

Name of Facility
Hypertension Collaborative Practice Agreement

Signatures

This protocol allows the following individuals to monitor and modify antihypertensive medications for adult patients referred by _____ providers.

List pharmacists individually

A copy of this protocol will be on file with the Montana Board of Pharmacy. The protocol will be updated annually by the clinical pharmacist and supervising physician. The updated protocol will be sent to the Montana Board of Pharmacy. Any party may cancel this agreement at any time in writing. All changes or cancellation of this agreement will be communicated to the Montana Board of Pharmacy.

Clinical Pharmacists

_____	_____
_____	_____
_____	_____

Providers

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Effective Date:

Hypertension Collaborative Practice Agreement

I. Purpose

Hypertension is one of the most common medical conditions in the U.S., affecting approximately 1 in 3 adults.^{1,2} Compiled data from NHANES (National Health and Nutrition Examination Survey) 2008 cycle, showed that 20% of patients with high blood pressure are unaware they have hypertension and less than 50% of those treated for hypertension are at goal.² The purpose of appropriate management of hypertension is to decrease the risk of hypertension-related complications such as target organ damage and CV events.³

This protocol establishes guidelines by which clinical pharmacists are authorized to manage drug therapy and provide education to improve outcomes for patients with hypertension.

II. Responsibilities

Clinical Pharmacist Responsibilities

The clinical pharmacist will perform appropriate clinical evaluations, order appropriate follow-up laboratory and clinical tests, adjust therapy to maximize therapeutic benefits and minimize adverse events, refer patients to other health care providers when needed to enhance the care of the patient, provide appropriate drug information to patients and provide applicable lifestyle modification strategies. The clinical pharmacist is authorized to initiate/discontinue, modify, and renew antihypertensive medications according to the attached prescribing protocol without obtaining a countersignature. Also, included in the duties is documenting encounter information in the patient record and compiling reports for quality review.

Supervising Physician Responsibilities

_____ will serve as the supervising physician of the service.

The supervising physician is responsible for periodically evaluating the clinical services, reviewing the protocol, and reviewing quality review data.

III. Visit Protocol

- a. Referrals will originate from medical providers in _____.
 - i. The initial evaluation of the patient will be conducted by the referring providers.
- b. The clinical pharmacist will:
 - i. Interview the patient and review the medical record to determine:
 1. Hx of HTN, PMH, FHx, SH, allergies, current medications, and disease states
 - a. Patient will be asked to bring all medications to the initial visit.
 - b. Medication list will be updated at follow-up visits.
 - ii. Assess the patient's
 1. Level of motivation and ability to implement changes
 2. Any barriers for communicating, retaining, or understanding information
 3. Health literacy level
 4. Individual health goals
 5. Perspectives and attitudes about traditional, alternative, and complimentary medical practices
 - iii. Determine risk factors for CVD:
 1. Overweight or obese (BMI ≥ 25)
 2. Physical inactivity
 3. Dyslipidemia
 4. Diabetes mellitus
 5. Tobacco usage
 6. Microalbuminuria or estimated GFR < 60 mL/min (CKD)
 7. Age
 - a. Men > 55 yo
 - b. Women > 65 yo
 8. Family history of CVD
 - a. 1° male relative < 55 yo
 - b. 1° female relative < 65 yo
 9. Evidence of target organ damage (LVH, angina/MI, HF, revascularization, stroke, TIA, nephropathy, retinopathy, PAD)
 - iv. Review risk stratification for blood pressure and goal for the patient.

Risk stratification⁴

Stage	Blood pressure	Treatment
Normal	<120/<80	Lifestyle modification encouraged
Pre-HTN	120-139/80-89	Lifestyle modifications. Consider drug tx if compelling indications (DM, CKD, LVH)
Stage 1 HTN	140-159/90-99	Lifestyle modifications and drug therapy.
Stage 2 HTN	≥160/≥100	Lifestyle modifications and drug therapy
Hypertensive urgency/emergency	>180/120	Assess for acute TOD*. w/ TOD send to ER, w/o notify referring physician or supervising physician.

*Immediate or acutely progressive TOD would include encephalopathy, intracranial hemorrhage, acute left ventricular hypertrophy with pulmonary edema, dissecting aortic aneurysm, unstable angina. Symptoms of concern would include increased SOB, mental status changes, increased chest pain, signs or symptoms of CVA/ TIA.

