***Template*: Developing Nurse Standardized Procedure Use of Angiotensin-converting-enzyme Inhibitors and Angiotensin Receptor Antagonists for Management of Patients at High Risk for Cardiovascular Events**

Clinical Protocol: Nurse Co-management of patients at high risk of cardiovascular events

Effective date:

Policy & Procedure:

Revision date:

Last reviewed:

**Policy**

It is the policy of \_\_\_\_\_\_\_\_ Health Center to allow qualified RNs to co-manage patients ages 18 -75 years at high risk for cardiovascular events with angiotensin-converting enzyme inhibitors (ACEs) and angiotensin receptor antagonists (ARBs)

I. Procedure

A. Functions the RN may perform: collect subjective data (patient history), collect objective data (perform physical examinations), assess patient status, order and interpret labs, develop and implement treatment and educational plan of care

B. Scope: under the following circumstances the RN may perform function

1. Setting – within the clinic site

2. Supervision – the RN may operate independently within the constraints and criteria of this policy in partnership with mentoring physician(s) and the designated primary care physician to provide care under the protocol.

3. Patient criteria:

a. Patient has a designated primary care provider.

b. Patient is 18-75 years of age with diagnosis of atherosclerotic cardiovascular disease, current diabetes, LDL-C > 190mg/dL, triglycerides > 200, or level of estimated 10-year > 7.5% ASCVD risk (http://www.cvriskcalculator.com)

c. Patient does not have contraindications for ACE-I or ARB (Appendix II).

d. The patient’s baseline labs are within normal limits: Na+, K+ and Cr or eGFR, ALT (CMP)

e. The nurse has introduced her/himself utilizing correct title and explain role and the patient accepts RN co-management.

C. Definitions:

Atherosclerotic cardiovascular disease (ASCVD) – defined as previous heart attack, stroke (CVA), transient ischemic attack (TIA), previous abdominal aortic aneurysm (AAA or ‘triple A’) repair, known coronary artery disease (CAD), peripheral arterial disease (PAD)

Subclinical ASCVD includes asymptomatic coronary artery disease or peripheral artery disease, abnormal ankle brachial index (ABI) detected on screening

Low blood pressure – SBP<120 or DBP <70

Angiotensin-converting-enzyme inhibitors (ACE-I) – group of medications that inhibit angiotensin-converting enzyme, a component of the renin-angiotensin-aldosterone system producing vasodilation.

Angiotensin II Receptor Antagonists (ARBs) – group of medications that modulate the renin-angiotensin system by blocking activation of angiotensin II AT1 receptors, preventing the binding of angiotensin II.

*Champion –* primary care mentoring physician

D. Procedure for Nurse Practice

1. Subjective assessment

* Review relevant health history reported by the patient &/or documented in the EMR.
  + If history of hyperkalemia, consult with provider
* Identify contraindications to ACE-I or ARB use (Appendix II).
  + Women of childbearing age, confirm taking highly effective contraception
  + Evaluate medications for current ACE-I or ARB use (Appendix III)
* Conducted review of systems for contraindications
* Assess health habits: diet, exercise, alcohol intake, and tobacco use.

1. Objective assessment – check blood pressure

* If SBP<120, DBP<70, or orthostatic hypotension, consult with provider

1. Lab review: comprehensive metabolic panel (CMP) including Na+, K+ and Cr, within last 6 months
2. Assessment – increased risk for cardiovascular event
3. Plan

* Treatment goal = BP <140/90 mmHg
* Base treatment: ACE-I or ARB (Appendix I)
* Patient education:
  + Medication – risks/benefits, side effects, lifelong therapy
  + Lifestyle modifications should be addressed at every encounter:
* physical activity (30 minutes per day or 150 minutes a week)
* weight management (goal < 25 kg/m2)
* dietary choices – select foods low in saturated fats, high in mono and polyunsaturated and fiber
* Limiting alcohol consumption (<1 drink/day for women; <2 drinks for men)
* Smoking cessation

1. Patient follow-up

* Once goal is achieved, check within 3 months and check annually
* Order Cr, ALT, CK or Complete Metabolic Panel (CMP) to be drawn within next 1-3 months after initiating new medications, raising dose or suspecting side effects
* Consult with provider if K+> 5.5 mmol/dL or Cr >10% above baseline
* Order Hgb A1c, CMP and Lipid panel if not done in last 12 months
* In individuals with less than anticipated therapeutic response or intolerant of recommended intensity, evaluate and reinforce lifestyle changes, medication adherence; exclude secondary causes of hyperlipidemia
* If patient assessed to have possible side effects from ACE-I or ARB use, nurse to consult with a provider (Appendix II).

