Blood Pressure Loaner Cuff Protocol

Overview

Self-monitoring of blood pressure (SMBP) allows for participants to take part in managing their hypertension. SMBP is the regular measurement of blood pressure by the participant outside the clinical setting, typically done within the home\(^1\). In addition to helping health care providers diagnose and manage hypertension, SMBP with support from clinicians can improve access to regular blood pressure monitoring and quality of care for individuals with hypertension and facilitate improvement in blood pressure control\(^3\). SMBP requires the use of a home blood pressure measurement device for the participant to measure blood pressure at various times.\(^3\) In order to participate in an SMBP program, participants will need access to blood pressure cuffs. Unfortunately, some participants are unable to afford their own blood pressure cuff, or their insurance does not cover it. Offering a blood pressure cuff to the participant through a blood pressure loaner cuff program can provide the needed access to self-monitoring. This document will provide you with steps to consider when starting a blood pressure loaner cuff program.

Participation Requirements

- The participating must have a diagnosis of hypertension or suspected hypertension. The American College of Cardiology and the American Heart Association have redefined the clinical guidelines for hypertension as having a blood pressure reading higher than 130/80 mmHg\(^2\). We recognize that not all providers have adopted these guidelines. Note: Only providers can diagnose a participant with high blood pressure according the clinical guidelines.
- The participant must be willing to take blood their pressure readings consistently. For additional information on teaching patients to perform self-monitoring of blood pressure, see Appendix A.
- The participant must be capable of documenting the blood pressure readings if the loaner device does not have memory storage capability. This is especially important for reporting measurements back to their provider.
- The participant meets the above criteria and has expressed a desire to take blood pressure readings at home but is unable to purchase a home blood pressure device.

Monitors

Upper arm cuffs are recommended for monitoring. Accuracy of wrist cuffs may be inconsistent; however, in some cases they may be used as an alternative for participants who have difficulty using an upper arm cuff or instances where an upper arm cuff is not large enough\(^4\). Finger cuffs should not be used. A list of validated blood pressure monitors is available on the Dabl educational website; a link to the website can be found in the Resources section. Due to the varying arm sizes of participants, it is important to have monitors with varying cuff sizes.
available to ensure proper fit. To accurately fit a patient for a cuff, use a tape measure to measure the circumference of the patients arm in centimeters.

### Recommended cuff sizes for accurate measurement of blood pressure:

<table>
<thead>
<tr>
<th>Arm Circumference</th>
<th>Recommended Cuff Size (width x length in cm)</th>
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</thead>
<tbody>
<tr>
<td>cm</td>
<td>in</td>
</tr>
<tr>
<td>22 – 26</td>
<td>8.7 – 10.2</td>
</tr>
<tr>
<td>12 x 22</td>
<td>(small adult)*</td>
</tr>
<tr>
<td>27 – 34</td>
<td>10.6 – 13.4</td>
</tr>
<tr>
<td>16 x 30</td>
<td>(adult)*</td>
</tr>
<tr>
<td>35 – 44</td>
<td>13.8 – 17.3</td>
</tr>
<tr>
<td>16 x 36</td>
<td>(large adult)*</td>
</tr>
<tr>
<td>45 – 52</td>
<td>17.7 – 20.5</td>
</tr>
<tr>
<td>16 x 42</td>
<td>(extra-large adult)</td>
</tr>
</tbody>
</table>

In addition to properly sizing the patient for a cuff, it is also important to check the accuracy of the device, this can be done by following the steps on the “Self-measured blood pressure device accuracy test”, see Appendix C.

### Education

Before lending a blood pressure cuff, it is important to educate patients and their caregivers on how to use the loaner device and how to properly measure and record their blood pressure. Education should focus on:

- when and how to measure blood pressure including avoidance of caffeine, tobacco, and exercise for at least for at least 30 minutes prior to taking the measurement and the need to obtain the reading before taking blood pressure medications;
- proper positioning when measuring blood pressure;
- how to operate the device;
- how to accurately self-measure blood pressure; and,
- how to record the measurement.

For a complete list of steps to performing self-monitoring of blood pressure, see Target: BP “How to Accurately Measure Blood Pressure” infographic under resources.

A complete training checklist and blood pressure recording form are contained in Appendix A and B, respectively. Patients should communicate with their physicians to determine length of self-monitoring and regular follow-up of measurements. If this protocol is used to support a CDC recognized lifestyle change program, such as the YMCA’s BPSM program, the patient will need the cuff for the duration of the program.
**Device Tracking and Return**

Before loaning out devices, you should develop a policy and procedures for device return, including information on when return of devices is expected and follow-up procedures if they are not returned. Consider having the participant complete a loaner agreement. A sample loaner agreement and device tracking form are included in Appendix D and E, respectively.

