


A Roadmap for Better Hypertension Control: Approaches & Tools to Address the “Silent Killer”

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Disclosures

I have no financial relationships to disclose.

I am not a medical professional but will provide insights and answer questions to the limits of my knowledge.





2024 IMPACT GOAL

Every person deserves the opportunity for a full, healthy life. As **champions for health equity***, by 2024, the American Heart Association will advance cardiovascular health for all, including identifying and removing barriers to health care access and quality.

Addressing the drivers of health disparities, including the social determinants of health, structural racism, and rural health inequities, is the only way to truly achieve equitable health and well-being for all.

CVD Risk Targets & Event Risks

Percent CVD risk reduction for being at target level among 2018 persons with diabetes for each of the measures:

Blood pressure	LDL-C	HBA1c
17%	33%	37%

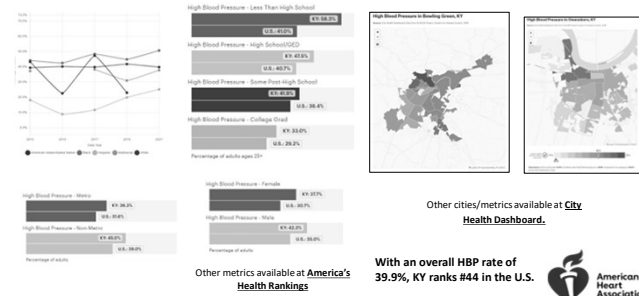
Percent lower adjusted risk of CVD events with one, two, or three risk factors at target level:

Any 1 of 3	Any 2 of 3	3 of 3
36%	52%	62%



Wong, et al. Diabetes Care 2016 May; 39(5): 668-676. Incident of CVD was defined as MI, CHD death, cardiac procedure (PCI, CABG, or coronary revascularization), stroke, or HF.

High Blood Pressure in Kentucky



Our Work in Ambulatory Quality



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- Provide clinical guidelines and protocols.
- Offer free resources directed towards both providers and patients.
- Connect clinical partners to others around the country engaged in the same work.
- Offer recognition opportunities for any health care organization that demonstrates a commitment to, and/or achieves, clinical excellence.


Registration for program(s) can be completed at heart.org/registermyoutpatientorg








BHMG Family Medicine Princeton
BHMG Internal Medicine Paducah
BHMG Primary Care Murray
Grace Health
Bishop Street Clinic
Falls Hwy Clinic
Gray/Knox Clinic
Hyden/Leslie Clinic
Levi Center Clinic
Manchester/Clay Clinic
Mountain View Clinic
Pineville/Bell Clinic
University Cumberlands Clinic
Women's Care Clinic
St. Elizabeth Healthcare
Sterling Health Care
White House Clinics




For HCOs with $\geq 70\%$ BP Control.

BHMG Family Medicine Metropolis
BHMG Primary Care Village Square




For HCOs committed to further improving BP Control
AND who attest to at least 4 of 6 Accurate Measurement Practices


BHMG Family Medicine Eddyville
BHMG Family Medicine Paducah
BHMG Primary Care Benton
BHMG Primary Care Calvert City
Bluegrass Community Health Center
Mountain Comprehensive Care Center HomePlace Clinic
Shawnee Christian Healthcare Center




BHMG Primary Care Strawberry Hills




American Heart Association.




Check, Change, Control.
Cholesterol



Target: Type 2 Diabetes




Bluegrass Community Health Center
Grace Health
Bishop Street Clinic
Falls Hwy Clinic
Gray/Knox Clinic
Hyden/Leslie Clinic
Levi Center Clinic
Manchester/Clay Clinic
Mountain View Clinic
Pineville/ Bell Clinic
University Cumberlands Clinic
Women's Care Clinic
Mountain Comp. Care Ctr. HomePlace Clinic
Shawnee Christian Healthcare Center
St. Elizabeth Healthcare
Sterling Health Care
White House Clinics




For HCOs with $\geq 70\%$ rate for guideline-based statin prescriptions.

