ALAMEDA COUNTY
EMERGENCY MEDICAL SERVICES

2020 CCP
FIELD MANUAL

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2020 Alameda County EMS
Critical Care Paramedic (CCP) Field Manual

CCP policies and protocols should be used as guidelines and are not intended as a substitute for sound medical judgment. Unusual patient presentations make it impossible to develop a policy or protocol for every possible patient situation.

CRITICAL CARE PARAMEDIC (CCP) – PROGRAM STANDARDS

1. PURPOSE

The Critical Care Paramedic Program has been developed to provide a means of transferring patients who require, or who may require, care within the CCP Scope of Practice during transfer. CCP units may be used to transfer patients from or to acute care facilities, or other medical facilities approved by the EMS Medical Director.

Alameda County EMS authorizes and contracts with interested ambulance providers that meet the training, staffing, equipment and oversight requirements for providing this level of service and that agree to comply with program standards. Program authorization may be denied or withdrawn for failure to comply with program standards or failure to submit required fees.

(California Health and Safety Code, Division 2.5, 1797.214; California Code of Regulations, Title 22, Chapter 4 § 100142, 100144, 100145, 100148, 100155, 100166, 100168, 100172, 100173; Alameda County EMS, Policy #2000)

2. STAFFING

A CCP unit is a fully equipped advanced life support ambulance, staffed with a minimum of two (2) qualified staff that includes at least one (1) Critical Care Transport Paramedic

2.1 **Critical Care Paramedic Accreditation**

Paramedics assigned to CCP units shall meet the following minimum qualifications:

- 2.1.1 Current California Paramedic License
- 2.1.2 Current Board of Critical Care Transport Paramedic Certification (BCCTPC)
- 2.1.3 At least two (2) years of full-time field experience as a paramedic in an ALS system
- 2.1.4 Completion of an approved CCP Training Program (Title 22, Ch. 4 *§100137*) OR at the discretion of the EMS Medical Director, equivalent education (as specified in Title 22, Ch. 4, *§100155 (b)*) and/or experience in critical care transport
- 2.1.5 Alameda County Paramedic Accreditation in accordance with Policy #2000
- 2.1.6 Successful completion of EMS Agency Approved provider education orientation and skills competency testing specific to scope of practice skills used on critical care interfacility transfers (Title 22, Ch. 4, *§100146(1)(S)*)

2.2 **Emergency Medical Technician (EMT) Personnel**

EMTs assigned to CCP units shall meet the following minimum qualifications:

- 2.2.1 Current and valid EMT certification in California
- 2.2.2 Current provider status in Healthcare Provider BLS
- 2.2.3 Successful completion of EMS Agency approved training program specific to skills used to assist CCP with patient care during ALS interfacility transfers

2.3 Employer shall provide the EMS Agency with a list of all staff working on a CCP unit and shall see that this list is updated whenever there is a change in personnel

2.4 Employer shall retain on file, always, copies of current and valid credentials for all personnel performing services under this program

3. MEDICAL DIRECTION

Personnel assigned to a CCP unit work under the existing medical control system and follow local LEMSA EMS policies and procedures, as approved by the EMS Medical Director

3.1 CCP Scope of Practice

The CCP Scope of Practice includes each of the County's Basic and Local Optional Scopes of Practice for paramedics listed in the Alameda County EMS Prehospital Care Manual. In addition, CCPs have an expanded scope that includes the administration of medications and procedures as outlined in the CCP field manual.

- Set up and maintain thoracic drainage systems
- Set up and maintain mechanical ventilators
- Set up and maintain IV fluid delivery pumps and devices
- Blood and blood products*
- Glycoprotein IIB/IIIA inhibitors*
- Heparin IV*
- Nitroglycerin IV*
- Norepinephrine*
- Thrombolytic agents*
- Maintain total parenteral nutrition*

*These medications are CCP basic scope of practice if CCP has completed a Critical Care Paramedic training program as specified in (*Title 22, Ch.4, §100146(1)(S), §100155 (b)*)

3.2 Transferring Physician Orders

The transferring physician specifies standing orders for a patient based on skills and medications included in the County CCP scope of practice.

3.2.1 Clearly written physician orders are preferred and must be uploaded into the electronic patient care record (ePCR)

3.2.2 Clearly written physician orders may be obtained from the hospital's medication administration record and must be uploaded into ePCR

3.2.3 In special circumstances (e.g. private home responses) verbal physician orders may be written down and read back to assure clarity. Document physician orders in ePCR.

3.3 Patient Care Outside of the Paramedic Scope of Practice

3.3.1 When a patient's treatment/care is beyond the CCP scope of practice, that patient may be transported by a CCP unit only when:

3.3.1.1 A licensed medical professional (e.g. RN, Nurse Practitioner, Nurse-midwife, PA or MD) is in attendance and assumes control and responsibility for providing patient care outside the Paramedic Scope of Practice; AND

3.3.1.2 Medication or equipment needed by the patient that is not stocked on the ambulance unit are provided by the sending facility or a CCP program's CCT-RN unit

3.3.2 Accompanying licensed medical personnel providing care function under their own written standing orders/protocols and document any care provided

3.4 **Exceptional Situations**

3.4.1 **Critical patients and "on views":** If the CCP unit either responds to a private request for a transport and finds a patient that requires immediate ALS care, or "on-views" an emergency scene, the CCP:

3.4.1.1 Shall notify the Alameda County Regional Communications Center (ACRECC)

3.4.1.2 Shall provide appropriate patient care, which may include any indicated ALS Interventions following appropriate EMS Field Treatment Guidelines

