

Quality Improvement Guidelines

Hypertension Management for Adults ≥ 18 and ≤ 85

Purpose

To offer a guide for appropriate management of hypertension in adults ≥ 18 and ≤ 85 years of age.

Scope

Patients 18 through 85 years of age who had a diagnosis of essential hypertension.

The following patients are excluded: Patients in hospice or using hospice services; Medicare patients ≥ 65 years of age enrolled in SNP (I-SNP) or living long-term in an institution during the measurement year; patients with unknown gender or age; patients < 18 or > 85 ; patients with evidence of end-stage renal disease (ESRD) or kidney transplant; patients who are pregnant; patients who had a nonacute inpatient admission during the measurement year; blood pressure reading from an inpatient stay, observation or ED settings, blood pressure readings taken prior to diagnosis of HTN; blood pressure readings taken on the same day of a diagnostic test or therapeutic procedure that requires a change in diet /medication (on or day before test); exclude from numerator patients with no blood pressure measurement recorded during reporting period.

Guideline

Hypertension Management for Adults ≥ 18 yo

- I. **Diagnosis:** See Guideline for Screening/Diagnosis of Hypertension ([Appendix C](#))
- II. **Baseline Workup/Considerations:**
 - Lab: BMP, UA, lipid panel if not done in past 1 month
 - ECG: if not done in last 3 months
 - Consider secondary causes if clinically indicated ([see Appendix A, Table 1](#))
 - Initiate lifestyle interventions ([see Appendix A, Table 3](#))
 - Set BP goal and initiate BP lowering medication based on age, gender, diabetes and CKD
 - o GOALS:
 - No DM or CKD:
 - 18-59 yo: $< 140/90$
 - 60-85 yo: $< 150/90$
 - DM or CKD:
 - $< 140/90$ regardless of age

- Consider other CVD risk factors and treat as appropriate ([see Appendix A, Table 2](#))

III. Initial Medication Management:

- Considerations by race:
 - o Non-black patients: Initiate thiazide-type diuretic or ACEI/ARB or CCB, alone or in combination
 - o Black patients Initiate thiazide-type diuretic or CCB, alone or in combination
 - o For CKD, all races: Initiate ACEI/ARB alone or in combination with another class
- Considerations by disease state:
 - o See “Compelling Indications” ([Appendix A, Table 4](#))
- Maximize first medication before adding second (higher risk of side effects) or
- Add second medication before reaching maximum dose of first medication (preferred) or
- Start with 2 medication classes separately or as fixed-dose combination if BP \geq 160 SBP or \geq 100 DBP
- Adjust medication every 2-4 weeks until goal is achieved. See “Guideline for Management of HTN in Diabetics, CVD, CKD and General Population” ([Appendix B](#)) for recommended medication management

IV. Resistant HTN:

- If not at goal at 4-8 weeks, consider causes of secondary/resistant HTN ([See Appendix A, Tables 1 and 5](#))
- Reinforce medication adherence and lifestyle modifications
- If not at goal at 12-16 weeks or at max medication management, consider follow up with specialist for further evaluation

V. Maintenance:

- If at goal for >3 months, follow up at least every 6 months
- Monitor Na, K, and Cr (e.g. BMP) in 2 to 4 weeks after initiating and/or changing the dose of an ACE-I, ARB, or Diuretic medication. Then monitor these labs periodically thereafter. - This guideline is not meant to substitute for the provider’s clinical judgement

Documenting Hypertension Diagnosis:

- To confirm diagnosis of hypertension, the provider **must document** the following in the medical record:
 - o Hypertension, HTN, High BP (HBP), Elevated BP (\uparrow BP), Borderline HTN, Intermittent HTN, History of HTN, Hypertensive vascular disease (HVD), Hyperpiesia, Hyperpiesis, or a diagnosis code for hypertension
- The following documentation **are not** sufficient to confirm diagnosis:

- Rule out HTN, possible HTN, white-coat HTN, reactive HTN, questionable HTN and consistent with HTN

Appendix A: Tables

Table 1: Secondary Causes of Hypertension

Secondary Causes of Hypertension
<ul style="list-style-type: none"> • Sleep apnea • Drug-induced/related • Chronic Kidney Disease • Primary Aldosteronism • Renovascular Disease • Cushing's Syndrome or Steroid Therapy • Pheochromocytoma • Coarction of Aorta • Thyroid/Parathyroid Disease

Table 2: Major CVD Risk Factors

Major CVD Risk Factors
<ul style="list-style-type: none"> • Hypertension • Obesity (BMI ≥ 30 kg/m²) • Dyslipidemia • Diabetes mellitus • Cigarette smoking • Physical inactivity • Microalbuminuria, estimated GFR 60mL/min • Age (>55 for men, >65 for women) • Family history of premature CVD (men age <55, women age <65)