1. Record keeping of patient encounters – all patient care (BP, medications, lab work, and education) and verbal or telephone communications with the clinician, or patient/family shall be documented in the EMR.

II. Requirements for Registered Nurse

A. Preparation

1. Education/Licensure: nurse must be licensed as Registered Nurse in California and be in good standing with the Board of Registered Nursing (BRN).
2. Experience: a minimum of one year’s experience (full-time or 2080 hours) as an RN is required.
3. Training: nurse must successfully complete advanced training on subjective and objective evaluation of patients including ACE-I and ARB medications, patient education and implementation of the protocol.
4. Nurse must demonstrate knowledge of cardiovascular risk assessment, appropriate blood pressure measurement and interpretation of laboratory test results.

B. Evaluation

1. Initial: Three cases must be documented and reviewed with Champion each week for one month; followed by 3 cases per month for 3 months; then 6 cases per year. Nurse must demonstrate appropriate management of patients on ACE-I/ARBs. If primary care provider disagrees with management plan, cases will be reviewed with Champion. Evidence of successful completion will be documented and included in the nurse’s personnel file
2. Ongoing Evaluation: Annual competency evaluations will be conducted documenting the RNs ability to function appropriately under the protocol including clinical knowledge, skills/ procedures, appropriate consultation and documentation.

C. Supervision and Review

Roles and responsibilities of Registered Nurses working under the protocol:

1. RN must verify that patients have a designated primary care provider and that the patient meets the criteria for standardized procedure.
2. RN will collaborate and work in partnership with Champion and individual patient’s primary care physician to provide care under the protocol.
3. RN will introduce her/himself utilizing correct title and explain role
4. RN will collect subjective data (patient history), collect objective data (perform physical examinations), assess patient status, order and interpret labs, develop and implement treatment and educational plan of care
5. Documentation - RN will maintain record of patient encounters (in person, group, telephone) patient ID, complaints, assessment of adherence to meds, diet, exercise, pertinent lab results, plan for med changes, follow-up labs and visits; physician notification if needed

E. Roles and responsibilities of the Champion & the primary care physician:

1. Champions should be identified for each site and meet with PHASE consultant prior to implementation.
2. The Champion will assure a physician will be available when the nurse consultation or for the physician to see the patient, the patient requests to see the physician, and/or there is an onsite emergency.
3. Primary care physician is responsible for patient management. He/she will be available for consultation and collaboration with RN.
4. The physician will see the patient or review the care of each patient at least once a year and renew the patient specific medication order on an annual basis.

III. Development and Approval of the Standardized Procedure

A. Method – this procedure was developed using the most current guidance from the Board of Registered Nursing, American Academy of Family Practice and technical references from the PHASE program.

B. Review schedule – the procedure shall be assessed at 3 and 6 months following implementation and then annually.

**Appendix I:**

ACE-Inhibitors

Lisinopril 5-40mg daily

Angiotensin Receptor Antagonists (ARBs)

Losartan 25-100 mg daily

**Appendix II:**

Contraindications

Pregnancy

Women of childbearing potential not on a highly effective method of contraception [sterilization or Long Acting Reversible Contraception (LARC) preferred]

Patient is already taking an ACE-I, see list below.

Relative contraindications require consultation with provider: lab values for eGFR<30 or K>5.5, Stage 4 or 5 Chronic Kidney Disease

Relative Contraindications

ACE-I intolerance: due to cough or angioedema, consider prescribing ARB

Side Effects

ACE-I intolerance: cough, hypotension, hyperkalemia, angioedema (lip swelling, Short of Breath)

**Appendix III:**

* Make sure the patient is not already taking an ACE-I such as:
  + benazepril/Lotensin
  + captopril/Capoten
  + lisinopril/Prinivil or Zestril
  + enalapril/Vasotec
  + ramipril/Altace
* Make sure the patient is not already taking an ARB such as:
  + valsartan/Diovan
  + irbesartan/ Avapro
  + candesartan/Atacand
  + telmistartan/Micardis