1. **PRACTICE OUTCOME**
   1.1 To assess and treat chest pain appropriately in the primary care setting with available resources and to provide an emergency response based on best available evidence.

2. **DEFINITIONS**
   2.1 Angina / myocardial ischemia is defined as chest pain that occurs when insufficient oxygen is supplied to the muscle of the heart. It is often described as discomfort rather than pain, which is felt behind the sternum and may radiate to the neck, jaw, shoulder, or arms.

   **Typical angina** - pain or discomfort that is
   - substernal,
   - provoked by exercise and/or motion, and
   - relieved by rest and/or nitroglycerin.

   **Atypical angina** - pain or discomfort that has two of the three features listed for typical angina.

   Myocardial infarction (Heart attack) is defined as death of heart muscle, usually due to a sudden reduction in blood supply to part of the heart.

   **Non-anginal / non-ischemic chest pain** is defined as pain or discomfort that has one or none of the three features listed for typical angina. It should be emphasized that patients with chest pain that is atypical for angina may still be at risk for AMI (acute myocardial infarction).

3. **GUIDELINES**
   3.1 **Assessment**
   3.1.1 Onset: Sudden, with rapid progression of symptoms.

   Chest pain caused by angina or impending MI must be differentiated from non-ischemic chest pain. Non-ischemic pain may be caused by other severe conditions that require acute treatment, such as pericarditis, aortic dissection, and pulmonary embolism.

   For more details on assessment of chest pain NOT caused by ischemia, see “Nonischemic Causes of Chest Pain” on Page 3 attached.

   3.1.2 Usual Causes The major cause of unstable angina and heart attack is coronary artery disease (CAD). Coronary artery disease occurs when plaque builds up over years inside coronary arteries and reduces blood flow to the heart muscle.

   Triggers for angina or heart attack include physical exertion, emotional stress, exposure to very hot or cold temperatures, heavy meals, and smoking.
3.1 Assessment (continued)

3.1.3 Signs and Symptoms    Symptoms of angina:
• dull, aching substernal discomfort
• suffocating, heavy, or squeezing sensation
• pain radiating to arms, jaw, or scapular area
• nausea and vomiting
• shortness of breath
• *anxiety. Signs and symptoms of heart attack:
• may include symptoms of angina listed above
• main symptom is prolonged chest pain (>15 minutes)
• crushing or pressing sensation, continuous and not relieved by changes in position
• cold sweat
• apprehension – fear of “impending doom”
• may have bradycardia and hypotension, presenting as dizziness and fainting
• Levine’s sign – hand clutching at chest.

3.2 Intervention for angina or impending MI

1. POSITION PERSON TO REST in semi-upright position.
2. CALM the person.
3. MONITOR airway, breathing, and circulation (ABCs). Be prepared to provide CPR.
4. ADMINISTER OXYGEN at 4 litres/minute, maintain O₂ saturation >90%.
5. Inquire whether there is a history of aspirin allergy, or recent gastro-intestinal bleeding and withhold medication as necessary. ADMINISTER CHEWABLE ASA 324 mg. (For patient palatability, use four 81 mg baby aspirin tablets).
6. Inquire whether there is a history in the preceding 24 hours of use of phosphodiesterase (PDE) inhibitors, for example: sildenafil (Viagra), vardenafil (Levitra), tadafil (Cialis). If not, ADMINISTER NITROGLYCERIN SPRAY (400 micrograms/spray) every five (5) minutes up to 3 times. DO NOT SHAKE BOTTLE PRIOR TO ADMINISTRATION. Do not use nitrates in patients with hypotension (SBP <90 mm Hg or >30 mm Hg below baseline), extreme bradycardia (<50 bpm), or tachycardia (>100 bpm).
7. CHECK VITAL SIGNS (including pulse oximetry, if available) and record data.
8. IF PAIN DOES NOT SUBSIDE AFTER FIRST DOSE OF NITROGLYCERIN, call 911. Notify dispatcher that they may be responding to possible heart attack (MI).
9. INITIATE WRHA “General Emergency Protocol for Primary Care Setting”.
10. MONITOR THE ABCs, and provide basic life support as necessary until EMS arrives.
11. CONSULT WITH physician or RNEP for medication adjustment as required during and post event.
12. DOCUMENT THE EVENT, including physical assessment, interventions and client’s response to treatment.
4. EQUIPMENT/SUPPLIES REQUIRED
   4.1 Oxygen Adult and Pediatric Non-rebreather masks Extra Oxygen tubing AmbuBag
        Sphygmomanometer Stethoscope Baby ASA chewable 81-milligram tablets Nitroglycerin
        spray 400 microgram/spray Optional: Pulse oximeter

5. RESOURCES/QUICK REFERENCE SHEET
   5.1 RESOURCES/QUICK REFERENCE SHEET Nonischemic Causes of Chest Pain

6. SOURCE/REFERENCES
        http://circ.ahajournals.org/cgi/content/full/112/24_suppl/IV-89.
   6.3 Primary Care Management of Chronic Stable Angina and Asymptomatic Suspected or
        Known Coronary Artery Disease: A Clinical Practice Guideline from the American College
        http://www.acponline.org/clinical_information/guidelines/current/#acg.
   6.4 National Guidelines Clearinghouse (2005) Diagnosis and treatment of chest pain and
        acute coronary syndrome (ACS). Agency for Health Research and Quality. USA.
        =999.
        for Health Research and Quality. USA. Available at

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