

# SMBP – Where We Came From, Where We're At, and Where We Need to Be

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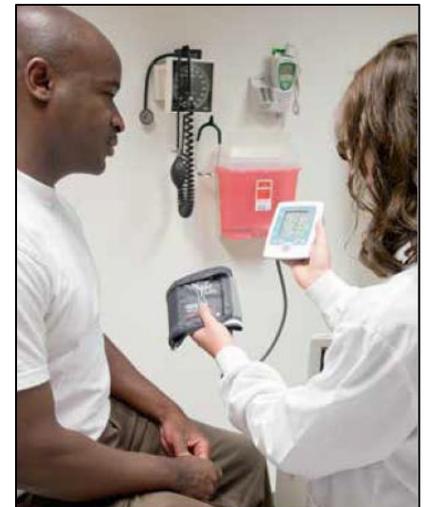
Wyoming Chronic Disease Conference

September 18, 2019



# Overview

- Million Hearts<sup>®</sup> 2022
- Hypertension burden
- What is SMBP?
- SMBP through the years
- SMBP implementation
- Resources, resources, resources



# Million Hearts<sup>®</sup> 2022 Priorities

Keeping People Healthy	Optimizing Care
Reduce Sodium Intake	Improve ABCS*
Decrease Tobacco Use	Increase Use of Cardiac Rehab
Decrease Physical Inactivity	Engage Patients in Heart-healthy Behaviors

**80%  
target**

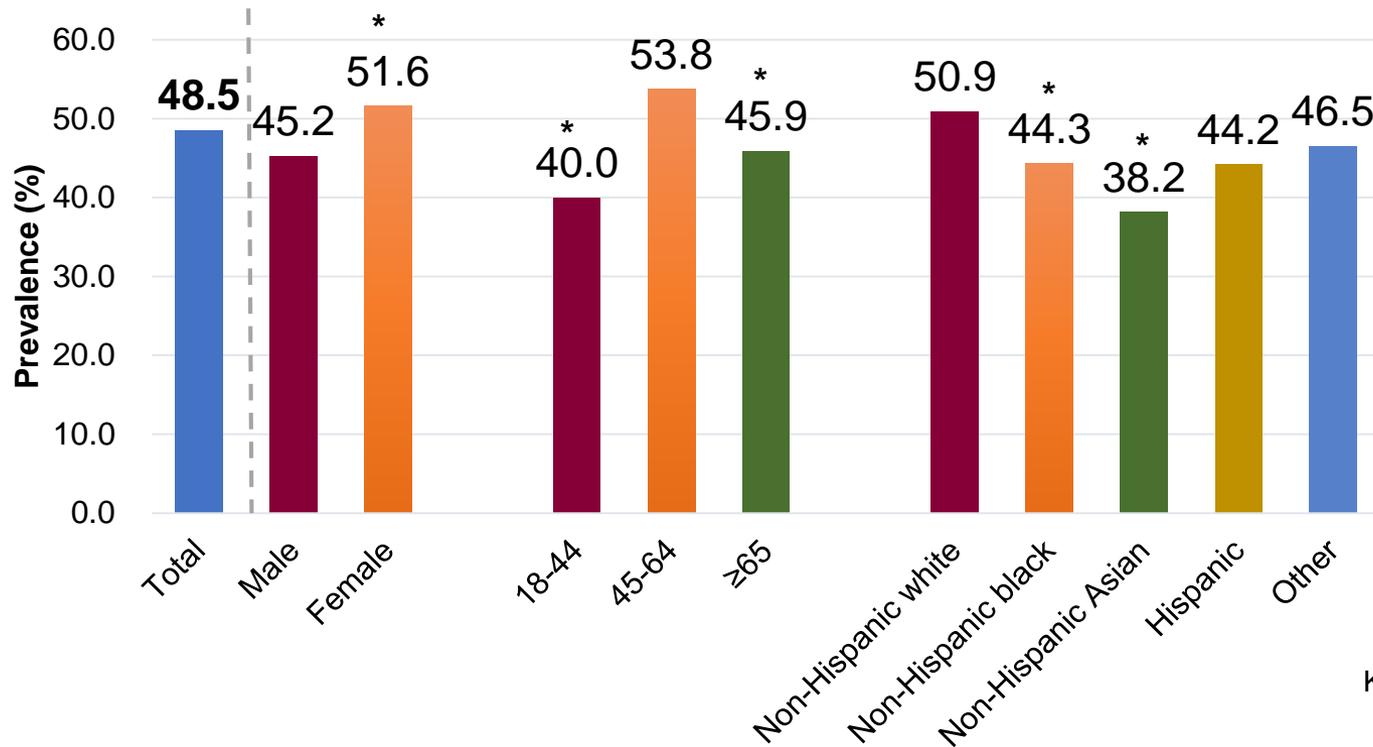
Improving Outcomes for Priority Populations
Blacks/African Americans with hypertension
35- to 64-year-olds
People who have had a heart attack or stroke
People with mental illness or substance use disorders who use tobacco



\*Aspirin when appropriate, Blood pressure control, Cholesterol management, Smoking cessation

# Blood Pressure Control

Blood pressure control (<140/90 mmHg) among adults aged ≥18 years with hypertension – NHANES 2015-2016



Key: \* = p<0.05



Sex

Age Group

Race/Ethnicity

Wall HK, Ritchey MD, Gillespie C, et al. Vital Signs: Prevalence of Key Cardiovascular Disease Risk Factors for Million Hearts 2022 — 2011–2016. MMWR. 2018;67(35):983-991.

