



The Physician's Guide to  
**Detecting, Diagnosing and  
Managing Hypertension**

What every healthcare provider should know about  
detecting, diagnosing and managing hypertension





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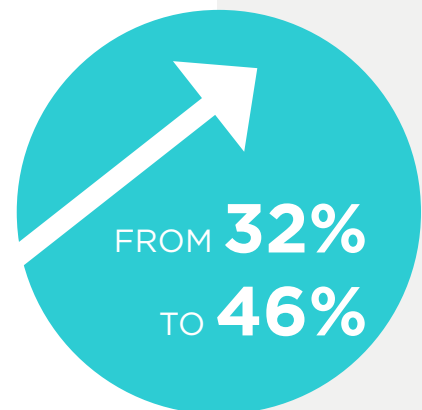
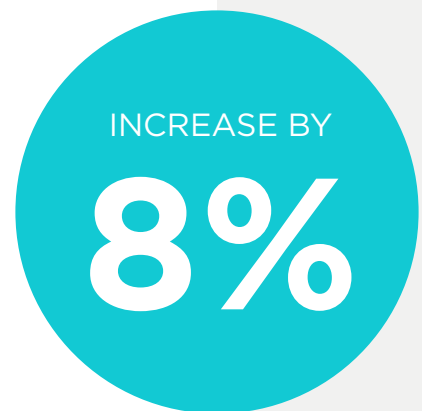
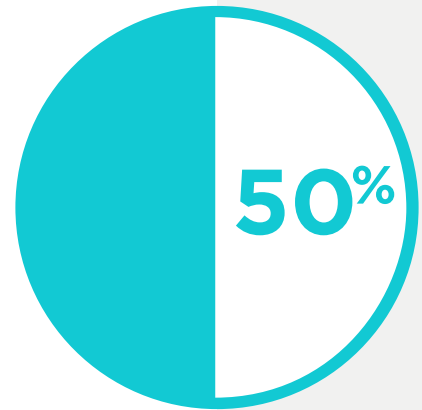
# HYPERTENSION

Hypertension is the most common primary diagnosis in the United States.<sup>1</sup> According to the [American Heart Association](#), new statistics reveal that 103 million American adults have high blood pressure, which translates into almost **50% of the U.S. adult population being categorized as hypertensive.**<sup>2</sup> Without effective preventative measures in place, the prevalence of hypertension is expected to increase an additional 8% between 2013 and 2030.<sup>3</sup>

High blood pressure (BP) can put a patient at risk for heart attack, heart failure, stroke and kidney disease.<sup>4</sup> The higher the blood pressure, the greater risk of experiencing these potentially fatal side effects.

## What is hypertension?

Hypertension is defined as blood flowing through blood vessels, or arteries, at a higher than normal pressure putting force against the artery walls.<sup>5</sup> According to the [American College of Cardiology's redefined 2017 Guidelines for High Blood Pressure in Adults](#), **hypertension is classified as any systolic BP measurement of 130 mmHg or higher or any diastolic BP measurement of 80 mmHg or higher.**<sup>6</sup> As a result, patients with BP measurements of 140/90 mmHg or greater are now considered to have stage 2 hypertension.<sup>6</sup> This new definition increased the percentage of American adults with hypertension from 32% to almost 46%.<sup>2</sup>



# TYPES OF HYPERTENSION

There are two different types of hypertension, primary (essential) and secondary.

**Primary hypertension** is the most common type of hypertension. This type of hypertension has no identifiable cause as it is most likely due to the interaction between multiple factors such as genetics, environment, etc.<sup>6</sup>

**Secondary hypertension** is the result of an underlying cause such as kidney disease, obesity, pregnancy, etc. The cause must be identified and corrected prior to a hypertension diagnosis.<sup>6</sup> Once the cause is corrected, blood pressure may return to normal levels or be significantly lowered.

## KEY TAKEAWAY

There are two types of hypertension, primary and secondary. Primary hypertension is the result of an unidentifiable cause whereas secondary hypertension is the result of an underlying cause which needs to be corrected prior to diagnosis.<sup>6</sup>



THERE ARE  
**2 TYPES**  
OF HYPERTENSION



# CAUSES OF HYPERTENSION

There are numerous risk factors, specifically fixed and modifiable risk factors, that have been identified for the development of hypertension.

