Chest Pain/Acute Coronary Syndrome

The goal is to reduce cardiac workload and to maximize myocardial oxygen delivery by reducing anxiety, appropriately oxygenating and relieving pain. For non-cardiac causes of chest pain, refer to appropriate protocol which may include **Pain Management Procedure.**

1. Follow **General Pre-Hospital Care Protocol.**
2. Administer oxygen 4 L/min per nasal cannula if pulse oximetry is not available. Oxygen is only required if pulse oximetry SaO2 < 94%.

3. Assist patient in the use of their own aspirin (if MCA approved, and patient not allergic to aspirin, administer aspirin up to 325 mg). Aspirin should be chewed and swallowed.

☑ MCA selection for MFR ☑ MCA selection for EMT

4. Inquire of all patients (male and female) if they have taken Viagra (sildenafil citrate) or similar erectile dysfunction medications or medications used to treat pulmonary hypertension in the last 48 hours. If yes, DO NOT ADMINISTER NITROGLYCERIN AND CONTACT MEDICAL CONTROL.
5. Assist patient in the use of their own Nitroglycerin sublingual tabs (check expiration date), if available, and if the patient's systolic BP is above 120 mmHg, for a maximum of 3 doses.

6. Administer aspirin up to 325 mg PO, chew and swallow if no aspirin or suspected insufficient dose since the onset of chest pain.
7. Start an IV NS KVO. If the patient has a BP of less than 100 mmHg, administer an IV/IO NS fluid bolus up to 1 liter wide open, in 250 ml increments and reassess.
8. Inquire of all patients (male and female) if they have taken Viagra (sildenafil citrate) or similar erectile dysfunction medications or medications used to treat pulmonary hypertension in the last 48 hours. If yes, DO NOT ADMINISTER NITROGLYCERIN AND CONTACT MEDICAL CONTROL.
9. Administer nitroglycerin 0.4 mg sublingual if BP is above 100 mmHg. Dose may be repeated at 3 to 5 minute intervals if chest pain persists and BP remains above 100 mmHg. Nitroglycerin may be administered prior to IV placement if the BP is above 120 mmHg.

10. Obtain 12-lead ECG if available. Follow local MCA transport protocol if ECG is positive for acute ST Elevation Myocardial Infarction (STEMI) and alert the hospital as soon as possible. (Per MCA selection, may be a BLS procedure, follow **12 Lead ECG Procedure**)

11. For patients with suspected cardiac chest pain refractory to Nitroglycerin, consider Fentanyl 1 mcg/kg IV/IO (IN, if available). Maximum single dose 100 mcg, may repeat one time. Total dose may not exceed 200 mcg.

The goal is to reduce cardiac workload and to maximize myocardial oxygen delivery by reducing anxiety, appropriately oxygenating and relieving pain. For non-cardiac causes of chest pain, refer to appropriate protocol which may include **Pain Management Procedure.**

Follow **General Pre-hospital Care Protocol**

Administer oxygen 4 L/min per nasal cannula if pulse oximetry is not available. Oxygen is only required if pulse oximetry SaO2 < 94%.

Assist patient in the use of their own aspirin (if MCA approved, and patient not allergic to aspirin, **administer** aspirin up to 325 mg). Aspirin should be chewed and swallowed.

Aspirin: ☑ MCA selection for MFR ☑ MCA selection for EMT

Taken ED or pulmonary HTN meds <48 hrs?

Yes

DO NOT ADMINISTER NTG

Contact Medical Control

No

Assist patient in the use of their own Nitroglycerin, if available, and BP above 120 mmHg, for a maximum of 3 doses.

IV Access and administer fluid bolus (250 ML)
Titrate to BP >100mmHg

Inquire of all patients (male and female) if they have taken Viagra (sildenafil citrate) or similar erectile dysfunction medications or medications used to treat pulmonary hypertension in the last 48 hours. If yes, DO NOT ADMINISTER NITROGLYCERIN AND CONTACT MEDICAL CONTROL.
Administer nitroglycerin 0.4 mg sublingual if BP is above 100 mmHg. Dose may be repeated at 3 to 5 minute intervals if chest pain persists and BP remains above 100 mmHg. Nitroglycerin may be administered prior to IV placement if the BP is above 120 mmHg.

Obtain 12 Lead
If STEMI, alert receiving facility
Follow local transport protocol

For patients with suspected cardiac chest pain refractory to Nitroglycerin, consider Fentanyl 1 mcg/kg IV/IO (IN, if available). Maximum single dose 100 mcg, may repeat one time. Total dose may not exceed 200 mcg.