# What is SMBP?

- Self-Measured Blood Pressure (SMBP) monitoring – the measurement of BP **by an individual outside of a clinic setting including at home**
- AKA “home blood pressure monitoring”
- SMBP is **NOT** – BP taken at a pharmacy kiosk, or by a smart phone device, wearable sensor, cuffless BP monitor, or finger cuff
- Evidence-based strategy for lowering BP when combined with clinical support

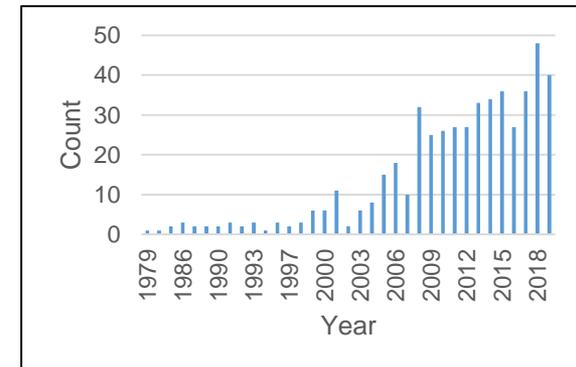


# The Evolution of SMBP



# Early Years

- **1979** – first mention of “home blood pressure monitoring” in PubMed
- **1993** – first(?) automated home BP cuff on market (Panasonic); JNC-5 – “encourage self-monitoring”; first mention of “self-measured blood pressure monitoring” in PubMed
- **1997** – JNC-6 includes 4 sentences on “self-measurement of blood pressure”
- **2001** – first year that  $\geq 10$  publications/year on HBPM in PubMed
- **2003** – JNC-7 includes 3 sentences on “self-measurement of BP”



# 2008

## AHA/ASH/PCNA Scientific Statement

### Call to Action on Use and Reimbursement for Home Blood Pressure Monitoring

A Joint Scientific Statement From the American Heart Association, American Society of Hypertension, and Preventive Cardiovascular Nurses Association

Thomas G. Pickering, MD, DPhil, FAHA, Chair; Nancy Houston Miller, RN, BSN, FAHA; Gbenga Ogedegbe, MD, MPH, FAHA; Lawrence R. Krakoff, MD, FAHA; Nancy T. Artinian, PhD, RN, BC, FAHA; David Goff, MD, PhD, FAHA

**Abstract**—Home blood pressure monitoring (HBPM) overcomes many of the limitations of traditional office blood pressure (BP) measurement and is both cheaper and easier to perform than ambulatory BP monitoring. Monitors that use the oscillometric method are currently available that are accurate, reliable, easy to use, and relatively inexpensive. An increasing number of patients are using them regularly to check their BP at home, but although this has been endorsed by national and international guidelines, detailed recommendations for their use have been lacking. There is a rapidly growing literature showing that measurements taken by patients at home are often lower than readings taken in the office and closer to the average BP recorded by 24-hour ambulatory monitors, which is the BP that best predicts cardiovascular risk. Because of the larger numbers of readings that can be taken by HBPM than in the office and the elimination of the white-coat effect (the increase of BP during an office visit), home readings are more reproducible than office readings and show better correlations with measures of target organ damage. In addition, prospective studies that have used multiple home readings to express the true BP have found that home BP predicts risk better than office BP (Class IIa; Level of Evidence A). This call-to-action article makes the following recommendations: (1) It is recommended that HBPM should become a routine component of BP measurement in the majority of patients with known or suspected hypertension; (2) Patients should be advised to purchase oscillometric monitors that measure BP on the upper arm with an appropriate cuff size and that have been shown to be accurate according to standard international protocols. They should be shown how to use them by their healthcare providers; (3) Two to three readings should be taken while the subject is resting in the seated position, both in the morning and at night, over a period of 1 week. A total of  $\geq 12$  readings are recommended for making clinical decisions; (4) HBPM is indicated in patients with newly diagnosed or suspected hypertension, in whom it may distinguish between white-coat and sustained hypertension. If the results are equivocal, ambulatory BP monitoring may help to establish the diagnosis; (5) In patients with prehypertension, HBPM may be useful for detecting masked hypertension; (6) HBPM is recommended for evaluating the response to any type of antihypertensive treatment and may improve adherence; (7) The target HBPM goal for treatment is  $< 135/85$  mm Hg or  $< 130/80$  mm Hg in high-risk patients; (8) HBPM is useful in the elderly, in whom both BP variability and the white-coat effect are increased; (9) HBPM is of value in patients with diabetes, in whom tight BP control is of paramount importance; (10) Other populations in whom HBPM may be beneficial include pregnant women, children, and patients with kidney disease; and (11) HBPM has the potential to improve the quality of care while reducing costs and should be reimbursed. (*Hypertension*. 2008;52:10-29.)

**Key Words:** AHA Scientific Statements ■ blood pressure ■ hypertension ■ patients

The American Heart Association, American Society of Hypertension, and Preventive Cardiovascular Nurses Association make every effort to avoid any actual or potential conflicts of interest that may arise as a result of an outside relationship or a personal, professional, or business interest of a member of the writing panel. Specifically, all members of the writing group are required to complete and submit a Disclosure Questionnaire showing all such relationships that might be perceived as real or potential conflicts of interest.

This statement was approved by the American Heart Association Science Advisory and Coordinating Committee on January 7, 2008; by the American Society of Hypertension on January 2, 2008; and by the Preventive Cardiovascular Nurses Association on December 28, 2007. This article has been published in *Journal of the American Society of Hypertension*, *Journal of Clinical Hypertension*, and *Journal of Cardiovascular Nursing*. Expert peer review of AHA Scientific Statements is conducted at the AHA National Center. For more on AHA statements and guidelines development, visit <http://www.americanheart.org/presenter.jhtml?identifier=3023366>.

Copies: This document is available on the World Wide Web sites of the American Heart Association ([my.americanheart.org](http://my.americanheart.org)), the American Society of Hypertension ([www.ash-us.org](http://www.ash-us.org)), and the Preventive Cardiovascular Nurses Association (<http://www.pcvna.net>). A single reprint is available by calling 800-242-8721 (US only) or by writing the American Heart Association, Public Information, 7272 Greenville Ave, Dallas, TX 75221-4596. Ask for reprint No. 71-0443. A copy of the document is also available at <http://www.americanheart.org/presenter.jhtml?identifier=3003999> by selecting either the "topic list" link or the "chronological list" link. To purchase additional reprints, call 843-216-2533 or e-mail [kelle.ramsay@wolterskluwer.com](mailto:kelle.ramsay@wolterskluwer.com).