Upon return, all devices should be cleaned, disinfected, and stored in a clean location. The Centers for Disease Control and Prevention (CDC) recommends that blood pressure cuffs that come in contact with intact skin— but not mucous membranes— should be cleaned at a low-to-intermediate level of disinfection. A link to the CDC disinfection guidelines is included in the Resources section.

**References**


2. Welton PK, Carey RM, Wilbert SA. 2017  


Resources

Million Hearts® Self-Measured Blood Pressure Monitoring: Action Steps for Public Health Practitioners

National Association of Community Health Centers Implementation Guide for Healthcare Delivery Organizations

Target: BP How to Accurately Measure Blood Pressure Infographic

Dabl Educational Website
www.dableducational.org/sphygmomanometers/devices_2_sbpm.html.


Target: BP Forms

SMBP Recording Log
https://targetbp.org/tools_downloads/7-day-recording-log-2-timesday/.

SMBP Patient Training Checklist

SMBP Loaner Device Agreement

SMBP Device Accuracy Test

SMBP Loaner Device Inventory Management
Appendix A: Patient Training Checklist

Self-measured blood pressure
Patient training checklist

Instructions: To ensure all necessary steps and components are covered, use this checklist when training your patient’s on how to perform self-measured blood pressure (SMBP).

☐ Gather supplies
  ☐ Tape measure
  ☐ What is SMBP? (PDF)
  ☐ SMBP infographic (PDF in English or Spanish)
  ☐ SMBP recording log (PDF)
  ☐ SMBP device accuracy test (PDF)

☐ Provide background information on SMBP to the patient (if not explained by provider)
  ☐ Explain how SMBP allows the provider to get a more accurate and complete picture of the patient’s blood pressure outside of the office (more readings, over a longer period of time, in the patient’s normal environment)
    Tip: Hand out the “What is SMBP?” document.

☐ Determine SMBP cuff size
  ☐ Use tape measure to measure the circumference of the patient’s mid-upper arm in centimeters (see image for more details)
    Tip: Ideally, this is done before the patient purchases a device so you can ensure the device and cuff purchased are appropriate for the patient.

☐ Check patient’s SMBP device for accuracy
  Tip: Use the SMBP device accuracy test.

☐ Determine the patient’s blood pressure arm (if not currently identified)
  ☐ Measure the patient’s blood pressure in each arm and use the arm with the higher reading for all future readings.

☐ Teach patient how to properly prepare for self-measurement
  ☐ Avoid caffeine, tobacco and exercise for at least 30 minutes before measurement
  ☐ Empty bladder if full
  ☐ Take BP measurements before blood pressure medications
    Tip: Show SMBP training video and hand out the SMBP infographic.

☐ Teach patient the proper positioning for self-measurement

1 of 2
☐ Back supported
☐ Feet flat on the floor or a firm surface
☐ Legs uncrossed
☐ Cuff placed on bare upper arm
☐ Arm supported with middle of the cuff at heart level
  *Tip: Refer to the SMBP video and/or infographic.

☐ Teach patient how to use device* (if applicable)
  ☐ How to turn on device
  ☐ How to start measurement
  ☐ How to troubleshoot
  * Refer to device manual as needed.

☐ Teach patient how to properly self-measure
  ☐ Rest quietly for five minutes
  ☐ Take two measurements, one minute apart
  ☐ Avoid conversations and electronic devices during measurement
  ☐ Perform this process once in the a.m. and once in the p.m. for seven consecutive days.
  *Tip: Provide patient with link to SMBP training video to reference later (also available in Spanish).

☐ Teach patient how to use SMBP recording log
  ☐ Reminder: Complete the “For Office Use” section
  ☐ How to document systolic and diastolic blood pressure
  ☐ What to do if blood pressure is too high or too low
  ☐ What to do with log when week of measurements is complete

☐ Use teach back or return demonstration methods to ensure patient understands how to properly self-measure

☐ Ensure all necessary office paperwork is complete
# Appendix B: Blood Pressure Log

## 7 Day Recording Sheet: Self-Measured Blood Pressure Monitoring

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
<th>Day 6</th>
<th>Day 7</th>
</tr>
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<tr>
<td><strong>MORNING</strong></td>
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<tr>
<td>1 SYS</td>
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<td>1 SYS</td>
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<td>DIA</td>
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<td>DIA</td>
<td>DIA</td>
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<td>PULSE</td>
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<td><strong>EVENING</strong></td>
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<td>PULSE</td>
</tr>
</tbody>
</table>

