

# PLANK 2

## TOOL: Hypertension Treatment Algorithm (Kaiser Permanente)

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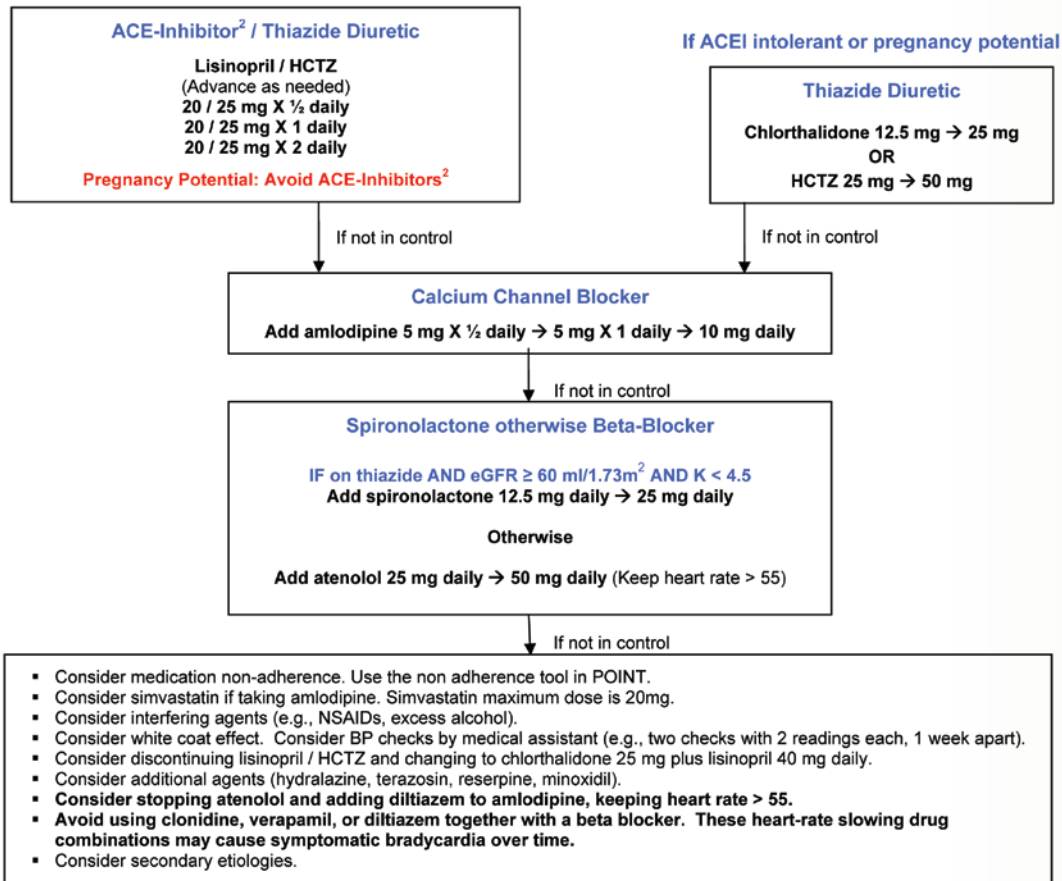
# Management of Adult Hypertension<sup>1</sup>

## BLOOD PRESSURE (BP) GOALS

≤ 139 / 89 mm Hg

Uncomplicated HTN, Diabetes, CVA, TIA, CKD Stages 1–3

NNT CVA<sup>3</sup> = 63  
 NNT MI<sup>3</sup> = 86  
 NNT CVA or MI<sup>3</sup> = 36



1. Includes essential hypertension, DM and Stage 1-3 CKD, CVA, TIA; excludes CAD, Heart Failure, Stage 4 CKD, and pregnancy.  
 2. ACE-Inhibitors are contraindicated in pregnancy and not recommended in most child-bearing age women.  
[http://cl.kp.org/pkc/national/cmi/programs/hypertension/practice\\_resource/htn\\_pregnancy\\_practice\\_resource.pdf](http://cl.kp.org/pkc/national/cmi/programs/hypertension/practice_resource/htn_pregnancy_practice_resource.pdf) OR Clinical Library → National tab → Interregional Guidelines and Practices Resources → Hypertension: Treatment of Hypertension in Women  
 3. NNT = number needed to treat to prevent one event, maintaining hypertension control for at least 5 years. (See Appendix A of Hypertension Guidelines for age-based NNT analysis: <http://cl.kp.org/pkc/national/cmi/programs/hypertension/guideline/index.html> OR Clinical Library → National tab → National Evidence-Based Guidelines → Hypertension Guidelines → Background → Appendix A).