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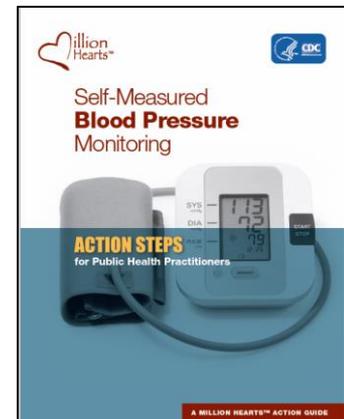
Hypertension is available at <http://hyper.ahajournals.org>

DOI: 10.1161/HYPERTENSIONAHA.107.189010

- **AHA/ASH/PCNA “Call to Action”**
- Action plan included making SMBP a part of routine management of hypertensive patients
- Called for reimbursement of monitors and clinician time for training, validation, and interpretation

# 2012-2013

- **AHRQ Comparative Effectiveness Review** – [https://www.ncbi.nlm.nih.gov/books/NBK84604/pdf/Bookshelf\\_NBK84604.pdf](https://www.ncbi.nlm.nih.gov/books/NBK84604/pdf/Bookshelf_NBK84604.pdf)
  - SMBP plus additional support vs. usual care – high strength of evidence for lowering BP
- **Million Hearts Self-Measured Blood Pressure Monitoring: Action Steps for Public Health Practitioners**
- Included as a strategy in “1305” funding announcement



# 2014-2015

- **Million Hearts Self-Measured Blood Pressure Monitoring: Action Steps for Clinicians** – [https://millionhearts.hhs.gov/files/MH\\_SMBP\\_Clinicians.pdf](https://millionhearts.hhs.gov/files/MH_SMBP_Clinicians.pdf)
- **AMA-Johns Hopkins Self-Measured Blood Pressure Monitoring Program: Engaging Patients in Self-Measurement** – [https://www.ama-assn.org/sites/ama-assn.org/files/corp/media-browser/public/about-ama/iho-bp-engaging-patients-in-self-measurment\\_0.pdf](https://www.ama-assn.org/sites/ama-assn.org/files/corp/media-browser/public/about-ama/iho-bp-engaging-patients-in-self-measurment_0.pdf)



# 2015 – CPSTF Rec

## Community Preventive Services Task Force

- Recommends (strong evidence) SMBP monitoring interventions combined with additional support to improve BP outcomes in patients with HBP.
- Additional support may include patient counseling, education, or web-based support.
- Economic evidence indicates that SMBP monitoring interventions are **cost-effective** when they are used with additional support or within team-based care.
- <https://www.thecommunityguide.org/findings/cardiovascular-disease-self-measured-blood-pressure-with-additional-support>



# 2015 – USPSTF Rec



U.S. Preventive Services  
TASK FORCE

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## Final Recommendation Statement *High Blood Pressure in Adults: Screening*

*Recommendations made by the USPSTF are independent of the U.S. government. They should not be construed as an official position of the Agency for Healthcare Research and Quality or the U.S. Department of Health and Human Services.*

### 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 <a href="#">Clinical Considerations</a> section).	A

<https://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/high-blood-pressure-in-adults-screening>



...recommends obtaining measurements outside of the clinical setting for diagnostic confirmation...ABPM [ambulatory] and HBPM [home] may be used to confirm a diagnosis of hypertension after initial screening.

# 2016

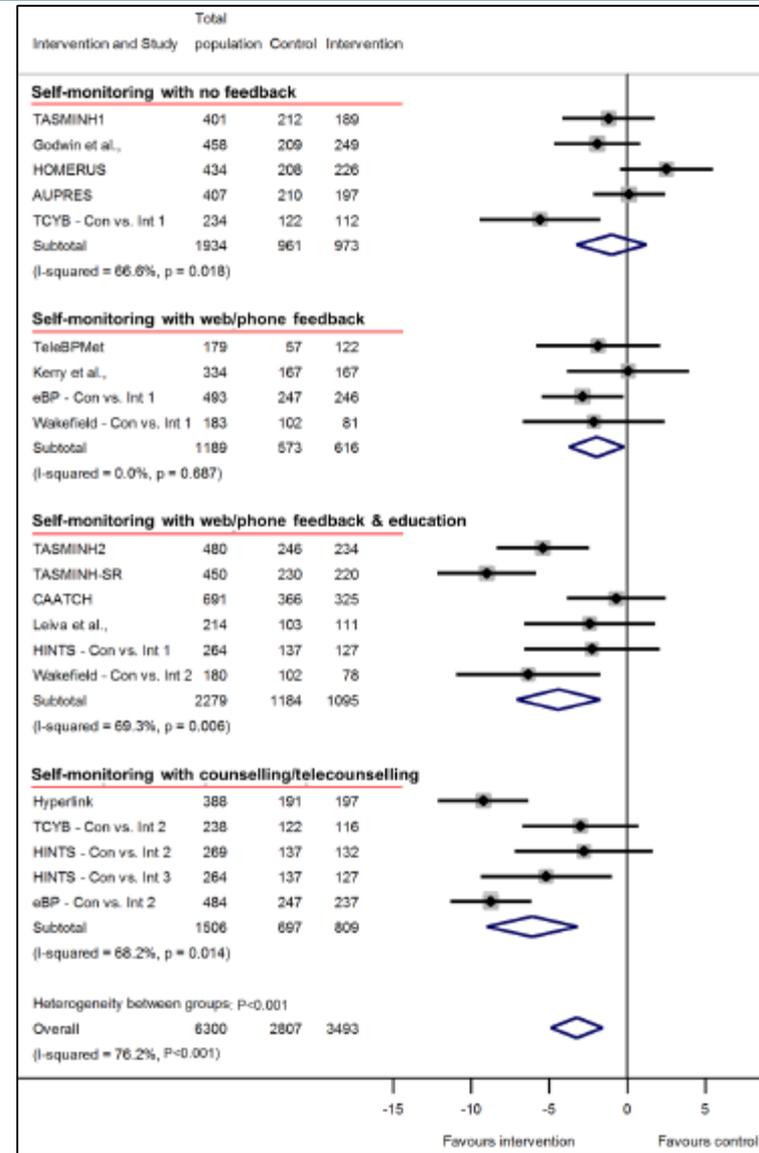
- **Target:BP** launched – AHA and AMA venture to improve BP control rates through quality improvement
- Resources – <https://targetbp.org/tools-downloads/?sort=topic&>
- CME Course – Using SMBP to Diagnose and Manage HBP – [https://targetbp.org/tools\\_downloads/cme-course-using-smbp-to-diagnose-and-manage-hbp/](https://targetbp.org/tools_downloads/cme-course-using-smbp-to-diagnose-and-manage-hbp/)
- SMBP Infographic for Patients – [https://targetbp.org/tools\\_downloads/how-to-accurately-measure-blood-pressure-2/](https://targetbp.org/tools_downloads/how-to-accurately-measure-blood-pressure-2/)