3.4.1.3 May initiate transport of acute patients in accordance with Alameda County EMS Field Policy "Transport Guidelines"

3.4.2 **Patient deterioration during transport:** If the CCP unit responds to a private request for transport and the patient begins to deteriorate after transport has begun, personnel shall:

3.4.2.1 Provide appropriate care that may include any indicated ALS interventions following appropriate EMS Field Treatment Guidelines

3.4.2.2 Make base hospital contact if required by EMS protocol

3.4.2.3 Divert to a closer facility if necessary and appropriate, based on patient condition and base hospital direction. CCP personnel shall submit a written report fully explaining the circumstances of any exceptional situations including those described above together with a copy of the patient care report and related dispatch records to the EMS Agency within 24 hours of the incident.

4. STANDARD OF CARE

4.1 All patients shall be placed on continuous EKG, NIBP, and SpO2 Monitoring.

4.2 End-tidal CO2 Monitoring:

4.2.1 Shall be utilized for all ventilated patients

4.2.2 Is strongly recommended for non-intubated patients at high risk for airway or ventilation compromise

4.3 Vitals shall be recorded at a minimum of every 15 minutes for all patients and every five minutes for patients on vasoactive medications being titrated

4.4 Infusions must be regulated by a mechanical pump familiar to the CCP. If a pump failure occurs and cannot be corrected, the CCP is to discontinue the infusion and notify the transferring physician or the base physician if the transferring physician is not available.

4.5 Medications within the paramedic's scope of practice and protocols normally given by IV push but being administered via infusion pump may be transported if parameters for the infusion are obtained and understood by the CCP

4.6 If medication administration is interrupted (infiltration, accidental disconnection, malfunctioning pump, etc.), the CCP may restart the line

5. DOCUMENTATION

5.1 **Electronic Patient Care Report (ePCR)**

An ePCR format of which has been approved by Alameda County EMS Agency shall be accurately completed on each patient

5.1.1 The ePCR shall contain available and relevant information regarding call demographics, patient assessment, care rendered, and patient response to care

5.1.2 A copy of or access to the patient's ePCR shall also be available to the receiving facility prior to departing the facility

5.1.3 If base contact is initiated, a copy of or access to patient's ePCR shall be available to the base hospital within 24 hours

6. CCP STAFF PREPARATION AND COURSE APPROVAL PROCESS

6.1 Submit a Paramedic Interfacility Transfer Program, complete checklist, and supporting documentation to the EMS Agency for approval at least two weeks prior to the course start date

6.2 **CCP interfacility didactic and clinical education requirements**

6.2.1 Education shall be conducted in accordance with the standards for CCPs as specified in Title 22, Chapter 4, §100155 (b)

6.3 **Critical Care Emergency Medical Technician**

6.3.1 A minimum of 750 hours of clinical field experience as an EMT must be achieved before working as a Critical Care Transport EMT

6.3.2 Minimum eight (8) hours didactic and clinical instruction specific to the skills needed to assist a single paramedic in-patient care delivery during Expanded Scope of Practice Paramedic Interfacility Transfer calls

6.3.3 Method for assessing successful course achievement/evaluation must be described.

6.3.4 Principal instructor of paramedic training must be CCP, registered nurse or physician knowledgeable in the subject matter

6.3.5 Course to include:

6.3.5.1 **Role of the Critical Care EMT:**

- Critical Care vs. BLS system
- EMTALA
- COBRA
- EMT scope of practice

6.3.5.2 **Infusion Pumps:**

- Operation of and troubleshooting
- Discussion of various pumps that may be encountered

6.3.5.3 **Indwelling Tubes: (The following should be discussed, described, and preferably demonstrated and/or viewed)**

Urinary:

- Foleys
- Suprapubic
- Nasogastric

6.3.5.4 **Non-invasive Monitoring**

- NIPB
- Pulse Oximetry
- Capnography

6.3.5.5 **12 Lead EKG**

- Correct lead placement

6.3.5.6 **Recognition of proper equipment for assisting the CCP with the following procedures:**

- Intubation
- Emergent Cardioversion or Defibrillation
- Pleural Decompression

6.3.5.7 **Isolation Issues:**

- Common Pathogens
- HIV
- Hepatitis
- Vancomycin resistant enterococcus (VRE)
- Methicillin- resistant staphylococcus aureus (MRSA)
- Tuberculosis (TB)
- C.Diff
- Procedures for self–protection, decontamination, exposures

6.3.5.8 **Documentation**

- Patient consent forms
- EMTALA forms

6.3.5.9 **Dispatch, Deployment, Operational, and County Policy and Procedure Review**

7. CONTINUOUS QUALITY IMPROVEMENT (CQI) PLAN

7.1 A CCP program shall have a written CQI plan approved by the EMS Agency. CQI Plans shall include provisions for continuing education including types of activities, frequency, and required hours.

7.2 A registered nurse or physician shall have clinical oversight of the CCP CQI Plan

7.3 Provider's CQI staff shall evaluate CCP transfers for medical appropriateness

7.3.1 Specific review for use of intravenous expanded scope medications will include:

- Review of transferring physician's orders and evidence of compliance with orders.
- Documentation of vital signs, including frequency
- Documentation of any side effects/complications including hypotension, bradycardia, increasing chest pain, arrhythmia, altered mental status, and interventions with these events
- Documentation of unanticipated discontinuation or rate adjustments of infusions along with rationale and outcome
- Review of any base contact or contact of transferring physician for orders during transport

7.4 The CCP Provider shall provide to EMS, at its sole expense, all hardware and software necessary for reviewing and monitoring the ePCR

7.5 The CCP Provider shall use software in the ePCR and Data Collection System to allow real-time access in the format specified by EMS. The software shall also provide detailed operations, clinical and administrative data in a manner that facilitates retrospective analysis.

