HTN BLOOD PRESSURE CONTROL (v10.14.2021)

QUALITY MEASURE OVERVIEW

DESCRIPTION

The percentage of patients 18-85 years of age who had a diagnosis of hypertension and whose blood pressure was adequately controlled.

PURPOSE

High blood pressure is one of the most common risk factors for cardiovascular disease and stroke. Less than half of those with hypertension have their condition controlled. Uncontrolled and untreated hypertension was associated with increased risk of total and cardiovascular mortality among the general hypertensive population.

DEFINITION

The quality measure definition and current thresholds can be found here.

RESOURCES

- American Heart Association: Steps for Accurate BP Measurement can be found here.
- American Heart Association: Blood Pressure Measurement Instructions can be found here.
- American Heart Association: My Blood Pressure Log can be found here.
- American College of Cardiology: Blood Pressure – Know Your Number can be found here.

ACCOUNTABLE HEALTH PARTNERS

Hypertension Care Management Navigation Pathway (v10.14.2021)

Criteria for Level	Controlled; Pre-hypertensive	Uncontrolled BP value, need to confirm with second high value	Newly uncontrolled BP, has been confirmed with second high value	Uncontrolled BP despite 6 months of optimal pharmacotherapy, is having side effects with medication titration, or has symptomatic hypertension, or suspected primary aldosteronism
Level	**Level A**	**Level B**	**Level C**	**Level D**
Assess Patient's:	> Understanding of diagnosis of hypertension; level of acceptance and expectations of diagnosis > Cultural beliefs and practices, personal values that may influence their developing care plan > Concerns and questions; clarify misunderstandings > Engagement with high risk lifestyle choices (e.g.. smoking, alcohol, sedentary, etc.) > Experience of social determinants of health (e.g. transportation, access to medical care, affordability, food or housing instability)			
Recommendation for visit frequency (minimum):	Annually	Every few weeks until controlled; every 6-12 months	Every few weeks until controlled; every 6-12 months	Every few weeks until connected with specialist
Medication Needs Indicated	None / stable regimen	Yes, refer to Pharmacy Pearls	Yes, refer to Pharmacy Pearls	Yes, refer to Pharmacy Pearls
Patient Education **Each of these builds onto one another**	Provide education on hypertension disease and healthy lifestyle modifications (i.e. weight loss, low sodium intake, lower alcohol consumption (1-2 drinks/day), smoking cessation, lipid reduction, boost potassium intake, physical activity)	Provide additional education and counseling on medication uses and importance in adherence to prescriptions		
Care Management Support **Each of these builds onto one another**	Offer support with lifestyle modifications based on patient's level of engagement. Engage patient in their own care through shared decision making, create goals for care plan Inform patient of current BP; set goal BP Ensure BP measurement was optimal, rule out other causes (e.g. white coat syndrome) Educate patient on follow up visit frequency and purpose (e.g. medication monitoring/adjustments) Develop an individualized care plan in partnership with the patient. Consider: patient's preferred language, religious beliefs, past trauma/experiences with clinicians, health literacy, and out of pocket cost for follow up appointments	Utilize motivational strategies to engage patient on lifestyle modifications Encourage self-monitoring of BP (e.g. BP journals, optimal way to take BP at home) Explore options for obtaining home BP cuffs (e.g. insurance coverage, medical loan closets) Consider social (e.g. family/friends) and cultural (e.g. faith based organizations) supports Consider consult with pharmacist (e.g. simplify medication regimen, minimize cost of therapy, optimize prescriptions) Consider consult with social work (e.g. financial security, insurance coverage, connection to social programs)	Review treatment plan to date; Provide feedback regarding BP level Establish scheduled follow up outreaches (e.g. phone, portal message), and/or office visits Encourage social support participation in BP control process Facilitate communication and collaboration between interprofessional care team	Schedule more frequent visits for nonadherent patients, elicit patient experience of diagnosis and daily lifestyle Assure awareness and effective use of evidence-based practice treatment guidelines by care team Consider secondary referral to cardiology Ensure medication reconciliation is completed often and up to date across entire care team

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Pharmacy Pearls

Adult HTN Management Update

2017 Guideline for High Blood Pressure in Adults. JACC 2018.

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BP Measurement/HTN Diagnosis

BP Category	Systolic BP		Diastolic BP
Normal BP	<120	and	<80
Elevated BP	120-129	and	<80
Stage 1 HTN	130-139	or	80-89
Stage 2 HTN	≥140	or	≥90

