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MEMORANDUM #2010-08

FROM: SVMCA – Office of the Medical Director

SUBJECT: ST-Segment Elevation Myocardial Infarction (STEMI)

POLICY: When patients are identified as experiencing a STEMI, receiving hospitals are to be immediately notified of a "STEMI Alert".

DEFINITIONS: STEMI = ST-segment Elevation Myocardial Infarction
Thrombolytics = medications (tPA, reteplace, streptokinase, etc..) which are administered and dissolve blood clots
PCI = Percutaneous Coronary Intervention. PCI is balloon angioplasty with or without stents, and Primary PCI refers to angioplasty done during a STEMI event.
CLASS I – Procedure/Treatment should be performed/ administered
CLASS IIa – Procedure/Treatment is reasonable to perform
CLASS IIb -- Procedure/Treatment may be considered
CLASS III -- Procedure/Treatment should not be performed/administered since it is not helpful and may be harmful
Level A (consistent high-quality evidence based on multiple, large randomized studies)
Level B (based on limited evidence from a single randomized trial or non-randomized studies)
Level C (based on expert opinion, case studies or standard of care)

PURPOSE AND RATIONALE:

A STEMI is a cardiac condition which warrants immediate treatment. It is diagnosed by a 12-lead ECG. The definitive treatment involves either thrombolytics or primary PCI. Recent research has shown that time is of the essence for good outcomes. If it can be done in less than 90 minutes, primary PCI is the treatment of choice. If not, then thrombolytics are indicated. EMS agencies throughout the country are encouraged to create systems that give pre-arrival notification to receiving hospitals.

GENERAL STIPULATIONS:

1. Patients older than 35 years who present with chest pain, syncope or near-syncope, dyspnea, epigastric abdominal pain should have a 12-lead ECG performed.
2. The SVMCA credentialed primary paramedic should interpret the ECG and determine if ST-segment elevation exists. (IIa-B) Receiving facilities should be immediately contacted and notified of the STEMI Alert—prior to transport.
3. ST-segment elevation greater than 0.1 mV in at least 2 contiguous precordial leads or at least 2 adjacent limb leads is diagnostic. (I-A)
4. Prehospital EMS providers should administer 162 to 325 mg of aspirin (chewed) to chest pain patients suspected of having STEMI unless contraindications exist or aspirin at this dose has already been taken by patient at home prior to EMS arrival. (I-C)

5. If the initial ECG is not diagnostic of STEMI but the patient remains symptomatic, and there is a high clinical suspicion for STEMI, serial ECGs at 5- to 10-minute intervals or continuous 12-lead ST-segment monitoring should be performed to detect the potential development of ST-segment elevation. (I-C)
6. Patients with ongoing ischemic discomfort should receive sublingual nitroglycerin (0.4 mg) every 5 minutes for a total of 3 doses, as per the chest pain protocol, after which an assessment should be made about the need for intravenous nitroglycerin. (I-C)
7. Intravenous nitroglycerin is indicated for relief of ongoing ischemic discomfort, control of hypertension, or management of pulmonary congestion. (I-C)
8. All STEMI patients should undergo rapid evaluation for reperfusion therapy and have a reperfusion strategy implemented promptly after arrival at the emergency department, (i.e., go straight to the cath lab). (I-A)
9. Are there contraindications to fibrinolysis? If ANY of the following are positive, fibrinolysis MAY be contraindicated:

Systolic BP greater than 180 mm Hg	Diastolic BP greater than 110 mm Hg
Right vs. left arm systolic BP difference greater than 15 mm Hg	History of structural central nervous system disease
Significant closed head/facial trauma within the previous three months	Recent (within six weeks) major trauma
Surgery (including laser eye surgery)	GI/GU bleed
Bleeding or clotting problem or on blood thinners	CPR greater than 10 minutes
Pregnant female	Serious systemic disease (e.g., advanced/terminal cancer, severe liver or kidney disease)

TEACHING POINTS:

1. Some medics have expressed concern that they will be in “trouble” if they incorrectly identify STEMI when it does not exist. Rest assured that the cath lab management at both Saginaw downtown facilities are prepared for a 5-10% over-triage rate. Once the patient arrives at a receiving facility, there are many time-consuming steps that must be taken to mobilize the team. Compliance with core measures is difficult to do under these circumstances and they would rather err on the side of the patient and be fully prepared for door-to-balloon in less than 60 minutes.
2. When you give a patient report, please tell the receiving facility which leads you see ST elevation (e.g., I have ST segment elevation in leads II, III and aVF with reciprocal changes in V5 and V6). This gives the receiving facility great confidence in your abilities.
3. Obtain the name of the patient’s **cardiologist** and tell the receiving hospital when they’re alerted. This is very important so they know exactly who to page.
4. As soon as you have identified a STEMI from looking at the strip, immediately notify the receiving facility (in other words, don’t delay your notification until you have gotten in the truck and begun to transport).