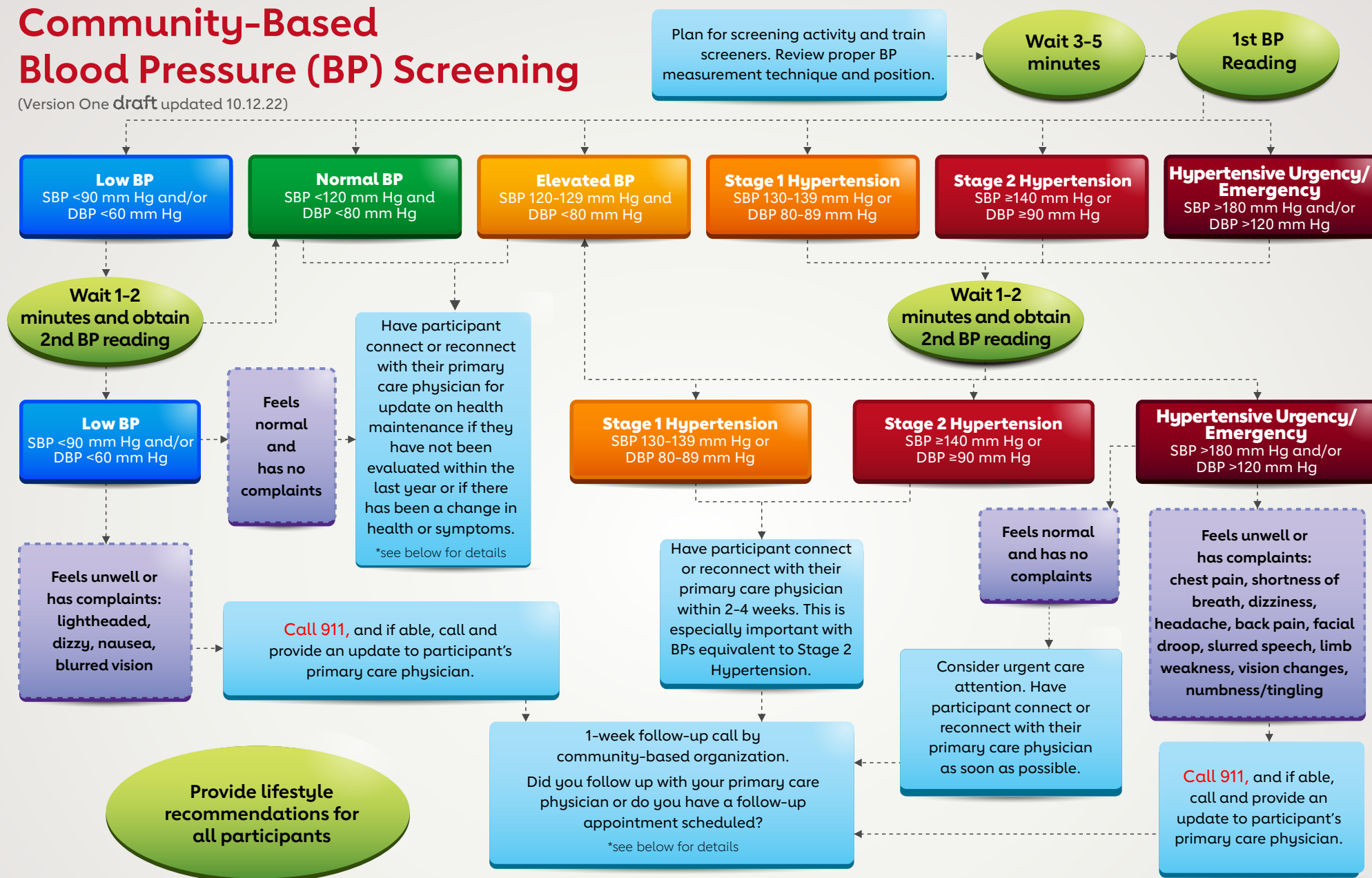


Community-Based Blood Pressure (BP) Screening

(Version One draft updated 10.12.22)



This guidance is informed by the current science on blood pressure (BP) measurement and the classification of BP levels. It is provided to support community-based efforts to conduct BP screening and to improve safety through referrals to clinical care (with particular attention to urgent or emergent situations) as indicated based upon BP levels. Community-based screening has not been addressed in existing AHA science advisories or guidelines.