## Fixed risk factors:<sup>6</sup>

- Psychosocial stress
- Premature birth
- Low birth weight
- Chronic kidney disease
- Family history
- Increased age
- Race/ethnicity
- Low socioeconomic status
- Obstructive sleep apnea

## Modifiable risk factors:<sup>6</sup>

- Alcohol
- Smoking
- Low potassium
- High sodium
- Diabetes mellitus
- High cholesterol
- Overweight/obesity
- Physical inactivity
- Unhealthy diet

## KEY TAKEAWAY

Risk factors for developing hypertension can be separated into two different types: modifiable risk factors and fixed risk factors. Modifiable risk factors can be corrected with lifestyle changes to help prevent and manage hypertension. Meanwhile, fixed risk factors cannot be controlled.

### Fixed risk factors



Low birth weight



Obstructive sleep apnea



Chronic kidney disease

### Modifiable risk factors



Smoking



Overweight/obesity



Alcohol

# STAGES OF HYPERTENSION

Hypertension is classified into four different stages to help guide clinical and public health decision-making: normal, elevated BP, stage 1 and stage 2. In the latest hypertension guideline, the term “prehypertension” was replaced with “elevated BP”.<sup>6</sup> Patients classified as having elevated BP are at an increased risk for developing hypertension.<sup>6</sup> Hypertension prevention strategies, such as healthcare education, should be implemented during this time to help reduce BP levels.

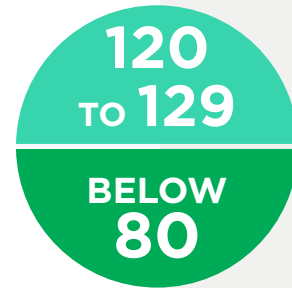
## KEY TAKEAWAY

There are four different stages of hypertension: normal, elevated BP, stage 1 and stage 2. In the recent guideline, “prehypertension” was replaced with “elevated BP”.<sup>6</sup>

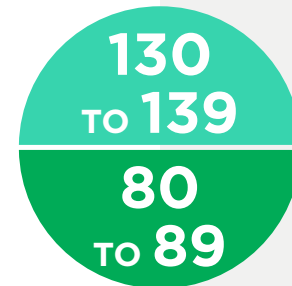
### NORMAL



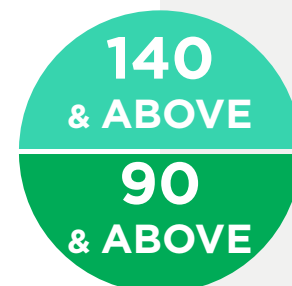
### ELEVATED



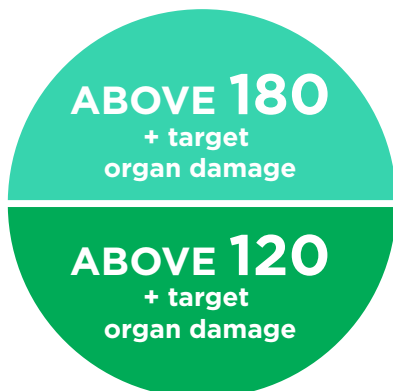
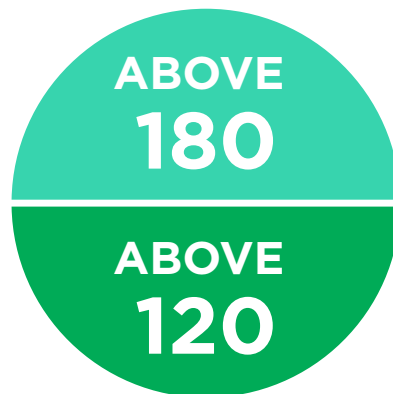
### STAGE 1



### STAGE 2



HYPERTENSIVE URGENCY



HYPERTENSIVE EMERGENCY

# CURRENT CHALLENGES

In-office blood pressure measurements can be impacted by numerous factors causing variability in systolic and diastolic blood pressure. Here are **several common problems that account for inaccurate blood pressure measurement:**<sup>7, 8</sup>

These inaccurate BP measurements can lead to overtreatment (e.g., medication, lifestyle changes, etc.) which can translate into harms. As a result, averaging multiple blood pressure readings can help provide a more accurate measurement.