Diagnosis should be based on an average of ≥2 readings obtained on ≥2 occasions

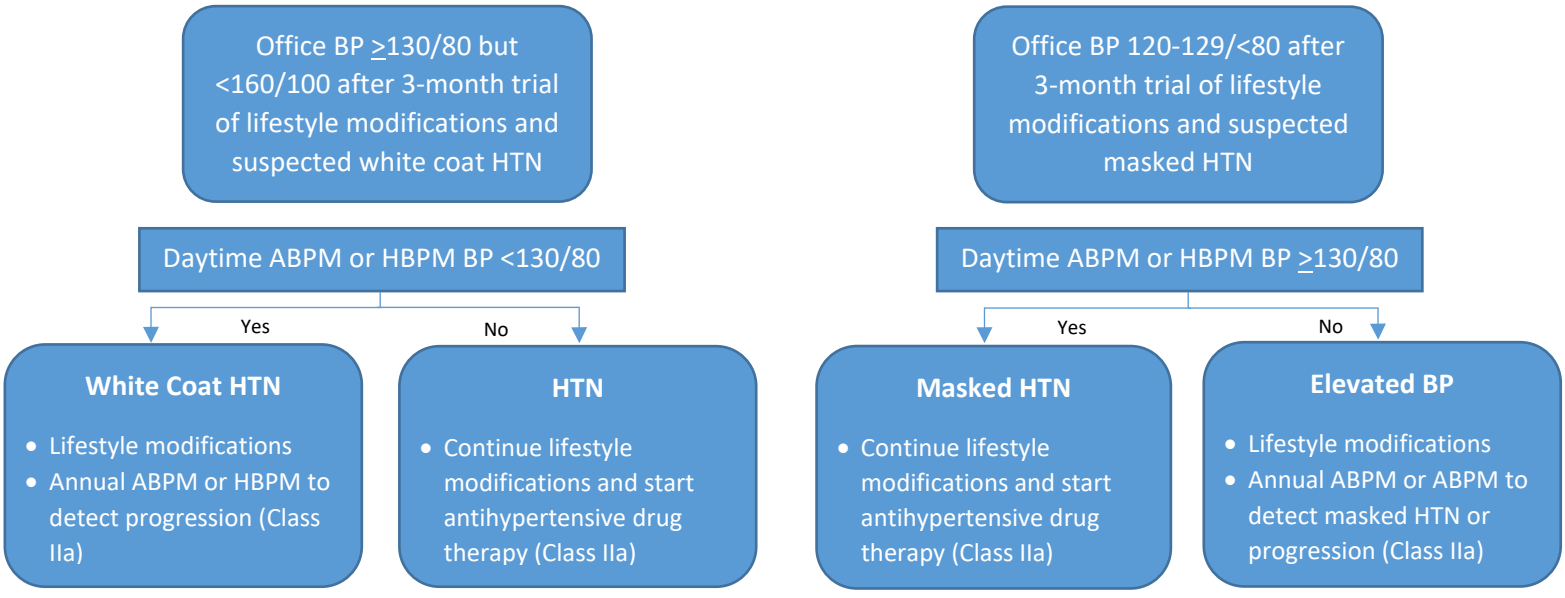
Tips to Optimize BP Measurement

- Patients should be seated quietly for 5 minutes prior to measurement
- Support patient's back and ensure their feet are flat on the floor
- Support patient's arm at their heart level (arm should ideally be bare)
- Ensure cuff fits patient's arm appropriately
- Avoid talking with patient during measurement

Select Medications that May Interfere with BP Control

- NSAIDs (not aspirin)
- Combined oral contraceptives
- SNRIs
- Oral corticosteroids
- Stimulants
- Pseudoephedrine
- Herbal supplements
- Weight loss drugs/supplements

Detection of White Coat HTN or Masked HTN in Patients Not on Drug Therapy



ABPM: ambulatory blood pressure monitoring; HBPM: home blood pressure monitoring

Treatment of High BP

Target BP control is <130/80 for most adult patients

Weak evidence to support <140/90 for patients with no history of CVD and 10-year ASCVD risk score <10%

Avoid delays in treatment - a difference of 20/10 in BP is associated with a 50% decrease in CV risk

Normal BP	Elevated BP	Stage 1 HTN 10-year CVD risk <10%	Stage 1 HTN 10-year CVD risk ≥10%	Stage 2 HTN
Promote optimal lifestyle habits	Nonpharmacological therapy	Nonpharmacological therapy	Nonpharmacological therapy + medication	Nonpharmacological therapy + medication*
Reassess in 1 year	Reassess in 3-6 months	Reassess in 3-6 months	Reassess in 1 month	Reassess in 1 month

**For Stage 2 HTN or when BP >20/10 above goal, consider initiation of 2 antihypertensive agents from different medication classes*
Green box: Class I recommendation; Yellow box: Class IIa recommendation

Always assess and optimize adherence to therapy prior to changing doses or adding additional medications