7.6 EMS Agency will receive quarterly reports summarizing CQI activity, identified trends and resolutions

8. CCP COMPTENCY STANDARDS

All Critical care transport paramedics shall meet the following requirements to maintain their County approval to function with their advanced scope of practice:

8.1 Minimum of six shifts per quarter on a CCP Unit unless specifically waived by the LEMSA

8.2 Completion of annual CCP policy and skills competency education and evaluation will include the following:

- Oral intubation, adult
- Supraglottic Airway Insertion
- Bougie insertion
- Needle Thoracostomy
- Intraosseous Needle Insertion
- Ventilator Application
- CCP Drip Calculations
- CCP Field Care Policies

8.3 Compliance with Paramedic and CCP policy and skills competency standards is required to maintain standing as an active CCP. Any variance requires approval of the EMS Medical Director.
Skill list may be expanded at the discretion of the Local EMS Agency.
Educational standards time requirements must be approved by the EMS Agency.

9. CCP AMBULANCE EQUIPMENT

9.1 CCP ambulances are required to comply with the Alameda County EMS Ambulance Ordinance

9.2 CCP ambulances are required to comply with ALS Transport Equipment and Supply Requirements, Inspections and Specifications defined in the Alameda County EMS Field Manual

9.3 The following additional equipment is required and must be approved by the Alameda County EMS Medical Director:

- AC Power Inverter
- Mechanical Ventilator (with associated accessories including HME filter)
- Mechanical Infusion Pump
- Portable Doppler
- Thermometer
- Additional equipment as required by the EMS Medical Director

APPROVED: _____ **DATE:** **January 15, 2020**
KARL SPORER, EMS MEDICAL DIRECTOR

APPROVED: _____ **DATE:** **January 15, 2020**
LAURI MCFADDEN, EMS DIRECTOR

1. PURPOSE

To authorize CCPs to monitor and discontinue as needed Alteplase (tPA) infusions during interfacility transport

2. POLICY

2.1. Precautions
- 2.1.1. Large stroke with NIH Stroke Scale score > 22 as reported by sending facility
- 2.1.2. CT shows evidence of large middle cerebral artery (MCA) territory infarction

2.2. Function Thrombolytic agent

2.3. Circumstances under which CCPs may perform TPA infusion:
- 2.3.1. Interfacility transports
- 2.3.2. Infusion must be initiated prior to departure

2.4. Setting Interfacility CCP transports
- 2.4.1. tPA is not to be given without written orders from the referring physician. These orders must be specifically followed.
- 2.4.2. CCPs must verify that a neurologic exam has been completed before giving tPA
- 2.4.3. Supervision: The referring physician must be present at patient's bedside or by telemedicine when initiating tPA

2.5. Patient Conditions Patients with signs and symptoms of acute ischemic stroke

2.6. Contraindications
- 2.6.1. Stroke or serious head trauma within the past three months
- 2.6.2. Seizure onset of acute ischemic stroke
- 2.6.3. History of intracranial hemorrhage, intracranial neoplasm, arteriovenous malformation or aneurysm
- 2.6.4. Sustained systolic blood pressure > 185 mmHg OR
  Sustained diastolic blood pressure > 110 mmHg
  - Aggressive treatment is necessary to lower the patient's blood pressure
- 2.6.5. Symptoms suggestive of subarachnoid hemorrhage
- 2.6.6. Gastrointestinal or urinary tract hemorrhage within the last 21 days
- 2.6.7. Arterial puncture at non-compressible site within the last seven days
- 2.6.8. Heparin within the last 48 hours and has elevated PTT
- 2.6.9. Current use of direct thrombin inhibitor or direct factor Xa inhibitor
- 2.6.10. Thrombin time (PT) is > 15 seconds
- 2.6.11. Platelet count is < 100,000 uL
- 2.6.12. Glucose is < 60 mg/dL or 600 mg/dL
- 2.6.13. Hemoccult test is positive

2.7. Relative Contraindications
- 2.7.1. Symptoms are minor or rapidly improving
- 2.7.2. Major surgery within the last 14 days
- 2.7.3. Pregnancy
- 2.7.4. Recent acute MI (past three months)

3. PROCEDURE

3.1. **Definition** tPA is a protein involved in the breakdown of blood clots. As an enzyme, it catalyzes the conversion of plasminogen to plasmin, the major enzyme responsible for clot breakdown

3.1.1. **Subjective** Any symptoms communicated by patient

3.1.2. **Objective**

- Acute ischemic stroke onset within 4.5 hours of drug administration
- Measurable deficit on NIH Stroke Scale examination as reported by sending facility; The Cincinnati Stroke Scale can be utilized in transport to monitor patient status
- Patient's computed tomography (CT) does not show intracranial hemorrhage or non-stroke cause of deficit

3.1.3. **Diagnosis** Acute ischemic stroke confirmed by physician examination and CT scan

3.1.4. **Plan**

- To initiate tPA- receipt from the sending physician of specific orders for dose, route and time of administration must be obtained
- To continue tPA- receipt from the sending physician of specific orders for the continuation of tPA infusion, including remaining dose, route and time of administration must be obtained
- If tPA has been given, or is being administered upon CCP arrival, it is imperative that blood pressure parameters are obtained from the sending physician

3.1.5. **Discontinue tPA immediately if any of the following occur:**

- Acute worsening of neurologic symptoms
- Decline in the level of consciousness
- New onset headache
- Nausea and vomiting
- Sudden rise in blood pressure
- Symptomatic intracranial hemorrhage

3.1.6. **tPA Dose**

The standard infusion dose of tPA is 0.9 mg/kg (maximum dose of 90 mg total) given over 60 minutes. Ten percent of the total dose is to be given initially as a bolus over one minute.

