



# WISEWOMAN

## Self-Measured Blood Pressure (SMBP) Monitoring: A **BETTER** Formula for Hypertension Control

June 2023



DELAWARE HEALTH  
AND SOCIAL SERVICES  
Division of Public Health

This publication was supported by the Cooperative Agreement Number CDC-RFA-DP18-1816 from the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention. Publication number DEDPH-WW-062723

## Table of Contents

INTRODUCTION .....	3
PURPOSE OF MODULE .....	3
WISEWOMAN DIMENSIONS OF HEALTH .....	4
HYPERTENSION AND HEALTH DISPARITIES.....	4
TRENDS IN HISPANIC HEALTH .....	6
Focus on COVID-19 .....	6
Focus on Hypertension .....	7
SELF-MEASURED BLOOD PRESSURE (SMBP) MONITORING .....	7
SMBP: A BETTER FORMULA FOR HYPERTENSION CONTROL.....	9
B: Blood Pressure Awareness.....	9
E: Equip Patients.....	10
T: Technique Training .....	10
T: Track and Record Blood Pressures .....	11
E: Education at Home .....	12
R: Refer to Healthy Behavior Support Services .....	12
CALL TO ACTION.....	13
REFERENCES .....	14

## Introduction

The WISEWOMAN (**W**ell-Integrated **S**creening and **E**valuation for **WOM**en **A**cross the **N**ation) program was created to help women understand and reduce their risk for heart disease and stroke by providing services to promote lasting heart-healthy lifestyles. Working with low-income, uninsured and underinsured women ages 40 to 64 years, the program provides heart disease and stroke risk factor screenings and services that promote healthy behaviors. The WISEWOMAN



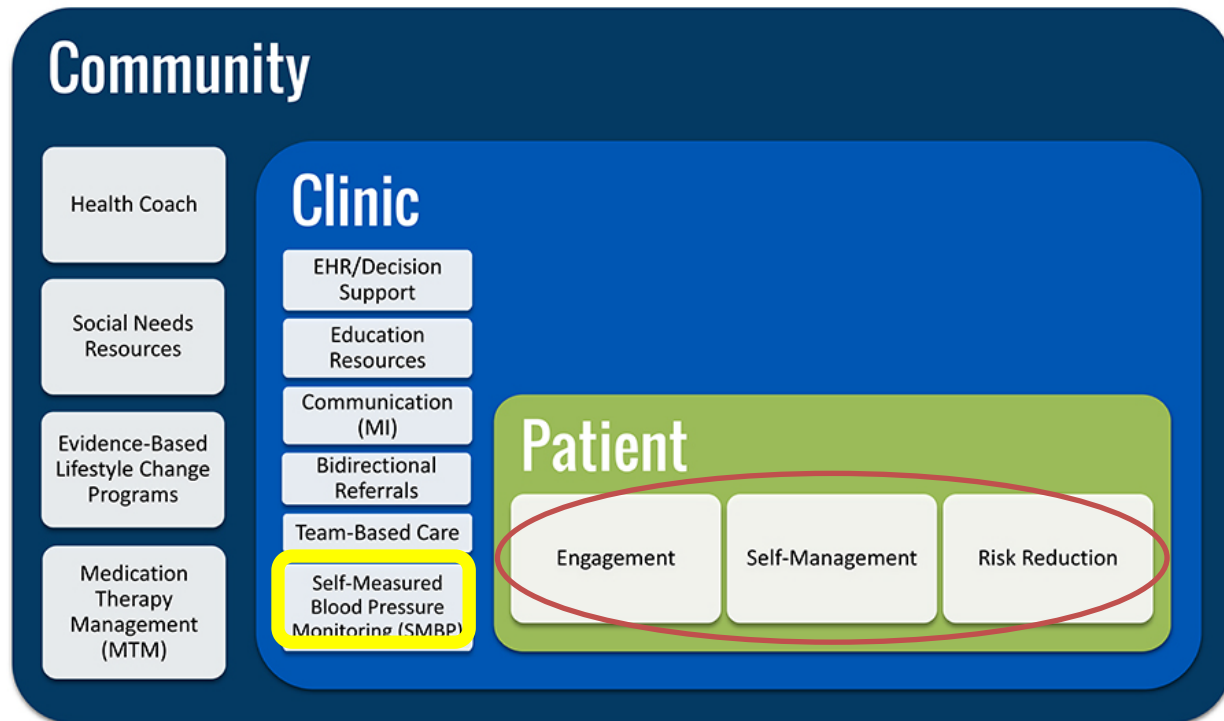
program is currently administered through the Centers for Disease Control and Prevention's (CDC's) [Division for Heart Disease and Stroke Prevention \(DHDSP\)](#) and is operated on a state-by-state basis. Services provided by each WISEWOMAN program vary, but all are designed to promote lifelong heart-healthy lifestyle changes.