Table 3: Lifestyle Modifications

MODIFICATION	RECOMMENDATION	AVG. SBP REDUCTION RANGE (Effects are dose and time dependent)
Weight reduction	Maintain normal body weight (BMI 18.5-24.9 kg/m ²)	5-20 mmHg/10kg
DASH eating plan	Adopt a diet rich in fruits, vegetables, and lowfat dairy products with reduced content of saturated and total fat.	8-14 mmHg
Dietary sodium reduction	Reduce dietary sodium intake to ≤ 100 mmol per day (2.4 g sodium or 6 g sodium chloride).	2-8 mmHg
Aerobic physical activity	Regular aerobic physical activity (e.g., brisk walking) at least 30 minutes per day, most days of the week	4-9 mmHg
Moderation of alcohol consumption	Men: limit to ≤ 2 drinks* per day. Women and lighter weight persons: limit to ≤ 1 drink* per day. (*1 drink= $\frac{1}{2}$ oz or 15 ml ethanol (e.g., 12 oz beer, 5 oz wine, 1.5 oz 80 proof whiskey).	2-4 mmHg

Table 4: Compelling Indications

COMPELLING INDICATION	INITIAL THERAPY OPTIONS
Heart failure	THIAZ, BB, ACEI, ARB, ALDO ANT
Post myocardial infarction	BB, ACEI, ALDO ANT
High CVD risk	THIAZ, BB, ACEI, CCB
Diabetes	THIAZ, BB, ACEI, ARB, CCB
Chronic kidney disease	ACEI, ARB,
Recurrent stroke prevention	THIAZ, ACEI

Table 5: Causes of Resistant Hypertension

CAUSES OF RESISTANT HYPERTENSION
<ul style="list-style-type: none"> • Improper BP measurement • Excess sodium intake • Inadequate diuretic therapy • Medication <ul style="list-style-type: none"> ○ Inadequate doses ○ Drug actions and interactions (e.g., NSAIDS, illicit drugs, sympathomimetics, oral contraceptives) ○ OTC drugs and herbal supplements • Excess alcohol intake

Appendix B: Guideline for Management of HTN in Diabetics, CVD, CKD and General Population

Ia. Lisinopril/HCTZ 20/25mg

- A. Start with ½ tab once daily; return 2 weeks for BP recheck
- B. Increase to 1 tab once daily; return 2 weeks for BP recheck
- C. Increase to 2 tabs once daily; return in 2 weeks for BP check

IF ACE-INTOLERANT, START ARB/HCTZ INSTEAD (SEE BELOW)

Ib. Losartan/HCTZ 50/12.5mg

- A. Start with ½ tab once daily; return 2 weeks for BP recheck
- B. Increase to 1 tab once daily; return 2 weeks for BP recheck
- C. Increase to 2 tabs once daily; return in 2 weeks for BP check

IF PREGNANCY POTENTIAL, START THIAZIDE DIURETIC INSTEAD (SEE BELOW)

Ic. Chlorthalidone 25mg or HCTZ 50mg

- A. Start with ½ tab once daily; return 2 weeks for BP recheck
- B. Increase to 1 tab once daily; return 2 weeks for BP recheck

IF NOT CONTROLLED MAX DOSE OF LISINOPRIL/HCTZ (OR LOSARTAN/HCTZ OR CHLORTHALIDONE/HCTZ), ADD AMLODIPINE (SEE BELOW)

II. Amlodipine 5mg

- A. Start with ½ tab once daily; return 2 weeks for BP recheck
- B. Increase to 1 tab once daily; return 2 weeks for BP recheck

- C. Increase to 2 tabs once daily; return 2 weeks for BP recheck

IF NOT CONTROLLED ON MAX DOSES OF BOTH LISINAPRIL/HCTZ (OR LOSARTAN/HCTZ OR CHLORTHALIDONE/HCTZ) & AMLODIPINE, ADD SPIRONOLACTONE (SEE BELOW)

III. SPIRONOLACTONE 25mg*

- A. Start with ½ tab once daily; return 2 weeks for BP recheck
 - B. Increase to 1 tab once daily; return 2 weeks for BP recheck
- *If on thiazide AND eGFR ≥60ml/min/1.73m² AND K < 4.5 mEq/L

IV. Additional Medications: consider metoprolol succinate or bisoprolol, hydralazine, clonidine, minoxidil or other central acting agent. Also consider other generic combination meds to simplify regimen (e.g. Lotrel, Ziac). Consider more aggressive workup for secondary causes of HTN (see Appendix A, Table 1 and Table 5). Considerations:

- a. If patient intolerant to ACE-I, or develops ACE-I cough, switch to Losartan/HCTZ as above.
- b. Consider using chlorthalidone in place of HCTZ if patient on combination product with HCTZ as it is longer acting and has been shown in studies to have CVD benefit (note-in patients with CrCl <30 ml/min, it is preferred to switch to a loop diuretic).
- c. If patient is pregnant or of child-bearing potential, DO NOT USE AN ACE-I or ARB. Use Chlorthalidone or HCTZ as above for pregnancy potential. Labetolol, nifedipine XL, or methyldopa are typical drugs of choice in pregnancy. Advise women to notify their OB/GYN upon pregnancy for further management.
- d. 2 week revisits unless patient is symptomatic or has SBP > 180 or DBP > 100, in which case patient should be seen sooner for more rapid titrations.
- e. Continuous reinforcement for lifestyle changes should be provided: diet, exercise, stress reduction and smoking cessation.
- f. Algorithm should be modified if there is a compelling co-morbid indication that would dictate use of a specific medication class ([see Appendix A, Table 4](#)).
- g. If patient has signs of renal disease (microalbuminuria or proteinuria), use of diltiazem or verapamil in place of amlodipine may be more appropriate for renal protection. Because of this, use of a beta-blocker if needed for step III would need to be done with caution in relation to cardiac rate and conduction.
- h. In the general black population, including those with diabetes, initial antihypertensive treatment should include a thiazide-type diuretic or calcium channel blocker. They will frequently require 2 or more medications to achieve blood pressure goals.
- i. Recommend patient keep home blood pressure readings written down and bring in blood pressure cuff to office visits.
- j. THIS GUIDELINE IS MEANT TO BE USED AS A GUIDE FOR MANAGING YOUR HYPERTENSIVE PATIENTS. IT IS ALWAYS LEFT TO THE DISCRETION OF THE ATTENDING PHYSICIAN TO USE HIS/HER JUDGEMENT IN DEVIATING FROM THE GUIDELINE.

Appendix C: Guideline for Screening/Diagnosis of Hypertension

- I. JNC 8 recommends BP screening every 2 years if BP < 120/80 & every year if BP 120-139/80-90
- II. In adults below 60 years of age, JNC 8 recommends treatment goal for uncomplicated hypertension of < 140/90
- III. In adults 60 years of age and older, JNC 8 recommends a treatment goal for hypertension of < 150/90

Normal BP < 120/80

- I. No follow-up needed
- II. Rescreen in 1 to 2 years

Pre-Hypertensive BP = 120-139/80-89

- I. Rescreen BP within 1 year
- II. Lifestyle changes prescribed
 - a. Weight Reduction
 - b. DASH
 - c. Dietary Sodium Restriction
 - d. Increased Physical Activity
 - e. Limit Alcohol Consumption
 - f. Smoking Cessation
 - g. Review OTC meds (decongestants, NSAIDs, weight loss products)
- III. Add Diagnosis of Pre-Hypertension/Elevated BP to Problem List
- IV. Print Pre-Hypertension Handout

1st Hypertensive BP: $\geq 140/\geq 90$

- I. Rescreen BP within 1 to 28 days
- II. Lifestyle changes prescribed
 - a. Weight Reduction
 - b. DASH
 - c. Dietary Sodium Restriction
 - d. Increased Physical Activity
 - e. Limit Alcohol Consumption
 - f. Smoking Cessation
 - g. Review OTC meds (decongestants, NSAIDs, weight loss products)
- III. Add Diagnosis of Elevated Blood Pressure to Problem List
- IV. Print 1st Elevated BP Handout

2nd Hypertensive BP $\geq 140/\geq 90$

- I. Initiate Hypertension Management Guideline

Additional Resources:

[Blood Pressure Chart CTX](#)

[Blood Pressure Chart DFW](#)

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Approved by: BSWQA Primary Care Subcommittee, BSWQA Quality Improvement Committee, BSWQA Board of Managers

BSWQA Related Measures: HTN: Blood Pressure Control

References:

1. James PA, Ortiz E, et al. 2014 evidence-based guideline for the management of high blood pressure in adults: (JNC8). JAMA. 2014 Feb 5;311(5):507-20
2. *KP National Adult Hypertension Guideline* [PDF]. (2014, August). Kaiser Permanente Care Management Institute.
3. Rubenfire, Melvyn, MD, FACC. *2017 Guideline for High Blood Pressure in Adults*: American College of Cardiology. 2018 May 7