Grace Health - Falls Hwy Clinic
Grace Health - Gray/Knox Clinic
Grace Health - Hyden/Leslie Clinic
Grace Health - Manchester/Clay Clinic
Grace Health - Mountain View Clinic
Grace Health - Pineville/Bell Clinic
Grace Health - Univ. Cumberlands Clinic
St. Elizabeth Healthcare
Sterling Health Care
White House Clinics



For HCOs with success in both CVD and Diabetes Control.

Bluegrass Community Health Center
Grace Health
Grace Health - Bishop Street Clinic
Grace Health - Levi Center Clinic
Grace Health - Women's Care Clinic
Mountain Comp. Care Ctr. HomePlace Clinic
Shawnee Christian Healthcare Center



American Heart Association.

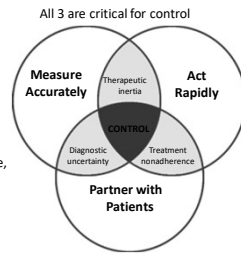
Imagine





AMA MAP Framework

- M** Measure Accurately every time to obtain accurate, representative BPs, reducing clinical uncertainty
- A** Act Rapidly to diagnose and treat hypertension, reducing diagnostic and therapeutic inertia
- P** Partner with patients to activate patients to self-manage, self-monitor, and promote adherence to treatment



https://targetbp.org/tools_downloads/combined-quick-start-guides/

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MEASURE ACCURATELY

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Knowledge Check #1

1. How often should all staff be trained in BP Measurement?
- Only upon hire during new employee orientation
 - Every 6-12 months
 - Every 2 years
 - Every 5 years
 - Unsure

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What factors influence the safety of a journey?

Safe Car



Validated and
Calibrated
Devices

Safe Driver



Team training
and technique

Safe Road



Care
Environment &
Process

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Evidence-based BP Activities

Equipment Calibration & Validation

- 1) Calibrate all BP measurement devices
- 2) Check to see if devices are validated, report % validated

Staff Knowledge & Skills

- 3) Strengthen staff knowledge every 6-12 months
- 4) Test staff skills every 6-12 months

System of care

- 5) Use a protocol ensure accurate BP measurements including confirmatory readings
- 6) Post a positioning graphic next to every BP monitoring device

EVIDENCE-BASED BP ACTIVITIES

Equipment Calibration & Validation
Staff Knowledge & Skills
System of care

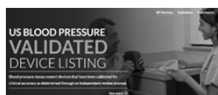
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Selection and Care: Is your equipment accurate?

Validation

- Choose devices that have been validated for clinical accuracy
 - US Blood Pressure Validated Device Listing™ (VDL)
- Check back periodically to see more devices being reviewed and added
- Consider other reliable sources
 - Hypertension Canada Stride BP British and Irish Hypertension Society



Calibration

- Aneroid sphygmomanometers
 - every 2-4 weeks for handheld devices
 - every 3-6 months for wall-mounted devices
- Oscillometric
 - most recommend every 1 or 2 years
- Biomedical engineering often just look for cracks in tubing and holes in bladders, not accuracy
- When appropriate, HBPM devices may be brought to a healthcare provider's office to assess calibration.
- See 2019 AHA Scientific Statement: Measurement of BP in Humans for more details

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[illegible][illegible]

Knowledge Check #2

What single factor is the most impactful on achieving BP control?

- a) Improving patient medication adherence
- b) Shortening the time between office visits
- c) Intensifying treatment by adding a medication class

Relative impact on US blood pressure control rate

Assuming BP control rate of 45.6%, independently improving:

- **Patient adherence** to 100% would increase BP control rates to **57.0%**
- **Return visit interval** to 1 week would increase BP control rates to **67.6%**
- **Treatment intensification rate** to $\geq 62\%$ would achieve BP control rates of **$\geq 80\%$**

Bellows BA, Ruiz-Neegde N, Bibbins-Domingo K, King JR, Fletcher ML, Morone MC, Finkelstein Y. Clinic-based strategies to reach United States million hearts 2022 blood pressure control goals. Circ Cardiovasc Qual Outcomes. 2023;12:e009624. DOI: 10.1161/CIRCOUTCOMES.118.009624