In partnership with HHS Office of Minority Health and Health Resources and Services Administration under cooperative agreements CPIMP211227 and CPIMP211228.

*For all participants:

Per the United States Preventive Services Task Force:

- Recommend annual, in-office blood pressure (BP) screening by primary care physician for adults ≥40 years old and for adults at increased risk for hypertension (such as people who are Black, people who have high-normal BP or people who have overweight or obesity).
- Recommend BP screening every 3-5 years for adults aged 18-39 years not at increased risk for hypertension and with a prior normal BP reading.



AHA NHCI Community-Based Blood Pressure (BP) Screening Guidance 6.18.22

Background: This comprehensive community-based blood pressure (BP) screening guidance provides recommendations to community-based organizations (CBO) for BP screening programs and events. This document addresses BP procurement and maintenance, CBO screener training and proper BP measurement and technique. It also provides recommendations for CBO screeners to address BP measurements obtained during BP screenings.

Purpose: To provide guidance for planning, training, and implementation of BP measurement during community-based BP screening events.

Scope: This guidance applies to BP screening programs or events conducted by community-based organizations (CBO).

Rational:

- Almost half of the people in the U.S. have high BP, and many are unaware they have it. Fewer than half of the people in the U.S. with high BP have it controlled — a trend that’s worsening.
- Screenings are important because high BP usually has no symptoms and can’t be detected without being measured. High BP greatly increases your risk of heart disease and stroke.
- Local partnerships and community services can strengthen health care. One way to improve blood pressure control outside of the clinical setting is to partner with CBOs. This approach supports communities by considering unique characteristics, such as cultural practices, languages, and settings (urban or rural).
- Community-based BP screenings can encourage people to seek regular health care maintenance, identify people with raised BP and guide them to seek medical care regarding their BP.

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AHA NHCI Community-Based Blood Pressure (BP) Screening Guidance-Section 1

Planning for a Screening Activity

- Obtain a blood pressure device that has been validated for clinical accuracy. Recommend using a validated, oscillometric (digital) BP device.
 - See [ValidateBP.org](https://www.validatebp.org) for validated home, in-office or kiosk devices.
 - Use appropriate cuff sizes that have been validated with the BP devices for participants, including small adult, adult, large adult, extra-large adult and pediatric as indicated.
 - Oscillometric or semi/fully automated digital devices require fewer skills by the screener and are easier to use than aneroid/manual devices.
 - Aneroid/manual devices require a stethoscope, auscultation and psycho-motor skills to inflate/deflate a manual cuff. The complexity of aneroid/manual devices may contribute to additional measurement errors.
 - The maintenance requirements to calibrate oscillometric BP devices for accuracy are lower than for aneroid BP devices.
 - Maintain the equipment, calibrating it based upon the manufacturer's guidelines. Calibration for oscillometric digital (automatic) devices is typically every 1-2 years per manufacturer's instruction.
 - Using non-validated or uncalibrated devices can lead to inaccurate readings that significantly over- or underestimate actual BP, both of which can be dangerous.
- Create a physical environment conducive to screening.
 - Establish a quiet environment to measure BP, such as a private room or secluded area.
 - Secure a chair with a supportive back.
 - Ensure participants have a place to rest their arm so the upper arm cuff will be aligned at heart level.
 - Have a foot support available on which a participant can rest their feet if their feet can't reach the floor when seated.
 - Display a visual reminder of proper measurement technique to help remind the screener and the participant of proper positioning (see attached: Exhibit A).
 - Locate a nearby restroom so participants can easily empty their bladder prior to screening.