**Notes:**

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**Practice Address:**

**Phone:**

**Email:**

**Patient Portal:**

**Next Appointment Date & Time:**

---

**Diagnostic SMBP, measure for 7 consecutive days:**

**Confirmed hypertension, measure for 7 consecutive days prior to next office visit:**

**Report Back Results By:**

- Phone
- Patient portal
- Bring back device or written log
- Other

**If your blood pressure measurement is:**

- **More than:**
  - SYS
  - DIA

- **Between:**
  - SYS
  - DIA

- **Less than:**
  - SYS
  - DIA

**INSTRUCTIONS:** If at any time you feel light headed or have a headache, check your blood pressure and call the office immediately.

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**Provided by American Medical Association and the American Heart Association through the TargetBP program.**

(MDHHS, July 2019)
Appendix C: Device Accuracy Test

Self-measured blood pressure
Device accuracy test

A patient’s self-measured blood pressure (SMBP) monitoring device should be tested before it is used as part of an SMBP program. Also test the device annually or any time blood pressure readings are questionable.

Step 1

Complete the table below.
Care team should take five blood pressure readings using a combination of the patient’s SMBP device and the office’s method of blood pressure measurement.

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Device</th>
<th>Systolic blood pressure (SBP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Patient's</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Patient's</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Office's</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Patient's</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Office's</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SBP Example</th>
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</thead>
<tbody>
<tr>
<td>133</td>
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<tr>
<td>132</td>
</tr>
<tr>
<td>141</td>
</tr>
<tr>
<td>134</td>
</tr>
<tr>
<td>139</td>
</tr>
</tbody>
</table>

Step 2

Part 1: Average measurements B and D
Part 2: Compare average of B and D to measurement C
Part 3: If the difference is …

1. Less than 5 mm Hg, this device can be used for SMBP
2. Between 6 and 10 mm Hg, proceed to Step 3
3. Greater than 10 mm Hg, replace the device before proceeding with your SMBP program

Example
Part 1: \([132 + 134] / 2 = 133\)
Part 2: 133 - 141 = 8 (note: if the difference is a negative number, ignore the negative sign)
Part 3: Difference is 8, which is between 6 and 10 mm Hg, so proceed to Step 3

Step 3

Part 1: Average measurements C and E
Part 2: Compare average of C and E to measurement D
Part 3: If the difference is …

1. Less than or equal to 10 mm Hg, this device can be used for SMBP
2. Greater than 10 mm Hg, replace the device before proceeding with your SMBP program

Example
Part 1: \([141 + 139] / 2 = 140\)
Part 2: 140 - 134 = 6 (note: if the difference is a negative number, ignore the negative sign)
Part 3: Difference is 6, which is less than or equal to 10 mm Hg, so proceed with SMBP program

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## Self-measured blood pressure monitoring

**Loaner program agreement**

<table>
<thead>
<tr>
<th>FOR OFFICE STAFF</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lender information</strong></td>
<td><strong>Equipment information</strong></td>
</tr>
<tr>
<td>Organization name</td>
<td>Device manufacturer and model</td>
</tr>
<tr>
<td>Address</td>
<td>Device ID</td>
</tr>
<tr>
<td>Phone number</td>
<td>Supplies (check all that apply):</td>
</tr>
<tr>
<td></td>
<td>□ BP cuff (variable size) □ BP cuff (XL)</td>
</tr>
<tr>
<td></td>
<td>□ Carrying case □ Batteries __________</td>
</tr>
<tr>
<td></td>
<td>□ Power cord □ Other __________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Patient information</strong></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Name</td>
<td></td>
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<tr>
<td>Patient ID</td>
<td></td>
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<tr>
<td>Preferred contact information (phone or email)</td>
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</tbody>
</table>

Return by: _____/_____/______

- I agree to participate in the self-measured blood pressure device loaner program and follow the guidelines given to me.
- I agree to return this device in good working condition on or before its due date.

Patient signature ___________________________ Date ____________
## Appendix E: Device Tracking Form

### Self-measured blood pressure

#### INVENTORY MANAGEMENT: LOANER DEVICE TRACKING

<table>
<thead>
<tr>
<th>DEVICE INFORMATION</th>
<th>PATIENT INFORMATION</th>
<th>LOAN INFORMATION</th>
<th>CLEANING</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEVICE ID</td>
<td>CUFF SIZE</td>
<td>FIRST NAME</td>
<td>LAST NAME</td>
</tr>
<tr>
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