

Clinical Practice Guideline: Hypertension

Release Date: August 2016

Next Review Date: 2017

This Clinical Practice Guideline (CPG) was developed by the Quality workgroup of St. Luke's Health Partners Clinical Integration Committee based on feedback and review from Idaho primary and specialty care providers and subject matter experts. It summarizes current medical literature, and where clear evidence is lacking, provides expert advice on the diagnosis and treatment of hypertension. St. Luke's Health Partners recognizes that the responsibility and decision making about care will be made by the healthcare provider in collaboration with his or her patient, taking into account the patient's entire clinical situation, needs, and goals. Practice variation from these guidelines may be appropriate when clinical circumstances arise or when individual patient characteristics indicate that such changes are in the best interest of the patient.

Recommendation Summary:

St. Luke's Health Partners supports the current recommendations from the Eighth Joint National Committee (JNC-8) for the treatment and care of patients with hypertension.

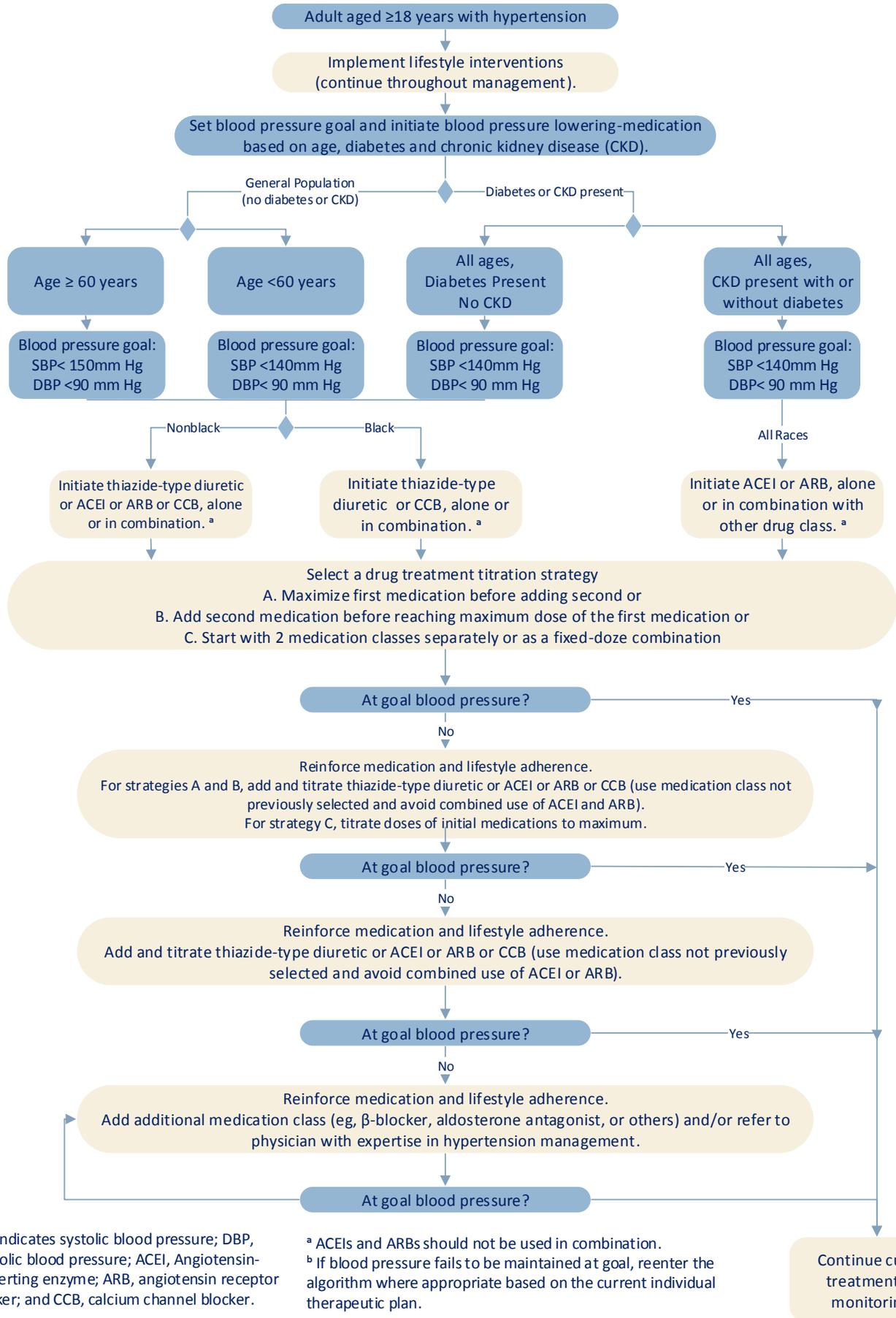
Sources:

