatory blood pressure monitoring (ABPM) is the best method for diagnosing HTN
- Significant discordance between office diagnosis of HTN and 12- and 24-hour average BPs using ABPM
- Elevated ambulatory systolic BP was consistently and significantly associated with increased risk of stroke and cardiovascular events, independent of office BP

Piper MA, Evans CV, Burda BU, Margolis KL, O'Connor E, Smith N, et al. Screening for High Blood Pressure in Adults: A Systematic Evidence Review for the U.S. Preventive Services Task Force. Evidence Synthesis No. 121. AHRQ Publication No. 13-05194-EF-1.

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## Home BP monitoring (HBPM) may be used to confirm a diagnosis of HTN

- USPSTF found acceptable evidence for confirmation of HTN with HBPM
- USPSTF acknowledges that the use of ABPM may be problematic in some situations
- Several studies showed that elevated home BP was significantly associated with increased risk for CV events, stroke, and all-cause mortality
- ~~HBPM is independent of office blood pressure~~  
HBPM is an independent and alternative method of confirmation of HTN
- Fewer studies have compared HBPM with office BPM, so the evidence is not as substantial as for ABPM

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## Screening Interval for Hypertension

- Adults aged 18 to 39 years with normal blood pressure without other risk factors should be rescreened every 3 to 5 years
- The USPSTF recommends **annual** screening for adults aged 40 years or older and for those who are at **increased risk\*** for high blood pressure.

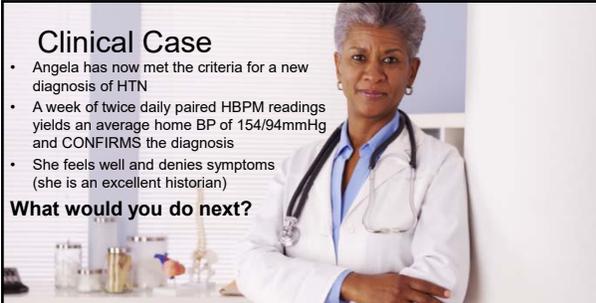
\*Increased risk include those who have high-normal blood pressure (130 to 139/85 to 89 mm Hg), those who are overweight or obese and African Americans

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## Clinical Case

- Angela has now met the criteria for a new diagnosis of HTN
- A week of twice daily paired HBPM readings yields an average home BP of 154/94mmHg and CONFIRMS the diagnosis
- She feels well and denies symptoms (she is an excellent historian)

**What would you do next?**



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## AES POLL QUESTION

After a diagnosis of hypertension has been confirmed in a patient, which of the following should you routinely order?

- A. HbA1C or fasting glucose
- B. EKG
- C. Lipid Panel
- D. B and C
- E. A, B and C

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## Evaluation after Diagnosis: History

**CHD Risk Factors:** Tobacco, BMI, Physical inactivity, Dyslipidemia, Dysglycemia, CKD, Age/Gender (>45 men, 55 women), Family History premature CVD (male 55 and female 65), Unhealthy Diet (trans fat, Na)

**Target Organ Damage:** LVH, Angina or MI, PCI, CHF, Stroke or TIA, CKD, PAD, or Retinopathy

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## Evaluation after Diagnosis: Physical Exam

- Confirm Diagnosis with out-of-office BP
- Test BP in both arms
- Fundoscopic exam or refer out
- BMI
- Auscultate for bruits
- Palpate thyroid
- Heart and Lungs
- Abdomen for enlarged kidneys, masses, and aorta
- Lower extremity for edema and pulses

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## Evaluation after Diagnosis: Labs/Diagnostic Testing

- EKG
- Urinalysis
- HgA1C or fasting glucose (or GTT)
- Hematocrit
- Potassium
- Creatinine or eGFR
- Calcium
- Lipid Panel

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## Clinical Case

- Her history reveals that other than HTN, age and race (she is African American), she has no other risk factors
- You explain treatment options to Angela
- She has never taken medication and is not interested in starting now. She opts for 3 months of lifestyle change.
- She returns in 6 months
- She admits to not changing her lifestyle due to her busy job and life.
- Office BP remains elevated at 158/99
- Repeat HBPM average = 156/96 mmHg

**What would you do next?**



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## AES POLL QUESTION

At what point would you initiate pharmacotherapy for hypertension in this patient?