Blood Pressure Goals^{3,4,5,6}

Category	Description	BP Goal
Average Risk for CV complications	Primary prevention patients with a 10-year Framingham risk score < 10%	<140/90
Higher risk for CV Complications	Primary prevention patients with a 10-year Framingham score ≥ 10%	<130/80
	Patients with one of the following compelling indications for specific antihypertensive therapy: DM, CKD CAD, Carotid artery disease Patients with other forms of ASVD: PAD,AAA Left ventricular dysfunction	<120/80

From: Saseen JJ. Hypertension. In: Crouch, MA. Cardiovascular Pharmacotherapy. ASHP. Bethesda, MD. 2010. Table adapted from JNC 7 and AHA hypertension guidelines.

- v. Evaluate the patient for signs or symptoms of CVA/TIAs, angina, or MI
- vi. Evaluate for the presence of adverse effects from medications
 - 1. Adverse effects from antihypertensive regimen
 - 2. Review prescription and OTC medication list for drugs that may elevate blood pressure
- vii. Assess adherence to medications
 - 1. Identify causes for non-compliance
 - 2. Address and resolve issues
- viii. Assess blood pressure and pulse
 - 1. Resting at least 5 minutes
 - 2. No caffeine, tobacco, or exercise in past 30 minutes
 - 3. Proper technique used based on AHA recommendations⁷
 - 4. Assess orthostatic blood pressures if orthostasis is suspected.
- ix. Review recent pertinent laboratory tests and order additional baseline tests or other related assessments as needed
 - 1. Baseline renal function and serum potassium levels prior to starting ACEIs, ARBs, or diuretics. Then repeated within 1-4 weeks after initiation of these medications and annually once at goal.
 - 2. EKGs can be completed and reviewed by a provider prior to starting beta-blocker therapy or non-dihydropyridine calcium channel blockers. When EKGs reports will be sent to referring provider.
 - 3. 48-hour blood pressure monitor is available through IHI.
- x. Discuss dietary and exercise habits
- xi. Discuss social habits
- xii. Immediately notify the referring provider, supervising physician, or transfer to ER as appropriate in the event of any potentially serious or life-threatening hypertension-related complications are present.

Scenarios included but are not limited to the following:

- 1. SBP >180 and/or DBP >120
- 2. New onset or increasing chest pain
- 3. Symptoms of cerebral infarct or thrombosis
- 4. Mental status changes
- 5. Acute decrease in renal function
- 6. New cardiac arrhythmias
- 7. Pulse <55 or >120
- 8. Potassium <3.0 (if on digoxin <3.5) or >6.0
- 9. Any acute and/or potentially serious manifestations of ASVD

- xiii. Follow current guidelines (JNC7, AHA) for any antihypertensive medication adjustments. (See Appendices 1,2, and 3)
 - 1. Adjustments to antihypertensive therapy may be made if an adequate trial of the medication(s) has been given and blood pressure goal has not been met or if unacceptable adverse effects have occurred. When a patient is not to goal and is not experiencing adverse effects, the dose may be increased or another agent may be added. If unacceptable adverse effects occur, another medication from a different antihypertensive class will be considered.
 - 2. Consider adding low-dose aspirin therapy
 - a. Secondary prevention
 - b. Those > 50 yo for primary prevention
 - c. Add when blood pressure is controlled
 - i. Increased risk of hemorrhagic stroke when started in patients with uncontrolled hypertension⁸
- xiv. Provide education on hypertension, the risks of uncontrolled hypertension, importance of medication compliance, and antihypertensive medications.
- xv. Discuss lifestyle modifications according to JNC7 recommendations⁴ (See Appendix 4)
 - 1. DASH diet
 - 2. Weight management
 - 3. Alcohol and smoking
- xvi. Discuss and incorporate evidence-based alternative/complimentary therapies to improve cardiovascular outcomes.
 - 1. Stress reduction techniques
 - 2. Natural supplements as appropriate
 - 3. Mindful eating habits and maintaining healthy weight
- xvii. Provide demonstration on the use of home blood pressure monitoring devices
 - 1. Home monitors will be provided when available
- xviii. Refill antihypertensive medications as appropriate.