Hypertension requires a care plan extending beyond the four walls of the practice to obtain the most accurate view of a patient's blood pressure in various settings. As best practice, providers should:

- Detect the condition in the office with accurate readings
- Diagnose the condition with multiple readings inside and outside the office
- Effectively manage hypertensive patients to help them reach their target blood pressure

**When patient has...**

**BP can change by this much**

**Cuff over clothing**

10-40 mm Hg

**Full bladder**

10-15 mm Hg

**Conversation or is talking**

10-15 mm Hg

**Unsupported arm**

10 mm Hg

**Unsupported back**

5-10 mm Hg

**Unsupported feet**

5-10 mm Hg

**Crossed legs**

2-8 mm Hg

## KEY TAKEAWAY

In-office BP measurements can be impacted by numerous factors, which can result in a misdiagnosis and overtreatment.

# DETECTING HYPERTENSION

In-office blood pressure measurement is the first step to detecting hypertension. Office BP is usually measured with a manual or automated sphygmomanometer.<sup>9</sup> The typical practice is to base a hypertension diagnosis off repeated measurements at the same visit or over different visits<sup>10</sup> as multiple measurements over time can better predict hypertension than a single measurement.<sup>9</sup> To obtain an accurate diagnosis, proper technique must be utilized:<sup>6</sup>



Step	Key instructions
<b>Patient preparation</b>	<ul style="list-style-type: none"> <li>• Have the patient sit in a chair and relax for at least 5 minutes</li> <li>• Patient should avoid caffeine, exercise and smoking for at least 30 minutes before the measurement</li> </ul>
<b>Proper technique for BP measurements</b>	<ul style="list-style-type: none"> <li>• Support the patient's arm</li> <li>• Position the middle of the cuff on the patient's upper arm at the midpoint of the sternum</li> <li>• Be sure to use correct cuff size</li> </ul>
<b>Take measurements</b>	<ul style="list-style-type: none"> <li>• At the first visit, record BP in both arms, and use the arm with the higher reading</li> <li>• Use a palpated estimate of radial pulse obliteration pressure for systolic BP and inflate the cuff 20-30 mmHg above this level to determine the BP level</li> <li>• Deflate the cuff pressure 2 mmHg per second and listen for Korotkoff sounds</li> </ul>
<b>Document BP readings</b>	<ul style="list-style-type: none"> <li>• Record systolic BP at the onset of the first Korotkoff sound and diastolic BP at the disappearance of all Korotkoff sounds, using the nearest even number</li> </ul>
<b>Average the BP readings</b>	<ul style="list-style-type: none"> <li>• Use an average based on at least 2 readings obtained on more than 2 occasions to estimate the individual's BP level</li> </ul>
<b>Provide BP readings to the patient</b>	<ul style="list-style-type: none"> <li>• Provide patients with systolic/diastolic BP readings both verbally and in writing</li> </ul>

Source: American Heart Association. Detailed Summary from the 2017 Guideline for the Prevention, Detection, Evaluation and Management of High Blood Pressure in Adults. Accessed September 13, 2018.

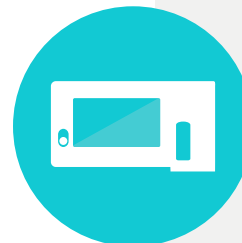


Growing evidence supports the **use of automated office BP measurements as errors commonly occur with manual readings**, impacting the patient's true BP level.<sup>11</sup> Automated office BP monitors can average multiple measurements, yielding results similar to those of daytime ambulatory blood pressure monitoring.<sup>12, 13</sup> For example, the [Connex® Spot Monitor](#) is an automated vital signs monitor with blood pressure averaging to help ensure accurate hypertension diagnosis.

There are several limitations when it comes to measuring blood pressure in clinical settings including measurement errors, limited number of measurements obtained and the **risk of “white coat” hypertension.**<sup>9</sup> White coat hypertension is defined as having higher blood pressure measurements during a physician office visit than at home. The clinical criteria for white coat hypertension includes:

- Office BP measurement greater than 140/90 mmHg over the course of three separate office visits with two measurements obtained at each visit.
- Two documented BP measurements recorded outside the office that are less than 140/90 mmHg.
- No evidence of organ damage.

## Accurate Readings



Blood pressure averaging

## Innaccurate Readings



White coat effect

## KEY TAKEAWAY

To properly detect hypertension, evidence suggests the use of automated office BP measurements versus manual readings to obtain the patient's true BP level.