1. James PA, et al. (2013). 2014 Evidence-based guideline for the management of high blood pressure in adults: Report from the panel members appointed to the Eighth Joint National Committee (JNC 8). Journal of the American Medical Association. DOI: 10.1001/jama.2013.284427. Accessed June 20, 2016.
2. Nation Heart, Lung, and Blood Institute (NIH) <http://www.nhlbi.nih.gov/sites/www.nhlbi.nih.gov/files/blood-pressure-in-adults.pdf>
3. 2016 Group Practice Reporting Option (GPRO) Web Interface Narrative Measure Specifications. <https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/sharedsavingsprogram/Quality-Measures-Standards.html>

Medical Management

Classification of Blood Pressure

| BP Classification | SBP (mmHg) | | DBP (mmHg) |
|----------------------|------------|-----|------------|
| Normal | <120 | and | <80 |
| Prehypertension | 120-139 | or | 80-89 |
| Stage 1 Hypertension | 140-159 | or | 90-99 |
| Stage 2 Hypertension | >160 | or | >100 |



SBP indicates systolic blood pressure; DBP, diastolic blood pressure; ACEI, Angiotensin-converting enzyme; ARB, angiotensin receptor blocker; and CCB, calcium channel blocker.

^a ACEIs and ARBs should not be used in combination.

^b If blood pressure fails to be maintained at goal, reenter the algorithm where appropriate based on the current individual therapeutic plan.

Initial Testing

- Series of BPs.
 - Obtain BP after at least 5 min. of rest
 - Use correct cuff (appropriately calibrated) / technique
 - Electrocardiogram
- Consider clinical laboratory testing:
 - CBC
 - CMP
 - Lipid Panel
 - Urinalysis
 - TSH

Diagnostic Workup of Hypertension

- Assess risk factors and comorbidities
 - Sleep apnea
 - Drug induced/related
 - Chronic kidney disease
 - Primary aldosteronism
 - Reno-vascular disease
 - Cushing's syndrome or steroid therapy
 - Pheochromocytoma
 - Thyroid/parathyroid disease
- Reveal identifiable causes of hypertension
- Obtain History
 - Family history
 - Eating habits (caffeine intake)
 - Tobacco history
- Perform physical exam to include:
 - Height, weight and BMI
 - Blood pressure
 - Fundus
 - Thyroid (bruits)
 - Cardiovascular exam including bruits

Optimize Medical/Pharmacological Therapy

- Refer for nutrition education as appropriate
- Maintain blood pressure <140-90 mmHg or at goal as determined by provider and patient
- Order aspirin use as recommended by the United States Preventive Services Task Force (USPSTF); see Reference section for clarification)
- Ensure influenza vaccine, pneumococcal vaccine, hepatitis B vaccines are up to date
- Screen for anxiety and depression (GAD-7 and PHQ9) as they are common with chronic illness (30-40% prevalence)
- Consider ACE or ARB use for hypertension/nephropathy
 - Not recommended as prophylaxis for nephropathy
 - ACE and ARB not recommended for use together
- Provide tobacco cessation information or refer to program as appropriate

Follow-Up Visits

- Every 6 months for controlled blood pressure
- Uncontrolled blood pressure or not at goal, every 3 months
 - Consider referral to Behavior Health Consultant, Pharmacist, appropriate care team member or specialty referral

St. Luke's Health Partners Clinical Care Management

Consider Including the Following Individuals on Care Team

- Mental health Provider as needed
- Social Worker
- Care Manager
- Pharmacist
- Dietician

