STEMI ALERT PLAN

Goal

Because STEMI outcomes are extremely time-sensitive with regard to PCI, the goal of the STEMI Alert is to reduce the time to identify STEMI and the time to perform percutaneous coronary intervention (PCI) in appropriate cases. The National Quality Forum (NQF) and the Hospital Quality Alliance (HQA) have endorsed *Hospital Compare* (a DHHS/CMS initiative), which reports that the top 10% of US hospitals can perform PCI in STEMI cases within 90-minutes of arrival over 90% of the time.

Activation Rule

The emergency nurse or physician should call a STEMI Alert whenever the ECG (prehospital transmission or ED) reveals 1 mm of ST elevation in two or more contiguous leads or a new LBBB. STEMI Alert should also be considered in cardiac arrest patients with return of spontaneous circulation. The STEMI Alert results in immediate notification of the interventional cardiologist and assembly of the cardiac catheterization team. It is important to realize that about 25% of activations will not require PCI.[i]

Prehospital ECG

The use of a 12-lead ECG in pre-hospital setting is strongly encouraged in all adult patients with chest pain though obtaining one should not delay transport. Ideally, the ECG can be transmitted to the ED for confirmation of STEMI.

ED ECG

The time to ECG is critical and should be obtained within 5 minutes of ED arrival on all adults presenting with chest pain. Note that it is necessary to regularly synchronize time clock on the ECG devices with the computer time.

Other ED Testing

Pertinent laboratory tests (i.e., CBC, BMP, troponin, coagulation profile) should be ordered. While a portable CXR is helpful, many cardiologists are comfortable making the angiographic diagnosis of thoracic aortic dissection at PCI and can then emergently consult a cardiovascular surgeon.

ED Treatment

Intravenous access should be obtained (ideally two though the second should not delay transfer to the catheterization lab). The patient should be placed on a cardiac monitor, administered supplemental oxygen, and receive normal saline at a "to keep open" rate. The emergency physician and nurse should assure aspirin (325 mg) has been given in the last 24 hours (unless contraindicated by allergy). The emergency nurse should anticipate metoprolol, nitroglycerin and heparin being given. The emergency department leadership, in conjunction with the cardiology leadership, should develop guidelines for the potential use of additional medications such as clopidogrel and glycoprotein IIa/IIIb inhibitors.

Data Collection

To facilitate STEMI Alert process improvement, the time each of the following occurred is recorded:

- pre-hospital notification/arrival (when applicable)
- triage and room assignment
- first ECG
- emergency physician evaluation
- STEMI Alert called
- catheterization team notified/arrived
- cardiologist notified/arrived
- patient in catheterization lab
- femoral artery accessed
- culprit coronary artery identified
- PCI performed

[i] Larson, DM, Menssen KM, Sharkey SW, et al. "False-positive" cardiac catheterization laboratory activation among patients with suspected ST-segment elevation myocardial infarction. *JAMA*. 2007;298:2754-2760.