# HYPERTENSION

To correctly diagnose hypertension, out-of-office BP measurement methods should be utilized as 15-30% of the patient population believed to be hypertensive may have lower blood pressure outside of the office.<sup>14</sup> As a result, ambulatory blood pressure monitoring (ABPM) is considered to be the reference standard for confirming hypertension before administering therapy.<sup>15</sup> For example, [ABPM 7100](#) is one type of ambulatory blood pressure monitor designed to help avoid misdiagnosis by combating the effects of white coat hypertension.

The [U.S. Preventative Services Task Force](#) (USPSTF) recommends annual ABPM screenings for adults ages 40 and older with blood pressure in the 130-139/85-89 mmHg range. Ambulatory blood pressure monitoring requires the patient to wear the monitor for a 24-hour period and provides information about blood pressure during daytime activities and sleep.<sup>4</sup> The monitor is typically set to record BP measurements every 15-30 minutes during the day and every 15-60 minutes at night for a 24-hour period.<sup>6</sup> The patient should be instructed not to remove the cuff, avoid strenuous activity and relax their arm when the device is taking a reading.

## AMBULATORY BLOOD PRESSURE MONITORING

*The Gold Standard for Identifying Hypertension*

**Although ABPM is considered the gold standard, there are still a handful of limitations including:**

- Lack of availability as there are few providers of this service
- Requires clinical staff training
- Limits some physical activity (e.g., running, swimming)
- Recommended to be worn over a 24-hour period
- Can be a nuisance to the patient
- Patient may have to repeat the session due to low-quality data or insufficient number of readings

## KEY TAKEAWAY

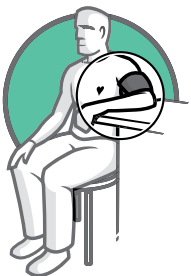
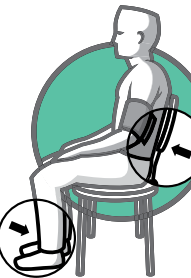
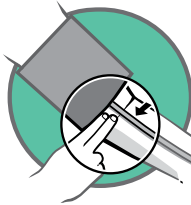
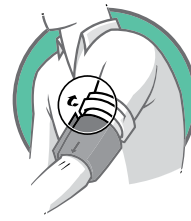
Out-of-office BP measurement should be utilized to confirm a hypertension diagnosis. Specifically, ambulatory blood pressure monitoring is the reference standard for combatting the effects of white coat hypertension.

# MANAGING HYPERTENSION

Home blood pressure monitoring is another method employed to understand a patient's true blood pressure and classification.<sup>16</sup> A [Joint Scientific Statement](#) from the American Heart Association (AHA), American Society of Hypertension (ASH) and Preventive Cardiovascular Nurses Association (PCNA) recommends increased regular use of home blood pressure monitoring in patients with known or suspected hypertension.<sup>17</sup> Additionally, home blood pressure monitoring may be particularly useful in elderly patients, people with diabetes or chronic kidney disease, pregnant women and those with suspected or confirmed white coat hypertension.<sup>17</sup>

Home blood pressure monitoring allows blood pressure to be measured and recorded throughout the day in the patient's natural environment. The average of these BP readings is perceived to be a more accurate reflection of the patient's blood pressure than a single in-office reading. In addition, BP self-measurements may provide information on patient's response to hypertension therapy.<sup>18</sup>

To accurately record BP at home, patients are recommended to take at least two readings one minute apart each morning before medication and each evening before dinner. Additionally, patients should obtain weekly readings two weeks after a treatment change and one week before a clinic visit. Patients with average home BP measurements of more than 135/85 mmHg are generally considered hypertensive.<sup>4</sup> In addition, it is critical for the patient to follow proper BP measurement techniques to acquire accurate readings.



## Step-by-Step: Proper BP Measurement Techniques

- 1 Roll sleeves**  
Place BP cuff on bare upper arm.
- 2 Cuff application is important**  
Allow room for no more than two fingers.  
Tube should run down middle of forearm, with bottom of cuff two finger widths (about 1 inch) above the bend in your arm.
- 3 Proper posture**  
Sit in a chair that supports your back; keep legs uncrossed and feet flat on the floor.
- 4 Arm at heart level**  
Support your arm on a flat surface; ensure cuff is level with your heart.
- 5 Rest quietly**  
Sit quietly for 5 minutes prior to taking a reading.
- 6 Be still**  
Keep your arms still during the measurement cycle.

