SAN FRANCISCO EMERGENCY MEDICAL SERVICES AGENCY

Effective: 01/07/13 **Protocol: P-010**
Supersedes: 9/1/11

CHEST PAIN / ACUTE CORONARY SYNDROME

INFORMATION NEEDED

- Assess discomfort or pain: OPQRST, previous episodes.
- Assess associated symptoms: Weakness, nausea, vomiting, diaphoresis, dyspnea, dizziness, palpitations, "indigestion", syncope, or altered level of consciousness.
- Medical history (cardiac history, other medical problems, including hypertension, diabetes or stroke).
- Recent use of erectile dysfunction drug (see PRECAUTION AND COMMENTS).

OBJECTIVE FINDINGS

- General appearance: level of distress, skin color, diaphoresis.
- Signs of CHF (peripheral edema, respiratory distress, distended neck veins).
- Lung sounds.
- Interpretation of EKG rhythm, 12 lead if available.
- Assessment of pain on a 1-10 scale.

BLS Treatment	ALS Treatment - INITIAL
• Routine Medical Care. • Reassure patient and place in position of comfort or supine if patient is hypotensive. • Provide O2 if patient is dyspneic, hypoxic, or has obvious signs of heart failure.	• MINIMIZE ON SCENE TIME. MINIMIZE TIME TO 12-LEAD ECG. • Cardiac monitoring. • Give **Aspirin** 81 mg x 4 PO (chewable) for total 324 mg. • Titrate O2 to SaO2 of 94-95% if hypoxic. • Obtain 12-Lead EKG prior to administration of additional medications if practical. Repeat 12-Lead every 10" and/or if changes in symptoms or ECG abnormal. • If STEMI is suspected, transport patient to a designated STEMI Receiving Hospital (See EMS Policy 5000 Destination). See Notification below. • If dysrhythmias are present and persist after treatment above, see DYSRHYTHMIA Protocol P-014.

ALS Treatment – ON-GOING
• IV NS access with large bore (18 gauge). • For continued chest pain, give **NTG** 0.4 mg sublingual spray or tablet. Repeat q 5 min. if SBP $\geq$ 90 mmHg. • HOLD NTG for patients with known or suspected inferior wall AMI OR if patient has taken any erectile dysfunction drug [see PRECAUTIONS AND COMMENTS].

- If discomfort persists; consider **Morphine Sulfate** 2-4 mg slow IVP. Repeat as indicated if SBP ≥90 mm Hg to maximum dose of 20 mg.
- Consider **Ondansetron ODT** 8 mg dissolved on the tongue or **Ondansetron** 4 mg IV/IM for nausea/vomiting. May be repeated q 20" to a maximum dose of 12 mg.
- If hypotension develops, give 500 ml IV NS fluid bolus. If hypotension persists after fluid bolus, consider **Dopamine** 5 to 20 mcg/kg/min IV infusion. Titrated to SBP ≥ 90 mm Hg.

BASE HOSPITAL CONTACT CRITERIA

- Additional treatment of on-going pain when SBP < 90.

DEFINITION OF ST-ELEVATION MYOCARDIAL INFARCTION (STEMI)

1. EKG shows ST segment elevation of at least 1 mm in two contiguous leads; AND/OR the EKG Reading is
   - ***ACUTE MI***
   - ***STEMI SUSPECTED***
2. Other similar language; AND/OR
3. Paramedic interprets EKG as a STEMI.

NOTIFICATION OF STEMI RECEIVING HOSPITAL

As soon as possible, notify the STEMI Receiving Facility about an in-coming patient with the following STEMI ALERT:

- 12 Lead-EKG machine interpretation and paramedic interpretation of the 12-Lead EKG.
- Proceed as usual with radio report.
- If available, transmit the 12-lead wirelessly.

DOCUMENTATION

- Cardiac rhythm: Initial baseline and changes along with description of patient signs and symptoms.
- Document on each printed 12-Lead EKG: patient name, age, DOB, time and any patient complaints.
- V4R print out (if done): patient name, age, DOB, time and any patient complaints.
- Time **Aspirin** given unless allergy documented.
- Vital signs before/after **NTG** administration.
- If **NTG** is withheld, state reason (hypotension, known or suspected inferior wall AMI, or use of erectile dysfunction drug; See PRECAUTIONS AND COMMENTS).
- Time of notification of STEMI Receiving Hospital.

PRECAUTIONS AND COMMENTS

- Consider other potential causes of chest pain such as pulmonary embolus, pneumonia, aortic aneurysm and pneumothorax.

- Suspicion of Acute Coronary Syndrome (non-STEMI or unstable angina) is based upon patient history. Be alert to patients likely to present with atypical symptoms or "silent" AMIs: women, non-white races, elderly, and diabetics.

Using 12-Lead ECG to Determine Safety of Nitroglycerin Administration

1. Determine presence of ST elevation in leads II, III and aVf. If ST elevation is present, then apply V4R lead.
2. If ST elevation in V4R, do NOT give **NTG** (in order to maintain RV filling pressure).
3. If no ST elevation in V4R, it is safe to give **NTG**.

Hold Nitroglycerin for Erectile Dysfunction Drugs

Do not administer **NTG** to patients who have taken any erectile dysfunction drug within the following time frames:

• Sildenafil	(Viagra, Revatio)	< 24 hours
• Tadalafil	(Cialis, Adcirca)	< 72 hours
• Vardenafil	(Levitra, Staxin)	< 72 hours

Hypotension and Cardiogenic Shock

- If fluid challenge/replacement or drug administration is required, place large bore IV with rapid infusion of NS if appropriate.
- Give **Morphine Sulfate** slow IVP to avoid respiratory depression and/or hypotension. Be ready to support ventilations and have **Naloxone** available.