- A. When BP exceeds 160/100 mm Hg (Stage 2 HTN)
- B. Now, after a discussion with the patient about the risks and benefits of using medication to treat HTN
- C. After 6 more months of attempted lifestyle change
- D. A and C

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## Initiating Treatment: What the guidelines say-2003

**A true consensus guideline for the Prevention, Detection, Evaluation, and Treatment of High Blood Pressure**

- Initiate lifestyle modifications all patients
- Goal is 140/90 mm Hg (130/80 if Diabetes or CKD)
- If BP goal not reached – initiate pharmacotherapy with a single drug
- Start with a thiazide (add ACE/ARB, BB, CCB as needed)
- Follow up monthly until goal is reached
- If BP is >20/10 mm Hg from goal, initiate with 2 drugs
- Drugs for compelling indications as needed



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## Initiating Treatment: What the guidelines say-2014

- Not a comprehensive guideline
- "Members" of the Panel (not the entire panel)

### - Nine recommendations were made

1. Age  $\geq 60$ , initiate medication to lower BP at SBP  $\geq 150$  or DBP  $\geq 90$ . If BP treatment results in SBP  $< 140$  and it is well tolerated, it's ok
2. If age 30-59 initiate treatment to lower DBP  $\geq 90$  to  $< 90$  mm Hg
3. Age  $< 60$  initiate treatment to lower BP at SBP  $\geq 140$  to a goal  $< 140$
4. Age  $\geq 18$  w/ CKD, initiate with SBP  $\geq 140$  or DBP  $\geq 90$  (also goal)
5. Age  $\geq 18$  w Diabetes initiate with SBP  $\geq 140$  or DBP  $\geq 90$  (also goal)
- 6,7,8 Diabetes, Black, CKD specific recommendations Grade B, C, B
9. The main objective of treatment is to attain and maintain BP goal. Follow up monthly. If goal is not reached, add or escalate therapy.

**Recommendation**  
**2014 Evidence-Based Guideline for the Management of High Blood Pressure in Adults: Report From the Panel Members Appointed to the Eighth Joint National Committee (JNC 8)**

Strong Grade A

Grade E

Strong Grade A

Grade E

Grade E

Grade E

Grade E

Grade E

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## Initiating Treatment: What the guidelines say-2017

### Not a comprehensive guideline: 3 recommendations

1. Age  $\geq 60$  with SBP  $\geq 150$  mm Hg initiate treatment to a target of  $< 150$  mm Hg  
 ACP and AAFP recommend that clinicians select goals for adults age  $\geq 60$  based on periodic discussion of benefits and harms of specific BP targets with the patient
2. Consider initiating or intensifying pharmacologic treatment in adults age  $\geq 60$  with a hx of stroke or TIA to achieve a target SBP of  $< 140$  mm Hg to reduce risk of recurrent stroke  
 ACP and AAFP recommend that clinicians select goals for adults age  $\geq 60$  based on periodic discussion of benefits and harms of specific BP targets with the patient
3. Consider initiating or intensifying pharmacologic treatment in some adults age  $\geq 60$  at high CV risk, based on individualized assessment, to achieve a target SBP of  $< 140$  mm Hg to reduce the risk for stroke or cardiac events.  
 ACP and AAFP recommend that clinicians select goals for adults age  $\geq 60$  based on periodic discussion of benefits and harms of specific BP targets with the patient

**Guideline**  
**Pharmacologic Treatment of Hypertension in Adults Aged 60 Years or Older to Higher Versus Lower Blood Pressure Targets: A Clinical Practice Guideline From the American College of Physicians and the American Academy of Family Physicians**

Grade: strong recommendation, high quality evidence

Grade: weak recommendation, moderate quality evidence

Grade: weak recommendation, low quality evidence

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## Initiating Treatment: What will the next guideline say?