Home BP monitoring can be a more feasible option for patients than ambulatory blood pressure monitoring due to its availability and affordability.<sup>19</sup> Although more practical, home blood pressure monitors rely on patients correctly recording and communicating results. It is recommended that patients use a clinician-connected BP monitor or one with a built-in memory to ensure accurate readings. For example, the [Welch Allyn Home® Blood Pressure Monitor](#) can capture and record readings within the Welch Allyn Home App through Bluetooth® connectivity, then share data with the healthcare provider to monitor progress.



## KEY TAKEAWAY

Home blood pressure monitoring is another method for obtaining a patient's blood pressure in their natural environment.

# TREATMENT RECOMMENDATIONS

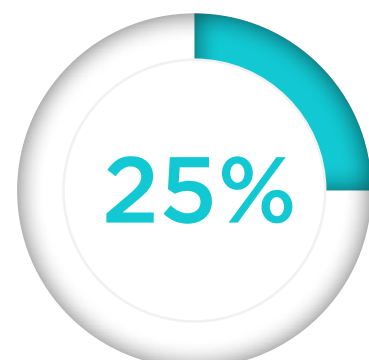
The goal of antihypertensive therapy is the reduction of cardiovascular and renal morbidity and mortality.<sup>4</sup> Unfortunately, only 1 in 5 patients follow their treatment plan well enough to achieve the benefits observed in clinical trials<sup>20,21</sup> with 25% of patients failing to fill their initial prescription.<sup>6</sup> It is recommended that a comprehensive set of nonpharmacological and pharmacological strategies be integrated into the patient's hypertension therapy plan to help manage patient risk factors.

## Therapeutic Lifestyle Changes

Lifestyle changes, specifically diet and exercise, are useful for preventing hypertension, especially in adults with elevated BP and milder forms of hypertension.<sup>22,23</sup> Nonpharmacologic therapy alone can reduce systolic blood pressure by approximately 4 to 11 mmHg.<sup>6</sup> The updated guideline promotes the DASH diet, which is rich in fruits, vegetables, whole grains and low-fat dairy products, to help manage hypertension.<sup>6</sup> In addition, the guideline recommends reducing sodium and increasing potassium intake unless the patient may be harmed by excess potassium.<sup>6</sup> When recommending lifestyle changes, the patient's ideal body weight serves the best goal; 1 kg reduction in body weight is equivalent to 1 mmHg BP.<sup>6</sup>

## Pharmacologic Therapy

The majority of hypertensive patients will require at least two antihypertensive medications to achieve BP goals.<sup>24, 25</sup> For stage 1 hypertension, the latest guideline recommends BP-lowering medication in patients with clinical CVD or a 10-year risk of ASCVD 10% or greater.<sup>6</sup> For stage 2 hypertension, the recommendation is two BP-lowering medications in addition to lifestyle changes.<sup>6</sup> It is recommended that medication regimens be simplified, and the use of generic drugs or combination drugs be considered to reduce prescription costs and increase patient compliance with therapy recommendations.<sup>4</sup>



## Follow-up Recommendations

The USPSTF recommends rescreening with office BP measurement and confirming hypertension with ambulatory blood pressure monitoring.<sup>9</sup> ABPM can be performed annually for high-risk patients and 3-5 years for low-risk patients.<sup>9</sup> For adults initiating hypertension treatment or adjusting a current drug regimen, follow-up evaluations should be scheduled at monthly intervals until control is achieved.<sup>6</sup> Once BP goals are achieved, the patient can schedule follow-up visits at 3- to 6-month intervals.<sup>4</sup> Follow-up evaluations should assess and evaluate the following:<sup>6</sup>

- BP control
- Orthostatic hypotension
- Medication side effects
- Adherence to treatments
- Adjustment of medication dosage
- Laboratory testing (electrolyte and renal function status)
- Target organ damage

The patient's failure to follow therapy recommendations is a significant barrier to both hypertension control and reducing CVD mortality.<sup>6</sup> It is important to foster an encouraging, blame-free environment where treatment goals can be recognized, and the patient can answer honestly about obstacles to adherence.<sup>6</sup>



### KEY TAKEAWAY

A combination of both lifestyle and pharmacologic strategies should be integrated into the patient's hypertension therapy plan. It is important to follow recommended rescreening timelines and foster an encouraging environment to reach the patient's target BP.