TARGET:BP™

# 2017

- Tucker KL, et al. Self-monitoring of blood pressure in hypertension: A systematic review and individual patient data meta-analysis. PLoS Med. **2017** Sep 19;14(9):e1002389.
- Most effective in:
  - Those with fewer antihypertensive medications
  - Higher baseline SBP up to 170mmHg
- No differences in efficacy were seen by sex or by most comorbidities
- Co-interventions matter



# 2017 – ACC/AHA HTN Guidelines

## 4.2. Out-of-Office and Self-Monitoring of BP

<b>Recommendation for Out-of-Office and Self-Monitoring of BP</b>		
References that support the recommendation are summarized in Online Data Supplement 3 and Systematic Review Report.		
COR	LOE	Recommendation
I	A <sup>SR</sup>	1. Out-of-office BP measurements are recommended to confirm the diagnosis of hypertension (Table 11) and for titration of BP-lowering medication, in conjunction with telehealth counseling or clinical interventions (1-4).

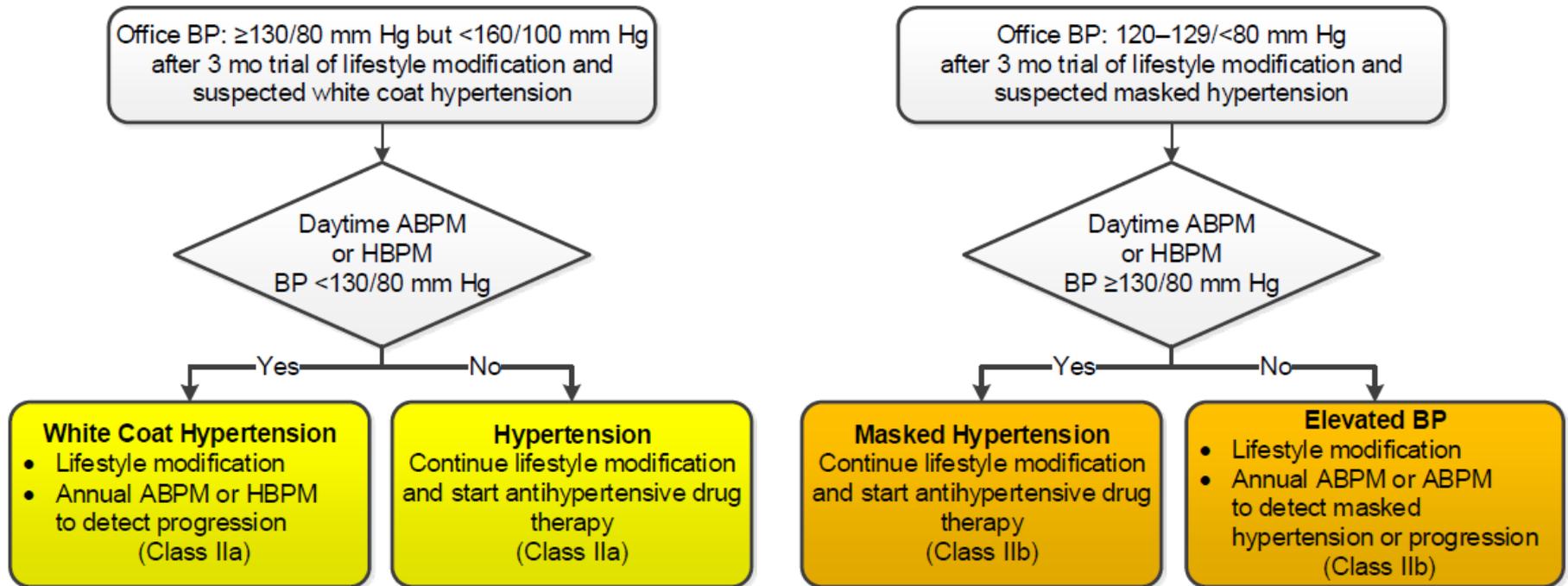
SR indicates systematic review.

## 8.3.2. Monitoring Strategies to Improve Control of BP in Patients on Drug Therapy for High BP

<b>Recommendation for Monitoring Strategies to Improve Control of BP in Patients on Drug Therapy for High BP</b>		
References that support the recommendation are summarized in Online Data Supplement 29.		
COR	LOE	Recommendation
I	A	1. Follow-up and monitoring after initiation of drug therapy for hypertension control should include systematic strategies to help improve BP, including use of HBPM, team-based care, and telehealth strategies (1-6).

# ACC/AHA HTN Guidelines (cont'd)

Figure 1. Detection of White Coat Hypertension or Masked Hypertension in Patients Not on Drug Therapy



# International Guidelines w/ SMBP

Guideline	Dx	WCH	MH	Management
<b>Australian</b> Expert Consensus Statement (2015)		X	X	X
<b>European</b> Society of Cardiology/European Society of Hypertension (2018)	X	X	X	X
Hypertension <b>Canada</b> (2018)	X	X	X	X
Hypertension Cardiovascular Outcome Prevention and Evidence in <b>Asia</b> (2017)	X			X
<b>Italian</b> Society of Hypertension (2008)		X	X	X
<b>Japanese</b> Society of Hypertension (2012)	X	X	X	X
<b>Korean</b> Society of Hypertension (2013)		X	X	X
National Institute for Health and Clinical Excellence <b>UK</b> (2011)	X			X
<b>Taiwan</b> Society of Cardiology and the Taiwan Hypertension Society (2017)	X	X	X	X
The Nat'l BP and Vascular Dz Advisory Committee, (National Heart Foundation of <b>Australia</b> ) (2016)	X			