Key Drivers of BP Control

Gaps between Science & Practice

- Major opportunities exist for **improving BP control and reducing disparities**
- Treatment intensification with a new class of BP medication occurred in **only 12% of visits for patients with uncontrolled BP**
- Fixed dose combination medications **prescribed to only 25% of patients**



Tracking Blood Pressure Control Performance and Process Metrics in 25 US Health Systems

Blood pressure categories

- 2017 ACC/AHA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults

- Consider the difference:
 - Diagnosis Threshold
 - <120 / <80 mmHg
 - TREATMENT targets
 - <130 / 80 mmHg
 - PERFORMANCE measures
 - <140 / 90 mmHg

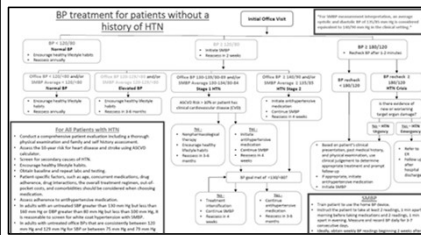
BLOOD PRESSURE CATEGORY	SYSTOLIC mm Hg (upper number)		DIASTOLIC mm Hg (lower number)
NORMAL	LESS THAN 120	and	LESS THAN 80
ELEVATED	120-129	and	LESS THAN 80
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 1	130-139	or	80-89
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 2	140 OR HIGHER	or	90 OR HIGHER
HYPERTENSIVE CRISIS (consult your doctor immediately)	HIGHER THAN 180	and/or	HIGHER THAN 120

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Revised: 10/1/2023. © 2017 ACC/AHA. All rights reserved. This document is a guideline for the prevention, detection, evaluation, and management of high blood pressure in adults. Hypertension 2017;135:e112-152.

BP Treatment Algorithms

American Heart Association
National Hypertension Control Initiative



NHCl Blood Pressure Treatment Algorithms
Video Overview

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Key Points with Act Rapidly

Use single pill combination medications

Use a treatment protocol/algorithm

Follow up frequently until control is achieved

1. Intensifying treatment when indicated enhances survival
2. When intensifying treatment for high blood pressure, adding a new medication class is more effective at reducing BP than increasing the dose of an existing medication
3. Initiating treatment with 2 medications at low-to-standard doses is more effective at reducing BP and getting BP to goal than monotherapy with less adverse effects
4. A treatment protocol can help increase the use of evidence-based treatment for patients with high blood pressure
5. Health care organizations, care teams, and providers must all work together to reduce therapeutic inertia and improve blood pressure control

Medication	Adjustment	Blood Pressure Control
ACE Inhibitor	10-20% increase	130/80 mmHg
ARB	10-20% increase	130/80 mmHg
CCB	10-20% increase	130/80 mmHg
Diuretic	10-20% increase	130/80 mmHg
Beta-blocker	10-20% increase	130/80 mmHg

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Partnering with Patients & Their Communities

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Indications for & Benefits of SMBP



Improve the accuracy of diagnosing hypertension

Out-of-office BP measurements are recommended to confirm the diagnosis of hypertension.

Rule-out Masked Hypertension or White-Coat Hypertension



Better manage patient blood pressure

Recommended for titration of BP-lowering medication, in conjunction with telehealth counseling or clinical interventions.

Used before subsequent office visits to determine if their blood pressure is controlled.



Help patients adhere to treatment – non-pharmacological and pharmacological

Patients who engage in SMBP may be more likely to take action to improve their health in other ways.

Table 1. Observed impact of SMBP. SMBP may have the potential to improve outcomes in patients with hypertension. Data are presented as mean (SD) or median (IQR).

Age Group	Observed impact of SMBP (%)		Observed impact of SMBP (%)		Observed impact of SMBP (%)	
	1 Year	2 Years	1 Year	2 Years	1 Year	2 Years
Age 18-24	10%	15%	10%	15%	10%	15%
Age 25-34	10%	15%	10%	15%	10%	15%
Age 35-44	10%	15%	10%	15%	10%	15%
Age 45-54	10%	15%	10%	15%	10%	15%
Age 55-64	10%	15%	10%	15%	10%	15%
Age 65-74	10%	15%	10%	15%	10%	15%
Age 75-84	10%	15%	10%	15%	10%	15%
Age 85+	10%	15%	10%	15%	10%	15%

