Chest Pain: Suspected Cardiac or STEMI

History
- Age
- Medications
- Past medical history (e.g. MI, angina, diabetes, CAD, HTN, hyperlipidemia)
- Recent physical exertion
- **P**rovocation
- **Q**uality (e.g. pressure, constant, sharp, dull, etc.)
- **R**egion/Radiation/Referred
- **S**everity (0 – 10 scale)
- **T**ime (onset/duration/repetition)

Signs and Symptoms
- Chest pain
- Shortness of breath
- Pale, cool, diaphoretic
- Nausea, vomiting
- Hypotension or shock
- Possible bradycardia
- Syncope

Atypical presentations for elderly patients
- Epigastric pain
- Generalized weakness

Differential
- Acute coronary syndrome (MI, unstable angina)
- Pulmonary embolus
- Aortic dissection
- Pericarditis
- Pneumothorax
- Pneumonia
- Tamponade

Designated STEMI Receiving Centers

John Muir – Concord
John Muir – Walnut Creek
Kaiser – Walnut Creek
San Ramon Regional
Sutter Delta

Approved Out Of County STEMI Receiving Centers

Highland
Kaiser – Vallejo
MarinHealth
ABMC – Summit – Oakland
Kaiser – Oakland
SHC – ValleyCare

Primary assessment indicates chest pain or signs/symptoms consistent with cardiac ischemia

E	**Oxygen** Titrate to $SpO_2 \geq$ 94%
P	Cardiac monitor
P	12-lead ECG

Definition of STEMI
> 1mm ST segment elevation in inferior, or
> 2mm ST segment elevation in anterior or lateral leads,
In 2 or more contiguous leads
(See 12-Lead Procedure)

STEMI? — **No** / **Yes**

Yes

P	Immediate transmission of 12-lead to STEMI receiving facility
P	Make STEMI ALERT notification and initiate transport to STEMI receiving facility

E	**Aspirin 324mg PO**	
P	Establish IV/IO	
P	If initial SBP > 90 **Nitroglycerin 0.4mg sublingual** May repeat every 5 minutes as needed. Maximum 3 doses. Use caution and consider base contact if HR >120 prior to administration. Do not administer if patient has taken erectile dysfunction drugs (e.g. Viagra, Levitra) within the last 24 hours or (e.g. Cialis) within 36 hours.	
P	If SBP <90 or drops >30 from baseline after NTG Withhold further NTG administration and **Normal Saline bolus 500ml IV/IO** May repeat as needed Maximum 1L	*Consider **Fentanyl 25 – 200mcg IV titrated in 25 – 50mcg increments*** for pain relief if SBP > 90

Notify receiving facility. Contact Base Hospital for medical direction, as needed.