Dx = diagnosis; WCH = white coat hypertension; MH = masked hypertension

# 2019 and Beyond

- AHA/AMA/CDC SMBP Policy Statement – coming soon
- AMA – Validated Device Listing website
- CMCS Informational Bulletin
- New CPT<sup>®</sup> codes available January 1, 2020 – <https://www.ama-assn.org/system/files/2018-10/september-2018-summary-panel-actions.pdf>
- CDC-NACDD coverage assessment



# Million Hearts® SMBP Coverage and Reimbursement Analysis

- **Purpose:** To assess current coverage and reimbursement of SMBP with clinical support services among private and public payers
- **SMBP devices and services assessed:**
  - Coverage of home blood pressure monitors
  - Reimbursement for clinical support services
- **Payers**
  - 20 commercial insurers with the largest # of covered lives
  - 10 Medicaid Programs (AL, AR, CA, IL, LA, MA, MN, NY, SC, SD), fee-for-service and managed care (where available)
  - 5 of the largest Medicare Advantage insurers and/or plans
- **Summary findings** – September 2019



**Strong evidence + inclusion in  
numerous guidelines + national org  
support + CPT codes + some  
coverage =  
Widespread SMBP Implementation!!**

**RIGHT????**



# SMBP Uptake – Patients

- National Health and Nutrition Examination Survey
  - 2009-2010 – 36.6% of adults with HTN using SMBP *at least monthly*<sup>1</sup>
  - 2011-2014 – 38.7% of adults with HTN using SMBP *at least monthly*<sup>2</sup>
- Smaller cohort studies report 40-50% prevalence of SMBP<sup>3-6</sup> *in various forms*
- Viera et al. – 35.2% of the patients with HTN reported that their physician had recommended using an SMBP device at home



<sup>1</sup>Ostchega Y, et al. *Am J Hypertens*. 2013;26:1086-92.

<sup>2</sup>Ostchega Y, et al. *Am J Hypertens*. 2017;30:1126-1132.

<sup>3</sup>Ayala C, et al. *Journal of Clinical Hypertension*. 2012;14:172-7.

<sup>4</sup>Breaux-Shropshire TL, et al. *Workplace Health Saf*. 2012;60:265-71.

<sup>5</sup>Poon IO, et al. *Ethn Dis*. 2010;20:2-6.

<sup>6</sup>Viera AJ, et al. *Journal of Clinical Hypertension*. 2008;10:280-6.

# SMBP Uptake – Clinicians

- 97% of clinicians report using SMBP with patients<sup>1</sup>
- 27.6% of primary care clinics had a written policy for training patients in SMBP<sup>2</sup>
- 36.6% distributed written instructional materials to patients for SMBP<sup>2</sup>
- 48.8% had designated a team member to provide training to patients on SMBP<sup>2</sup>

→DISCONNECT



<sup>1</sup>Jackson SL, et al.. Am J Prev Med. 2019;56:e13-e21.

<sup>2</sup>Woolsey S, et al. J Am Board Fam Med. 2017;30:170-177.

# Common Elements of Successful SMBP Support

Delivery of intervention by a team of trained health care clinicians

Regular patient communication of SMBP readings to clinicians

A patient/clinician 'feedback loop'

# Feedback Loop



# SMBP Roles

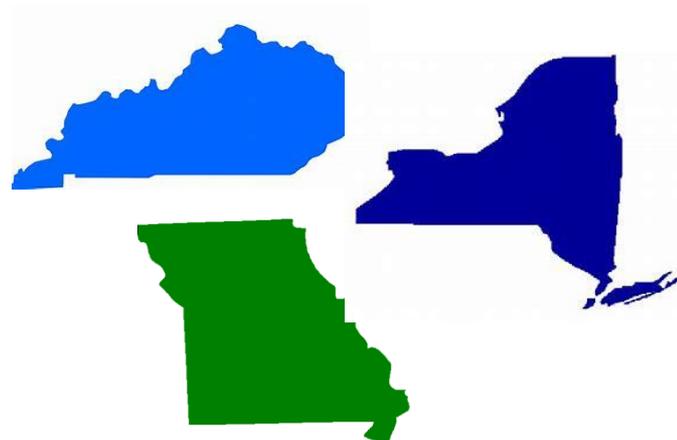
Must Be Done by a Licensed Clinician	Can Be Done by a Non-licensed Person (e.g., medical assistant, local public health department, community health organization, community health workers)	Must Be Done by Patient
<ol style="list-style-type: none"> <li>1. Diagnose hypertension</li> <li>2. Prescribe medication(s)</li> <li>3. Provide SMBP measurement protocol</li> <li>4. Interpret patient-generated SMBP readings</li> <li>5. Provide medication titration advice</li> <li>6. Provide lifestyle modification recommendations</li> </ol>	<ol style="list-style-type: none"> <li>1. Provide guidance on home blood pressure (BP) monitor selection</li> <li>2. If needed, provide home BP monitor (free or loaned)</li> <li>3. Provide training on using a home BP monitor</li> <li>4. Validate home BP monitor against a more robust machine</li> <li>5. Provide training on capturing and relaying home BP values to care team (e.g., via device memory, patient portal, app, log)</li> <li>6. Reinforce clinician-directed SMBP measurement protocol</li> <li>7. Provide outreach support to patients using SMBP</li> <li>8. Share medication adherence strategies</li> <li>9. Provide lifestyle modification education</li> </ol>	<ol style="list-style-type: none"> <li>1. Take SMBP measurements</li> <li>2. Take medications as prescribed</li> <li>3. Make recommended lifestyle modifications</li> <li>4. Convey SMBP measurements to care team</li> <li>5. Convey side effects to care team</li> </ol>
<p style="text-align: center;"><b>Optional Tasks – Can be Done by a Non-licensed Person</b></p> <ol style="list-style-type: none"> <li>1. Reinforce training on using a home BP monitor</li> <li>2. Reinforce training on capturing and relaying home BP values to care team (e.g., via device memory, patient portal, app, log)</li> <li>3. Reinforce knowledge of behaviors that can trigger high blood pressure</li> </ol>		