Duration of Device Use

Consider the clinical purpose of the device first

- During diagnosis, the device might only be needed for 1-2 weeks, or a sufficient time to obtain a representative BP reading including:

$$\left(\begin{array}{c} 2X \text{ in AM} \\ \text{before meals} \\ (1 \text{ time point}) \end{array} + \begin{array}{c} 2X \text{ in PM} \\ \text{before bed} \\ (1 \text{ time point}) \end{array} \right) \times \begin{array}{c} 3-7 \text{ Days} \\ \text{initially} \\ \text{(recommended)} \end{array} = \begin{array}{c} 12-28 \\ \text{Readings} \\ \text{With SMBP and} \\ \text{and SMBP} \end{array}$$

- During treatment intensification, the device will be needed until a patients' response to treatment can be assessed and BP control goal is achieved, which could take weeks to months depending upon prescribing practices, visit frequency, patient adherence, and other variables
- During ongoing management, the device will be needed longer periods while lifestyle changes can be achieved and sustain or to provide continuous monitoring of a chronic condition

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SMBP Program Planning



https://www.nachc.org/wp-content/uploads/2020/12/SMBP-Toolkit_FINAL.pdf

Device Management Considerations:

- Select BP Devices
- Loaned and/or given
- Distribution method
- # of devices
- Cuff sizes
- Duration of use
- Return process
- Storage
- Tracking
- Cleaning

Staffing Roles:

- Coordination
- Training
- Device Management
- Clinical Champion
- Outreach
- Data Management

Identify appropriate patients

- Clinical criteria
- Identification
- Appropriateness

Recommend to patient

- Who/When/Where/How

Train patient

- Who/When/Where/How
- Curriculum/Resources



SMBP Program Variation & Impact

	Common Not Recommended ☹️	Recommended 😊
Purpose	• Distribute devices	• Inform diagnosis and treatment of HBP
HC Champion	• Varies	• Clinical / QI champion to redesign work/information flow and USE the data to inform diagnosis and treatment decisions
Audience	• Anyone who will accept a device	• Patients with elevated BP, to confirm a diagnosis • Patients with hypertension not yet at goal of <130 / <80 • Patients focused on med adherence and/or lifestyle change
Frequency of measurement	• Whenever they are willing to use it	• 2x in am + 2x in pm x 3-7 days prior to visit
Duration of use	• As long as they will use it	• Until diagnosis confirmed • Until treatment goal reached • Prior to visits, with medication changes • Ongoing to support adherence or lifestyle change for some
Frequency of data relay/review	• Inconsistent, unspecified	• At visits every 2-4 weeks until diagnosis or BP goal reached • At routine visits every 6-12 mo when stable (or monthly if RPM)
Merits	• Meet them where they are	• Consistent with scientific evidence and AHA guidelines
Impact	• ? Unlikely	• Most likely to support BP control

Device Comparison

[illegible]

Wrist Cuff Cautions

Per the BP Scientific Statement:
<https://www.ahajournals.org/doi/full/10.1161/HYP.0000000000000087>

- Wrist Monitors Wrist monitors have become popular because of their ease of use and their ability to obtain a measurement in individuals who are obese and have very large upper arms.
- Only in the past decade or so have manufacturers been able to develop wrist devices that could pass the validation protocols used to evaluate the accuracy of BP devices.
- Although arguably more convenient, there are 2 important limitations of wrist devices, even those that are able to measure BP accurately. First, BP can be measured only if the sensor of the monitor is directly over the radial artery, and there is a tendency for the device not to maintain the proper positioning on the wrist as Wrist flexion may enhance the problem of obtaining the optimal position.
- Second, an accurate reading is obtained only if the wrist is at heart level; readings will be too high or too low if the wrist is below or above heart level, respectively.^{10,11} Some users prefer to measure BP while sitting on a chair with their arm on a desk, which may be an easier position, especially for older adults.^{12,13}
- Thus, although convenient for the consumer, wrist monitors provide many challenges with precision, and strong reservations have been raised about their use in routine clinical practice, unless measurements in the upper arm are not feasible.^{14,15}

Using a wrist cuff to measure blood pressure*
Self-measured blood pressure

Correct forearm position
for wrist blood pressure measurement

1. Apply the wrist device
2. Keep elbow on table or desk with forearm bent
3. Place the wrist of heart level
4. Keep arm relaxed and hand resting against your body
5. Measure wrist blood pressure without moving arm from seated position

Incorrect forearm position

Wrist higher than heart level
Forearm in pronated position
Forearm vertical and close to the body

Approved by the American Medical Association (AMA) and the American Society of Hypertension (ASH) for use in clinical practice.