Strategies to achieve WISEWOMAN goals include tracking and monitoring clinical measures to improve healthcare quality and identifying patients with hypertension; promoting team-based care to reduce cardiovascular risk; and developing clinic/community links to support evidence-based lifestyle change for at-risk women. The long-term outcomes are increased blood pressure control and improved detection, prevention, and control of cardiovascular disease.

## Purpose of Module

This module focuses on hypertension, especially among the WISEWOMAN population. It examines health equity in general and special risks for Hispanic/Latino persons. The supporting evidence for self-measured blood pressure (SMBP) monitoring as an intervention to control blood pressure is presented, along with support for implementing a practice-based SMBP program and community-based resources.

## WISEWOMAN Dimensions of Health



## Hypertension and Health Disparities

Hypertension affects 47% of U.S. adults, and only 24% of people with known hypertension have the condition under control. Uncontrolled hypertension is a risk factor for heart disease and stroke, the leading causes of death in the U.S. (CDC, 2021c).

Racial and ethnic health disparities continue to exist in the United States. Prevalence and control rates for hypertension vary by race and ethnicity. For example:

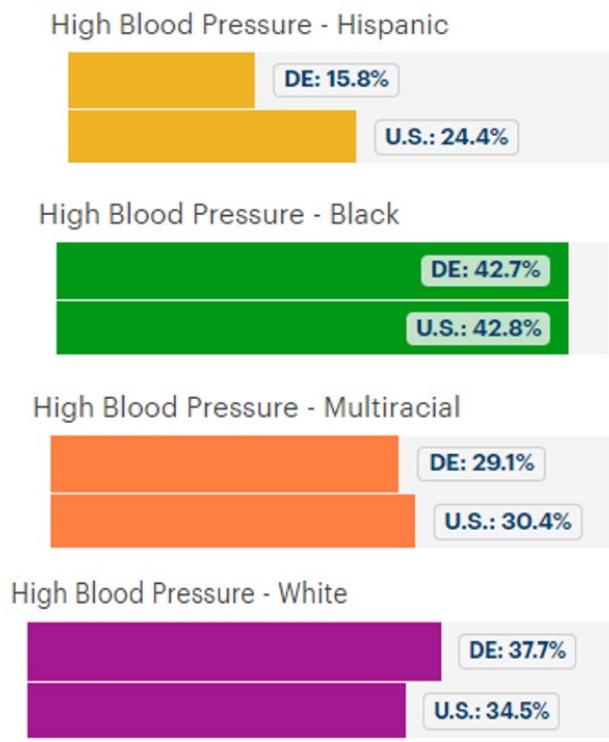
- Non-Hispanic blacks have significantly higher rates of hypertension compared to non-Hispanic whites.
- Hispanics and non-Hispanic Asians have lower prevalence than both groups.

### WISEWOMAN Hispanic Population:

They have a lower prevalence of hypertension overall, **BUT** they have higher rates of uncontrolled hypertension compared to non-Hispanic whites.



Figure 1. High Blood Pressure in Delaware, 2021



*Source: America's Health Rankings. (2021)*

A comprehensive understanding of the effects of racial, ethnic, and other factors on risk for developing cardiovascular disease in the U.S. is not currently available because race, ethnicity, and socioeconomic data are not always collected. Saeed et al (2020) proposed a need to disaggregate data to define high-risk populations. In addition, the current U.S. atherosclerotic cardiovascular disease risk calculator does not differentiate between various ethnicity-specific risk scores or between differential risks among Hispanic/Latino groups. Below is a snapshot of racial disparities in hypertension (Saeed et al, 2020):