### AHA/ACC 2017 Guideline to Prevent, Detect and Manage High Blood Pressure

Bundy et al - JAMA Cardiol. doi:10.1001/jamacardio.2017.1421 Published online May 31, 2017  
**120-124 mm Hg**

Brent Egan, UpToDate, Treatment of hypertension in the elderly patient, particularly isolated systolic hypertension May 31, 2017  
**125-135 mm Hg** using manual office BP or **120-125 mm Hg** using automated office BP

Bangalore et al Optimal Systolic Blood Pressure Target After SPRINT: Insights from a Network Meta-Analysis of Randomized Trials. American Journal of Medicine, June 2017  
 A systolic BP target of **<130 mm Hg** had optimal balance between efficacy and safety

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When should you initiate treatment?

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## Are we focused on the right issue?

- 2.8 million adults ages 60-79 have SBP 140 -150 mm Hg (only 1.8 million on treatment based on NHANES 2005-2010) <sup>1</sup>
- 29.2 million adults in U.S. ages 60-79 have SBP  $> 150$  mm Hg <sup>1</sup>
- It is estimated that the proportion of the US population aged  $\geq 65$  years will increase from **43 million to 80 million** by 2040 <sup>2</sup>
- Large scale efforts are needed to address the issue of undertreated populations

<sup>1</sup> Verhaegh L, Murphy R, Blay V, Shah M, Rubin R, Robert D, Brook R. Comparison of the Treatment Implications of American Society of Hypertension and International Society of Hypertension 2014 and Eighth Joint National Committee Guidelines for the Management of High Blood Pressure. *Hypertension*. 2014;64:276-280.  
<sup>2</sup> Quamra Yang PhD, Arong Chang MPH MS, Matthew D. Fleming PT, DPT, OCS, MPH, Pharmacologist, FNP, PhD. Antihypertensive Medication Adherence and Risk of Cardiovascular Disease Among Older Adults.  
<sup>3</sup> Population-Based Cohort Study of Iron Status. *Am J Epidemiol*. 2011;173:100-105. DOI: 10.1093/aje/kwq105

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## A M.A.P. to Improving BP Control

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## Most important factors contributing to uncontrolled HTN

### Clinicians miss opportunities to treat a patient with a BP $\geq$ 140/90

- Fail to initiate or escalate therapy during an office visit
- Fail to stress frequent follow up until BP is controlled

THERAPEUTIC INERTIA

### Patient non-adherence to treatment plan

- Most often due to not taking medications as instructed

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## Act Rapidly: to manage uncontrolled BP

If a patient has a BPs  $\geq$  140/90 mm Hg **confirmed**:

- Use an evidence-based protocol to guide treatment
- Re-assess patient every 2-4 weeks until BP is controlled
- Prescribe single-pill combination therapy whenever possible

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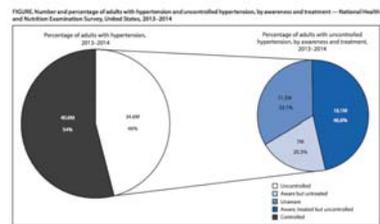
## Why Treatment Protocols are Important

- Using treatment protocols can improve BP control
- Having a "playbook" can help the entire care team
- Everyone can better understand:
  - 1) Who needs treatment
  - 2) What treatment should be used
  - 3) When follow up should occur

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## Why Treatment Protocols are Important



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## The Number of Pharmacy Visits Impacts Adherence

- Study population: 1.8 million Patients on statins
- **Methods:** Complexity assessed by # of meds, prescribers, pharmacies, pharmacy visits. Adherence assessed over the next year.
- **Results:** Patients with the least vs. greatest refill consolidation had 8% lower adherence.
- **Conclusion:** Strategies to simplify refills and # of pharmacy visits may improve adherence.

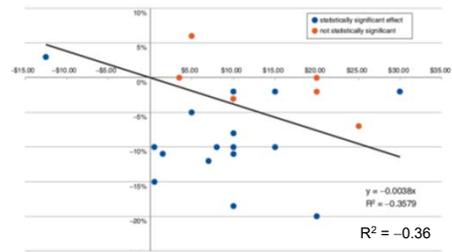


**\*The more single pill combinations the better**

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## Medication Adherence Falls as Out-of-Pocket Costs Rise



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## Partner with Patients, Families and Communities

To empower patients to control their blood pressure:

- Engage patients using evidence-based communication strategies
- Help patients accurately self-measure BP
- Direct patients and families to resources that support medication adherence and healthy lifestyles

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## Use Evidence-based Communication Skills

### Skills/Strategies

Begin with open-ended questions about adherence, including recent medication use

Address "red flags"

Explore reasons for possible non-adherence

Elicit patient views on options and priorities to customize a care plan for each patient

Remain non-judgmental at all times

Use teach-back to ensure understanding of the care plan

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## Why use Self-measured BP Monitoring (SMBP)?

