

## Acute Coronary Syndrome

1. Which one of the following is not considered a benefit of Chest Pain Center Accreditation?
  - a. Improved patient outcomes
  - b. Streamlined processes to allow for rapid treatment
  - c. Reduce costs and readmission rates
  - d. All of the above are benefits of Chest Pain Center Accreditation
  
2. EHAC stands for Early Heart Attack Care?
  - a. True
  - b. False
  
3. What is the primary cause of acute coronary syndrome (ACS)?
  - a. Exercise
  - b. High blood pressure
  - c. Atherosclerosis
  - d. Heart failure
  
4. Which one of the following is not considered a symptom of ACS?
  - a. Jaw Discomfort
  - b. Abdominal discomfort
  - c. Shortness of breath without chest discomfort
  - d. All of the above are considered symptoms of ACS
  
5. There are age and gender differences associated with signs and symptoms of ACS?
  - a. True
  - b. False

6. Altered mental status may be a sign of ACS in some individuals?
  - a. True
  - b. False
  
7. All of the following are considered modifiable risk factors for ACS except:
  - a. Smoking
  - b. Sedentary lifestyle
  - c. Age
  - d. High cholesterol
  
8. Heart attacks occur immediately and never have warning signs?
  - a. True
  - b. False
  
9. If someone is having a heart attack, which of the following is the best option for seeking treatment?
  - a. Wait a few hours and see if the symptoms resolve, if they do not, then call your physician
  - b. Drive yourself to the ED. You can get there faster since you know a short-cut
  - c. Call 9-1-1 to activate EMS immediately
  - d. Call a family member or neighbor to drive you to the ED
  
10. The goal for door to reperfusion is?
  - a. 10 minutes
  - b. 30 minutes
  - c. 90 minutes
  - d. 120 minutes

# Acute Coronary Syndrome

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Early Recognition and Action Save Lives

# Objectives

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- Review the standards of Chest Pain Center Accreditation
- State the importance of Early Heart Attack Care (EHAC)<sup>®</sup> and early EMS activation
- Discuss the definition and pathophysiology of Acute Coronary Syndrome (ACS)
- Recognize the signs and symptoms of ACS
- Recognize gender and age differences associated with ACS
- Identify the risk factors for ACS

# Chest Pain Center Accreditation

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- McLaren Bay Region was awarded the designation of Chest Pain Center with Primary PCI in September 2015 through the Society of Cardiovascular Patient Care.
- Philosophy on Accreditation:
  - Brings together various specialties including EMS, Emergency Medicine, and Cardiology
  - Includes clinicians, administrators, physicians, nurses, and quality improvement specialists
  - Improvement in clinical processes for early assessment, diagnosis, and treatment

# Chest Pain Center Accreditation

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Eight key elements of Accreditation:

- Community Education and EHAC®
- Emergency Department (ED) Integration with Emergency Medical Services (EMS)
- Emergency Assessment of Patients with Symptoms of ACS – Timely Diagnosis and Treatment
- Assessment of Patients with Low Risk for ACS and No Assignable Cause for Their Symptoms
- Process Improvement
- Personnel, Competencies, and Training
- Organizational Structure and Commitment
- Functional Facility Design

# Chest Pain Center Accreditation

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## Benefits:

- Improve patient outcomes
- Improve coordination of ACS patient care
- Standardization of diagnosis and treatment modalities
- Improvement in evaluation processes
- Streamline processes to allow for rapid treatment
- Reduce costs and readmission rates
- Improve patient satisfaction

# Early Heart Attack Care (EHAC)®

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- Public awareness campaign to increase education and understanding of the early heart attack symptoms in order to prevent damage from occurring
- A plea to the public to be responsible for themselves as well as others who may be experiencing symptoms
- Education on the benefits of early treatment and activating emergency medical services (EMS)
  - Care begins with 9-1-1 activation

# EHAC®

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- Approximately 735,000 people in the United States have myocardial infarctions (heart attacks) each year
- Approximately 50% displayed warning signs
- Alarming, 85% of heart damage occurs within the first two hours of a heart attack

**EHAC involves recognizing the warning signs of a heart attack  
and acting on them immediately before damage occurs**

Society of Cardiovascular Patient Care (2015). EHAC Brochure  
AHA (2015). Heart Disease and Stroke Statistics – 2015 Update

