Hypertension Therapy in Type 2 Diabetes

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Please Note: This algorithm is **not** intended for treatment and target selection in children or in women who are, or could become, pregnant.

Controlling hypertension (blood pressure ≥130/80 mmHg on two or more visits) reduces the risk of heart attack, stroke, heart failure, and kidney disease.Treatment targets should be individualized based on shared decision making which addresses risks, benefits, and patient preferences.

Blood Pressure (BP) Treatment Target: <130/80 mmHg for most patients

Consider less stringent BP target: older age, frail, or advanced comorbidities
Consider more stringent BP target: high risk for kidney disease progression

Measuring and Monitoring Blood Pressure

- Follow established procedures for measuring BP including proper positioning and appropriate cuff size and placement (See In-Office Measuring Blood Pressure Infographic).
- Measure BP at diabetes diagnosis and at every visit.
- Prescribe home BP monitor and encourage patient to measure and record blood pressure particularly prior to provider visits or with medication changes.

Treatment of Hypertension

Recommend Therapeutic Lifestyle Changes for BP >120/80 mmHg

DASH diet*, limit sodium intake, increase physical activity, tobacco cessation, weight loss if overweight, and limit alcohol consumption

Initial Medication Therapy

BP ≥130/80 mmHg and <150/90 mmHg	→	**Use ACEi or ARB (preferred)****
BP ≥150/90 mmHg	→	**Use 2 agents: ACEi *or* ARB and CCB or diuretic**

Followup BP in one month

Review home BP records, if available. If BP not at goal, consider titrating dose up and/or adding medication from a different class. Work with patient to address any medication concerns or adherence issues. Combine ACEi or ARB with CCB and diuretic for triple medication therapy, as needed.

Resistant Hypertension***

BP ≥140/90 mmHg and treated with ACEi or ARB, CCB, and Diuretic, consider

Mineralocorticoid Receptor Antagonist: Spironolactone or Eplerenone **AND/OR** **Consult or refer to: nephrologist, cardiologist, or endocrinologist**

*Dietary Approaches to Stop Hypertension (DASH) Consider referral to dietitian. https://www.nhlbi.nih.gov/health-topics/dash-eating-plan
**If unable to tolerate angiotensin converting enzyme inhibitor (ACEi) or angiotensin receptor blocker (ARB), use calcium channel blocker (CCB) or diuretic.
***Consider evaluation for secondary hypertension.

Preferred Medication Classes

Angiotensin Converting Enzyme Inhibitors (ACEi) or Angiotensin Receptor Blockers (ARB)

- May increase potassium and creatinine, especially in patients with CKD
- Do not use an ACEi and an ARB together in the same patient.

Lisinopril Start 2.5-5mg daily; usually 20-40mg daily; max 80mg daily.
Other ACEi include benazepril, captopril, enalapril, fosinopril, moexipril, perindopril, quinapril, ramipril, and trandolapril.

- May cause cough, and rarely angioedema

Losartan Start 25-50mg daily; max 100mg daily. Consider if intolerant to ACEi.
Other ARBs include azilsartan, candesartan, eprosartan, irbesartan, olmesartan, telmisartan, and valsartan.

Calcium Channel Blockers (CCB)

Amlodipine Start 2.5-5mg daily; usually 5-10mg daily.
Other dihydropyridine CCBs include felodipine, lacidipine, levamlodipine, nifedipine XL, and nisoldipine.

- May cause edema

Diltiazem and **Verapamil** (non-dihydropyridine CCBs) are available in multiple formulations: consult your local formulary to assure appropriate selection and dosing.
Diltiazem CD Start 180-240mg daily; usually 240-360mg daily; max 480mg daily.
Verapamil ER Start 180mg daily; usually 240-360mg daily; max 360-480mg daily.

- May reduce proteinuria and heart rate in patients

Thiazide Diuretics

Hydrochlorothiazide (HCTZ) or **chlorthalidone** Start 12.5mg daily; max 50mg daily.
Indapamide Start 1.25mg daily; max 5mg daily.

- Higher doses may worsen hyperglycemia
- Monitor for hypokalemia

Note: Multiple combination formulations of medications listed above are available.

Mineralocorticoid Receptor Antagonists

Spironolactone Start 25mg daily; usually 50-100mg daily in 1-2 divided doses; max 200mg daily.
Eplerenone Start 50mg daily; may increase to 50mg twice daily after 4 weeks; max 100mg daily.

- Assess for hyperkalemia
- May cause gynecomastia and/or impotence in men

Medications on the **IHS National Core Formulary** are in **BOLD** above. Please consult a complete prescribing reference for more detailed information. No endorsement of specific products is implied.

Reference: American Diabetes Association Standards of Care