



# 7-step SMBP quick guide

## Helping patients achieve and maintain blood pressure goals

The recent COVID-19 pandemic has led to a rapid increase in the use of telemedicine by many health care organizations, physicians and care teams. Using telemedicine modalities with self-measured blood pressure (SMBP) can help patients with hypertension achieve and maintain blood pressure goals.<sup>1</sup>

There are over 115 million adults in the United States with hypertension, many of whom have uncontrolled hypertension.<sup>2</sup> These patients are at higher risk for heart attacks, strokes, heart failure, kidney disease and peripheral vascular disease, and would benefit from continued monitoring and treatment of their hypertension, regardless of whether the care is provided virtually or in-person.<sup>1</sup>

This guide highlights seven key steps physicians and care teams can take to use SMBP with patients 18 years and older with high blood pressure, and includes links to useful supporting resources.

### Defining self-measured blood pressure

**Self-measured blood pressure (SMBP)** refers to blood pressure (BP) measurements obtained outside of a physician's practice or clinical setting, usually at home. When combined with clinical support (e.g., one-on-one counseling, web-based or telephonic support tools, education), SMBP can help enhance the quality and accessibility of care for people with high blood pressure and improve blood pressure control.<sup>3</sup>

SMBP can be used to assess BP control and aid in diagnosing of hypertension. SMBP allows patients to actively participate in the management of their BP and has been shown to improve adherence to antihypertensive medications.<sup>3</sup> It is recommended to be used in conjunction with telehealth counseling or clinical interventions for the titration of BP-lowering medication.<sup>1</sup>

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# 7 steps for SMBP



## 1 Identify patients for SMBP

- Patients with an existing diagnosis of hypertension
- Patients with high blood pressure without a diagnosis of hypertension
- Patients suspected of having hypertension (labile or masked hypertension)

## 2 Confirm device validation and cuff size

- Make sure patients have automated, validated devices with appropriately sized upper arm cuffs

 **Tools:** Use the [US Blood Pressure Validated Device Listing™](#) and [Self-measured blood pressure cuff selection](#)

## 3 Train patients

- Educate patients on how to perform SMBP using an evidence-based measurement protocol
- Education should include proper preparation and positioning before taking measurements, as well as resting one minute between measurements
- Verify patients' understanding and share educational resources

 **Tools:** Use the [SMBP training video](#) (see also: [Spanish version](#)) and the [SMBP infographic](#) (see also: [Spanish version](#))

## 4 Have patients perform SMBP

- Conduct SMBP monitoring whenever BP assessment is desired (e.g., to confirm a diagnosis, to assess every 2-4 weeks if BP is uncontrolled or at physician discretion)
- Provide instructions on the duration of monitoring and the number of measurements to take each day
  - 7 days of monitoring recommended; 3 days (i.e., 12 readings) minimum
  - Measurements should be taken twice daily (morning and evening) with at least two measurements taken each time
- Determine when and how patients will share results back to care team
  - Examples include phone, portal or secure messaging

 **Tool:** Use the [SMBP recording log](#)

## 5 Average results

- Average all SMBP measurements received from patients for monitoring period
- Document average systolic and average diastolic blood pressure in medical record
  - Use the average systolic and average diastolic blood pressure for clinical decision making
  - 3 days of measurements (i.e., 12 readings) are recommended as a minimum for clinical decision-making

 **Tool:** Use the [SMBP averaging tool](#)

## 6 Interpret results

- Make diagnosis and/or assess control
- Initiate, intensify or continue treatment as needed

 **Tool:** Use the [SMBP interpretation tables](#)

## 7 Document plans and communicate to patients

- Document treatment and follow-up plans and communicate to patients
- Confirm patients' agreement and understanding

[CPT® codes for SMBP](#) are available and can be submitted for services related to patient training on SMBP, interpretation of SMBP measurements and management based on results.

# Ensuring accuracy

## Helping patients obtain accurate SMBP results

Blood pressure constantly fluctuates in most people. Taking multiple BP measurements each day, for multiple days in an environment where a person spends a significant amount of time, yields a more accurate and representative picture of that person's true BP. When compared with a single conventional office BP measurement, SMBP measurements taken over a week are much more predictive of future cardiovascular risk. Training patients to properly prepare for and perform SMBP is essential to obtain accurate measurements.