# Early Signs and Symptoms

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## May include

- Chest pressure, squeezing, aching, or burning sensation
- Feeling of fullness
- Jaw discomfort
- Excessive fatigue
- Shortness of breath
- Pain that radiates down one or both arms
- Anxiety
- Nausea
- Back discomfort

Society of Cardiovascular Patient Care (2015). EHAC  
Brochure

# Survive, Don't Drive...Call 9-1-1

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- Learn the early signs and symptoms of a heart attack
- Share EHAC with others
- Take the pledge



Society of Cardiovascular Patient Care (2015). EHAC Brochure

# EHAC Pledge

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I understand that heart attacks have beginnings that may include chest discomfort, shortness of breath, shoulder and/or arm pain, and weakness. These may occur hours or weeks before the actual heart attack.

I solemnly pledge that if it happens to me or anyone I know, I will call 9-1-1 or activate our Emergency Medical Services.

Society of Cardiovascular Patient Care (2015). EHAC Brochure

# Acute Coronary Syndrome (ACS)

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# What is Acute Coronary Syndrome?

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- An emergent condition characterized by sudden signs and symptoms of myocardial ischemia, or a sudden reduction of blood flow to the heart.
- ACS refers to the clinical symptoms of coronary heart disease which is the leading cause of death worldwide.
- Atherosclerosis is the primary cause of ACS.
  - A condition where plaque builds up in the arteries

# What is Acute Coronary Syndrome?

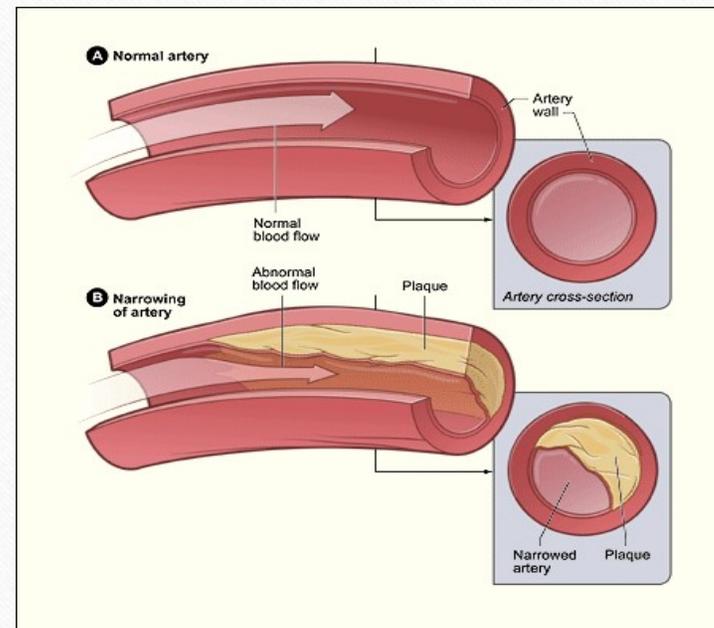
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- Most occurrences result from a disruption in blood flow from a non-critical lesion; however, ACS can result from physiologic stress that increased demand on the heart including:
  - Trauma
  - Tachyarrhythmia
  - Anemia
  - Blood loss
  - Infection

# Acute Coronary Syndrome

The ACS spectrum includes:

- Unstable Angina
- Non-ST-Segment Elevation MI (NSTEMI)
- ST-Segment Elevation MI (STEMI)



# Angina Pectoris

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- Stable Angina – term used for chest discomfort or pain that occurs when the heart does not get the amount of blood it needs.
  - Pressure, fullness, squeezing, or pain in the chest
  - Discomfort in the neck, jaw, back, shoulder, or arm
  - Occurs when the heart is required to work harder
    - Physical exertion or emotional stress
  - Generally lasts a for a short period of time and eases with rest or medication

# Angina Pectoris

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- Unstable Angina – ACS that causes an unexpected discomfort
  - May occur with little physical exertion, rest, or while sleeping
  - May last longer than stable angina
  - Rest or medication usually does not relieve the discomfort
  - May increase in severity and frequency
  - Should be treated as an emergency

# Myocardial Infarction

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Myocardial infarction occurs when blood flow to the heart is blocked.