Nonpharmacological Intervention	Impact on SBP (Normotension)	Impact on SBP (HTN)
Weight Loss Goal: ideal body weight, ~1 mm Hg reduction for every 1 kg lost	-2-3 mm Hg	-5 mm Hg
Healthy Diet (e.g., DASH diet) Fruits, vegetables, whole grains, low-fat dairy products; ↓ saturated/total fat	-3 mm Hg	-11 mm Hg
Salt Reduction Goal: <1500 mg/day	-2-3 mm Hg	-5-6 mm Hg
Aerobic Activity Goal: 90-150 min/week at 65-75% HR reserve + resistance activity	-2-4 mm Hg	-5-8 mm Hg
Alcohol Moderation Men: ≤2 drinks/day; Women: ≤1 drink/day	-3 mm Hg	-4 mm Hg

First-Line Pharmacological Intervention

Medication Class	Examples	Comments
Thiazide/thiazide-like diuretics	Chlorthalidone, hydrochlorothiazide, indapamide	• Chlorthalidone preferred because of its longer half-life and proven CVD reduction • Monitor for hyponatremia and hypokalemia, hypercalcemia and hyperuricemia • Caution in patients with gout not on uric acid-lowering therapy • Minimally effective with GFR <30 mL/min
ACE Inhibitors	Lisinopril, enalapril, ramipril	• Do not use in combination with ARBs or direct renin inhibitors • Monitor potassium and renal function • Avoid in pregnancy
ARBS	Losartan, irbesartan, valsartan	• Do not use in combination with ACEI or direct renin inhibitors • Monitor potassium and renal function • Patients with h/o angioedema to an ACEI can receive an ARB ≥6 weeks after D/C the ACEI • Avoid in pregnancy
Dihydropyridine CCBs	Amlodipine, felodipine, nifedipine	• Associated with dose-related pedal edema (more common in women) • Caution in HFrEF; if necessary, use amlodipine
Nondihydropyridine CCBs	Diltiazem, verapamil	• Avoid routine use with beta blockers (risk of bradycardia and heart block) • Avoid use in HFrEF • Clinically significant drug interaction potential

Secondary Pharmacological Agents

Medication Class	Examples	Comments
Loop Diuretics	Furosemide, torsemide	• Preferred diuretics in patients with symptomatic HF or in patients with GFR <30 mL/min
Potassium-Sparing Diuretics	Triamterene, amiloride	• Minimally effective antihypertensive agents • Avoid in patients with GFR <45 mL/min
Aldosterone Antagonists	Spironolactone, eplerenone	• Preferred agents for resistant HTN • Risk of gynecomastia and impotence: spironolactone > eplerenone • Avoid if potassium is ≥5 mmol/L
Beta Blockers	Metoprolol, propranolol, carvedilol	• Avoid abrupt discontinuation • Cardioselective agents (metoprolol, atenolol, bisoprolol) are preferred in patients with bronchospastic airway disease
Direct Renin Inhibitor	Aliskiren	• Do not use in combination with ACEI or ARBs • Monitor potassium • Avoid in pregnancy
Alpha-1 Blockers	Doxazosin, terazosin	• Consider as second-line agents for patients with concomitant BPH • Associated with orthostatic hypotension, especially in older adults
Central Alpha-2 Agonists	Clonidine, methyldopa	• Abrupt discontinuation of clonidine can induce hypertensive crisis • Generally reserved for last line because of CNS adverse effects
Direct Vasodilators	Hydralazine, minoxidil	• Associated with sodium and water retention, tachycardia, drug-induced lupus (hydralazine), and hirsutism (minoxidil)

Resistant HTN

Office BP ≥130/80 on 3 antihypertensives at optimal doses (including a diuretic if possible) OR
Office BP <130/80 on 4 antihypertensives

Exclude pseudoresistance

- Ensure accurate office BP measurements
- Assess for nonadherence to prescribed regimen
- Obtain home, work, or ambulatory BP readings to exclude white coat HTN

Identify and reverse contributing factors

- Obesity
- Physical inactivity
- Excessive alcohol ingestion
- High-salt, low-fiber diet

Discontinue or minimize interfering substances

- NSAIDs
- Sympathomimetics (decongestants, amphetamines)
- Stimulants
- Oral contraceptives

Screen for secondary causes of HTN

- Primary aldosteronism (elevated aldosterone/renin ratio)
- CKD (eGFR <60 mL/min)
- Renal artery stenosis
- Obstructive sleep apnea

Pharmacological treatment

- Maximize diuretic therapy
- Add a mineralocorticoid receptor antagonist
- Add other agents with different mechanisms of action
- Use loop diuretics in patients with CKD and/or patients receiving vasodilators

Refer to HTN specialist if BP remains uncontrolled after 6 months of treatment
Consider referral to HTN specialist or endocrinologist if known or suspected primary aldosteronism

Strategies to Improve Adherence

- Dose medications once daily rather than multiple times daily whenever possible
- Use combination pills rather than free individual components, if available
- Identify and address patient concerns regarding medications
- Utilize team-based care to assist patients with disease state education and compliance packaging