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Medicare Coverage & Reimbursement

- SMBP Services are reimbursed, but devices are not covered
- 9/15 Submitted Request for a National Coverage Determination (NCD) for validated self-measured blood pressure (SMBP) monitoring devices for the diagnosis and management of hypertension for Medicare beneficiaries
- 4/6 CMS responded, denying and redirecting the request
- AMA and AMA met with CMS to clarify steps needed to establish new DME codes prior to resubmitting the NCD

September 15, 2023

Request for National Coverage Determination for Validated Self-Measured Blood Pressure (SMBP) Monitoring Devices

Approved by the American Medical Association (AMA) and the American Society of Hypertension (ASH) for use in clinical practice.

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Medicaid Coverage & Reimbursement

SMBP Coverage Insights: Medicaid

As of 12/28/2022

Self-measured blood pressure (SMBP) is an evidence-based strategy that can improve blood pressure control for individuals with hypertension. SMBP is most effective when an individual has access to a validated blood pressure device for home use coupled with ongoing clinical support. Refer to the US Blood Pressure Validated Device Listing (VLDL) for a list of validated devices.

The chart below shows the value of coverage by state for 1) SMBP device codes and 2) automated blood pressure device and monitor code. It is intended to highlight which states offer provider reimbursement to purchase SMBP services and allow Medicaid patients to obtain an automated blood pressure device.

CPT* and HCPCS Code Description

Code	Description
96473	SMBP using a device validated for clinical accuracy and patient education/training and device calibration
96474	Separate self-measurements, collection of data reports by the patient or caregiver to the healthcare provider, communication of BP readings and treatment plans
A6670	Automated blood pressure device
A6663	Blood pressure cuff only

State	SMBP Service Codes				BP Device Codes			
	96473	96474	Source	Amount	A6670	A6663	Source	Amount
Kentucky	Covered	Covered	Amount Covered	\$8.03	Covered	Covered	Amount Covered	\$11.47
	•	•	•	\$8.03	•	•	•	\$11.47
								\$35.00
								\$35.00

SOURCE




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Summary

	2023	2022	2021	2020
Total states with coverage	25	19	17	19
Total states with coverage and amount covered	25	19	17	19
Average amount covered	\$11.47	\$11.47	\$11.47	\$11.47



Preparing Your Team for SMBP Success

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Source 34

Preparing Patients for Success

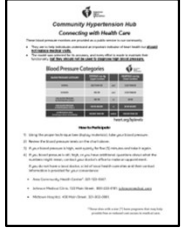

- 3-4 minutes to leverage staff time
- Patient can watch again at home
- Available in English and Spanish

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Source 35

Community Hypertension Hubs

- Meet people where they are.
- Foster community-clinical linkages and connections.
- Help spark conversation on chronic disease, nutrition and more.
- Can be facilitated in:
 - Churches
 - Libraries
 - Employers
 - & More!

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Next Steps

- Join the Missouri organizations we celebrated for **Target: BP, Target: Type 2 Diabetes, and/or Check. Change. Control. Cholesterol** at heart.org/RegisterMyOutpatientOrg
- Look for opportunities for process improvement.
 - At the system/location level:
 - Are you conducting annual staff training around BP measurement technique?
 - Do you have validated, calibrated blood pressure monitors?
 - Partnering with patients through a Self- Measured Blood Pressure Program or facilitating the launch of a Community Hypertension Hub.
 - At the individual clinician level:
 - Reviewing your own technique for accurate BP measurement.
 - Considering greater use of single-pill combination medications
 - Supporting patients who may want to engage in SMBP w/ their own device.



Questions or Assistance

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