Major Factors in Disparities	Reasons for Worse Outcomes	Future Directions for Improving Disparities in Ethnic Minorities
Genetic and social factors	Sub-optimal risk stratification tools	Novel/culturally specific treatment strategies
	Variable medication response and adherence	Advancing research efforts in ethnic data collection

## Trends in Hispanic Health

Hispanics or Latinos are the largest racial/ethnic minority population in the United States. Leading causes of death for Hispanics are heart disease and cancer, similar to non-Hispanic whites (CDC, 2015). Since the Hispanic population is diverse rather than homogenous, health risks can vary by subgroup. For example, hypertension prevalence was highest for Dominicans (39.4%) compared to Puerto Ricans (32.2%) and Central/South Americans (27.5%) (CDC, 2015).

Risk profile also varies according to whether the individual was born in the U.S. or another country and according to insurance status, with foreign-born and uninsured or under-insured people at increased risk (CDC, 2015).

Social factors may play a role in Hispanic health. Among Hispanics living in the U.S.:

- About 1 in 3 has not completed high school
- About 1 in 4 lives below the poverty line
- About 1 in 3 does not speak English well

### Focus on COVID-19

COVID-19 is known to pose an increased risk of infection, hospitalization and death for people of Hispanic or Latino origin (CDC, 2021d.):

Rate ratios compared to non-Hispanic white persons	Black or African American, Non-Hispanic persons	Hispanic or Latino persons
Cases	1.0x	1.6x
Hospitalization	2.6x	2.5x
Death	1.9x	2.1x

Race and ethnicity are risk markers for other underlying conditions that affect health, including socioeconomic status, access to health care, and exposure to the virus related to occupation such as frontline, essential, and critical infrastructure workers (CDC, 2021d).

The Centers for Disease Control and Prevention (CDC, 2021d) note that heart conditions such as heart failure, coronary artery disease, cardiomyopathies, and possibly hypertension can increase risk of severe illness or complications from COVID-19. In addition, a December 2021 article in *Circulation* reported significantly higher annual blood pressure increases from 2019-2020 compared to 2018-2019 (when there was no corresponding increase). Mean changes each month during the pandemic period ranged from 1.10 to 2.50 mm Hg for systolic blood pressure (SBP) and 0.14 to 0.53 mm Hg for diastolic blood pressure (DBP). The increases were seen for both men and women across age groups in a longitudinal study with over 454,000

participants from all fifty states. Larger increases were seen for both systolic and diastolic blood pressures among women (Laffin et al, 2021).

### Focus on Hypertension

Lower prevalence of hypertension among Hispanics/Latinos compared to non-Hispanic whites and blacks appears to be an encouraging statistic. However, the lower prevalence is offset by higher rates of health risks and hypertension compared to degrees of illness or risk to those of non-Hispanic whites (CDC, 2015).

#### Hispanic Population Health Risks related to Cardiovascular Disease\*:

- 23% more obesity (47.1% U.S.-born; 35.3% foreign-born)
- Higher prevalence of cigarette smoking (17.7% U.S. born; 36.3% foreign-born)
- 24% more poorly controlled blood pressure

*\*Compared to non-Hispanic whites*



The high rate of uncontrolled hypertension places these patients at increased risk for heart attack, stroke, and death (U.S. HHS, 2020). In addition, hypertension is a leading cause of chronic kidney disease and kidney failure, the tenth leading cause of death among Hispanics (CDC, 2021).

## Self-Measured Blood Pressure (SMBP) Monitoring

The national Million Hearts® initiative (2021) defines SMBP as the regular measurement of blood pressure by the patient outside the clinical setting, usually at home. SMBP requires the use of a home blood pressure measurement device by the patient to measure blood pressure at different points in time.



#### Focus on SMBP:

All WISEWOMAN participants receive a free validated home blood pressure monitor and American Heart Association training aid.

To address the problem of uncontrolled hypertension and its consequences, in 2020 Surgeon General Dr. Jerome Adams issued a “Call to Action to Control Hypertension.”



The goals of the report were to prioritize hypertension control nationally, cultivate community support, and optimize patient care, including:

- Advance the use of standardized treatment approaches and guideline-recommended care.
- Promote the use of health care teams to manage hypertension.
- Empower and equip patients to use self-measured blood pressure monitoring and medication adherence strategies.