# NACHC SMBP Project

## Overview:

From Jan 2017 – Jun 2018, nine health centers in KY, MO, and NY designed, tested, and implemented collaborative SMBP care models



## Aims:

- Learn how the actions of clinical providers, community organizations, and public health could best be coordinated/aligned to facilitate broader uptake of SMBP
- Increase use of SMBP using collaborative care models

# NACHC SMBP Project Results\*

**1,421** patients with hypertension received recommendations for SMBP

Of those, **795** successfully completed  $\geq 1$  cycle of SMBP (2 blood pressure readings AM and PM for at least 3 consecutive days)

**308** patients were referred to a community program to support patients' SMBP efforts and other healthy lifestyle changes



\*preliminary results

# SMBP Checklist & Key Questions

SMBP Scope	Key SMBP Staff	SMBP Patient Identification/ Support Activities	SMBP Data Management	Community Linkages
<p><b>Who is your target population?</b> (see previous diagram)</p> <p><b>Home BP Monitors</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Will monitors be loaned or provided to keep? OR, will patients be asked to purchase them?</li> <li><input type="checkbox"/> How many monitors are needed?</li> <li><input type="checkbox"/> Where will funding for monitors and additional staff time come from?</li> <li><input type="checkbox"/> Do local insurers cover monitors?</li> <li><input type="checkbox"/> If loaned, how long may patients keep monitors?</li> <li><input type="checkbox"/> What controls are in place if patients do not return monitors?</li> <li><input type="checkbox"/> How are monitors inventoried and managed and where are they physically stored?</li> </ul>	<p><b>SMBP Coordinator</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Does she/he have the authority, time, and skills to coordinate all aspects of the program? If not, how will you address?</li> </ul> <p><b>SMBP trainers</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Do you have enough trainers to be available daily?</li> </ul> <p><b>SMBP Clinical Champion</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Do you have a champion for every implementation site?</li> <li><input type="checkbox"/> Do they have the time to invest to facilitate program success?</li> <li><input type="checkbox"/> Is he/she open to change and new ideas?</li> <li><input type="checkbox"/> Is he/she a key influencer to others?</li> </ul>	<p><b>Patient Identification</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> How will patients be identified? Registry queries and outreach calls? And/or at the point of care based on selection criteria?</li> <li><input type="checkbox"/> How will you know if appropriate patients are being identified and offered SMBP?</li> </ul> <p><b>Patient Communication</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Who on the care team recommends SMBP?</li> <li><input type="checkbox"/> Who will provide outreach support for SMBP patients?</li> </ul> <p><b>SMBP Training and Follow-up</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Who trains the patient on SMBP?</li> <li><input type="checkbox"/> How will the patient connect with the SMBP trainer (e.g., warm hand-off, follow-up visit)?</li> <li><input type="checkbox"/> Is the initial follow-up appointment a telephone encounter or a face-to-face visit?</li> </ul>	<p><b>How will SMBP Data be Recorded, Transmitted, and Managed?</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> How will patients record/share data back with the care team?</li> <li><input type="checkbox"/> Do providers want SMBP averages only or individual BP readings as well?</li> <li><input type="checkbox"/> Who is responsible for preparing and managing SMBP data?</li> <li><input type="checkbox"/> Where will staff document SMBP data? EHR? Population health management system? Spreadsheet?</li> </ul>	<p><b>What role could community partners play to support or optimize the efficiency/capacity of your SMBP efforts?</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Supply funds to purchase home BP monitors?</li> <li><input type="checkbox"/> Provide SMBP trainers?</li> <li><input type="checkbox"/> Conduct outreach calls?</li> <li><input type="checkbox"/> Supply SMBP support programs?</li> <li><input type="checkbox"/> Supply Lifestyle management educators/ programs?</li> <li><input type="checkbox"/> Coordinate or supply transportation resources?</li> <li><input type="checkbox"/> Coordinate or supply food security resources?</li> </ul>



# Staff Resources

- Patient-training checklist – [https://targetbp.org/tools\\_downloads/patient-training-reference-guide/](https://targetbp.org/tools_downloads/patient-training-reference-guide/)
- Device Accuracy Test – [https://targetbp.org/tools\\_downloads/device-accuracy-test/](https://targetbp.org/tools_downloads/device-accuracy-test/)
- SMBP Average Calculator – [https://targetbp.org/tools\\_downloads/7-day-recording-log-template/](https://targetbp.org/tools_downloads/7-day-recording-log-template/)
- Tips for an accurate BP reading – [https://targetbp.org/tools\\_downloads/mbp/](https://targetbp.org/tools_downloads/mbp/)



# Cuff Information

- **Automated, oscillatory devices are HIGHLY recommended**
  - Blue tooth or Wi-Fi capability, store readings
  - More than one user to allow sharing
- **Validated devices**
  - Who have the devices been validated with?
  - Hypertension Canada – <https://hypertension.ca/hypertension-and-you/managing-hypertension/measuring-blood-pressure/devices/>
  - New U.S. site coming soon
- **NO smart phone devices, wearable sensors, cuffless BP monitors, or finger cuffs**



# Cuff Size

- **Proper cuff size**

Cuff	Arm Circumference (cm)	Bladder Dimension (width x length, cm)
Small adult	22-26	12 x 22
Adult	27-34	16 x 30
Large adult	35-44	16 x 36
Extra-large adult	45-52	16 x 42
Wrist	>52	n/a

