Sierra – Sacramento Valley EMS Agency Program Policy			
Paramedic Interfacility Transport (IFT) Optional Skills			
	Effective: 10/01/2026	Next Review: 07/2029	**841**
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PURPOSE:

To establish parameters for the utilization of the following paramedic interfacility transport (IFT) optional skills:

A. Monitoring of magnesium sulfate, nitroglycerin, heparin, and/or amiodarone infusions.

B. Monitoring of blood transfusions.

C. Utilization of automatic transports ventilators (ATVs).

D. Utilization of high-flow nasal cannula (HFNC) therapy.

AUTHORITY:

A. HSC, Div. 2.5, § 1797.220.

B. CCR, Title 22, Ch. 3.3.

POLICY:

A. Only appropriately trained paramedics who are on duty with an S-SV EMS approved paramedic IFT optional skills provider may utilize paramedic IFT optional skills.

B. Monitoring of magnesium sulfate, nitroglycerin, heparin, and/or amiodarone infusions:

1. Patients will have pre-existing infusions that have been running for at least 10 minutes prior to transport. Paramedics will not initiate infusions.

2. Patients should have maintained stable vital signs for the previous 30 minutes and will have no more than two (2) medication infusions running, except for potassium chloride concentrations authorized under the paramedic basic scope of practice.

C. Monitoring of blood transfusions:

1. Paramedic monitoring of blood transfusions is limited to circumstances when there are no RN staffed Critical Care Transport/Specialty Care Transport (CCT/SCT) units available or when air ambulance transport is not appropriate/available.

2. Patients will have pre-existing blood transfusions in peripheral or central IV lines prior to transport. Paramedics will not initiate blood transfusions.

D. Utilization of ATVs:

1. Patients will be on ventilator support prior to transport. Paramedics will not initiate ventilator support.
2. Provider agencies utilizing ATV equipment shall follow the manufacturer instructions for use, maintenance, cleaning, and regular testing. At a minimum, ATV equipment shall undergo annual preventative testing/maintenance by qualified manufacturer's representative personnel.
3. Paramedics must be adequately trained/retrained on the specific ATV equipment utilized by the provider agency. Such training shall occur no less than annually and shall be documented.

E. Utilization of HFNC therapy:

1. Patients will be on HFNC therapy prior to transport. Paramedics will not initiate HFNC therapy.
2. Provider agencies utilizing HFNC equipment shall follow the manufacturer instructions for use, maintenance, cleaning, and regular testing. At a minimum, HFNC equipment shall undergo annual preventative testing/maintenance by qualified manufacturer's representative personnel.
3. Paramedics must be adequately trained/retrained on the specific HFNC equipment utilized by the provider agency. Such training shall occur no less than annually and shall be documented.

PROCEDURE:

A. Monitoring of magnesium sulfate, nitroglycerin, heparin, and/or amiodarone infusions:

1. All patients shall be maintained on a cardiac monitor, and a non-invasive blood pressure monitor throughout transport.
2. The paramedic shall receive written orders from the transferring physician prior to leaving the transferring hospital. These orders shall include a telephone number where the transferring and/or base/modified base hospital physician can be reached during transport, in addition to the type of solution, dosage and rate of infusion. These written orders shall be attached to the completed PCR.
3. Patients will be hemodynamically stable at time of transport.
4. If medication administration is interrupted, the paramedic may restart the infusion as delineated in the transfer orders.
5. All infusions, except for potassium chloride concentrations authorized under the paramedic basic scope of practice, will be monitored by a mechanical pump familiar to the paramedic and shall be verified with the sending RN following changeover to the mechanical EMS transport pump. In cases of pump malfunction that cannot be corrected, the infusion shall be discontinued and the transferring

physician and/or base/modified base hospital notified as soon as possible. S-SV EMS shall be notified of any mechanical pump malfunction no later than the end of the next business day.