Multiple studies show that SMBP helps people with hypertension lower their blood pressure and improves access to care and quality of care for individuals. SMBP plus clinical support is recommended by the American College of Cardiology, American Heart Association, American Academy of Family Physicians, and other organizations. The CDC (2017) recommends self-monitoring as a best-practice, cost-effective strategy for:

- Reducing hypertension
- Improving medication adherence
- Improving patient knowledge
- Improving the health system process by establishing protocols for home monitoring

The Agency for Healthcare Research and Quality (AHRQ, 2012) performed a systematic review to examine the comparative effectiveness and adherence predictors of blood pressure self-monitoring and determined that strong evidence supports self-measured blood pressure monitoring plus clinical support such as patient education and telephonic or web-based contacts for hypertension control. While self-monitoring alone versus usual care yielded a modest reduction in systolic blood pressure (SBP) and diastolic blood pressure (DBP) measurements, when the clinical support component was included, statistically significant net reductions in SBP and DBP were attained and sustained up to 12 months, based on consistent findings in high quality studies.

### Focus on Clinical Support:

To achieve better results, it is important to combine SMBP with clinical support. Studies have shown that patients who receive clinical support experienced a significant reduction in their blood pressure for up to 12 months. This support can come in the form of individual counseling, web-based or telephone assistance, and educational classes provided by clinical staff or community programs.





## SMBP: A BETTER Formula for Hypertension Control

SMBP is an accessible way to promote hypertension control among the WISEWOMAN population. The evidence for SMBP is convincing, but starting a program can be a challenge for practices. To that end, we offer a BETTER formula for SMBP with clinical support, with accompanying resources in Spanish and English:

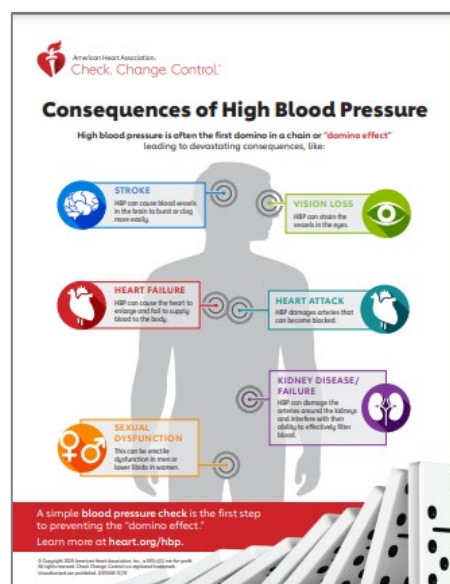
- B** Blood pressure awareness
- E** Equip patients
- T** Technique training
- T** Track and record blood pressures
- E** Education at home
- R** Refer to healthy behavior support services

### B: Blood Pressure Awareness

**Patients:** Many people disregard their hypertension, rationalizing that since they do not have symptoms, they are healthy. To engage patients, it is important to start by raising awareness about the consequences of uncontrolled hypertension, including heart disease, stroke, renal failure and more. The American Heart Association offers infographics with a clear message. This can be utilized to engage patients in a conversation about their risk factors.



[Consequences of High Blood Pressure \(Spanish\)](#)



[Consequences of High Blood Pressure \(English\)](#)

**Clinical Staff:** While clinical staff are aware of the risks of high blood pressure, in order to keep patients informed it is important to provide clinical staff with resources to share with patients. The CDC offers a list of patient facing resources that can assist clinical staff in having these conversations with patients. The resources available include: high blood pressure fact sheets, handouts on different related chronic conditions, and tools for community health workers.

[CDC Hypertension Patient Education Resources](#) (CDC, 2022).

## E: Equip Patients

WISEWOMAN participants receive, at no cost, a home blood pressure monitor. These devices are validated for home use by [ValidateBP.org](https://www.validatebp.org).

Ensure that the patient's blood pressure cuff is properly sized. People with larger arm circumferences may require a large-size cuff in order to get accurate measurements. Let the patient practice applying the cuff correctly in the office setting so she feels comfortable and confident before trying to do it on her own at home. Ensure that patients understand how to measure their blood pressure, and that they also know how and when to communicate measurements to the office.