- $\geq$  Large adult cuff – 54.0% men, 38.4% women with HTN



# Cuff Loaner Programs

- **Broad resources**
  - **AMA** – <https://www.stepsforward.org/Static/images/modules/8/downloadable/SMBP%20monitoring%20program.pdf>
  - **NACHC** – <https://www.nachc.org/wp-content/uploads/2018/09/NACHC-Health-Care-Delivery-SMBP-Implementation-Guide-08222018.pdf>
- **Loaner device agreement** – [https://targetbp.org/tools\\_downloads/loaner-device-agreement/](https://targetbp.org/tools_downloads/loaner-device-agreement/)
- **Inventory management** – [https://targetbp.org/tools\\_downloads/inventory-management/](https://targetbp.org/tools_downloads/inventory-management/)
- **Patient training checklist** – [https://targetbp.org/tools\\_downloads/patient-training-checklist-loaner/](https://targetbp.org/tools_downloads/patient-training-checklist-loaner/)
- **Cleaning and disinfection procedure** – [https://www.ama-assn.org/sites/ama-assn.org/files/corp/media-browser/public/about-ama/iho-bp-engaging-patients-in-self-measurment\\_0.pdf#page=15](https://www.ama-assn.org/sites/ama-assn.org/files/corp/media-browser/public/about-ama/iho-bp-engaging-patients-in-self-measurment_0.pdf#page=15)



# Taking SMBP Readings

- Empty bladder
- No caffeine
- Rest for 5 minutes, seated, back supported
- Legs uncrossed, feet on floor
- Cuff on bare arm (no clothing), arm supported
- Avoid talking, reading, or using electronics during readings
- For SMBP – take before AM BP meds

Adds 5-50  
mmHg

Adds 2-10  
mmHg

Adds 10  
mmHg

USE CORRECT  
CUFF SIZE  
Cuff too small adds  
2-10 mm Hg

DON'T HAVE A  
CONVERSATION  
Talking or active  
listening adds  
10 mm Hg

PUT CUFF ON  
BARE ARM  
Cuff over clothing adds  
5-50 mm Hg

EMPTY BLADDER  
FIRST  
Full bladder adds  
10 mm Hg

SUPPORT ARM  
AT HEART LEVEL  
Unsupported arm  
adds 10 mm Hg

SUPPORT  
BACK/FEET  
Unsupported  
back and feet adds  
6 mm Hg

KEEP LEGS  
UNCROSSED  
Crossed legs add  
2-8 mm Hg

# 7 SIMPLE TIPS TO GET AN ACCURATE BLOOD PRESSURE READING

The common positioning errors can result in inaccurate blood pressure measurement. Figures shown are estimates of how improper positioning can potentially impact blood pressure readings.

#### Sources:

1. Pickering, et al. Recommendations for Blood Pressure Measurement in Humans and Experimental Animals Part 1: Blood Pressure Measurement in Humans. *Circulation*. 2005;111: 697-716.
2. Handler J. The importance of accurate blood pressure measurement. *The Permanente Journal*/Summer 2009/Volume 13 No. 3 51

This 7 simple tips to get an accurate blood pressure reading was adapted with permission of the American Medical Association and The Johns Hopkins University. The original copyrighted content can be found at <https://www.ama-assn.org/ama-johns-hopkins-blood-pressure-resources>.

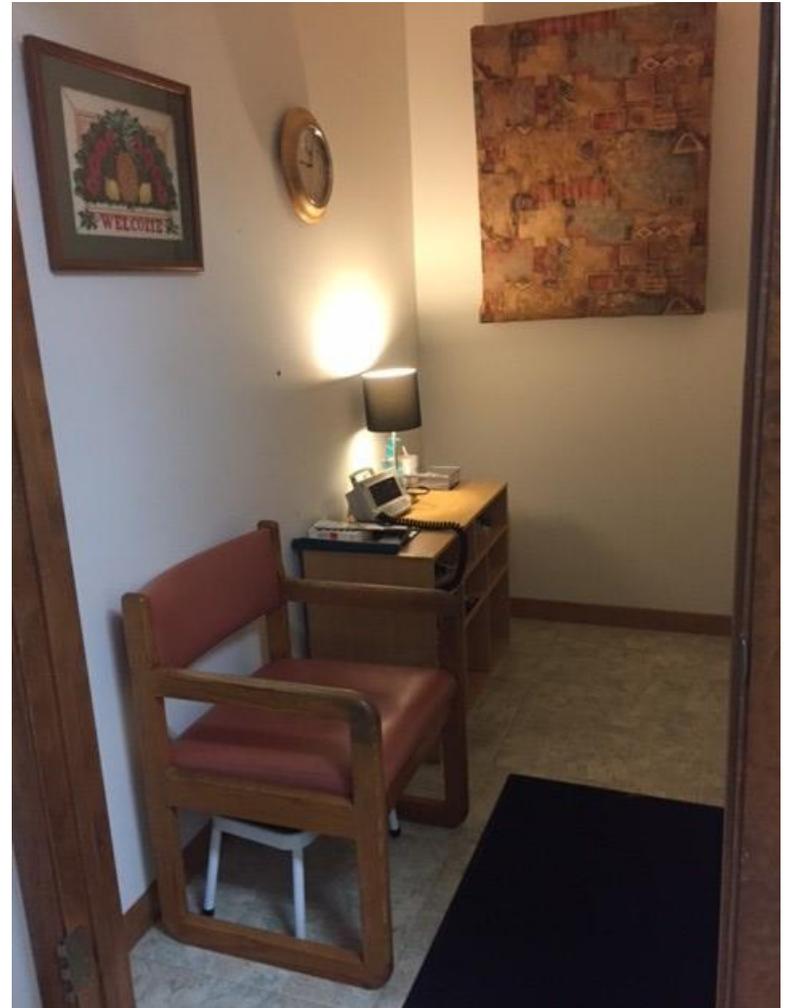
Updated December 2016  
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# Blood Pressure Lounge

- Quiet room connected to the waiting room
- Receptionist asks the person to expose their arm and sit comfortably for 5 minutes and starts timer
- After timer goes off, a medical assistant is called to come and take the blood pressure



Plymouth Family Physicians

# Patient Training Resources

- What is SMBP? – [https://targetbp.org/tools\\_downloads/what-is-smbp/](https://targetbp.org/tools_downloads/what-is-smbp/)
- How to Use Your Home Blood Pressure Monitor – <https://www.youtube.com/watch?v=K9HU2F3TOaI&feature=youtu.be>
- Patient training video – [https://targetbp.org/tools\\_downloads/self-measured-blood-pressure-video/](https://targetbp.org/tools_downloads/self-measured-blood-pressure-video/)
- SMBP infographic – measure BP at home – [https://targetbp.org/tools\\_downloads/how-to-accurately-measure-blood-pressure-2/](https://targetbp.org/tools_downloads/how-to-accurately-measure-blood-pressure-2/)



# How to measure your blood pressure at home

Follow these steps for an accurate blood pressure reading

## 1 PREPARE

Avoid caffeine, cigarettes and other stimulants 30 minutes before you measure your blood pressure.

