

SAN FRANCISCO EMERGENCY MEDICAL SERVICES AGENCY

Effective: 01/07/13

Protocol: P-009.4

Supersedes: New

ADULT POST-CARDIAC ARREST or RETURN OF SPONTANEOUS CIRCULATION (ROSC)

INDICATION

- See CARDIAC ARREST: OVERVIEW Protocol (P-009)
- See CARDIAC ARREST: PEA Protocol (P-009.2) to review potential causes of cardiac arrest

OBJECTIVE FINDINGS

- Palpable pulse.
- If patient's mental status improves to be able to follow commands, treat problems using relevant protocols: CHEST PAIN / ACUTE CORONARY SYNDROME Protocol (P-010), DYSRHYTHMIAS Protocols (P-014.3 and 014.4) or others as needed
- If patient does NOT follow commands, continue treatment as listed below
- ETCO₂ may increase from low level to 35-45 mm Hg.

BLS Treatment	ALS Treatment
<ul style="list-style-type: none">• Routine Medical Care.• Confirm ROSC with palpable pulse and blood pressure.• Continue CPR if needed.• Provide supplemental O₂.• Repeat BP q 5 min if possible.• Assist paramedic with application of ECG, SaO₂, and capnometry.• Begin Therapeutic Hypothermia as directed by paramedic<ul style="list-style-type: none">○ Apply Ice Packs (see below)	<ul style="list-style-type: none">• Secure and Confirm Airway<ul style="list-style-type: none">○ If ETT or supraglottic airway, confirm placement using ETCO₂ detection device (disposable CO₂ detector); see ORAL ENDOTRACHEAL / SUPRAGLOTTIC Protocols (P-004.1 and P-004.2).• Ventilate at 10-12 BPM:<ul style="list-style-type: none">○ Titrate O₂ to minimum necessary to achieve SpO₂ ≥ 94%.○ When feasible, titrate ventilations in order to achieve PETCO₂ 35-45 mm Hg .• Treat Hypotension (SBP <90 mm Hg):<ul style="list-style-type: none">○ 2 large-bore peripheral IVs .○ Give 1000 mL NS.○ If pt remains hypotensive (SBP <90), start Dopamine IV at 10 mcg/kg/min. Titrate to SBP ≥90 mm Hg.○ If therapeutic hypothermia is indicated, use chilled saline as available (see below).• Check Blood Glucose:<ul style="list-style-type: none">○ 25 grams D50W if < 60 mg/dl.• Immediate transport to STAR Center per Destination Policy 5000.

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	<ul style="list-style-type: none">• Obtain 12 Lead ECG. If STEMI, contact STAR receiving hospital per CHEST PAIN / ACUTE CORONARY SYNDROME Protocol (P10).• If patient does NOT follow commands, begin Therapeutic Hypothermia if criteria met (see PRECAUTIONS AND COMMENTS):<ul style="list-style-type: none">○ Apply Ice Packs AND/OR Infuse 30 mL/Kg of Normal Saline chilled to 3° C (66 Kg = 2 L) using 300 mm/Hg pressure infusion sleeve(s) or BP cuff.○ Stop all forms of active warming (maintain modesty) and consider turning off cabin heat.○ If shivering and SBP ≥ 90, treat with Midazolam 5 mg IM or 2.5 mg slow IV push to a maximum dose of 5 mg (may be repeated every five minutes).
BASE HOSPITAL CONTACT CRITERIA	
<ul style="list-style-type: none">• Contact for benzodiazepines if hypotensive .	

NOTIFICATION OF STAR/STEMI RECEIVING HOSPITAL

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

- ROSC and/or 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

- Level of consciousness.
- Vital signs should be documented every 5 minutes or as needed.
- Indication for ALS or BLS airway management.
- Treatment given for hypotension.
- Cardiac rhythm and 12-lead ECG documentation.

PRECAUTIONS AND COMMENTS: DYSRHYTHMIA TREATMENT

- Only treat premature ventricular contractions (PVCs) and persistent VT in patient with ROSC by using oxygen. Do NOT give **Amiodarone**.

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- If **Amiodarone** was given during the cardiac arrest, observe patient after ROSC for signs of hypotension (SBP <90 mm Hg) and prolonged QT intervals.
- **Narrow-complex tachydysrhythmias** should NOT be treated in post-cardiac arrest settings unless associated with hypotension (SBP <90 mm Hg) or symptoms of poor perfusion; see DYSRHYTHMIA: NARROW COMPLEX TACHYCARDIA Protocol (P-014.3).
- If **wide-complex tachydysrhythmias** present, see DYSRHYTHMIA: WIDE COMPLEX TACHYCARDIA Protocol (P-014.4).
- If **bradycardia** present, see DYSRHYTHMIA: BRADYCARDIA Protocol (P-014.1).

PRECAUTIONS AND COMMENTS: THERAPEUTIC HYPOTHERMIA

INDICATIONS:

- Age 18 and over.
- ROSC sustained for a minimum of 5 minutes after arrest.
- Patient does NOT follow commands (unresponsive and GCS < 8).
- Systolic blood pressure \geq 90 mm Hg.
- SpO₂ > 85%.
- Blood glucose > 50 mg/dL.

CONTRAINDICATIONS:

- Responsive post arrest with GCS \geq 8, and/or rapidly improving GCS.
- Traumatic cardiac arrest.
- Pregnancy.
- Do Not Resuscitate (DNR) Status.
- Patients with known bleeding diathesis or with active ongoing bleeding .
- Patients with significant known liver disease.
- Core temperature \leq 32°C (90°F), if taken by staff at a sending facility.

ICE PACK LOCATIONS

Apply 5 ice packs to the following areas:

- 2 to sides of head
- 1 at each carotid artery in neck.
- 1 at each axilla.
- 1 at each femoral artery in groin.