Preparing the Screener

- Ensure that all screeners have been trained in BP measurement prior to screening participants, regardless of whether they have experience measuring BP or whether they work as a health care professional.
 - Screeners should be trained at a minimum every 6-12 months. If the screener performs the task infrequently (such as less than monthly), then a refresher training should be considered.
- At a minimum, educate the person on how to operate the specific BP measurement device, including:
 - A review of all the functions of the device and cuff options
 - Access to the product manual to support trouble shooting (alerts, battery replacement, etc.)
- Provide instructions on how to measure blood pressure including the participant preparation and positioning
 - Consider having the screener watch a [4-minute training video](#) on self-measured blood pressure technique (available in English and Spanish). Review positioning graphics (see attached: Exhibit A & B)
- Request a return demonstration of proper technique from the screener
 - Note that improper BP measurement and technique can significantly under- or overestimate actual BP, both of which can be dangerous.
- Define the process for participant screening.
 - How will the participants flow through the activity/event?
 - How should screeners communicate information with participants, such providing instructions for scheduling follow-up or referrals with a primary care physician (PCP)? Recommend providing written recommendations to participants for follow-up.
- Advise screeners to keep participant information confidential, ideally aligned with HIPAA guidance.



AHA NHCI Community-Based Blood Pressure (BP) Screening Guidance-Section 2

Definitions

- Systolic blood pressure (SBP) (top number) indicates how much pressure blood exerts against artery walls when the heart beats, measured in millimeters of mercury (mm Hg).
- Diastolic blood pressure (DBP) (bottom number) indicates how much pressure blood exerts against artery walls while the heart relaxes between beats, measured in mm Hg.

Participant Preparation Prior to BP Screening

- Advise participants not to smoke, drink caffeinated beverages or exercise 30 minutes before BP screening.
- Ask participants if they're already on BP medication, when they regularly take their BP medication, and whether they have taken BP medication today?
- Ensure that participants have emptied their bladder.
- Both the participant and the screener should refrain from talking or moving around during the 3- to 5-minute rest period prior to and during measurement.

BP Screening Position

- Use an upper-arm cuff BP measurement device that has been validated for clinical accuracy (see ValidateBP.org) and calibrated as indicated by manufacture guidelines.
- Ask the participant to sit in a chair with feet flat on the floor and back supported against a wall or chair back.
- Provide a footrest if the participant's feet don't reach and rest on the floor.
- If comfortable, ask the participant to remove clothing on the upper arm where the cuff will be placed. Ensure a rolled-up sleeve does not create a tight tourniquet on the upper arm. Additional privacy may be needed.
- Select a cuff appropriate to the participant's arm size such that the bladder encircles 75%–100% of the arm.
 - Most BP cuffs have a guide so that when the cuff is applied, an arrow indicates if the participants arm is within the range that the cuff can accommodate.
 - Using a cuff that's too large will falsely lower BP readings.
 - Using a cuff that's too small will falsely elevate BP readings.
- Position the BP cuff on the middle of the participant's upper arm at heart level.
- Apply the BP cuff tightly enough so the screener can put one finger at the top and bottom of the cuff easily or two fingers snugly.

- Provide support for the participant's arm (e.g., resting on a desk or table) so it's relaxed with the palm facing up.

BP Screening

- 1) Rest 3-5 minutes once in position. The screener and the participant should refrain from talking or moving around. The participant should not be distracted by a phone or other activity.
- 2) Obtain the BP reading. See Exhibit C.
 - Normal: SBP <120 mm Hg and DBP <80 mm Hg
 - Elevated BP: SBP 120-129 mm Hg and DBP <80 mm Hg
 - Hypertension (high BP): SBP \geq 130 mm Hg or DBP \geq 80 mm Hg
 - Hypertensive Emergency/Urgency: SBP >180 mm Hg and/or DBP >120 mm Hg
 - Hypertension Stage 2: SBP \geq 140 mm Hg or DBP \geq 90 mm Hg
 - Hypertension Stage 1: SBP 130-139 mm Hg or DBP 80-89 mm Hg
 - Hypotension (low BP): SBP <90 mm Hg and/or DBP <60 mm Hg
- 3) Recheck BP after 1-2 minutes rest when:
 - Too high: SBP \geq 130 mm Hg or DBP \geq 80 mm Hg
 - Too low: SBP <90 mm Hg and/or DBP <60 mm Hg
- 4) Refer to appropriate BP category below after BP check.
- 5) Provide the participant with their BP reading(s). A diagnosis of high BP must be made by a medical professional.
- 6) If not already receiving routine care from a primary care physician (PCP), recommend the participant have an in-office BP screening with their PCP even if the measurement is normal. If the participant doesn't have a PCP, encourage, or facilitate access to routine care.
 - Per the United States Preventive Services Task Force:
 - Recommend annual in-office BP screening by PCP for adults \geq 40 years old and in adults at increased risk for hypertension (such as people who are Black, people who have high-normal BP or people who have overweight or obesity).
 - Recommend screening every 3-5 years for adults 18-39 years old not at increased risk for hypertension and with a prior normal BP reading.