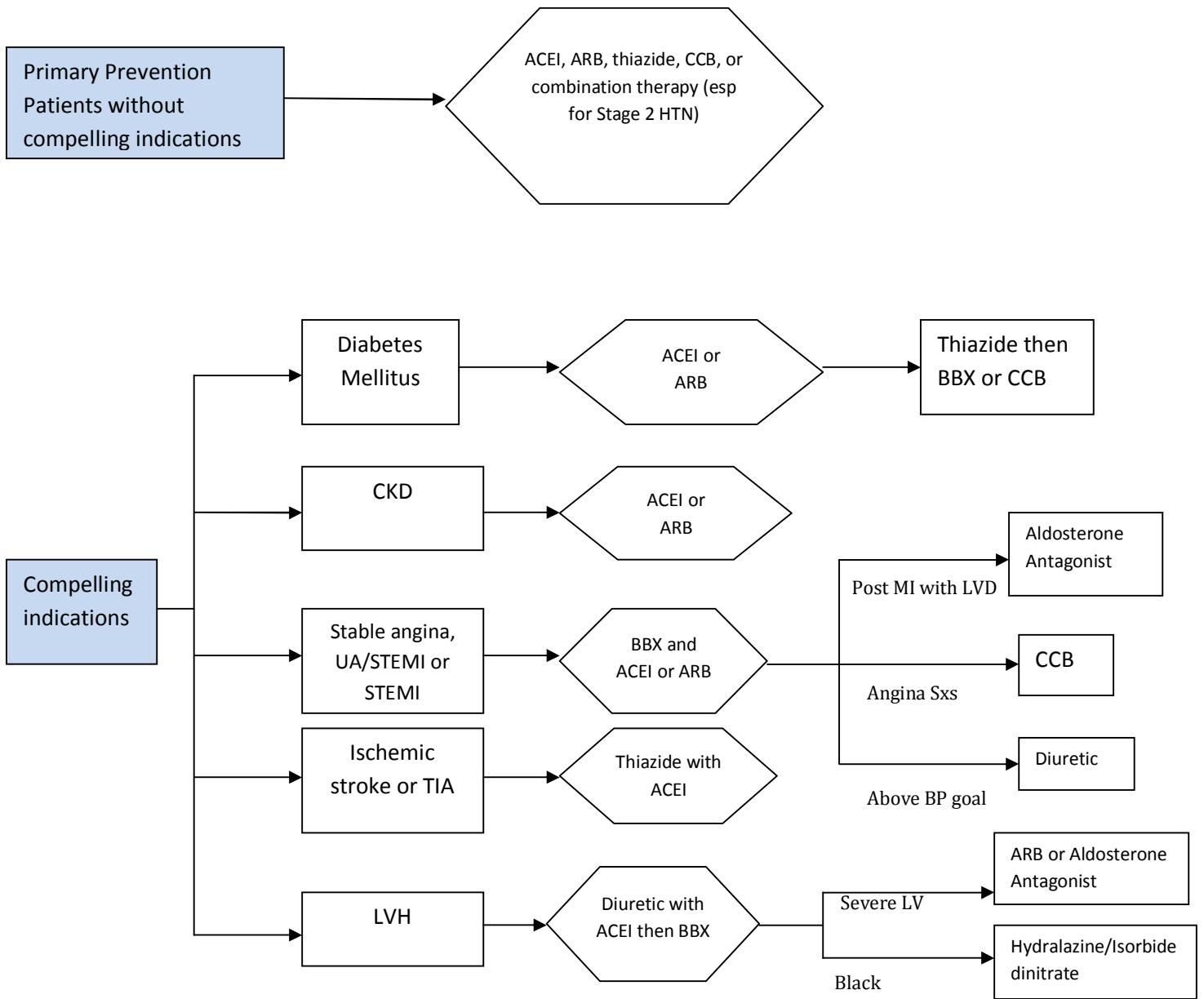
- xix. Recommend follow-up appointments for 1-4 weeks if patient not at goal or medication adjustments have been made. Otherwise patient will return 2-6 months or on an as-needed basis. The pharmacist will refer the patient back to provider once blood pressure stabilizes and remains at goal for 6 months. In the event the pharmacist suspects resistant HTN, the patient will be referred back to the physician.
 - 1. Resistant hypertension is defined as blood pressure that remains elevated above goal despite optimal 3 drug treatment regimen. Potential causes include non-adherence to medications and secondary causes of hypertension (ie renal dysfunction).
- xx. Ensure that the patient sees their primary care provider at least yearly and more frequently as warranted.

IV. Documentation of Activities

- a. The referring provider will complete a program referral form and fax it to _____ clinic.
- b. The pharmacist will complete a progress note for each patient encounter using _____.
- c. For each visit, the pharmacist will record:
 - i. Subjective/objective information
 - ii. Assessment and Plan
- d. Following each visit, the pharmacist will fax the visit note to the referring provider.