## T: Technique Training

Health care professionals are so familiar with blood pressure measurement that it can be easy to forget that it is a new process to most patients. The process of teaching patients can be a complicated one as it requires ensuring that staff are updated on the most recent guidance and best practices. Tools can be utilized to assist medical assistants, nurses, and other clinical support staff in training patients to take their own blood pressure.

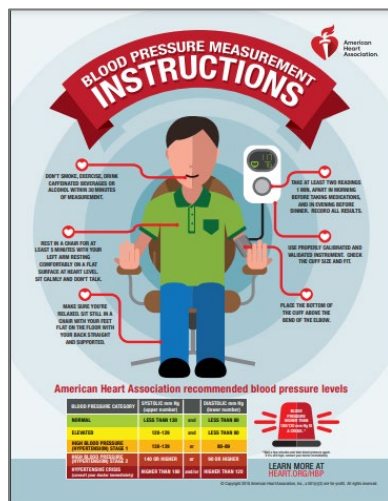


Resources that can be used by care teams to teach patients proper blood pressure self-measurement techniques include a selection from [Target: BP™](#). This program, through the American Heart Association and the American Medical Association, focuses on providing patients and providers with resources to help reduce high blood pressure. It is an evidence-based program that provides a variety of resources and training tools. If your staff could benefit from additional training or retraining on how to explain best practices for monitoring blood pressure at home, share this SMBP video with them, available in [English](#) and [Spanish](#).

Other training resources to help keep staff up-to-date on the guidelines includes:

- [Achieving Accuracy BP Measurement e module](#) is a training tool to assist clinical staff in getting trained/retrained on how to take an accurate blood pressure.
- [The Technique Quick Check](#) is a resource to help in training/retraining staff. It serves as a guide for assuring that staff are following all the proper steps in educating patients on how to take their blood pressure at home.
- Million Hearts® has a [Supporting Your Patients with Hypertension Visit Checklist](#) which can be used to guide patient visits that are focused on informing them about hypertension and training them on the use of their blood pressure monitor.

Infographics are a great tool for clinical staff to utilize with patients to help them learn proper techniques for taking blood pressure measurements. WISEWOMAN participants receive the American Heart Association's Blood Pressure Measurement Instructions (pictured below). This infographic provides clear, step-by-step, pictorial instructions to help patients remember the components of accurate self-measurement and how to interpret their blood pressure levels.

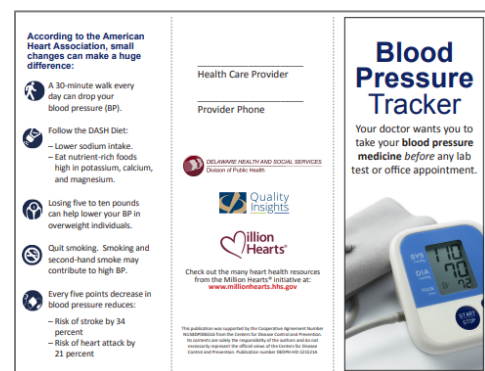


## Blood Pressure Instructions: English

## Blood Pressure Instructions: Spanish

### T: Track and Record Blood Pressures

Tracking blood pressure over time and communicating measurements with the health care team is an important part of SMBP. WISEWOMAN provides convenient blood pressure log books that patients can use to track trends and share measurements with providers. When providers are confident that the patient is measuring accurately and sharing valid data collected over time, the medical team and the patient can use the information to develop a treatment plan.



Blood Pressure Tracker (2021).

## E: Education at Home



Quality Insights created three short, patient-friendly videos available at no cost for practice or patient use. [“Take High Blood Pressure Into Your Own Hands”](#) reviews step-by-step self-measurement techniques and includes topics like understanding blood pressure and making healthy lifestyle changes.

Practices can share these videos via their patient portal, during telehealth appointments, in waiting/exam rooms, or you can distribute the flyer to patients during their visit and encourage them to follow the link on the flyer so that they can watch the videos at home to reinforce the education they received from their provider(s).

### Blood Pressure Videos:

- Small Steps to Big Improvements – [English](#) and [Spanish](#)
- Ready, Set, Go: A Roadtrip Through Hypertension – [English](#) and [Spanish](#)
- Take High Blood Pressure Into Your Own Hands - [English](#) and [Spanish](#)

## R: Refer to Healthy Behavior Support Services

Providers are integral to an effective SMBP program, but you cannot do it alone. Patients need help developing and maintaining healthy lifestyles as foundations for their health.