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- Medication up-titrations are recommended at 2 – 4 week intervals (for most patients) until control is achieved. Consider follow up labs when up-titrating or adding lisinopril / HCTZ, chlorthalidone, HCTZ, or spironolactone.
- Use lipid lowering therapy according to Dyslipidemia Management in Adults Guideline.\*
- If pregnant, refer to OB / GYN for hypertension management. If on ACEIs, ARBs, or spironolactone, discontinue immediately.

### Lifestyle changes are recommended when SBP > 119 and / or DBP > 79 mm Hg

- DASH diet (low in fat, and high in fruit, vegetables and low-fat dairy products).
- Sodium restriction ( $\leq 2.4$  gm sodium daily).
- Weight reduction if BMI  $\geq 25$  kg/m<sup>2</sup>.
- Exercise (at least 30 min  $\geq 4$  times per week).
- Limit daily alcohol to no more than 1 drink (women) or 2 drinks (men).
- Smoking cessation is strongly recommended; counsel tobacco users on the health risks of smoking and the benefits of quitting.

For patients with ACEI cough intolerance, switch to losartan. Avoid losartan/HCTZ (generic Hyzaar) due to HCTZ underdosing in this combination drug.

SELECTED ANTIHYPERTENSIVE MEDICATION **	Usual Dosage Range	
<b>Thiazide-type Diuretics</b>	Chlorthalidone (Hygroton) Hydrochlorothiazide (HCTZ) (Esidrix)	12.5 – 25 mg daily 25 – 50 mg daily
<b>Thiazide Combinations</b>	Lisinopril/HCTZ (Prinzide) Spironolactone/HCTZ (Aldactazide)	10/12.5, 20/12.5, 20/25 mg daily 25/25 mg daily
<b>ACE Inhibitors (ACEI)</b>	Lisinopril (Zestril, Prinivil) Captopril (Capoten)	10 – 40 mg daily 12.5 – 50 mg BID
<b>Long-Acting Dihydropyridine Calcium Channel Blockers (CCB)</b>	Amlodipine (Norvasc) Felodipine ER (Plendil) Nifedipine ER (Nifedipine XL)	2.5 – 10 mg daily 2.5 – 20 mg daily 30 – 90 mg daily
<b>Beta-Blockers (BB)</b>	Atenolol (Tenormin) Carvedilol (Coreg) Metoprolol (Lopressor) Metoprolol ER (Toprol XL)	25 – 100 mg total, taken daily or BID 3.125 – 25 mg BID 25 – 100 mg BID 25 – 200 mg daily
<b>Aldosterone Receptor Blocker</b>	Spironolactone (Aldactone)	12.5 – 25 mg daily
<b>Potassium-sparing Diuretic</b>	Amiloride	5 – 10 mg total, taken daily or BID
<b>Angiotensin II Receptor Blockers (ARB)</b>	Losartan (Cozaar)	25 – 100 mg daily
<b>Direct Vasodilators</b>	Hydralazine (Apresoline) Minoxidil (Loniten)	25 – 100 mg BID 2.5 mg daily – 20 mg BID
<b>Alpha Blockers</b>	Terazosin (Hytrin) Doxazosin (Cardura) Prazosin (Minipress)	1 – 20 mg daily 1 – 16 mg daily 1 – 10 mg BID
<b>Alpha-2 Agonists</b>	Clonidine (Catapres)	0.1 mg – 0.4 mg BID
<b>Peripheral Adrenergic Inhibitor</b>	Reserpine	0.05 – 0.2 mg daily

\* <http://cl.kp.org/pkc/scal/cpg/cpg/html/Dyslipid.html> OR Clinical Library → National tab → National Evidence-Based Guidelines → Dyslipidemia Management in Adults

\*\* Availability of medications may vary depending on regional formularies.

This guide is based on the 2009 National Hypertension Guideline. It is not intended or designed as a substitute for the reasonable exercise of independent clinical judgment by practitioners. A PDF of this document can be downloaded from Clinical Library → National tab → National Evidence-Based Guidelines → Hypertension Guideline → Clinician Tools → Management of Adult Hypertension [OR link here](#).

