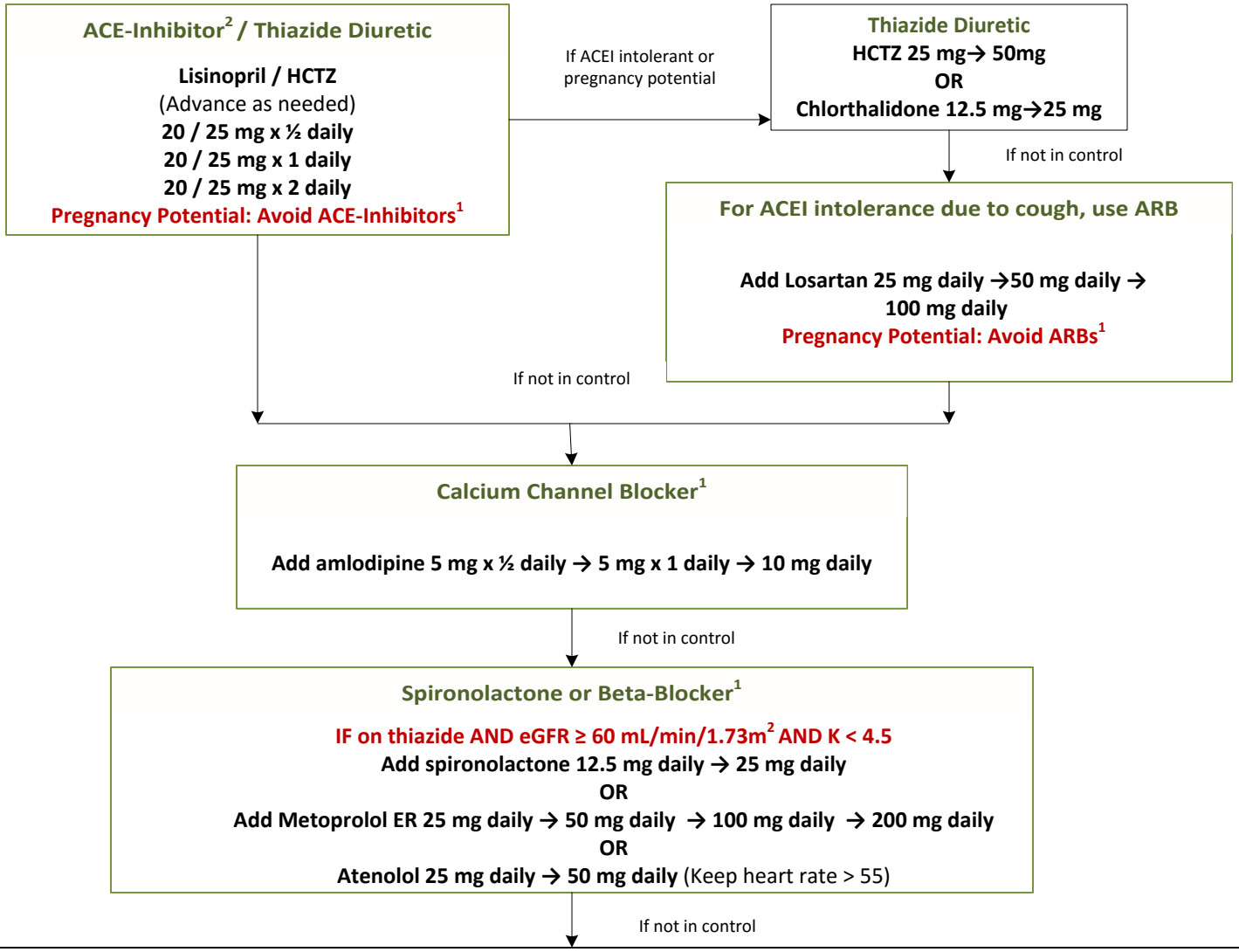
Management of

ADULT HYPERTENSION

BLOOD PRESSURE (BP) GOALS

<140/90 mm Hg – for age 18-59 & age 60 and over with Chronic Kidney Disease (CKD)[3] or Diabetes
Optional for other patients at high risk of cardiovascular events[2]
<150/90 mm Hg – for age 60 and over in the absence of Chronic Kidney Disease (CKD)[3] or Diabetes



- Consider medication non-adherence.
- Consider interfering agents (e.g., NSAIDs, excess alcohol).
- Consider white coat effect. Consider BP checks by medical assistant (e.g., two checks with 2 readings each, 1 week apart).
- Consider discontinuing lisinopril / HCTZ and changing to chlorthalidone 25 mg plus lisinopril 40 mg daily. Consider additional agents (hydralazine, terazosin, reserpine, minoxidil)
- Consider stopping atenolol and adding diltiazem to amlodipine, keeping heart rate >55.
- **Avoid using clonidine, verapamil, or diltiazem together with a beta blocker.** These heart-rate slowing drug combinations may cause symptomatic bradycardia over time.
- Consider secondary etiologies.
- Consider consultation with a hypertension specialist.