Appendix 1: Core Regimen Selections³

(Recommendations based on JNC 7 and AHA hypertension guidelines)



From: Saseen JJ. Hypertension. In: Crouch, MA. Cardiovascular Pharmacotherapy. ASHP. Bethesda, MD. 2010.

Appendix 2

Table 1: Initial Visit Protocol

Assessment	Plan
Not on drug therapy BP not at goal, but <160/100	See Appendix 1 for treatment options Initiate medications at low doses and titrate if needed Review lifestyle modifications
Not on drug therapy BP \geq 160/100	Consider starting dual therapy Review lifestyle modifications
Non-adherence to regimen	Address reasons for non-adherence, adjust regimen if necessary, monitor for compliance
Patient taking 1-2 antihypertensive medications BP not at goal, but <160/100	Increase dose of existing therapies or add another antihypertensive from another drug class Review lifestyle modifications
Patient taking 1-2 antihypertensive medications BP not at goal and >160/100	Increase dose of existing therapies and/or add another antihypertensive from another drug class Review lifestyle modifications
At goal, no barriers to ongoing medication adherence	Continue present treatment, monitor as appropriate, review lifestyle modifications

Table 2: Follow-up Visit Protocol

Assessment	Plan
BP < 10mmHg above goal	Assess adherence Continue to monitor, increase dose of current medication, or add another antihypertensive medication
BP \geq 10 mmHg above goal	Assess adherence Increase dose of current medication and/or add other antihypertensive agent(s).
Non-adherence to regimen	Address reason for non-adherence. Use available resources to improve compliance
If an intolerable side effect or allergic reaction occurs with newly initiated therapy	Discontinue offending antihypertensive Document allergy or intolerance Initiate antihypertensive agent from a different medication class
BP \geq 180/110 or uncontrolled on 3 blood pressure medications without significant improvement	Consult referring provider Can be referred to a hypertension specialist

Appendix 3^{6,8}

Medication Category	Medication Names	Dosing Range	Special Considerations
Thiazides	Hydrochlorothiazide Chlorthalidone Indapamide	12.5-25mg daily 12.5-25mg daily 1.25-2.5mg daily	Renal function and serum electrolytes are monitored within first 1-4 weeks when medications are initiated. Then at 8-12 weeks, 6 months, and then q 6-12 months. Physician consultation: hypo/hyperkalemia, hyponatremia, hyperuricemia, renal dysfunction
Potassium-sparing diuretics	Amiloride Triamterene Spironolactone Eplerenone	5-10mg qd-bid 50-100mg qd 25-100mg qd 50-100mg daily	Renal function and serum electrolytes are monitored within first 1-4 weeks when medications are initiated. Then at 8-12 weeks, 6 months, and then q 6-12 months. The risk of hyperkalemia increases when these agents are combined with other potassium sparing agents or potassium supplements. Those with diabetes, renal dysfunction and the elderly are patient populations with an increased risk of developing hyperkalemia. Physician consultation: hyperkalemia, renal dysfunction
Thiazide/ Potassium-sparing combination	HCTZ/Triamterene	37.5/75 or 25/50 daily	See above sections on thiazide and potassium sparing diuretics.
ACE-I	Benzapril Captopril Enalapril Fosinopril Lisinopril Moexipril Perindopril Quinapril Ramipril Trandolapril	10-40mg qd-bid 12.5-150mg bid-tid 5-40mg qd-bid 10-40mg qd 10-40mg qd 7.5-30mg qd-bid 4-16mg qd 10-80mg qd-bid 2.5-10mg qd-bid 1-4mg qd	Use of potassium supplements or potassium sparing agents can increase risk of hyperkalemia. Those with diabetes, CKD, or taking NSAIDs have an increased risk as well. Avoid in patients with bilateral renal artery stenosis or unilateral stenosis of a solitary function kidney. Discontinue if angioedema develops Monitor renal function and serum