3.2. **Education** Patient gives informed consent prior to administration of tPA. If patient is unable to give informed consent, disability must be documented in the patient care record.

APPROVED: _____ **DATE: February 11, 2020**

KARL SPORER, EMS MEDICAL DIRECTOR

AMIODARONE HYDROCHLORIDE INTRAVENOUS INFUSION

1. PURPOSE

To authorize CCPs to initiate or monitor existing intravenous Amiodarone Hydrochloride infusions

2. POLICY

CCPs are permitted to initiate or monitor Amiodarone Hydrochloride infusions

3. PRECAUTIONS

3.1. **Y – Injection incompatibility**; the following will precipitate with Amiodarone Hydrochloride
- **Heparin Sodium**
- **Sodium Bicarbonate**

3.2. Amiodarone Hydrochloride intravenous infusion monitoring **is not approved for patients < 14 years old without physician contact**

3.3. In infusions longer than one hour, Amiodarone Hydrochloride concentrations **should not exceed 2 mg/mL** unless a central venous catheter is used

4. PROCEDURE

The following parameters shall apply to all patients with Amiodarone Hydrochloride infusions:

4.1. Medication concentration must be a minimum concentration of **150 mg/250 mL (0.6 mg/mL**); (unstable in more dilute solutions)

4.2. Initial Amiodarone infusion rates are between 0.5 – 1.0 mg/min

4.3. Infusion rates must remain constant during transport with no regulation of rates by the CCP, except for the discontinuation of the infusion

4.4. Physician guidelines must specify the infusion rate within the CCP Scope of Practice

4.5. Vital signs are to be monitored more frequently than every 15 minutes

APPROVED: _____ **DATE: January 15, 2020**

KARL SPORER, EMS MEDICAL DIRECTOR

BLOOD/BLOOD PRODUCTS INTRAVENOUS INFUSION

1. PURPOSE

To authorize CCPs to monitor existing Blood/Blood Products infusions during interfacility transport

2. POLICY

2.1. CCPs are permitted to monitor/infuse blood products
2.2. CCPs may not initiate Blood/Blood Products infusions without base hospital consult or specific sending physician parameters

3. ADVERSE REACTIONS

3.1. **Hemolytic reactions**: Hemolytic reactions are the most life-threatening. Clinical manifestations may vary considerably: fever, headache, chest or back pain, pain at the infusion site, hypotension, nausea, generalized bleeding or oozing from a surgical site or shock. The most common cause is from ABO incompatibility due to 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. Give fluid challenge of NS.
3.2. **Febrile non-hemolytic reaction**: Chills and fever (rise from baseline temperature of 1° C or 1.8 ° F)
3.3. **Allergic reaction:** Characterized by appearance of hives and itching (urticaria or diffuse rash); See Protocol Allergic reaction/Anaphylactic shock after discontinuing the infusion
3.4. **Anaphylaxis: May occur** after administration of only a few cc's of a plasma containing component. Symptoms include coughing, bronchospasm, respiratory distress, vascular instability, nausea, abdominal cramps, vomiting, diarrhea, shock and loss of consciousness. Treat IAW Allergic Reaction/Anaphylaxis Policy after discontinuing the infusion.
3.5. **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 fluids
3.6. **In cases of suspected adverse transfusion reactions, discontinue blood/blood products infusion. Notify transferring physician and/or Base Hospital.**

4. PROCEDURE

4.1. Identify the patient and blood by checking the patient ID band against the blood/blood product label and blood/blood product order for name, blood type, unit identifying number and expiration date
4.2. Monitor the patient's condition and vital signs before, during and after blood product infusions.
4.3. Blood/Blood Products Infusion Parameters:
- Infusion will be through filtered infusion tubing – stable patients shall have blood infused via the IV infusion pump. Unstable patients may have blood infused via a pressure bag without a pump
- Infusion rate will occur within the parameters as defined by the transferring physician. No other flow adjustments may be made by the CCP other than to discontinue the infusion in the event of complications

4.4. **In cases of suspected adverse transfusion reactions, discontinue blood/blood products infusion. Notify transferring physician and/or Base Hospital.**

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KARL SPORER, EMS MEDICAL DIRECTOR

DOPAMINE HYDROCHLORIDE INTRAVENOUS INFUSION

1. PURPOSE

To authorize CCPs to monitor and adjust existing intravenous Dopamine infusions during interfacility transport

2. POLICY

2.1. CCPs are permitted to monitor and adjust dopamine infusions during interfacility transports
2.2. CCPs may not initiate dopamine infusions without base physician consultation

3. PRECAUTIONS

3.1. Use caution in patients who may be volume depleted
3.2. Patients on dopamine may have tachydysrhythmias – treat as indicated