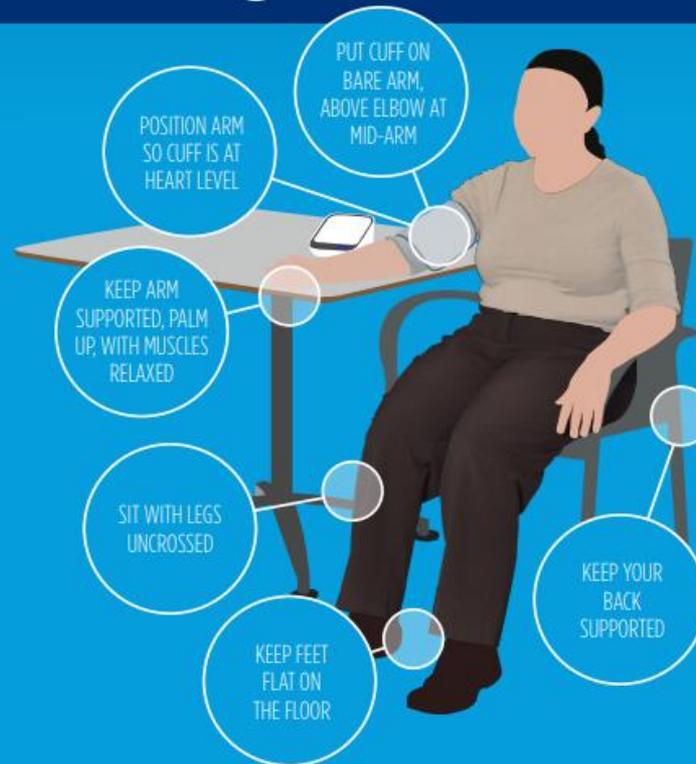
Wait at least 30 minutes after a meal.

If you're on blood pressure medication, measure your BP **before** you take your medication.

Empty your bladder beforehand.

Find a quiet space where you can sit comfortably without distraction.

## 2 POSITION



## 3 MEASURE

Rest for five minutes while in position before starting.

Take two or three measurements, one minute apart.

Keep your body relaxed and in position during measurements.

Sit quietly with no distractions during measurements—avoid conversations, TV, phones and other devices.

Record your measurements when finished.

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This Prepare, position, measure handout was adapted with permission of the American Medical Association and The Johns Hopkins University. The original copyrighted content can be found at <https://www.ama-assn.org/ama-johns-hopkins-blood-pressure-resources>.

# Clinical SMBP Protocol Example

- 2 measurements in AM, 1 minute apart
- 2 measurements in PM, 1 minute apart
- Optimally for 7 days (28 readings); minimum of 3 days (12 readings)
- Average all SBP and DBP readings



# Additional SMBP Resources

- Million Hearts SMBP Webpage – <https://millionhearts.hhs.gov/tools-protocols/smbp.html>
- NACHC Self-Measurement: How patients and care teams are bringing blood pressure to control – <https://www.youtube.com/watch?v=XGO-I59UMDg&feature=youtu.be>
- CME Course: Using SMBP to Diagnose and Manage HBP – [https://targetbp.org/tools\\_downloads/cme-course-using-smbp-to-diagnose-and-manage-hbp/](https://targetbp.org/tools_downloads/cme-course-using-smbp-to-diagnose-and-manage-hbp/)



# Patient Stories

**Taking Control of My Blood Pressure: D'Angelo's Story –**  
<https://www.youtube.com/watch?v=VNQQ8ranUZo>



**Taking Control of My Blood Pressure: Natalia's Story –**  
<https://www.youtube.com/watch?v=malq4KnCESY>

# Future Work

- More widespread implementation
- Better coverage/reimbursement
- Clinical quality measures with patient-generated data
  - NCQA HEDIS
  - CMS measures
- Interoperable systems for transmitting values and clinical interpretation/advice



# Million Hearts® SMBP Forum

- Meets quarterly to facilitate the exchange of SMBP best practices, tools, and resources
- **Join the SMBP Forum at <http://bit.ly/SMBPForum>**
- Access materials via the SMBP Healthcare Community
  - Go to [www.healthcarecommunities.org](http://www.healthcarecommunities.org) and log in to your account (free to register)
  - Search for ‘SMBP’ under the ‘Available Communities’ tab
  - Click “Join Community”
- Questions: [MillionHeartsSMBP@nachc.org](mailto:MillionHeartsSMBP@nachc.org)

A screenshot of a web page for the SMBP forum. At the top is the Million Hearts logo. Below it, the text "SMBP" is displayed in blue. A paragraph of text describes the group's membership and purpose. At the bottom, there are three statistics: "171 Members", "6 Upcoming Events", and "64 Documents", each in blue text.

**Million Hearts®**

## SMBP

Membership in our group is open to all those interested in learning more about self-measured blood pressure monitoring (SMBP); sharing their SMBP ideas, efforts, and solutions; and ...

**171 Members**      **6 Upcoming Events**  
**64 Documents**

# References of Interest

- Final Recommendation Statement: High Blood Pressure in Adults: Screening. U.S. Preventive Services Task Force. November 2016. <https://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/high-blood-pressure-in-adults-screening>
- 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/ PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults. J Am Coll Cardiol 2018;71:e127-e248.
- Guide to Community Preventive Services. Cardiovascular disease prevention and control: self-measured blood pressure monitoring interventions for improved blood pressure control – when combined with additional support. Last updated: 10/21/2015 <https://www.thecommunityguide.org/findings/cardiovascular-disease-self-measured-blood-pressure-with-additional-support>.
- **Muntner P, Shimbo D, Carey RM, et al. Measurement of Blood Pressure in Humans: A Scientific Statement From the American Heart Association. Hypertension. 2019 May;73(5):e35-e66.**

# Questions?

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