- Measurements occur in the patient's usual environment, typically at home
- Provides multiple BPs over a longer period of time (more representative of a patient's true BP)
- Eliminates white coat effect

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## Why use SMBP?

- Confirming elevated office readings
- Differentiating between white coat and sustained HTN
- Helps to identify patients with masked HTN

Parati G, Stergiou GS, Avrami A, et al. European society of hypertension practice guidelines for home blood pressure monitoring. *J Hum Hypertens*. 2010; 24: 779-785

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## Why use SMBP?

- Provides better assessment of BP control
- Empowers patients to self manage their HTN
- May improve medication adherence
- Improves blood pressure control (without and with additional clinical support)

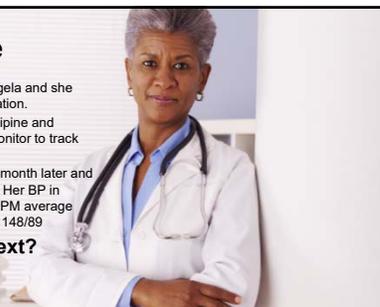


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## Clinical Case

- You have a discussion with Angela and she agrees it is time to start medication.
- You start her on 5 mg of amlodipine and ask her to use her home BP monitor to track her BP.
- You ask her to come back one month later and she comes back 8 weeks later. Her BP in the office is 154/92 and her HBPM average for the week prior to the visit is 148/89

**What would you do next?**



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## AES POLL QUESTION

Your 62 Y.O. recently diagnosed patient with hypertension is on single drug therapy at steady state, and has a week-long HBPM average of 148/89. The best course of action is to

- A. Do nothing as her BP is now controlled at goal
- B. Perform 24-hour ABPM
- C. Add a second drug or increase the dose of her current medication
- D. Stop her medication and use lifestyle modification given she is low risk

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## Lifestyle Changes for Patients with Hypertension

Population	Lifestyle change	BP change	Strength of Evidence
Adults 30 to 80 with or without HTN	Reduce sodium intake by an average of 1,150 mg/day	- 3 to 4 mm Hg SBP - 1 to 2 mm Hg DBP	High <sup>1</sup>
Adults with BP 120-159/80-95	DASH Diet compared to typical American Diet	- 5 to 6 mm Hg SBP - 3 mm Hg DBP	High <sup>1</sup>
All adults with or without HTN	40 minutes of moderate-vigorous intensity aerobic exercise 3-4 times per week	-2 to 5 mm Hg SBP -1 to 4 mm Hg DBP	High <sup>1</sup>
Overweight Adults	5 Kg weight loss	-4.4 mm Hg SBP -3.6 mm Hg DBP	High <sup>2</sup>

1. Eckel RH, et al. 2013 AHA/ACC Lifestyle Management Guideline. Circulation. 2013;128(1):e1-10.  
2. Neter JE, Stam BE, Kok FJ, et al. Influence of weight reduction on blood pressure: a meta-analysis of randomized controlled trials. Hypertension (Dallas, Tex.: 1979). 2003; 42:278-84.

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## Practice Recommendations

1. **Measure accurately**
  - Use proper technique for in-office measurements – positioning and environment matter!
  - Use out-of-office BP measurements to confirm the diagnosis
2. **Act rapidly to manage uncontrolled hypertension**
  - Use a treatment protocol (just pick one)!
  - Prescribe single-pill combination therapy whenever possible
  - Don't wait to make changes or arrange follow-up!
3. **Partner with patients, families, and communities**
  - Healthy lifestyles for all people with elevated BP
  - Use evidence-based communication
  - SMBP/HBPM to engage patients in self-care

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## Questions



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Questions?

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