Contact Medical Control

MCA Name: Bay County MCA
MCA Board Approval Date: 02/26/2018
MCA Implementation Date: 05/01/2018
Protocol Source/References:

S-T Elevation Myocardial Infarction (STEMI) – Supplemental Protocol

This protocol is meant as a supplement to the **Chest Pain/Acute Coronary Syndrome Protocol** (2-5) and gives specific direction to field providers when a patient is identified as suffering an S-T Elevation Myocardial Infarction (STEMI).

Pre-Medical Control
MFR/EMT/SPECIALIST/PARAMEDIC

1. Patients experiencing chest pain or other symptoms indicative of an acute coronary syndrome shall be treated as per the **Chest Pain/Acute Coronary Syndrome Protocol** and should be evaluated for a STEMI using a 12-lead EKG as soon as possible.

EMT/SPECIALIST

2. BLS units should not delay the transport of the possible STEMI patients. ALS intercept shall occur as soon as possible in the direction of the destination facility. On the rare occasion ALS intercept is not available, transportation to the closest appropriate facility capable of timely evaluation and stabilization should occur.

PARAMEDIC

3. All patients experiencing chest pain/discomfort or anginal equivalent shall have a 12-lead ECG performed (**12-Lead ECG Procedure**). The goal for performing a 12-lead ECG is within 5 minutes of initial patient contact.
4. 12-lead ECGs that are positive for a STEMI are defined as:
    a. ST elevation of $\geq$ 1mm in two or more contiguous leads,
5. Once a STEMI has been identified through associated symptoms and by field interpretation of the 12-lead ECG, a "STEMI ALERT" will be initiated. *Note: "STEMI ALERT" is based on the signs/symptoms observed and the 12-lead ECG analysis as performed by the paramedic. Transmission of the ECG is not required to activate the STEMI ALERT and should not be performed unless it can be done without any delay to the treatment or transport of the patient.*
    a. Notification to the PPCI facility via radio utilizing "STEMI ALERT" as the initial keywords shall occur as soon as possible. The goal for notifying the receiving facility is within 10 minutes of patient contact.
    b. Transport to a Primary Percutaneous Coronary Intervention (PPCI) capable facility shall be the priority. Non-PPCI facilities will be bypassed unless the expected transport time to a PPCI facility is anticipated to be greater than 60 minutes, or the patient is unstable.
    c. Key information to be relayed to the PPCI facility in the verbal report:
        i. Signs and symptoms
        ii. Onset time
        iii. 12-lead ECG findings with description of elevated leads and interpretation of injury area (i.e. anterior, inferior, lateral, etc.). Also note any reciprocal changes.

iv. Name of cardiologist; if the patient has an established history
v. Treatment given, results of treatments, and vitals
vi. Estimated time of arrival

6. The **Chest Pain/ACS Protocol** shall be the guide for the treatment of the STEMI patient. The following are guidelines specific to STEMI ALERT patients:
   a. Intravenous (IV) access shall be as proximal as possible.
      i. Antecubital sites are preferred but the upper forearm region is acceptable.
      ii. IVs should not be placed in the hand or the wrist. IV placement in these areas will inhibit PCI through the radial artery.
   b. Sublingual nitroglycerin intervals of 3-5 minutes (preferably 3 minutes) shall be adhered to as long as the patient experiences chest discomfort and does not meet the avoidance criteria (see iii below) as per the **Chest Pain/ACS Protocol**.
      i. If intervals of 3-5 minutes are not obtainable, consider a nitroglycerin drip as per the **Nitroglycerin Drip Supplement**.
      ii. When transports exceed 30 minutes, a nitroglycerin drip should be considered.
      iii. **Nitroglycerin Avoidance for Inferior Walls.**
         1. Inferior Walls ST elevation Leads 2,3 and AVF.
         2. Avoid with SBP < 90 mm Hg or if SBP > 30 mm Hg below baseline.
         3. Avoid if recent (24 to 48 hour) use of 5'-phosphodiesterace inhibitors.

   c. Narcotic analgesics can be considered in conjunction with nitroglycerin therapy.
      i. Morphine is the preferred analgesic (see **Pain Management Procedure**)
      ii. Narcotic analgesics are not meant to replace nitrates and thus nitroglycerin should continue as long as the patient has discomfort.
   d. Serial 12-lead ECGs shall be performed at regular intervals as long as it does not delay transport or treatment.
7. On arrival, the receiving facility will be provided with the field 12-lead ECGs, treatment notes, and all other pertinent information before EMS leaves the patient.
   a. In many cases, the patient will remain on the EMS stretcher and proceed directly to the catheterization lab without being transferred in the Emergency Department.