6. The paramedic shall document in the PCR the total volume infused throughout the duration of the transport.
7. Magnesium sulfate infusion parameters:
    a. Regulation of the infusion rate will be within parameters defined by the transferring physician.
    b. If the patient develops signs/symptoms of magnesium toxicity, the medication drip shall be discontinued, and the transferring physician and/or base/modified base hospital will be notified as soon as possible. Signs/symptoms of magnesium toxicity include:
        i. Thirst.
        ii. Diaphoresis.
        iii. DTR's (Deep Tendon Reflexes) – depressed or absent.
        iv. Hypotension.
        v. Flaccid paralysis.
        vi. Respiratory depression.
        vii. Circulatory depression or collapse.
        viii. CNS depression.
        ix. Urine output <30 ml/hr.
        x. Chest pain or pulmonary edema.
    c. Vital signs, including DTR's, shall be monitored and documented every 15 minutes and any time there is a change in patient condition or medication adjustment.
8. Nitroglycerin infusion parameters:
    a. Infusion fluid will be D5W.
    b. Medication concentration will be 50 mg/250 mL.
    c. Regulation of the infusion rate will be within parameters defined by the transferring physician, but in no case will changes be greater than 10 mcg/ minute increments every 5 - 10 minutes. In cases of severe hypotension, the medication drip will be discontinued, and the transferring physician and/or base/modified base hospital will be notified as soon as possible.

d. Vital signs shall be monitored and documented, at a minimum, every 15 minutes and any time there is a change in patient condition or medication adjustment.

9. Heparin infusion parameters:

   a. Infusion fluid will be D5W or NS.

   b. Medication concentration shall not exceed 100units/mL of IV fluid (25,000 units/ 250 mL).

   c. Infusion rates will remain constant during transport. No regulation of the rate will be performed by the paramedic except to turn off the infusion completely.

   d. Vital signs shall be monitored and documented, at a minimum, every 15 minutes and any time there is a change in patient condition.

10. Amiodarone infusion parameters:

    a. Medication concentration must be a minimum concentration of 150 mg/250 mL (0.6 mg/mL).

    b. Infusion rates may vary between 0.25 - 1 mg/min.

    c. Infusion rates will remain constant during transport. No adjustment of the rate will be performed by the paramedic except to turn off the infusion completely.

    d. Vital signs will be monitored and documented, at a minimum, every 15 minutes and any time there is a change in patient condition.

    e. Y-Injection incompatibility; the following will precipitate with amiodarone hydrochloride:

       i. Heparin.

       ii. Sodium bicarbonate.

    f. Amiodarone hydrochloride intravenous infusion monitoring is not approved for patients less than 14 years old without base/modified base physician contact.

    g. For infusions greater than one hour, amiodarone hydrochloride concentrations should not exceed 2 mg/mL unless a central venous catheter is used.

B. Monitoring of blood transfusions:

1. All patients will be maintained on a cardiac monitor, waveform capnography and a non-invasive blood pressure monitor throughout transport.

2. The paramedic shall receive written orders from the transferring physician prior to leaving the transferring hospital. These orders shall include a telephone number where the transferring and/or base/modified base hospital physician can be reached during the patient transport in addition to the transfusion rate. These written orders shall be attached to the completed PCR.

3. Patients will be hemodynamically stable at the time of transport.
4. Paramedic personnel must be knowledgeable in the operation of the specific blood delivery/warming equipment.
5. Regulation of the transfusion rate will be within the parameters defined by the transferring physician.
6. Verify the patient and blood with the sending RN by checking the patient ID band against the blood label(s) and blood order for name, blood type and unit identifying number.
7. Vital signs will be monitored and documented, at a minimum, every 15 minutes and any time there is a change in patient condition or change in transfusion rate.
8. Monitor the patient for any signs and symptoms of a transfusion reaction. Monitor temperature for adverse effects if transport time exceeds 15 minutes. The following are the most common types of transfusion reactions that may occur:
    a. Hemolytic reactions: Hemolytic reactions are the most life-threatening. Clinical manifestations may vary considerably: fever, headache, chest or back pain, pain at infusion site, hypotension, nausea, generalized bleeding or oozing from surgical site, shock. The most common cause is from ABO incompatibility due to a clerical error or transfusion to the wrong patient. Chances of survival are dose dependent therefore it is important to stop the transfusion immediately if a hemolytic reaction is suspected. Administer a fluid challenge.
    b. Febrile non-hemolytic reaction: Chills and fever (rise from baseline temperature of 1°C or 1.8°F). Document and report to hospital on arrival.
    c. Allergic reaction: Characterized by appearance of hives and itching.
    d. Anaphylaxis: May occur after administration of only a few ml's of a plasma containing component. Symptoms include coughing, bronchospasm, respiratory distress, vascular instability, nausea, abdominal cramps, vomiting, diarrhea, shock, and loss of consciousness.
    e. Volume overload: Characterized by dyspnea, headache, peripheral edema, coughing, frothy sputum, or other signs of congestive heart failure occurring during or soon after transfusion. Restrict fluid.
9. If a suspected transfusion reaction occurs:
    a. Stop the transfusion immediately.
    b. Contact the transferring and/or base/modified base hospital physician.
    c. Consult appropriate treatment protocol(s).
    d. Document any suspected transfusion reactions.
    e. Report to hospital staff immediately upon arrival.