## Ensuring use of validated blood pressure measurement devices

Blood pressure measurement devices used by patients for out-of-office measurements should be validated for clinical accuracy. Validated devices have passed an international validation protocol performed by independent skilled BP measurement experts. A preliminary list of BP measurement devices sold in the United States that meet criteria for the [US Blood Pressure Validated Device Listing™](#) was made available on April 29th, 2020. Additional validated BP measurement devices sold in the U.S. may be found on international validated device listings that are maintained by [Canadian](#), [European](#) and [British and Irish](#) organizations.

Patients should use automated BP measurement devices with upper arm cuffs of [appropriate size](#). Many devices are sold with cuffs that will fit arm circumferences within the small adult to large adult range, but not all devices have extra-large cuff sizes available. Using an inappropriately sized cuff can lead to inaccurate BP measurements, as can using cuffs on different areas of the body (e.g., finger cuffs). A [wrist cuff](#) should only be used if an upper arm cuff is not clinically appropriate or if an appropriately sized upper arm cuff is not available.<sup>4</sup>

Because it is recommended that patients take SMBP measurements for 7 days, devices with the capacity to store at least 7 days of measurements (28 or more readings) are preferred.<sup>4</sup>



# SMBP classifications



## Interpreting SMBP measurements

For SMBP measurement interpretation, an average systolic BP and average diastolic BP of 135/85 mm Hg is considered equivalent to 140/90 mm Hg in the clinical setting. If the BP used to diagnose hypertension and as a treatment target in the clinical setting is 140/90 mm Hg, the corresponding SMBP diagnostic threshold and treatment target is 135/85 mm Hg.

In the 2017 American College of Cardiology/American Heart Association “Guideline for the prevention, detection, evaluation, and management of high blood pressure in adults,” 130/80 mm Hg is used as the diagnostic threshold for hypertension.<sup>1</sup> When following the recommendations in this guideline, 130/80 mm Hg can be used for most patients as the treatment target for hypertension in clinical settings and for

SMBP. The ultimate judgment regarding treatment targets and management plans must be made by physicians and patients based on individual patient factors.

The measurement ranges and interpretations presented in the tables are based on the 2003 “Seventh report of the joint national committee on prevention, detection, evaluation, and treatment of high blood pressure” (JNC-7) diagnostic and treatment target thresholds.<sup>5</sup> If the 2017 ACC/AHA Hypertension Clinical Practice Guideline is used, hypertension is defined as BP  $\geq$  130/80 mm Hg for both office-based measurements and SMBP, and controlled BP for most adults is defined as  $<$  130/80 mm Hg.

## SMBP classifications for patients WITHOUT a diagnosis of hypertension

Description of BP	SMBP measurement	Office BP measurement	Interpretation/plan
Normal BP	$<$ 120/80	$<$ 120/80	Recheck BP in 1 year
Elevated BP	120-134/80-84	120-139/80-89	Manage per guideline recommendations Recheck BP within 6 months
Hypertension	$\geq$ 135/85	$\geq$ 140/90	Diagnose hypertension; order additional diagnostic testing as needed Initiate treatment per guideline recommendations/ treatment protocol Recheck BP within 4 weeks
Hypertensive urgency/ emergency	$\geq$ 180/100	$\geq$ 180/100	Immediate evaluation and management by physician; patient likely has hypertension

## SMBP classifications for patients WITH an existing diagnosis of hypertension

Description of BP	SMBP measurement	Office BP measurement	Interpretation/plan
Controlled BP	$<$ 135/85	$<$ 140/90	Continue treatment Recheck BP within 1-6 months (per physician discretion)
Uncontrolled BP	$\geq$ 135/85	$\geq$ 140/90	Initiate or intensify treatment per guideline recommendations/treatment protocol Recheck BP within 4 weeks

For both tables, if systolic and diastolic BPs are in different categories, defer to the higher category of BP.

# References



1. Whelton PK, Carey RM, Aronow WS, Casey DE Jr, Collins KJ, Dennison Himmelfarb C, et al. 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: a report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *J Am Coll Cardiol*. 2018;71(19).
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5. Chobanian AV, Bakris GL, Black HR, et al; the National High Blood Pressure Education Program Coordinating Committee. Seventh report of the joint national committee on prevention, detection, evaluation, and treatment of high blood pressure. *Hypertension*. 2003;42:1206–52.