WISEWOMAN recommends community-based resources for better health and hypertension management, including:

- [Walk with Ease](#) (available in Spanish) - A program focused on increasing physical activity through walking.
- [Healthy Heart Ambassador Blood Pressure Self-Monitoring program](#) - A free program that provides patients with coaching on how to manage their blood pressure.
- [The Delaware Quitline](#) - Resources and coaching for tobacco cessation.
- [Health Coaching](#) (available in Spanish) - A free service through the WISEWOMAN program that aids patients in establishing healthy lifestyle change habits.
- [National Diabetes Prevention Program](#) (available in Spanish) – This program features group-based classes that focus on healthy lifestyle choices, weight management and increased physical activity.

## Call to Action

As a WISEWOMAN partner, you are demonstrating support for health improvement and disease prevention in the Hispanic population and beyond. SMBP is a demonstrated, effective intervention for hypertension control, which is important to address especially in the Hispanic population where uncontrolled blood pressure is frequently an issue. Providing monitors is a first step; evidence supports the critical addition of clinical support to help people attain long-term hypertension control. A practice-based SMBP program, based on the BETTER formula with patient-friendly resources, is a valuable component of chronic care management that can produce short- and long-term benefits.

Quality Insights is here to assist you with development and implementation of SMBP. Contact us with any questions, to access resources, and ongoing assistance.



### Need More Information?

If you'd like additional information, contact Sarah Toborowski at [stoborowski@qualityinsights.org](mailto:stoborowski@qualityinsights.org) or call **302-290-9049**.



## References

1. Agency for Healthcare Research and Quality (AHRQ). (2012). [Effectiveness of self-measured blood pressure monitoring in adults with hypertension.](#)
2. American Heart Association. (2017). Blood Pressure Measurement Instructions: English. [https://www.heart.org/-/media/files/health-topics/high-blood-pressure/how\\_to\\_measure\\_your\\_blood\\_pressure\\_letter\\_size.pdf?la=en&hash=58005C0F0AC9C9AACAA3089070B54E0F74695E95](https://www.heart.org/-/media/files/health-topics/high-blood-pressure/how_to_measure_your_blood_pressure_letter_size.pdf?la=en&hash=58005C0F0AC9C9AACAA3089070B54E0F74695E95)
3. American Heart Association. (2017). Blood Pressure Measurement Instructions: Spanish. <https://www.heart.org/-/media/Files/Health-Topics/High-Blood-Pressure/How-To-Check-Blood-Pressure-Spanish-letter-size.pdf>
4. American Heart Association. (2020). Consequences of High Blood Pressure: English. <https://www.heart.org/-/media/Files/Health-Topics/High-Blood-Pressure/Consequences-of-High-Blood-Pressure-infographic.pdf>
5. American Heart Association. (2020). Consequences of High Blood Pressure: Spanish. <https://www.heart.org/-/media/Files/Health-Topics/High-Blood-Pressure/HBP-Consequences-Infographic-Spanish.pdf>
6. American Heart Association. (2021). [2021 Dietary Guideline to Improve Cardiovascular Health: A Scientific Statement from the American Heart Association.](#)
7. America's Health Rankings (2021). High blood pressure in Delaware. [https://www.americashealthrankings.org/explore/measures/Hypertension/DE?population=hypertension\\_AmIndian](https://www.americashealthrankings.org/explore/measures/Hypertension/DE?population=hypertension_AmIndian)
8. Centers for Disease Control and Prevention. (2021a.) Adult Obesity Consequences. <https://www.cdc.gov/obesity/basics/consequences.html>
9. Centers for Disease Control and Prevention. (2021b.) Defining Adult Overweight & Obesity. <https://www.cdc.gov/obesity/basics/adult-defining.html>
10. Centers for Disease Control and Prevention. (2021c.) Facts about hypertension. <https://www.cdc.gov/bloodpressure/facts.htm>
11. Centers for Disease Control and Prevention. (2018). Health, United States. <https://www.cdc.gov/nchs/data/hus/hus18.pdf>
12. Centers for Disease Control and Prevention. (2015). Hispanic health. <https://www.cdc.gov/vitalsigns/hispanic-health/index.html>
13. Centers for Disease Control and Prevention. (2022). Hypertension Patient Education Resources. [https://www.cdc.gov/bloodpressure/materials\\_for\\_patients.htm](https://www.cdc.gov/bloodpressure/materials_for_patients.htm)
14. Centers for Disease Control and Prevention. (2021d.) Risk for COVID-19 infection, hospitalization, and death by race/ethnicity. <https://www.cdc.gov/coronavirus/2019-ncov/covid-data/investigations-discovery/hospitalization-death-by-race-ethnicity.html>
15. Centers for Disease Control and Prevention (2017a). [Self-measured blood pressure monitoring with clinical support.](#)
16. Centers for Disease Control and Prevention. (2021e). Underlying medical conditions associated with higher risk for severe COVID-19: Information for healthcare providers. <https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-care/underlyingconditions.html>

