Clinical Practice Guideline: **Hypertension (High Blood Pressure) Management**

Date of Implementation: **April 18, 2013**

Product: **Specialty**

GUIDELINES

In the context of best practices, screening all adult patients for hypertension by measuring their blood pressure is considered necessary. Within this same context, providing a referral intervention (e.g., to their medical physician) and/or a direct intervention (e.g., lifestyle and/or dietary changes) commensurate with the practitioner's expertise and scope, are recommended for adult patients with elevated blood pressure measurement during office blood pressure screening.

It is the practitioner's responsibility to monitor any patient identified with hypertension, even if co-managed. In patients identified with hypertension, practitioners should check blood pressure at every visit. This is especially important if the patient is exercising in the clinic setting. It is imperative for the practitioner to monitor blood pressure response to exercise by checking it pre, post, and during exercise. All values should be documented within the medical record for that visit. Hypertension history, blood pressure levels, and any health care practitioner recommendations for exercise should be taken into account when developing home exercise programs.

INTRODUCTION

High blood pressure affects millions of Americans. Prevalence is higher among African Americans and the elderly. Frequently hypertension is also responsible for a significant percentage of serious health conditions such as myocardial infarctions, strokes, episodes of heart failure, and premature deaths in the U.S. The risk of stroke, myocardial infarction, heart failure and peripheral vascular disease is two to four (2-4) times greater for those with hypertension than those with normal blood pressure (BP). End-stage renal disease, retinopathy, and aortic aneurysm are also complications related to hypertension.

Hypertension (high blood pressure or high BP) is defined for adults as systolic blood pressure of 140 mm Hg or higher, or diastolic blood pressure of 90 mm Hg or higher. In patients 80 years of age or older, the systolic blood pressure level of 150 or greater is used instead of 140. In November 2017, the American Heart Association (AHA) and American College of Cardiology (ACC) published new hypertension guidelines which lowered blood pressure thresholds of previously accepted guidelines. These guidelines also provided specific steps on how to accurately measure and interpret blood pressures. This change results in more people being identified as "hypertensive."

The changes and comparison to other guidelines are shown in the table below:

AHA/ACC 2017 Hypertension Classifications[1]		Previous Hypertension Classifications[2]	
Category	**Systolic/Diastolic BP**	**Category**	**Systolic/Diastolic BP**
Normal	Less than 120/80 mm Hg	**Normal**	Less than 120/80 mm Hg
Elevated	120 - 129/80 - 89 mm Hg	**Pre-Hypertension**	120 – 139/80 – 89 mm Hg
Hypertension - Stage 1	130 - 139/80 - 89 mm Hg	**Hypertension - Stage 1**	140 – 159/90 – 99 mg Hg
Hypertension - Stage 2	Greater than or equal to 140/90 mm Hg	**Hypertension - Stage 2**	Greater than 160/100 mm Hg
Critical	Greater than 180/120 mm Hg	**Critical**	Greater than 180/110 mm Hg

Not all national medical organizations have agreed with the AHA/ACC hypertension classification, resulting in varied responses from the industry. ASH has reviewed and continues to closely track the issue with both internal and external experts. Based on review of medical society responses, evidence-base for current and previous guidelines and consultative input from medical experts, ASH has decided not to adopt the AHA/ACC hypertension classifications at this time. ASH will continue to closely monitor any updated information regarding the guidelines.

SCREENING RECOMMENDATIONS

United States Preventive Services Task Force (USPSTF) Recommendation 2021:
Grade A Recommendation: The USPSTF recommends screening for hypertension in adults 18 years or older with office blood pressure measurement (OBPM). The USPSTF recommends obtaining blood pressure measurements outside of the clinical setting for diagnostic confirmation before starting treatment.

The USPSTF recommendation, published in 2021 is consistent with the previous 2015 recommendations. Although evidence on optimal screening intervals is limited, reasonable options include:

- Screening for hypertension every year in adults 40 years or older and in adults at increased risk for hypertension (such as Black persons, persons with high-normal blood pressure, or persons who are overweight or obese)

[1] Whelton, PK et al.; 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, and Management of High Blood Pressure in Adults; Journal of the American College of Cardiology – A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines; November 2017; http://www.onlinejacc.org/guidelines/highbloodpressure

[2] The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure U.S. Department of Health and Human Services, National Institutes of Health, National Heart, Lung and Blood Institute; August 2004; https://www.nhlbi.nih.gov/files/docs/guidelines/jnc7full.pdf

- Screening less frequently (i.e., every 3 to 5 years) as appropriate for adults aged 18 to 39 years not at increased risk for hypertension and with a prior normal blood pressure reading.

Screening for hypertension in the office setting can be done with automated or manual sphygmomanometry using an appropriately sized arm cuff. The patient is to be in a seated position with their arm at the level of the right atrium for the most accurate reading. The mean of two blood pressure measurements should be used. It is recommended that the patient be in the office for at least five minutes before the blood pressure is measured.

Blood pressure readings can be influenced by multiple common factors, such as emotional status, stress, pain, physical activity, caffeine use, tobacco use, time of day and medications. High blood pressure that only occurs in a medical setting and/or in the presence of medical personnel may occur in 15-30% of the population. People with this "white coat hypertension" may have lower blood pressure outside of the office.