4. PROCEDURE

4.1. Regulation of the infusion rate will occur within the parameters as defined by the transferring physician, but in no instance will rate changes be greater than 5 mcg/kg/minute increments q 5 mins
4.2. CCPs may titrate dopamine to achieve a MAP of > 65 or heart rate over 70 bpm (depending on initial indication for dopamine infusion) by 2-5 mcg as often as q 5 mins
4.3. Typical concentration for dopamine is 400 mg/250 ml – double strength concentrations exist is certain hospitals.
4.4. Typical dopamine dosing is 5-20 mcg/min
4.5. The maximum dopamine dose is 20 mcg/min
4.6. In cases of **severe hypertension**, the medication infusion will be titrated down and if necessary discontinued and the transferring physician and Base Hospital notified

5. ADMINISTRATION

5.1. CCPs may initiate dopamine infusions in conjunction with base physician consultation
5.2. Titrate to achieve a map of > 65 mmHg or heart rate over 70 bpm depending on indication

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KARL SPORER, EMS MEDICAL DIRECTOR

EPINEPHRINE INTRAVENOUS INFUSION

1. **PURPOSE**

To authorize CCPs to initiate, monitor, and adjust existing intravenous epinephrine infusions

2. POLICY

CCPs are permitted to initiate, monitor, and adjust epinephrine infusions

3. PRECAUTIONS

3.1. Use caution in patients who may be volume depleted
3.2. Use caution in patients who are on multiple vasopressors

4. PROCEDURE

4.1. **Epinephrine Infusion Parameters**
- 4.1.1. Regulation of the infusion rate will occur within the parameters as defined by the transferring physician, but in no case will changes be greater than 2 mcg/minute increments q 5 mins
- 4.1.2. CCPs may titrate epinephrine to achieve a MAP of > 65 by 0.2-2 mcg q 5 mins.
- 4.1.3. Typical concentration for epinephrine is 5 mg/50 ml
- 4.1.4. Typical epinephrine dosing is 1-20 mcg/min
- 4.1.5. The maximum epinephrine dose is 20 mcg/min
- 4.1.6. In cases of **severe hypertension**, the medication infusion will be titrated down and, if necessary, discontinued and the transferring physician and Base Hospital notified

5. ADMINISTRATION

5.1. Epinephrine infusion initiation should be considered for hypotensive shock states after ensuring adequate patient ventilation, oxygenation and volume repletion
5.2. Initiate epinephrine at 1 mcg/min and titrate to achieve a MAP of > 65 mmHg

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KARL SPORER, EMS MEDICAL DIRECTOR

GLYCOPROTEIN IIb/IIIa RECEPTOR INHIBITORS INTRAVENOUS INFUSION

1. **PURPOSE**

   To authorize CCPs to monitor existing intravenous Glycoprotein Receptor Inhibitor infusions during interfacility transport

2. **POLICY**
   2.1. CCPs are permitted to monitor Glycoprotein Receptor Inhibitor infusions
   2.2. CCPs may not initiate Glycoprotein Receptor Inhibitor infusions

3. **PRECAUTION**
   GLYCOPROTEIN IIb/IIIa RECEPTOR INHIBITORS ARE INCOMPATIBLE WITH DIAZEPAM (VALIUM) IF GIVEN VIA SAME IV LINE

4. **PROCEDURE**

   4.1. Medication concentration will not exceed the standard manufacturer concentration

   4.2. Infusion rates must remain constant during transport with no regulation of rates being performed by the CCP, except for the discontinuation of the infusion (e.g., as in a case of bleeding)

   4.3. Documentation of calculation of the ordered infusion rate based on recent patient weight (in kilograms). Documentation of the following lab values:
   - Blood urea nitrogen
   - Creatinine
   - Hemoglobin
   - Hematocrit
   - Platelet count
   - Coagulation studies

   4.4. Vital signs are to be monitored as indicated in the transfer orders

   4.5. INFUSION RATE CHARTS

Eptifibatide (Integrilin) 36 ug/ml concentration / Infusion rate MAY NOT EXCEED 2 mcg/kg/min.

Patient weight in kg	50	60	70	80	90	100
Drip: 2 ug/kg/min	8 ml/hr	9.6 ml/hr	11 ml/hr	13 ml/hr	14.4 ml/hr	15 ml/hr

Tirofiban (Aggrastat) 0.75 mg/ml concentration / Infusion rate MAY NOT EXCEED 0.1 mcg/kg/min.

Patient weight in kg	50	60	70	80	90	100
Drip: 0.1 ug/kg/min	6 ml/hr	7 ml/hr	8 ml/hr	9 ml/hr	10 ml/hr	11 ml/hr

Abciximab (ReoPro) 50 ug/ml concentration / Infusion rate MAY NOT EXCEED 0.125 mcg/kg/min.

Patient weight in kg	50	60	70	80	90	100
Drip: 0.125 ug/kg/min	10.4ml/hr	12.5 ml/hr	14.6 ml/hr	16.7 ml/hr	17 ml/hr	17 ml/hr

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KARL SPORER, EMS MEDICAL DIRECTOR

HEPARIN INTRAVENOUS INFUSION

1. PURPOSE

To authorize CCPs to monitor existing intravenous heparin infusions during interfacility transport.