17. Laffin L.J., Kaufman H.W., Chen Z., Niles J.K., Arellano A.R., Bare, L.A., Hazen S.L. (2021). Rise in blood pressure observed among US adults during the COVID-19 pandemic. <https://www.ahajournals.org/doi/10.1161/CIRCULATIONAHA.121.057075>
18. Million Hearts. (2021). Self-Measured Blood Pressure (SMBP) Monitoring. <https://millionhearts.hhs.gov/tools-protocols/smbp.html>
19. Million Hearts. (2016). Supporting Your Patients With High Blood Pressure Visit Checklist. [https://millionhearts.hhs.gov/files/TipSheet\\_HCP\\_Checklist.pdf](https://millionhearts.hhs.gov/files/TipSheet_HCP_Checklist.pdf)
20. National Lipid Association. (n.d.). [Heart-Healthy Eating Latino Style](#)
21. Quality Insights. (2021). Blood Pressure Tracker. <https://improve.qualityinsights.org/CMSPages/GetFile.aspx?guid=65b82c37-6a21-4eec-aa2f-e84143f6b82e>
22. Quality Insights. (2021). Resources for better health and hypertension management.
23. Quality Insights. (2020). Want to learn how to get your blood pressure under control? <https://improve.qualityinsights.org/CMSPages/GetFile.aspx?guid=65b82c37-6a21-4eec-aa2f-e84143f6b82e>
24. Saeed A., Dixon D.L., Yang E. (2020). Racial disparities in hypertension prevalence and management: A Crisis Control? <https://www.acc.org/latest-in-cardiology/articles/2020/04/06/08/53/racial-disparities-in-hypertension-prevalence-and-management>
25. Target BP. (n.d.). Achieving Accuracy: BP Measurement E-module. [https://targetbp.org/tools\\_downloads/achieving-accuracy-bp-measurement-e-module/](https://targetbp.org/tools_downloads/achieving-accuracy-bp-measurement-e-module/)
26. Target:BP. (n.d.). SMBP Training Video: English. and [https://targetbp.org/tools\\_downloads/self-measured-blood-pressure-video/](https://targetbp.org/tools_downloads/self-measured-blood-pressure-video/)
27. Target:BP. (n.d.). SMBP Training Video: Spanish. <https://targetbp.org/patient-measured-bp/implementing/smbp-training-patients/self-measured-blood-pressure-video-spanish/>
28. Target BP. (n.d.). Technique Quick Check. [https://targetbp.org/tools\\_downloads/technique-quick-check/](https://targetbp.org/tools_downloads/technique-quick-check/)
29. U.S. Department of Health and Human Services. (2020). The Surgeon General's call to action to control hypertension. <https://www.cdc.gov/bloodpressure/docs/SG-CTA-HTN-Control-Report-508.pdf>
30. U.S. Department of Health and Human Services Office of Minority Health. (2020). Obesity and Hispanic Americans. <https://minorityhealth.hhs.gov/omh/browse.aspx?lvl=4&lvlid=70>
31. U.S. Department of Agriculture. (2020). Eat Healthy, Be Healthy. [https://www.dietaryguidelines.gov/sites/default/files/2020-12/Infographic\\_Eat\\_Healthy\\_Be\\_Healthy.pdf](https://www.dietaryguidelines.gov/sites/default/files/2020-12/Infographic_Eat_Healthy_Be_Healthy.pdf)
32. Validate BP. (n.d.) US. Blood Pressure Validated Device Listing. <https://www.validatebp.org/>