Consider Specialty Referral

- Physician preference
- Patient preference
- Cardiology
 - Unable to reach goal
- Endocrinology
- Nephrology

Referral Back to PCP

- Patient preference
- Physician preference

Blood Pressure Measurement Techniques

| Method | Notes |
|--------------------------|---|
| In- Office | Two readings, 5 minutes apart, sitting in chair. Confirm elevated reading in contralateral arm. |
| Ambulatory BP Monitoring | Indicated for evaluation of “white coat hypertension.” Absence of 10-20 percent BP decrease during sleep may indicate increased CVD risk. |
| Patient self-check | Provides information on response to therapy. May help to improve adherence to therapy and is useful for evaluating “white coat hypertension.” |

Guiding Patient Behavior Change

- Use Motivational Interviewing strategies (see Tools and Resources section)
 - Patient-centered (discuss patient agenda and goals)
 - Guiding style -encourage self-based problem solving
 - * “dancing *not* wrestling, guiding *not* directing, consulting *not* instructing”
 - Active listening – more listening and less talking; reflect what you hear
 - Open ended questions to evoke patient’s desires, concerns and reactions
 - Affirm and acknowledge positive effort and steps
 - Share information in a concise and potent manner (*not lengthy and comprehensive*)- Evoke, Offer, Evoke pattern
 - Remember **provider empathy** is key to patient behavior change
- Goal Setting
 - Focus on where they are *not where they should be*
 - Start with one behavior at a time
 - Help plan small, achievable steps towards goal– think shaping
 - Track progress for accountability– log, emails to nurse, phone app

Lifestyle Modification Recommendations

| Modification | Recommendation | Avg. SBP Reduction Range ^a |
|-----------------------------------|--|---------------------------------------|
| Weight Reduction | Maintain normal body weight (body mass index 18.5-24.9 kg/m ²) | 5-20 mmHg/10 kg |
| DASH eating plan | Adopt a diet rich in fruits, vegetables, and low-fat 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 ^b per day. Women and lighter weight persons limit to ≤1 drink ^b per day. | 2-4 mmHg |

^a effects are dose and time dependent. ^b 1 drink= ½ mL ethanol (e.g. 12oz beer, 5oz wine, 1.5oz 80 proof whiskey.)

Reference Material

Measures to Guide Performance

- **Controlling High Blood Pressure:** Percentage of patients aged 18-85 years of age with a diagnosis of hypertension whose blood pressure was adequately controlled (<140/90) during measurement period.
- **Tobacco Use: Screening and Cessation Intervention:** Percentage of patients aged 18 years and older who were screened for tobacco at least once within 24 months AND who received cessation counseling intervention if identified as a tobacco user.

United States Preventive Services Task Force (USPSTF): Aspirin Guidelines

1. The USPSTF recommends initiating low-dose aspirin use for the primary prevention of cardiovascular disease (CVD) and colorectal cancer (CRC) in adults aged 50-59 years who have 10% or greater 10-year CVD risk, are not at an increased risk for bleeding, have a life expectancy of at least 10 years, and are willing to take low-dose aspirin daily for at least 10 years. (Grade B)
2. The decision to initiate low-dose aspirin use for the primary prevention of CVD and CRC in adults aged 60-69 years who have a 10% or greater 10-year CVD risk should be an individual one. Persons who are not at an increased risk for bleeding, have a life expectancy of at least 10 years, and are willing to take low-dose aspirin daily for at least 10 years are more likely to benefit. Persons who place a higher value on the potential benefits than the potential harms may choose to initiate low-dose aspirin. (Grade C)
3. The current evidence is insufficient to assess the balance of benefits and harms of initiating aspirin use for the primary prevention of CVD and CRC in adults younger than 50 years. (Grade I)
4. The current evidence is insufficient to assess the balance of benefits and harms initiating aspirin use for the primary prevention of CVD and CRC in adults aged 70 years or older.

