EMERGENCY DEPARTMENT STEMI ALGORITHM

EARLY RECOGNITION

- Chest Pain (CP) Acquire 12-lead ECG ≤ 10 mins
  - Yes
  - Patient is ≥ 18 years of age, AND Chest pain or equivalent consistent with myocardial infarction
  - No

STEMI Identification

- Time from onset of current episode of pain ≤ 12 hours, AND
  - 12 lead ECG: ST elevation is consistent with an acute STEMI:
    - At least 2 mm in leads VI-V3 in at least two contiguous leads, OR
    - At least 1 mm in at least two other anatomically contiguous leads, AND NOT
    - A Left Bundle Branch block (LBBB), ventricular paced rhythm, OR any other STEMI imitator (See Note 1)
  - Yes
  - Oxygen therapy is appropriate for patients who are hypoxemic or have evidence of cardiac ischemia;
  - Stable Hemodynamic status

STEMI Diagnosis & Initial Treatment

- Place on continuous cardiac monitor
  (apply defibrillator pads)
- Obtain vital signs and oxygen saturation (SaO2)
- Apply oxygen for SaO2 ≥ 90% (See Note 2)
- Intubate peripheral IV (left arm is the preferred site)
- Administer chewable Aspirin 162mg
- Nitroglycerin 1 spray (0.4mg) sublingual PRN for chest pain. May repeat every 5 minutes for a maximum of 3 sprays
- Morphine IV should only be given for severe chest pain unrelieved by nitro
- Perform a brief targeted history and physical exam

- Pharmacoinvasive strategy ≤ 24 hr:
  - Perform serial 12-lead ECGs at 15 minute intervals ≤ 3 AND continuous ST segment monitoring
  - Yes
  - If ST segment elevation detected reassess for STEMI

- Consult with Cardiologist
  - STEMI Not Detected
    - Notify PCI hospital of a “post fibrinolysis STEMI patient” confirming the highest priority
    - Provide transfer of care communication and documentation (See Note 4)
  - STEMI Not Detected
    - IP CP ≤ 12 hours, consider consultation with cardiologist or interventional cardiologist for patients with ongoing symptoms of cardiac ischemia, fibrinolysis not indicated
    - Continue to Stabilize Patient

ADDITIONAL NOTES

- Note 1: STEMI imitators:
  - Left bundle branch block (LBBB)
  - Ventricular paced rhythm
  - Pericarditis/Myopericarditis
  - Left ventricular hypertrophy (LVH)
  - Biogula syndrome
  - Benign early repolarization

- Note 2: Supplemental Oxygen Administration
  - Oxygen therapy is appropriate for patients who are hypoxemic, oxygen saturation ≤ 90%, and may have a salutary pleiotrophic effect in others. Supplementary oxygen may, however, increase extravascular interstitial oedema. Oxygen should be administered with caution to patients with chronic obstructive pulmonary disease and carbon dioxide retention.

- Note 3: Factors affecting the 60 minute time recommendation may include:
  - Partnership agreement between PCI and non-PCI hospital
  - External factors such as weather, road closures, etc.

- Note 4: Key Clinical Information Exchange to the Receiving Cardiologist or Interventional Cardiologist
  - Time of symptom onset
  - Qualifying ECG (copy of ECG with patient’s name)
  - ED Global Atrial Fibrillation (GAF) status
  - History of Atrial Fibrillation (AF)
  - Medications given and procedures
  - ED records
  - Paediatric ACR, if available
  - Transfer of accountability form

- Note 5: Fibrinolytic Absolute Contraindication
  - Any prior intra coronary hemodynamic
  - Known structural cerebral vascular lesion (e.g. aneurysm or malformation)
  - Known malignant intra cranial neoplasm (primary or metastatic)
  - Known malignant intra cranial metastasis
  - Known malignant intra cranial meningioma
  - Significant closed head or facial trauma within 3 months
  - Intracranial or intraspinal surgery within 2 months

- Note 6: Fibrinolytic Relative Contraindication
  - Discuss options with cardiologist at the PCI hospital when there is an anticipated prolonged transfer time
  - History of chronic, severe, poorly controlled hypertension on presentation (Systolic Blood Pressure > 160 mm Hg or Diastolic Blood Pressure > 110 mm Hg)
  - History of prior ischemic stroke > 3 months
  - Pregnancy
  - Active peptic ulcer
  - Oral anticoagulant therapy

Note: Produce 2016 by Cardiac Care Network