# REIMBURSEMENT AND QUALITY MEASURES

## Reimbursement

**Medicare:** Blood pressure monitors for use at home are not covered by Medicare, with two exceptions:

1. A blood pressure monitor and stethoscope is covered for patients receiving blood dialysis (hemodialysis or peritoneal dialysis) in the home.
2. The [National Coverage Determination](#) has outlined ABPM coverage guidelines for Medicare beneficiaries. ABPM is covered for patients with suspected white coat hypertension and must be performed for a 24-hour period to be eligible for Medicare reimbursement.<sup>26</sup>

**Private Payers:** ABPM may be covered by private payers for suspected white coat hypertension. Some private payer plans may cover ABPM for additional clinical indications including:

- Resistant hypertension
- Evaluation of hypotensive symptoms as a response to hypertension medications
- Nocturnal angina
- Episodic hypertension
- Evaluation of syncope

Home blood pressure monitors are typically self-pay by patients, using their FSA/HSA, but may be covered by insurance. Patients should be advised to check with their insurer regarding coverage.

**Other Considerations:** Be sure to include documentation in the patient's records to indicate medical necessity for a separate service and confirm that proper ICD-10-CM diagnosis codes are reported. Some payers may have specific requirements for using certain codes, including prior authorization, restricted medical diagnoses or specialty provider types.

## Quality Measures

Controlling high blood pressure is a HEDIS® Quality Measure under the [Effectiveness of Care Cardiovascular Conditions](#). Importantly, the [updated 2019 measure](#) now includes electronically submitted home blood pressure readings.

### KEY TAKEAWAY

**Be sure to contact each specific plan to obtain coverage and payment information prior to implementation.**

# A MULTIFACETED APPROACH

A follow-up study from the United States Nutrition Examination Survey revealed that **more than 50% of deaths from coronary heart disease and stroke occurred among those with hypertension.**<sup>6</sup> Therefore, it is imperative to have a reliable portfolio of solutions that can deliver accurate blood pressure readings from the office to the home.

Interested in learning more about the benefits of averaged, automated readings? Be sure to check out these automated blood pressure solutions to help [detect](#), [diagnose](#) and [manage](#) hypertension.