2. POLICY

2.1. CCPs are permitted to monitor heparin infusions during interfacility transports
2.2. CCPs may not initiate heparin infusions

3. PROCEDURE

3.1. Heparin Infusion Parameters
- Medication concentration will not exceed 100 Units / cc of IV fluid (25,000 Units/250 cc or 50,000 Units/500 cc)
- Infusion rates must remain constant during transport with no regulation of rates being performed by the CCP, except for the discontinuation of the infusion (e.g., as in a case of bleeding). Typical infusion rate is 12 U/kg/hr

3.2. In the event of the patient developing bleeding, the CCP shall discontinue the infusion and notify the sending physician

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KARL SPORER, EMS MEDICAL DIRECTOR

LIDOCAINE INTRAVENOUS INFUSION

1. **PURPOSE**

To authorize CCPs to monitor and adjust existing intravenous lidocaine infusions during interfacility transport

2. **POLICY**

2.1. CCPs are permitted to monitor and adjust lidocaine infusions during scheduled interfacility transports
2.2. CCPs may not initiate lidocaine infusions

3. **PROCEDURE**

3.1. The following parameters shall apply to all patients with pre-existing lidocaine infusions:

- Infusion fluid will be either NS or D5W. Typical concentrations are 1 gram/250 cc or 2 grams/500 cc
- Regulation of the infusion rate will occur within the parameters as defined by the transferring physician, but **in no case will changes be in greater than 1mg/minute increments q 3 - 5 mins**
- CCPs may institute **two infusion rate changes** prior to consulting with the Base Hospital. Any additional changes must be made only after contact with the Base Hospital
- **INFUSION RATES MAY NOT EXCEED 4 mg/min**

Standard Strength
1 Gram/250 cc D5W or NS
or 2 Gm/500 cc

cc/hr	mg/min
15	1
30	2
45	3
60	4

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LORAZEPAM INTRAVENOUS INFUSION

1. **PURPOSE**

To authorize CCPs to monitor, adjust, and administer intravenous lorazepam

2. POLICY

2.1. CCPs are permitted to monitor, adjust, and administer lorazepam
2.2. CCPs may not initiate lorazepam infusions

3. PROCEDURE

3.1. The infusion concentration and regulation of the infusion rate will occur within the parameters as defined by the transferring physician, but may be titrated to the individual's response during transport
3.2. In cases of an adverse event, the medication infusion will be discontinued, and the transferring physician and Base Hospital are to be notified
3.3. Typical lorazepam infusion concentration is 100 mg in 100 ml at a rate of 2-4 mg/hr. In case of severe alcohol withdraws, significantly higher doses may be required.

4. LORAZEPAM ADMINISTRATION FOR SEIZURES, ANXIETY, OR SEDATION

4.1. CCP's shall be permitted to administer lorazepam as a second line medication in situations where midazolam is contraindicated, has been ineffective, or is preferred over midazolam by the sending, receiving, or base hospital physician
4.2. Use caution with concurrent administration with narcotics
4.3. **Standard Dose**
  4.3.1. 1 mg IV/IM/IN as needed q 5 mins to a max of 4 mg/hr.
  4.3.2. If concern for hypotension, respiratory depression may administer ½ dose (0.5 mg)
4.4. **Weight-Based Dose – Pediatrics less than 25 kg**
  Administer 0.1 mg/kg IV/IM/IN as needed q 5 mins. Max single dose is 2mg. Larger doses may be needed than typical adult dosing.

APPROVED: _____ **DATE: February 11, 2020**
KARL SPORER, EMS MEDICAL DIRECTOR

MAGNESIUM SULFATE INTRAVENOUS INFUSION

1. **PURPOSE**

To authorize CCPs to initiate, monitor, and adjust existing intravenous Magnesium Sulfate

2. POLICY

CCPs are permitted to initiate, monitor, and adjust existing Magnesium Sulfate infusions

3. PRECAUTIONS

3.1. Patients who have rhythm disturbances with hemodynamic instability should be cardioverted prior to initiation of Magnesium Sulfate infusion
3.2. Magnesium Sulfate attenuates catecholamine release augmenting its antidysrhythmic properties.
3.3. **Magnesium Sulfate Overdose Signs**
  3.3.1. **Hypoventilation/slow respirations**
  3.3.2. **Hyporeflexia**
3.4. **If signs of Magnesium Sulfate Overdose (hypoventilation or hypoflexia) develop:**
  3.4.1. **Discontinue Magnesium Sulfate**
  3.4.2. **Administer 500 mg of Calcium Chloride slow IV push**

4. PROCEDURE

4.1. **Magnesium Sulfate Infusion Parameters**
  4.1.1. Infusions shall be maintained at the rate specified by the sending physician
  4.1.2. Typical Initial dose for pre-eclampsia 4 grams in 100 mL LR or NS IVPB over 15-30 minutes. Give dose as proximal in the IV line as possible.
  4.1.3. To mix, add 20 grams to 500 mL LR or NS
  4.1.4. DO NOT USE ONE LITER VOLUMES FOR MAGNESIUM SULFATE INFUSIONS
  4.1.5. If a patient requires an increase in the infusion, contact the receiving or sending physician to discuss whether a repeat bolus should be administered prior to increasing the drip
4.2. **Torsades de Pointes-VT**
  Dilute 2 grams Magnesium Sulfate in 10 mL of LR or NS and administer IV over 5 minutes
4.3. **Severe Asthma / Reactive Airway Disease**
  Administer 50 mg/kg Magnesium Sulfate diluted in 50 ml NS over 20 minutes. Maximum dose is 2 grams. Consult with a physician if a higher dose is needed.
4.4. **Eclampsia Seizures**
  4.4.1. Administer 4 grams Magnesium Sulfate slow IVP over 5-10 minutes
  4.4.2. Initiate Magnesium Sulfate drip at 2 grams/hour and contact sending physician