ACEI (con't)			<p>electrolytes at baseline, within the first 1-4 weeks when medications are initiated. Then at 8-12 weeks, 6 months, and then q 6-12 months.</p> <p>Physician consultation: hyperkalemia, elevation of sCr > 25% from baseline after initiation of ACEI or ARB, acute renal failure, documented or suspected bilatery renal artery stenosis.</p>
ARBs	<p>Candesartan Eprosartan</p> <p>Irbesartan Losartan Olmesartan Telmisartan Valsartan</p>	<p>8-32mg qd-bid 600-800mg qd-bid</p> <p>150-300mg qd 50-100mg qd-bid</p> <p>20-40mg qd 20-80mg qd 80-320mg qd</p>	See above information for ACEI
Beta blockers	<p>Cardioselective Atenolol Bisoprolol Metoprolol tartrate Metoprolol succinate XL</p> <p>Non-selective Propranolol Propranolol LA</p> <p>Mixed α/β blockers Carvedilol Carvedilol CR Labetalol</p>	<p>25-100mg qd 2.5-10mg qd 100-400mg bid 50-200mg qd</p> <p>160-480mg bid 80-320mg qd</p> <p>12.5-50mg bid 20-80mg qd 200-800mg bid</p>	<p>A patient should have a baseline EKG before initiating BBX.</p> <p>Monitor for signs of cardiac decompensation, bradycardia, orthostatic hypotension, excessive dizziness, signs or symptoms of cardiac arrhythmias.</p> <p>Relative cardioselectivity is lost as dosages are increased. No agent is completely safe in patients with bronchospastic disease.</p> <p>Beta blockers must be tapered when discontinued. Abruptly stopping these medications can lead to increased anginal attacks and increased BP.</p> <p>BBX can mask the signs of hypoglycemia related to the blockade of the sympathetic nervous system. Patients may not become tachycardic, but will still experience diaphoresis.</p> <p>BBX can worsen Raynauds syndrome and PAD. Impotence and decreased libido may also occur.</p> <p>Physician consultation: patients with cardiac disease, pulmonary disease, peripheral vascular disease, bradycardia,</p>

			greater than first degree A-V block, patients taking verapamil or digoxin.
Calcium channel blockers	<p>Dihydropyridines Amlodipine Felodipine Nifedipine long-acting Isradipine Isradipine CR Nicardipine SR Nisoldipine</p> <p>Nondihydropyridines Diltiazem</p> <p>Verapamil</p>	<p>2.5-10mg qd 5-20mg qd 30-90mg qd 5-10mg bid 5-20mg qd 60-120mg bid 10-40mg qd</p> <p>Various dosage forms</p> <p>Various dosage forms</p>	<p>A baseline EKG should have a baseline EKG prior to initiating verapamil or diltiazem.</p> <p>Diltiazem and verapamil must be used with extreme caution if all in patients with conductive disturbances involving the SA or AV node.</p> <p>Physician consultation: Patients with bradycardia, greater than first degree A-V block, symptoms or diagnosis of LVH or worsening heart failure, patients taking digoxin or beta blockers.</p>
Alpha-blockers	<p>Doxazosin Prazosin Terazosin</p>	<p>1-8mg qhs 2-20mg bid-tid 1-20mg qd-bid</p>	<p>Alternative agents</p> <p>ALLHAT trial: doxazosin was shown to increase the risk of HF and CAD in predisposed patients.</p> <p>Can also improve the symptoms of BPH.</p> <p>Significant first dose orthostasis. First dose should be taken before bed.</p> <p>Physician consultation: patient with significant orthostatis, tachycardia, new or worsening HF, syncope or palpitations</p>
Centrally acting α_2 agonists	<p>Clonidine</p> <p>Methyldopa</p>	<p>0.1-0.8mg bid TTS – 0.1-0.3 weekly 250-1,000mg bid</p>	<p>Alternative agent</p> <p>Hypotension and dizziness most prominent after initiation and dosage increases.</p> <p>Physician consultation: patient on TCAs, or alcoholics</p>
Direct renin inhibitor	Aliskiren	150-300mg qd	Alternative agent

Appendix 4⁴

Modification	Recommendation	Average SBP reduction
Weight reduction	Maintain BMI 18.5-24.9	5-20mmHg/10kg weight loss
Adopt DASH diet	Consume diet rich in fruits, vegetables, and low fat dairy products.	8-14mmHg
Dietary sodium restriction	Reduce dietary sodium intake to less than 2.4 g of Na or 6 g of NaCl/day	2-8mmHg
Physical activity	Engage in regular aerobic exercise for at least 30 minutes per day, most days of the week	4-9mmHg
Moderation of alcohol consumption	Limit consumption of alcohol to not more than 2 drinks (1 oz of ethanol) per day for men and 1 drink per day in women or men of smaller stature.	2-4mmHg
Smoking cessation		

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