DETECT



DIAGNOSE



MANAGE



## References

- <sup>1</sup> Cherry DK, Woodwell DA. National Ambulatory Medical Care Survey: 2000 Summary. *Advance Data*. 2002;328. PR
- <sup>2</sup> American Heart Association. More than 100 million Americans have high blood pressure, AHA says. <https://www.heart.org/en/news/2018/05/01/more-than-100-million-americans-have-high-blood-pressure-aha-says>. Accessed September 17, 2018.
- <sup>3</sup> American Heart Association and American Stroke Association. 2017 Heart Disease and Stroke Statistics Update.
- <sup>4</sup> National Institutes of Health. National Heart, Lung, and Blood Institute. JNC 7 Express. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure.
- <sup>5</sup> National Heart, Lung, and Blood Institute. High Blood Pressure. <https://www.nhlbi.nih.gov/health-topics/high-blood-pressure>. Accessed September 17, 2018.
- <sup>6</sup> American Heart Association. 2017 Guideline for the Prevention, Detection, Evaluation and Management of High Blood Pressure in Adults. Accessed September 13, 2018.
- <sup>7</sup> Pickering TG, Hall JE, Appel LJ, et al. Recommendations for blood pressure measurement in humans and experimental animals: part 1: blood pressure measurement in humans: a statement for professionals from the Subcommittee of Professional and Public Education of the American Heart Association Council on High Blood Pressure Research. *Circulation*. Feb 8 2005;111(5):697-716
- <sup>8</sup> O'Brien E, Asmar R, Beilin L, et al. European Society of Hypertension recommendations for conventional, ambulatory and home blood pressure measurement. *J Hypertens* 2003; 21: 821-848.
- <sup>9</sup> Final Recommendation Statement: High Blood Pressure in Adults: Screening. U.S. Preventive Services Task Force. September 2017. <https://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/high-blood-pressure-in-adults-screening>. Accessed September 17, 2018.
- <sup>10</sup> Siu AL; for the US Preventive Services Task Force. Screening for high blood pressure in adults: US Preventive Services Task Force recommendation statement. *Ann Intern Med*. 2015;163(10):778-786.
- <sup>11</sup> Leung AA, Daskalopoulou SS, Dasgupta K, et al; for Hypertension Canada. Hypertension Canada's 2017 guidelines for diagnosis, risk assessment, prevention, and treatment of hypertension in adults. *Can J Cardiol*. 2017;33(5):557-576.
- <sup>12</sup> Myers MG, Valdivieso M, Kiss A. Consistent relationship between automated office blood pressure recorded in different settings. *Blood Press Monit*. 2009;14:108-11.
- <sup>13</sup> Myers MG, Kaczorowski J, Dawes M, Godwin M. Automated office blood pressure measurement in primary care. *Can Fam Physician*. 2014;60:127-32.
- <sup>14</sup> Piper MA, Evans CV, Burda BU, Margolis KL, O'Connor E, Smith N, et al. Screening for High Blood Pressure in Adults: A Systematic Evidence Review for the U.S. Preventive Services Task Force. Evidence Synthesis No. 121. AHRQ Publication No. 13-05194-EF-1. Rockville, MD: Agency for Healthcare Research and Quality; 2014.
- <sup>15</sup> Whelton PK, Carey RM, Aronow WS, 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 [published online ahead of print November 13, 2017]. *Hypertension*. doi: 10.1161/HYP.000000000000065.
- <sup>16</sup> Pickering TG, et al; American Heart Association; American Society of Hypertension; Preventative Cardiovascular Nurses Association. 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 Preventative Cardiovascular Nurses Association. *Hypertension*. 2008 Jul;52(1):10-29.
- <sup>17</sup> 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). Accessed December 3, 2018.
- <sup>18</sup> American Heart Association. Home monitoring of high blood pressure. Available at: <http://www.americanheart.org/presenter.jhtml?identifier=576>. Accessed April 1, 2003.
- <sup>19</sup> Verberk WJ, et al. The optimal scheme of self blood pressure measurement as determined from ambulatory blood pressure recordings. *J Hypertens*. 2006 Aug;24(8):1541-8.
- <sup>20</sup> Gwady-Sridhar FH, Manias E, Lal L, et al. Impact of interventions on medication adherence and blood pressure control in patients with essential hypertension: a systematic review by the ISPOR medication adherence and persistence special interest group. *Value Health*. 2013;16(5):863-871.
- <sup>21</sup> Petrilla AA, Benner JS, Battleman DS, Tierce JC, Hazard EH. Evidence-based interventions to improve patient compliance with antihypertensive and lipid-lowering medications. *Int J Clin Pract*. 2005;59(12):1441-1451.
- <sup>22</sup> Whelton PK, Appel LJ, Espeland MA, et al; for the TONE Collaborative Research Group. Sodium reduction and weight loss in the treatment of hypertension in older persons: a randomized controlled trial of nonpharmacologic interventions in the elderly (TONE). *JAMA*. 1998;279(11):839-846.
- <sup>23</sup> Whelton PK. The elusiveness of population-wide high blood pressure control. *Annu Rev Public Health*. 2015;36:109-130.

## References (Continued)

- <sup>24</sup> Cushman WC, Ford CE, Cutler JA, et al. Success and predictors of blood pressure control in diverse North American settings: The Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial (ALLHAT). *J Clin Hypertens (Greenwich)*. 2002;4:393-404. RA
- <sup>25</sup> Black HR, Elliott WJ, Neaton JD, et al. Baseline characteristics and elderly blood pressure control in the CONVINCE trial. *Hypertension*. 2001;37:12-8. RA
- <sup>26</sup> CMS.gov. National Coverage Determination (NCD) for Ambulatory Blood Pressure Monitoring (20.19) [https://www.cms.gov/medicare-coverage-database/\(S\(awjbae45o10tfb2ojw0mjve1\)\)/details/ncd-details.aspx?NCDId=254&NCAId=5&NcaName=Ambulatory+Blood+Pressure+Monitoring&bc=BEAAAAAAEAgA](https://www.cms.gov/medicare-coverage-database/(S(awjbae45o10tfb2ojw0mjve1))/details/ncd-details.aspx?NCDId=254&NCAId=5&NcaName=Ambulatory+Blood+Pressure+Monitoring&bc=BEAAAAAAEAgA). Accessed December 18, 2018.



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