If blood pressure is only measured in an office setting diagnostic accuracy may be affected by procedural errors, the limited number of measurements that can be easily taken over time with multiple visits and the possible presence of white coat hypertension.

Ambulatory and home blood pressure monitoring can be used to confirm a diagnosis of hypertension after initial screening. The USPSTF reports that evidence supports ambulatory home blood pressure monitoring as the best method for diagnosing hypertension. During this procedure the patient wears a small portable device that can measure blood pressure at 20–30-minute intervals. Good quality evidence supports that home blood pressure monitoring may also be acceptable for diagnosing hypertension especially when ambulatory blood pressure monitoring is not available. Blood pressure readings that are more significantly elevated may require more immediate intervention during the current clinical encounter without waiting for ambulatory monitoring results.

ASH recommends the following guidelines for a patient with an elevated blood pressure reading during the practitioner's examination:

- Blood pressure within 140/90 to 159/99 range: needs follow up blood pressure measurement with practitioner or referral to physician.
- Blood pressure within 160/100 to 179/109 range: refer the patient to their physician for follow up.
- Blood pressure within 180/110 to 199/119 range: discuss the severity of this reading with the patient and recommend immediate follow up with their physician (if possible, contact the patient's physician to discuss how to proceed regarding the blood pressure reading).
- Blood pressure at or above 200/120: contact emergency services (e.g., call 911) for immediate care for the patient.

INTERVENTIONS

Effective interventions to reduce hypertension can be pharmacological or nonpharmacological.

Pharmacological

Pharmacotherapy has been found to be effective compared to placebo in numerous trials in reducing cardiovascular events by lowering blood pressure. Over two-thirds of people with hypertension will require more than one antihypertensive medication to adequately control their blood pressure. Multiple classes of antihypertensives are available including diuretics, angiotensin receptor blockers (ARBs), angiotensin converting enzyme inhibitors (ACEIs), beta blockers (BBs), alpha blockers, and calcium channel blockers (CCBs). The Eighth Joint National Committee (JNC 8) publication in 2013 updates guidelines for blood pressure levels that prompt pharmacological interventions and treatment goals as well as medication protocol recommendations.

Adverse effects of antihypertensives have been found to be very common, varying from 40-89% of participants, depending on the study and the particular medication. These effects include headache, upper respiratory infection, nasopharyngitis, ankle edema, constipation, facial flushing, hyperkalemia, dizziness, and erectile dysfunction. Serious adverse effects were found to be less common (4-11% of participants, depending on the study and the medication).

Practitioners should also be aware that patients may not be adhering to their medication regimens as prescribed. Practitioners should follow the above recommended guidelines for blood pressure ranges and encourage follow up with the prescribing physician as indicated for management of blood pressure and/or medication adherence issues.

Nonpharmacological

There is fair to good evidence for a reduction in cardiovascular events from the use of certain nonpharmacological interventions for patients with hypertension. These interventions include weight reduction in overweight/obese patients, increased physical activity, dietary sodium reduction, decreased alcohol intake, and stress management. Reductions in systolic blood pressure ranged from 3-15 mm Hg, depending on the study and the intervention.

PRACTITIONER SCOPE AND TRAINING

Practitioners should practice only in the areas in which they are competent based on their education, training, and experience. Levels of education, experience, and proficiency may vary among individual practitioners. It is ethically and legally incumbent on a practitioner to determine where they have the knowledge and skills necessary to perform such services and whether the services are within their scope of practice.

It is best practice for the practitioner to appropriately render services to a patient only if they are trained to competency, equally skilled, and adequately competent to deliver a service compared to others trained to perform the same procedure. If the service would be most competently delivered by another health care practitioner who has more skill and training, it would be best practice to refer the patient to the more expert practitioner.

Best practice can be defined as a clinical, scientific, or professional technique, method, or process that is typically evidence-based and consensus driven and is recognized by a majority of professionals in a particular field as more effective at delivering a particular outcome than any other practice (Joint Commission International Accreditation Standards for Hospitals, 2020).

Depending on the practitioner's scope of practice, training, and experience, a patient's condition and/or symptoms during examination or the course of treatment may indicate the need for referral to another practitioner or even emergency care. In such cases it is essential for the practitioner to refer the patient for appropriate co-management (e.g., to their primary care physician) or if immediate emergency care is warranted, to contact 911 as appropriate. See the *Managing Medical Emergencies (CPG 159 – S)* clinical practice guideline for information.

Practitioner Resources

Publicly available resources can be found at:

- NHLBI (National Heart, Lung, and Blood Institute) Publications and Resources https://www.nhlbi.nih.gov/health/high-blood-pressure

Spanish Language Resources

- Materials for the Hispanic/Latino Population (National Heart Lung and Blood Institute) https://www.nhlbi.nih.gov/health/educational/healthdisp/health-education-materials/hispanic-latino.htm

Member Resources

Publicly available resources can be found at:

- Blood Pressure Toolkit https://www.heart.org/en/health-topics/high-blood-pressure/high-blood-pressure-toolkit-resources

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