1. ACE-inhibitors and ARBs are contraindicated in pregnancy and not recommended in most women of childbearing age. Calcium Channel Blockers and Spironolactone (Pregnancy Risk Category C), and Beta-Blockers (Pregnancy Risk Category D) should only be used in pregnancy when clearly needed and the benefits outweigh the potential hazard to the fetus.
2. Patients at high risk include those with acute coronary syndromes, or a history of MI, stable or unstable angina, coronary or other arterial revascularization, stroke, TIA, clinical significant peripheral arterial disease presumed to be of atherosclerotic origin, such as claudicaiton or revascularization, or Black race.

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Serving Sonoma, Napa, Marin & Yolo Counties

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3. CKD is defined as albuminuria (>30 mg of albumin/g of creatinine) at any age and any level of GFR, or an estimated GFR or measured GFR< 60 mL/min/1.73 m^2 in people aged < 70 years. When weighing the risks and benefits of a lower BP goal for people aged 70 years or older with estimated GFR < 60 mL/min/1.73 m2, antihypertensive treatment should be individualized, taking into consideration factors such as frailty, comorbidities, albuminuria, and estimation of non-age related eGFR decline (for example eGFR + ½ age < 85).

- **Medication up-titrations are recommended at 2-4 week intervals (for most patients) until control is achieved. Consider follow-up labs (electrolytes and renal function) when up-titrating or adding lisinopril / HCTZ, chlorthalidone, HCTZ, or spironolactone.**
- **Use lipid lowering therapy according to AHA/ACC Pooled Cohort Equation: http://my.americanheart.org/cvriskcalculator and http://toolscardiosource.org/ASCVD-Risk-Estimator/**
- **Women using ACEI/ARB should be advised to stop these medications and contact their OB/GYN provider immediately if they become pregnant. Women using ACEIs/ARBs for heart failure or cardiomyopathy and become pregnant should be advised to NOT stop these medications and to contact their cardiologist immediately so that they can substitute a suitable alternative (such as hydralazine) to avoid decompensation.**

Lifestyle changes are recommended for all patients:

- DASH diet
- Sodium restriction (≤ 2.4 gm sodium daily)
- Weight reduction if BMI ≥ 25 kg/m2
- Exercise at a moderate pace to achieve 150 min/week (e.g., 30 min/ day, 5 days/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.

Recommendations for patients with ACEI intolerance due to cough:

- HCTZ 25 mg, then 50 mg to achieve BP goal.
- Add losartan 25 mg, then 50 mg, then 100 mg to achieve BP goal
- Add amlodipine 2.5 mg, then 5 mg, then 10 mg to achieve BP goal

Table: Dosage Range for Selected Antihypertensive Medications

SELECTED ANTIHYPERTENSIVE MEDICATION		Usual Dosage Range
Thiazide Diuretics	Chlorthalidone (Hygroton)	12.5 – 25 mg daily
	Hydrochlorothiazide (HCTZ)(Esidrix)	25-50 mg daily
Thiazide Diuretics Combos	HCTZ (Prinzide)	10/12.5, 20/12.5, 20/25 mg daily
	Spironolactone/HCTZ (Aldactazide)	25/25 mg daily
ACE Inhibitors (ACEI)	Lisinopril (Zestril, Prinivil)	10-40 mg daily
	Captopril (Capoten)	12.5-50 mg BID
Long-Acting Dihydropyridine Calcium Channel Blockers (CCB)	Amlodopine (Norvasc)	2.5-10 mg daily
	Felodipine ER (Plendil)	2.5-20 mg daily
	Nifedipine ER (Nifedipine XL)	30-90 mg daily
Angiotensin II Receptor Blockers (ARB)	Losartan (Cozaar)	25-100 mg daily
Aldosterone Receptor Blocker	Spironolactone (Aldactone)	12.5-25 mg daily
Beta-Blockers (BB)	Atenolol (Tenormin)	25-100 mg total, taken daily or BID
	Bisoprolol (Zebeta)	5-10 mg daily
	Caredilol (Coreg)	3.125-25 mg BID
	Metoprolol (Lopressor)	25-100 mg BID
	Metoprolol ER (Toprol XL)	25-200 mg daily

This guide is based on the 2014 National Hypertension Guideline. It is not intended or designed as a substitute for the reasonable exercise of independent clinical judgment by practitioners.