- Interruption in blood flow can then cause damage to the heart muscle.
- Cardiac biomarkers (Troponin) are elevated along with evidence of myocardial ischemia including:
  - Symptoms of ischemia
  - ECG changes
    - New onset ST or T wave changes
    - New left bundle branch block (LBBB)
    - Pathological Q wave development
    - Wall motion abnormalities

# Myocardial Infarction

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## ST-Segment Myocardial Infarction (STEMI)

- ST segment elevation noted on ECG in two or more contiguous leads or new LBBB
- May be elevation in cardiac biomarkers

## Non-ST-Segment Myocardial Infarction (NSTEMI)

- ST segment depression and or T wave inversion noted on ECG
- Elevated cardiac biomarkers

# Signs and Symptoms of ACS

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People may experience one or a combination of the following symptoms:

- Chest discomfort including pain, pressure, tightness, squeezing, or fullness
- Discomfort in one or both shoulders or arms
- Shortness of breath with or without chest discomfort
- Jaw discomfort
- Back discomfort
- Abdominal discomfort
- Indigestion

# Signs and Symptoms of ACS

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- Nausea and/or vomiting
- Anxiety and/or restlessness
- Lightheadedness
- Cool, clammy, diaphoretic skin with pale appearance
- Palpitations
- Weakness
- Dizziness

# Signs and Symptoms of ACS

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- Not all people will experience the same symptoms of ACS
- Some may not experience any type of chest discomfort
- There are age and gender differences associated with ACS signs and symptoms and are more likely to present with atypical presentations
  - Elderly
  - Women
  - Diabetics

# Signs and Symptoms of ACS

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## Elderly

- Shortness of breath
- Weakness
- Lightheadedness
- Abdominal discomfort including nausea and vomiting
- Diaphoresis
- Altered mental status
  - Those with preexisting altered mental status or dementia may not recall recent symptoms

# Signs and Symptoms of ACS

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## Women

- Pressure, tightness, burning, aching, fullness in the chest, neck, jaw, back, or shoulder
- Fatigue
- Weakness
- Shortness of breath
- Abdominal discomfort
- Nausea and/or vomiting
- Dizziness

# Signs and Symptoms of ACS

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## Diabetics

- May experience silent myocardial ischemia
  - Cardiac autonomic dysfunction
- Epigastric discomfort
- Shortness of breath
- Dizziness

# Signs and Symptoms of ACS

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- It is extremely important to remember that people present differently with ACS signs and symptoms.
- Chest discomfort does not have to be present with ACS.
- Atypical presentations do occur.

# ACS Assessment and Diagnosis

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- Complete history and physical assessment including vitals
- Obtain 12-lead ECG
  - Goal – 10 minutes including interpretation
- Apply supplemental oxygen if warranted
- Ensure patent IV access
- Laboratory results
- Possible chest x-ray

# ACS Risk Factors

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- Both modifiable and non-modifiable risk factors for ACS.
- Modifiable risk factors are controllable, meaning we can do something to alter them.
- Non-modifiable risk factors are not controllable, or something that we can alter or change.

# Modifiable Risk Factors

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- Diabetes
- Dyslipidemia
- Hypertension
- Obesity
- Metabolic Syndrome
- Sedentary lifestyle
- Smoking
- Stress

# Non-modifiable Risk Factors

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- Age - increases risk
- Gender – males develop coronary heart disease at an earlier age
- Family history
- Ethnicity or race
- Known cardiovascular disease
  - Previous history of coronary heart disease, heart attack, stroke, or peripheral vascular disease

# Management of ACS

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Initial treatment focus:

- Stabilizing the patient
- Relieving the ischemic discomfort
- Providing antithrombotic therapy

# Management of ACS

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- Additional therapies include:
  - Percutaneous coronary intervention (PCI)
    - Invasive treatment for the occluded vessel
    - Goal – door to reperfusion time less than 90 minutes
  - Thrombolysis
    - Pharmacologic clot-buster
    - If immediate interventional cath lab is not available
    - Goal – door to needle time less than 30 minutes
- McLaren Bay Region's primary reperfusion strategy is PCI

# Rapid Response Team

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- A Rapid Response may be called to provide multidisciplinary care to a patient whose condition is deteriorating.
- Goal – early and rapid intervention to promote patient outcomes
- Call 22222 to initiate Rapid Response Team
- Overhead page announced including location

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# Image

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"Atherosclerosis diagram" by NHLBI -

[http://www.nhlbi.nih.gov/health/dci/Diseases/Hbc/HBC\\_WhatIs.html](http://www.nhlbi.nih.gov/health/dci/Diseases/Hbc/HBC_WhatIs.html). Licensed under Public Domain via Wikimedia Commons -

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