

Hypertension Treatment Protocol for Primary Care Clinicians

Target: Physicians, PAs, NPs | 780 words | Clinical reference level

Evidence-Based Treatment Algorithm

Stage 1: Initial Assessment & Risk Stratification

Blood Pressure Classification (2017 ACC/AHA Guidelines):

- Normal: <120/80 mmHg
- Elevated: SBP 120-129 and DBP <80 mmHg
- Stage 1 HTN: SBP 130-139 or DBP 80-89 mmHg
- Stage 2 HTN: SBP ≥140 or DBP ≥90 mmHg

Cardiovascular Risk Assessment:

Use pooled cohort equations to estimate 10-year ASCVD risk:

- **Low risk** (<10%): Lifestyle modifications first
- **Intermediate risk** (10-20%): Consider medication if lifestyle changes insufficient
- **High risk** (>20%): Immediate pharmacotherapy + lifestyle modifications

Stage 2: Pharmacotherapy Selection

First-Line Agents (Equal efficacy for most patients):

1. ACE Inhibitors

- Lisinopril 10-40mg daily
- Enalapril 5-40mg BID
- Monitor: SCr, K+ within 1-2 weeks
- Contraindications: Pregnancy, angioedema history

2. ARBs (ACE-I intolerant)

- Losartan 50-100mg daily
- Olmesartan 20-40mg daily
- Better tolerated than ACE-I (no cough)

3. Thiazide Diuretics

- Hydrochlorothiazide 25-50mg daily
- Chlorthalidone 25mg daily (preferred for outcomes)
- Monitor: Electrolytes, glucose, uric acid

4. Calcium Channel Blockers

- Amlodipine 2.5-10mg daily
- Nifedipine XL 30-90mg daily
- Monitor: Ankle edema, gingival hyperplasia

Stage 3: Combination Therapy

When SBP >20 mmHg or DBP >10 mmHg above goal:

Start with 2-drug combination (preferably single-pill combination for adherence)

Preferred Combinations:

- ACE-I/ARB + thiazide diuretic
- ACE-I/ARB + CCB
- CCB + thiazide diuretic

Avoid: ACE-I + ARB combination

Stage 4: Resistant Hypertension Management

Definition: BP remains above goal despite 3 optimally dosed antihypertensives (including diuretic)

Evaluation Steps:

1. Confirm true resistance (home BP monitoring, medication adherence)
2. Screen for secondary causes:
 - Primary aldosteronism (aldosterone:renin ratio)
 - Renal artery stenosis (if indicated)
 - Sleep apnea
 - Drug-induced HTN

Fourth-line agents:

- Spironolactone 25-50mg daily (most effective)
- Beta-blockers: Metoprolol, carvedilol
- Alpha-blockers: Doxazosin (avoid as monotherapy)

Special Populations

Diabetes Mellitus

- **Goal:** <130/80 mmHg
- **Preferred:** ACE-I or ARB (renal protective)
- **Avoid:** High-dose thiazides (glucose intolerance)

Chronic Kidney Disease

- **Goal:** <130/80 mmHg
- **Preferred:** ACE-I or ARB (slow progression)
- **Monitor:** SCr increase <30% acceptable
- **Avoid:** K⁺ >5.5 mEq/L

Heart Failure with Reduced Ejection Fraction

- **Preferred:** ACE-I/ARB + beta-blocker + diuretic
- **Evidence-based:** Carvedilol, metoprolol succinate
- **Goal:** Maximum tolerated doses

Elderly (≥65 years)

- **Goal:** <130/80 mmHg if tolerated
- **Start low, go slow:** Avoid excessive BP reduction
- **Monitor:** Orthostatic hypotension, falls risk

Monitoring & Follow-Up

Initial Phase (First 3 months)

- **Week 2-4:** Check response, adverse effects
- **Month 2-3:** Assess goal achievement
- **Adjust:** Increase dose or add second agent if needed

Maintenance Phase

- **Stable patients:** Every 3-6 months
- **Annual labs:** SCr, electrolytes, lipids, HbA1c
- **Home BP monitoring:** Validate office readings

Quality Metrics

- **Target achievement:** 80% of patients at goal BP
- **Medication adherence:** >80% prescription fill rate
- **Annual ASCVD risk assessment:** All hypertensive patients

Clinical Decision Points

When to refer to cardiology/nephrology:

- Resistant hypertension despite 4 agents
- Secondary hypertension suspected
- Complex comorbidities requiring specialist input
- Rapid progression of kidney disease

Patient education priorities:

- DASH diet principles
- Sodium restriction (<2.3g daily)
- Weight management (target BMI <25)
- Regular aerobic exercise (150 min/week)
- Medication adherence strategies

Protocol developed using current ACC/AHA, ESC/ESH guidelines and peer-reviewed evidence. Last updated: 2024.