Medication Guideline for Blood Pressure Control

| Compelling Indications | | Hypertension Treatment |
|-----------------------------|--|--|
| Indication | Treatment Choice | |
| Heart Failure | ACEI/ARB + BB + diuretic + spironolactone | Beta-1 Selective Beta-blockers – possibly safer in patients with COPD, asthma, diabetes, and peripheral vascular disease: <ul style="list-style-type: none"> • metoprolol • bisoprolol • betaxolol • acebutolol |
| Post –MI/Clinical CAD | ACEI/ARB AND BB | |
| CAD | ACEI, BB, diuretic, CCB | |
| Diabetes | ACEI/ARB, CCB, diuretic | |
| CKD | ACEI/ARB | |
| Recurrent stroke prevention | ACEI, diuretic | |
| Pregnancy | labetolol (first line), nifedipine, methyldopa | |
| Drug Class | Agents of Choice | Comments |
| Diuretics | HCTZ 12.5-50mg, chlorthalidone 12.5-25mg, indapamide 1.25-2.5mg triamterene 100mg <i>K+ sparing</i> – spironolactone 25-50mg, amiloride 5-10mg, triamterene 100mg furosemide 20-80mg twice daily, torsemide 10-40mg | Monitor for hypokalemia Most SE are metabolic in nature Most effective when combined w/ ACEI Stronger clinical evidence w/chlorthalidone Spironolactone - gynecomastia and hyperkalemia Loop diuretics may be needed when GFR <40mL/min |
| ACEI/ARB | <i>ACEI</i> : lisinopril, benazepril, fosinopril and quinapril 10-40mg, ramipril 5-10mg, trandolapril 2-8mg <i>ARB</i> : candesartan 8-32mg, valsartan 80-320mg, losartan 50-100mg, olmesartan 20-40mg, telmisartan 20-80mg | SE: Cough (ACEI only), angioedema (more with ACEI), hyperkalemia Losartan lowers uric acid levels; candesartan may prevent migraine headaches |
| Beta-Blockers | metoprolol succinate 50-100mg and tartrate 50-100mg twice daily, nebivolol 5-10mg, propranolol 40-120mg twice daily, carvedilol 6.25-25mg twice daily, bisoprolol 5-10mg, labetalol 100-300mg twice daily, | Not first line agents – reserve for post-MI/CHF Cause fatigue and decreased heart rate Adversely affect glucose; mask hypoglycemic awareness |
| Calcium channel blockers | <i>Dihydropyridines</i> : amlodipine 5-10mg, nifedipine ER 30-90mg, <i>Non-dihydropyridines</i> : diltiazem ER 180-360 mg, verapamil 80-120mg 3 times daily or ER 240-480mg | Cause edema; dihydropyridines may be safely combined w/ B-blocker Non-dihydropyridines reduce heart rate and proteinuria |
| Vasodilators | hydralazine 25-100mg twice daily, minoxidil 5-10mg terazosin 1-5mg, doxazosin 1-4mg given at bedtime | Hydralazine and minoxidil may cause reflex tachycardia and fluid retention – usually require diuretic + B-blocker Alpha-blockers may cause orthostatic hypotension |
| Centrally-acting Agents | clonidine 0.1-0.2mg twice daily, methyldopa 250-500mg twice daily guanfacine 1-3mg | Clonidine available in weekly patch formulation for resistant hypertension |

Guideline Adoption and Recommendation

This guideline has been adopted based on nationally and recognized evidenced-based sources. This guideline is based on the most recent medical evidence at the time of the report or on a consensus of panel experts. SLHP adopts guidelines to help providers and patients make decisions about health care for specific conditions, but are not a substitute for professional medical advice.

Pearls for Hypertension

1. Confirm the diagnosis by making two readings separated by 5 minutes using appropriate technique and appropriately sized cuff
2. Consider use of aspirin
3. Consider comorbidities, age and race in setting goals and selecting agents
4. Emphasize lifestyle interventions continuously
5. After initiating therapy assure close follow up until target is reached
6. If available, utilize a disease registry and previsit planning to enhance care

SLHP Tools and Resources

- National Heart, Lung, and Blood Institute. <http://www.nhlbi.nih.gov/health-pro>
- Idaho Department of Health and Welfare, Heart Disease and Stroke Prevention, [Blood Pressure Toolkit](#)
- Miller, W & Rollnick (2013). *Motivational Interviewing: Helping People Change* (3rd Ed). Guilford Press, NY
- Million Hearts. <http://millionhearts.hhs.gov/tools-protocols/index.html>