10. The paramedic shall document in the PCR the total volume infused throughout the duration of the transport.

C. Utilization of ATVs:

1. Written transfer orders from the transferring physician shall be obtained prior to transport. These orders must provide for maintaining and adjusting ventilations via ATV settings during transport and shall include a telephone number where the transferring and/or base/modified base hospital physician can be reached during the patient transport. These written orders shall be attached to the completed PCR.
2. Ventilator support must be regulated by an ATV familiar to the paramedic.
3. If an ATV equipment failure occurs and cannot be corrected, the paramedic shall discontinue use of the ATV, initiate ventilation by bag-valve device, and notify the transferring physician and/or base/modified base hospital as soon as possible. S-SV EMS shall also be notified of any ATV failure by the end of the next business day.
4. Paramedics shall continually observe the patient and document patient response to any changes while the ATV is operational.
5. Initial ATV settings and any subsequent changes shall be documented in the PCR.
6. The paramedic is responsible for airway management and must frequently reassess tracheostomy/endotracheal tube placement, including after each patient movement.
7. Non-invasive BP monitoring equipment shall be utilized. Vital signs shall be monitored and documented every 15 minutes and any time there is any change in patient condition or adjustment of the ATV setting.
8. Continuous pulse oximetry, waveform capnography, and cardiac monitoring shall be maintained throughout transport, and values/rhythms shall be documented every 15 minutes and any time there is a change in patient condition.
9. The ATV equipment must be able to match the existing ventilator settings, and shall include the following minimum features (including circuit):
    a. Modes:
        i. Assist Control (AC).
        ii. Synchronized Intermittent Mandatory Ventilation (SIMV).
    b. Ventilation rate control.
    c. Tidal volume control.
    d. FiO_2 control.
    e. Positive End-Expiratory Pressure (PEEP) control.

f. Inspiratory (I) time control.

g. Peak airway pressure gauge.

h. Alarms:

i. Peak airway pressure.

ii. Disconnect.

D. Utilization of HFNC therapy:

1. Written transfer orders from the transferring physician shall be obtained prior to transport. These orders must provide for maintaining and titrating flow (LPM), FiO2 and SpO2 goals for HFNC therapy during transport and shall include a telephone number where the transferring and/or base/modified base hospital physician can be reached during the patient transport. These written orders shall be attached to the completed PCR.

2. HFNC therapy must be administered utilizing HFNC equipment familiar to the paramedic.

3. If a HFNC equipment failure occurs and the paramedic is unable to maintain HFNC therapy, the paramedic shall discontinue use of HFNC therapy, provide appropriate oxygenation/ventilation support, and notify the transferring physician and/or base/modified base hospital as soon as possible. S-SV EMS shall also be notified of any HFNC equipment failure by the end of the next business day.

4. Paramedics shall continually observe the patient and document patient response to treatment and any changes while the HFNC equipment is operational.

5. Initial HFNC settings and any subsequent changes shall be documented in the PCR.

6. The paramedic is responsible for airway management and must frequently reassess respiratory effort for effectiveness of HFNC therapy.

7. Non-invasive BP monitoring equipment shall be utilized. Vital signs shall be monitored and documented every 15 minutes and any time there is any change in patient condition or adjustment of the HFNC equipment settings.

8. Continuous pulse oximetry and cardiac monitoring shall be maintained throughout transport, and values/rhythms shall be documented, at a minimum, every 15 minutes and any time there is a change in patient condition.