APPROVED: _____ **DATE:** **January 15, 2020**
KARL SPORER, EMS MEDICAL DIRECTOR

NITROGLYCERIN INTRAVENOUS INFUSION

1. PURPOSE

To authorize CCPs to initiate, monitor and adjust existing intravenous nitroglycerin infusions during interfacility transport

2. POLICY

2.1. CCPs are permitted to monitor and adjust nitroglycerin infusions during interfacility transports
2.2. CCPs may initiate nitroglycerin infusions with physician consultation

3. PROCEDURE

3.1. Infusion fluid will be either NS or D5W
3.2. Regulation of the infusion rate will occur within the parameters as defined by the transferring physician, but in no case will changes be greater than 10 mcg/min increments q 5 mins
3.3. In cases of severe hypotension, the medication infusion will be discontinued, and the transferring physician and Base Hospital notified
3.4. Severe hypotension (less than MAP of 65) that does not improve following the discontinuation of the infusion should be treated with a 500 – 1000 ml fluid bolus as appropriate based on patient condition

APPROVED: _____ **DATE: January 15, 2020**
KARL SPORER, EMS MEDICAL DIRECTOR

NOREPINEPHRINE INTRAVENOUS INFUSION

1. **PURPOSE**

To authorize CCPs to initiate, monitor, and adjust existing intravenous Norepinephrine infusions during interfacility transport

2. **POLICY**

2.1. CCPs are permitted to monitor and adjust Norepinephrine infusions during interfacility transports
2.2. CCPs may initiate Norepinephrine infusions with physician consultation

3. **PRECAUTIONS**

3.1. Use caution in patients who may be volume depleted
3.2. Although Norepinephrine has a lower rate of dysrythymias than dopamine, patients on Norepinephrine may still experience tachydysrythmias

4. **PROCEDURE**

4.1. Regulation of the infusion rate will occur within the parameters as defined by the transferring physician, but in no case will changes be greater than 7 mcg/min increments q 5 mins
4.2. CCP's may titrate Norepinephrine to achieve a MAP of > 65 by 1-7 mcg as often as q 5 mins
4.3. Typical concentration for Norepinephrine is 4 mg/250 ml – double strength concentrations exist in certain hospitals
4.4. Typical Norepinephrine dosing is 3-20 mcg/min
4.5. The maximum Norepinephrine dose is 30 mcg/min
4.6. In cases of **severe hypertension**, the Norepinephrine infusion will be titrated down and if necessary discontinued and the transferring physician and Base Hospital notified

5. **ADMINISTRATION**

5.1. CCPs may initiate Norepinephrine infusions in conjunction with base physician consultation
5.1.1. Initiation should be considered for hypotensive shock states after ensuring adequate volume repletion
5.1.2. Initiate Norepinephrine at 5 mcg/min and titrate to achieve a map of > 65 mmHg

APPROVED: _____ **DATE:** **January 15, 2020**
KARL SPORER, EMS MEDICAL DIRECTOR

POTASSIUM CHLORIDE INTRAVENOUS INFUSION

1. **PURPOSE**

   To authorize CCPs to monitor existing intravenous potassium chloride (KCl) infusions during interfacility transport

2. **POLICY**

   2.1. CCPs are permitted to monitor KCl infusions during interfacility transports
   2.2. CCPs may not initiate KCl infusions

3. **PROCEDURE**

   3.1. **MEDICATION CONCENTRATION will not exceed 40 MEQ per liter of IV fluid**
   3.2. A more concentrated solution that contains **no more than 10 MEQ KCL TOTAL in the infusion bag is allowable**
   3.3. Infusion rates must remain constant during transport with no regulation of rate being performed by the paramedic
   3.4. I**NFUSION RATES may not exceed 10 MEQ per hour**
   3.5. **KCL Infusions must be regulated by a mechanical pump familiar to the CCT-P.** If a pump failure occurs and cannot be corrected, the CCT - P is to discontinue the KCl infusion and notify the transferring physician, or the base physician if the transferring physician is not available.

APPROVED: _____ **DATE: January 15, 2020**
KARL SPORER, EMS MEDICAL DIRECTOR

SEDATION AND ANALGESIA

1. **PURPOSE**

   To provide chemical sedation and analgesia for ventilator dependent and agitated patients

2. **POLICY** CCPs are permitted to adminster chemical sedation and analgesia without base hospital contact

   2.1. CCPs are permitted to monitor Midazolam, Fentanyl and Morphine infusions
   2.2. CCPs may not initiate Midazolam, Fentanyl and Morphine infusions
   2.3. CCPs may administer Midazolam, Fentanyl and Morphine boluses
   2.4. Midazolam, Fentanyl and/or Morphine will be used, as appropriate, for:
   - Ventilator dependent patients requiring chemical sedation, analgesia or restraint due to agitation, restlessness, and/or anxiety that is compromising the patient's stability
   - Agitated patients requiring chemical sedation, analgesia, or restraint due to agitation, restlessness and/or anxiety that is compromising the patient's stability
   - Patients requiring pain management
   - Other objective patient considerations:
     - Need for invasive procedure
     - Increase in level of distress
     - Change in vital signs
     - Change in pulse oximetry/ETCO2
     - Change in Cardiac Monitor

3. **PROCEDURE**

   3.1. **Ventilator Dependent or Agitated Patients**
   3.1.1. Apply soft, four – point restraints if needed
   3.1.2. Continuously monitor oxygen saturation, ETCO2, heart rate, blood pressure, and LOC
   3.1.3. Focus on management of patient's pain and discomfort in conjunction with sedation. Maximize analgesia.
   3.1.4. Administer Fentanyl and/or Midazolam as per physician orders. If no orders, use guidelines below.