Disclaimer: This guidance is informed by the current science on blood pressure (BP) measurement and the classification of BP levels. It is provided to support community-based efforts to conduct BP screening and to improve safety through referrals to clinical care (with particular attention to urgent or emergent situations) as indicated based upon BP levels. Community-based screening has not been addressed in existing AHA science advisories or guidelines.

BP Reading

- 1) If reading is equivalent to hypertensive emergency/urgency: SBP >180 mm Hg and/or DBP >120 mm Hg
 - Ask: Any chest pain, shortness of breath, back pain, numbness/tingling, dizziness, change in vision, headache, arm weakness, facial droop, slurred speech or difficulty speaking?
 - Yes - Hypertensive Emergency with signs or symptoms
 - Call 911.
 - With participant's consent, if able, call participant's PCP to provide a medical update.
 - One-week follow-up call by CBO
 - Did you follow up with your PCP or do you have a follow-up appointment scheduled?
 - Would you like assistance connecting or reconnecting with a PCP?
 - Encourage the participant to follow up with their PCP.
 - No - Hypertensive Urgency without signs or symptoms
 - Consider urgent care attention.
 - Have participant connect or reconnect with their PCP as soon as possible.
 - One-week follow-up call by CBO
 - Did you follow up with your PCP or do you have a follow-up appointment scheduled?
 - Would you like assistance connecting or reconnecting with a PCP?
 - Encourage the participant to follow up with their PCP.
- 2) If reading is equivalent to stage 2 hypertension: SBP \geq 140 mm Hg or DBP \geq 90 mm Hg
 - Provide information on the role of lifestyle modification in lowering BP.
 - Counsel participant on healthy eating, active living (HEAL).
 - Increase physical activity.
 - Limit alcohol.
 - Maintain a healthy weight.
 - Manage stress.
 - Quit smoking.
 - Take medications as directed.
 - Have participant connect or reconnect with their PCP within 2-4 weeks. This is especially important with BPs equivalent to stage 2 hypertension.

- One-week follow-up call by CBO
 - Did you follow up with your PCP or do you have a follow-up appointment scheduled?
 - Would you like assistance connecting or reconnecting with a PCP?
 - Encourage the participant to follow up with their PCP.
- 3) If reading is equivalent to stage 1 hypertension: SBP 130-139 mm Hg or DBP 80-89 mm Hg
- Provide information on the role of lifestyle modification in lowering BP.
 - Counsel on healthy eating, active living (HEAL).
 - Increase physical activity.
 - Limit alcohol.
 - Maintain a healthy weight.
 - Manage stress.
 - Quit smoking.
 - Take medications as directed.
 - Have participant connect or reconnect with their PCP within 2-4 weeks.
 - One-week follow-up call by CBO
 - Did you follow up with your PCP or do you have a follow-up appointment scheduled?
 - Would you like assistance connecting or reconnecting with a PCP?
 - Encourage the participant to follow up with their PCP.
- 4) If reading is equivalent to elevated BP: SBP 120-129 mm Hg and DBP <80 mm Hg
- Provide information on the role of lifestyle modification in lowering BP.
 - Counsel on healthy eating, active living (HEAL).
 - Increase physical activity.
 - Limit alcohol.
 - Maintain a healthy weight.
 - Manage stress.
 - Quit smoking.
 - Take medications as directed.
 - Have participant connect or reconnect with their PCP for update on health maintenance if they have not been evaluated within the last year or if health or symptoms have changed.
 - If not already receiving routine care from a PCP, recommend the participant have an in-office BP screening with their PCP. If the participant doesn't have a PCP, encourage, or facilitate access to routine care.
 - Per the United States Preventive Services Task Force:
 - Recommend annual in-office BP screening by PCP for adults ≥ 40 years old and in adults at increased risk for hypertension (such as people who are Black, people who have high-normal BP or people who have overweight or obesity).

