 <p><b>PRIMARY CARE PRACTICE GUIDELINES</b></p>	<b>Practice Guideline:</b> Emergency Management of Chest Pain in the Primary Care Setting	<b>Guideline Number:</b> PCPG6
	<b>Approved By:</b> Program Mgmt Team - March 31, 2008 Community Mgmt Team – May 5, 2008	<b>Pages:</b> 1 of 5
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## 1. PRACTICE OUTCOME

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

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.<sup>1</sup>

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.<sup>2</sup>

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

#### 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

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## PRIMARY CARE PRACTICE GUIDELINES

- ♦ 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).<sup>3</sup>
6. Inquire whether there is a history in the preceding 24 hours of use of phosphodiesterase (PDE) inhibitors, for example: sildenafil (Viagra), vardenafil (Levitra), tadalafil (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).<sup>4</sup>
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

### 4. EQUIPMENT / SUPPLIES REQUIRED


- ♦ Oxygen Adult and Pediatric Non-rebreather masks
- ♦ Extra Oxygen tubing
- ♦ AmbuBag
- ♦ Sphygmomanometer

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- ♦ Stethoscope
- ♦ Baby ASA chewable 81-milligram tablets
- ♦ Nitroglycerin spray 400 microgram/spray
- ♦ Optional: Pulse oximeter

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

	Differentiating symptoms and signs
Reflux oesophagitis, oesophageal spasm	* Heartburn * Worse in recumbent position, but also while straining, like angina pectoris * The most common cause of chest pain
Pulmonary embolism	* Tachypnoea, hypoxaemia, hypocarbia * No pulmonary congestion on chest x-ray * Clinical presentation may resemble hyperventilation. * Pain is not often marked.
Hyperventilation	Hyperventilation Syndrome * The main symptom is dyspnoea, as in pulmonary embolism. * Often a young patient * Tingling and numbness of the limbs, dizziness
Secondary Hyperventilation	* Attributable to an organic illness/cause; acidosis, pulmonary embolism, pneumothorax, asthma, infarction, etc.
Spontaneous pneumothorax	* Dyspnoea is the main symptom. * Auscultation and chest x-ray
Aortic dissection	* Severe pain with changing localization * Type A dissection sometimes obstructs the origin of a coronary artery (usually the right) with signs of impending inferoposterior infarction * Pulses may be asymmetrical * Sometimes broad mediastinum on chest x-ray * New aortic valve regurgitation
Pericarditis	* Change of posture and breathing influence the pain. * A friction sound may be heard.
Pleuritis	* A stabbing pain when breathing. The most common cause of stabbing pain is, however, caused by prolonged cough
Costochondral pain	* Palpation tenderness, movements of chest influence the pain * Might also be an insignificant incidental finding
Early herpes zoster	* Rash * Localized paraesthesia before rash
Ectopic beats	* Transient, in the area of the apex
Peptic ulcer, cholecystitis, pancreatitis	* Clinical examination (inferior wall ischaemia may resemble acute abdomen)
Depression	* Continuous feeling of heaviness in the chest, no correlation to exercise
Alcohol-related	

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## 6. SOURCES/REFERENCES

- 6.1 American Heart Association. (2008). Part 8: Stabilization of the Patient With Acute Coronary Syndromes. Circulation. 2005;112:IV-89 – IV-110. Available at [http://circ.ahajournals.org/cgi/content/full/112/24\\_suppl/IV-89](http://circ.ahajournals.org/cgi/content/full/112/24_suppl/IV-89).
- 6.2 Heart Canada (2008). Angina. Available at <http://www.heartcanada.com/angina.php>
- 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 of Physicians (guideline). Ann Intern Med. 2004; 141:562-567. Available at [http://www.acponline.org/clinical\\_information/guidelines/current/#acg](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. Available at [http://www.guideline.gov/summary/summary.aspx?doc\\_id=10227&nbr=5390&ss=6&xl=999](http://www.guideline.gov/summary/summary.aspx?doc_id=10227&nbr=5390&ss=6&xl=999).
- 6.5. National Guidelines Clearinghouse (2008). Differential diagnosis of chest pain. Agency for Health Research and Quality. USA. Available at [http://www.guideline.gov/summary/summary.aspx?doc\\_id=6534](http://www.guideline.gov/summary/summary.aspx?doc_id=6534).

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<sup>1</sup> Heart Canada (2008). Angina. Available at <http://www.heartcanada.com/angina.php>.

<sup>2</sup> Heart Canada (2008). Angina. Available at <http://www.heartcanada.com/angina.php>.

<sup>3</sup> National Guidelines Clearinghouse. (2008). Diagnosis and treatment of chest pain and acute coronary syndrome (ACS). Available at [http://www.guideline.gov/summary/summary.aspx?doc\\_id=10227&nbr=5390&ss=6&xl=999](http://www.guideline.gov/summary/summary.aspx?doc_id=10227&nbr=5390&ss=6&xl=999)

<sup>4</sup> American Heart Association. (2008). Part 8: Stabilization of the Patient With Acute Coronary Syndromes. Circulation. 2005;112:IV-89 – IV-110. Available at [http://circ.ahajournals.org/cgi/content/full/112/24\\_suppl/IV-89](http://circ.ahajournals.org/cgi/content/full/112/24_suppl/IV-89)

<sup>5</sup> National Guidelines Clearinghouse (2008). Differential diagnosis of chest pain. Agency for Health Research and Quality. USA. Available at [http://www.guideline.gov/summary/summary.aspx?doc\\_id=6534](http://www.guideline.gov/summary/summary.aspx?doc_id=6534)