Adult Cardiac Treatment Guidelines

Treatment Guideline AC08

CONTRA COSTA HEALTH EMERGENCY MEDICAL SERVICES

Effective Jan. 2023

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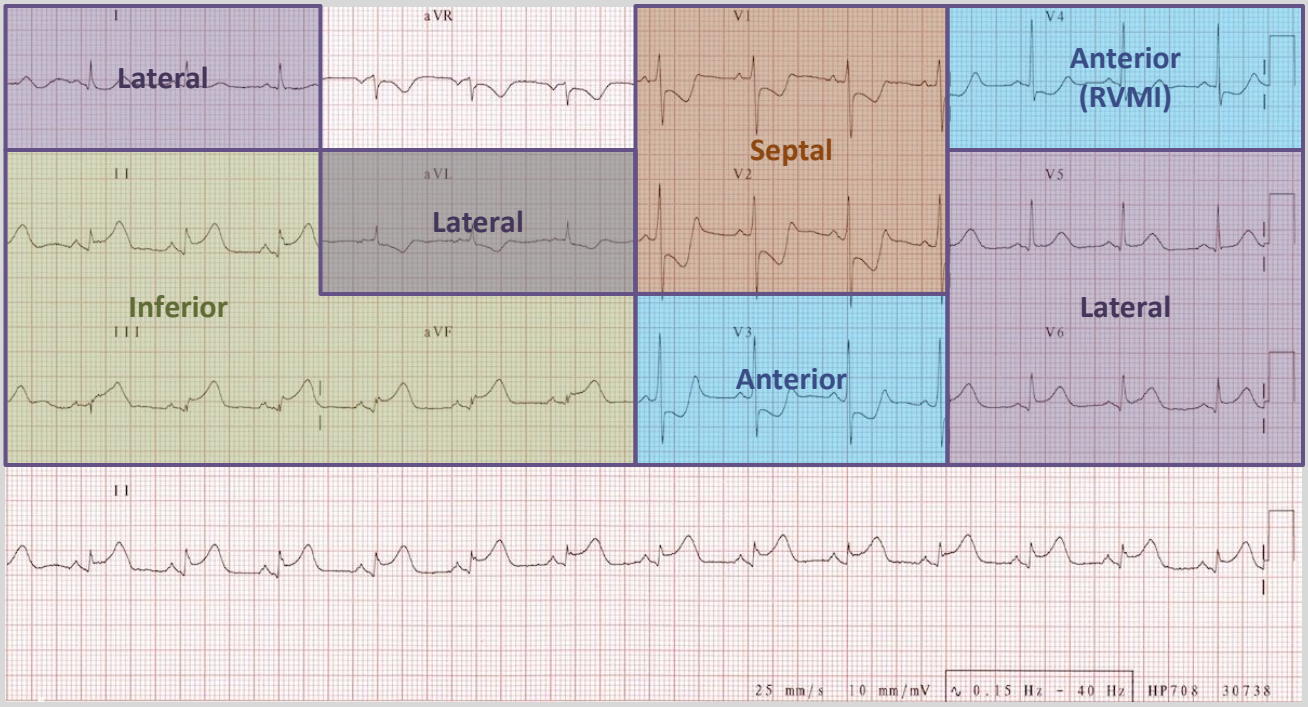

ST Elevation in 2 or more leads: Leads II, III, aVF → Inferior wall MI (vessel likely RCA or LCx)
ST Elevation in 2 or more leads: Leads I, aVL, V_5, V_6 → Lateral wall MI (vessel likely LCx or LAD branch)
ST Elevation in 2 or more leads: Leads V_1, V_2 → Septal wall MI (vessel likely LCx or LAD branch)
ST Elevation in 2 or more leads: Leads V_3, V_4 → Anterior wall MI (vessel likely LCx or LAD branch)

**Look for ST DEPRESSION in reciprocal leads (opposite wall) to confirm diagnosis.
**Isolated ST elevation in aVR with ST depression in all other leads should raise suspicion for a proximal LAD Artery injury or Left Main Coronary Artery abnormality. This is not STEMI criteria, but the 12-Lead ECG should be transmitted to the ED for consultation. Consider transport to a STEMI receiving center.

Further Direction

- Transmit all 12-Lead ECGs whether STEMI is detected or not.
- Document 12-Lead ECG acquisition and transmission times along with interpretation in the PCR.

Pearls

- Many STEMIs evolve during prehospital care and may not be noted on the initial 12-Lead ECG.
- An ECG should be obtained prior to treatment for bradycardia if patient condition permits.
- If a patient has taken their own Nitroglycerin without relief, consider potency of medication. Provider maximum doses do not include patient administered doses.
- Monitor for hypotension after administration of nitroglycerin and opioids.
- Diabetics, geriatric, and female patients often have atypical pain (e.g. epigastric pain, r-sided chest pain, jaw pain), or only generalized complaints (e.g. weakness, nausea/vomiting, sweating). Suspect cardiac etiology in these patients, and perform a 12-Lead ECG.

Adult Cardiac Treatment Guidelines