- Recommend screening every 3-5 years for adults 18-39 years old not at increased risk for hypertension and with a prior normal BP reading.
- 5) If reading is equivalent to hypotension: SBP <90 mm Hg and/or DBP <60 mm Hg
 - Ask: Any dizziness or lightheadedness, nausea, blurred vision, fainting, fatigue?
 - Yes – with signs or symptoms
 - Call 911.
 - With participant’s consent, if able, call participant’s PCP to provide a medical update.
 - One-week follow-up call by CBO
 - Did you follow up with your PCP or do you have a follow-up appointment scheduled?
 - Would you like assistance connecting or reconnecting with a PCP?
 - Encourage the participant to follow up with their PCP.
 - No - feels normal and no complaints
 - Provide lifestyle recommendations.
 - Counsel on healthy eating, active living (HEAL).
 - Increase physical activity.
 - Limit alcohol.
 - Maintain a healthy weight.
 - Manage stress.
 - Quit smoking.
 - Take medications as directed.
 - Have participant connect or reconnect with their PCP for update on health maintenance if they have not been evaluated within the last year or if health or symptoms have changed.
 - If not already receiving routine care from a PCP, recommend the participant have an in-office BP screening with their PCP. If the participant doesn’t have a PCP, encourage, or facilitate access to routine care.
 - Per the United States Preventive Services Task Force:
 - Recommend annual in-office BP screening by PCP for adults ≥ 40 years old and in adults at increased risk for hypertension (such as people who are Black, people who have high-normal BP or people who have overweight or obesity).
 - Recommend screening every 3-5 years for adults 18-39 years old not at increased risk for hypertension and with a prior normal BP.

- 6) If reading is equivalent to normal BP: SBP <120 mm Hg and DBP <80 mm Hg
- Provide lifestyle recommendations.
 - Counsel on healthy eating, active living (HEAL).
 - Increase physical activity.
 - Limit alcohol.
 - Maintain a healthy weight.
 - Manage stress.
 - Quit smoking.
 - Take medications as directed.
 - Have participant connect or reconnect with their PCP for update on health maintenance if they have not been evaluated within the last year or if health or symptoms have changed.
 - If not already receiving routine care from a PCP, recommend the participant have an in-office BP screening with their PCP even if the measurement is normal. If the participant doesn't have a PCP, encourage, or facilitate access to routine care.
 - Per the United States Preventive Services Task Force:
 - Recommend annual in-office BP screening by PCP for adults ≥ 40 years old and in adults at increased risk for hypertension (such as people who are Black, people who have high-normal BP or people who have overweight or obesity).
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Appendix

Exhibit A:

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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 www.ama-assn.org/ama-johns-hopkins-blood-pressure-resources.

Content provided by **AMA** | **MAPBP**

This resource is part of AMA MAP BP™, a quality improvement program. Using a single or subset of AMA MAP BP tools or resources does not constitute implementing this program. AMA MAP BP includes guidance from AMA hypertension experts and has been shown to improve BP control rates by 10 percentage points and sustain results.

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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

[In-Office Blood Pressure Measurement Graphic | Target:BP \(targetbp.org\)](https://targetbp.org)

How to measure your blood pressure at home

TARGET:BP™



Follow these steps for an accurate blood pressure measurement

1. PREPARE

Avoid caffeine, smoking and exercise for 30 minutes before measuring 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, twice daily for seven days.

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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Exhibit C:

Blood Pressure Categories



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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[Understanding Blood Pressure Readings | American Heart Association](#)