   3.2. **Midazolam Bolus Guidelines**
   3.2.1. Midazolam **PRECAUTIONS**
   - Assess for sedative effects. Midazolam is 3 – 4 times more potent than Diazepam
   - The half-life of Midazolam is < 2 hours
   - Onset of action is usually 2 – 5 minutes. Wait after each incremental dose to assess effect
   - Serious cardiorespiratory adverse events have occurred. These include respiratory depression, apnea, respiratory and/or cardiac arrest. Resuscitative equipment should be immediately available.
   - Hypotension has been noted, particularly with concomitant narcotic administration
   - Use 25 - 33 % less if narcotics are co-administered or administered prior to arrival by hospital staff
   - Do not administer Midazolam, or decrease the dose by 50% if the patient is hypovolemic
   - Children under age 6 years may require relatively larger doses than older children
   - Elderly patients are especially sensitive to Midazolam. They should receive lower doses. Close monitoring is required.

3.2.2. **Adults (Age 12 and older over 50 kg)**

- **IV** Standard Dose of 2 mg IV ***or*** Weight Base Dose of 0.05 mg/kg IV,
  Max single dose of 5 mg IV
  - May administered ½ of weight based or ½ of standard dose if concern for hypotension
  - May not switch between weight based dosing and standard dosing
  - May repeat IV dose q 2 mins as needed for sedation

- Use **IM/IN** only if IV access is unavailable, dose 0.1 mg/kg (give IM deep into a large muscle mass)
  - Maximum single IM/IN dose is 10 mg
  - May repeat IM/IN dose q 30 mins

3.2.3. **Pediatrics (Not to be used in neonates)**

- Initial IV dose: 0.05 mg/kg slow IV push, Max IV single dose is 5 mg
- May repeat with smaller IV doses of .025 - .05 mg/kg q 20 – 30 mins. as needed for sedation. Maximum IV total dose is 10 mg.
- Use IM/IN only if IV access is unavailable, IM/IN dose is 0.1 mg/Kg, given deep into a large muscle mass. Maximum IV/IM single dose is 5 mg.

3.3. **Midazolam Infusion Guidelines**

3.3.1. Typical dosing is 2-10 mg/hr
3.3.2. May titrate by 2 mg/hr as often as q 5 mins to a maximum of 10 mg/hr
3.3.3. Patients requiring rapidly escalating doses of Midazolam should be considered for concurrent fentanyl administration

3.4. **Fentanyl Bolus Guidelines**

3.4.1. Administer Fentanyl boluses in accordance with EMS Field Manual Pain Management Guidelines OR Guidelines below:
3.4.2. Adult: (Age 12 and older over 50 kg)
- Standard dose of 50 mcg IV/IO/IN/IM or weight-based dose of 1 mcg/kg IV/IO/IN/IM
- May repeat IV/IO/IN dose q 3 mins., IM q 10 mins as needed for analgesia
- May administered ½ of weight based or ½ of standard dose if concern for hypotension
- May not switch between weight based dosing and standard dosing

3.5. **Fentanyl Infusion Guidelines**

3.5.1. Typical dosing is 50-200 mcg/hr
3.5.2. May titrate by 25 mcg/hr as often as q 5 mins
Max of 200 mcg/hr (or 500 mcg/hr for burn patients)

3.6. **Morphine Sulfate Bolus Guidelines**
Morphine boluses may be administered as a second line narcotic in situations where fentanyl is contraindicated, has been ineffective, or Morphine is preferred by the sending, receiving, or base hospital physician

3.6.1. **Morphine Sulfate Weight Based Dose**
- 0.1 mg/kg IV/IO/IM
- May repeat IV/IO q 3 mins., IM q 10 mins. as needed at the initial dose or half the initial dose
- Maximum single dose is 10 mg

3.6.2. **Morphine Sulfate Standard Dose** - Only for patients > 40 kg.
- 4 mg IV/IO/IM
- May repeat IV/IO q 3 mins., IM q 10 mins., as needed at the initial dose or half the initial dose

3.7. **Morphine Sulfate Infusion Guidelines**

3.7.1. The infusion concentration and regulation of the infusion rate will occur within the parameters as defined by the transferring physician, but may be titrated to the patient response during transport

3.7.2. In cases of **severe respiratory depression, sedation, confusion, hypotension, bradycardia, nausea and vomiting**, the medication infusion will be discontinued, and naloxone may be administered as directed in Alameda County EMS policy. The transferring physician and Base Hospital are to be notified.

APPROVED: _____ **DATE: February 11, 2020**
KARL SPORER, EMS MEDICAL DIRECTOR

SODIUM BICARBONATE INTRAVENOUS INFUSION

1. PURPOSE

To authorize CCPs to monitor and adjust existing intravenous sodium bicarbonate infusions during interfacility transport

2. POLICY

2.1. CCPs are permitted to monitor or discontinue sodium bicarbonate infusions during scheduled interfacility transports
2.2. CCPs may not initiate sodium bicarbonate infusions

3. PRECAUTIONS

3.1. Inactivates catecholamines
3.2. Precipitates calcium salts
3.3. Extravasation into subcutaneous tissues may cause:
- Scleroses of small veins
- Local chemical burn

3.4. Intracranial hemorrhage in newborns (hyperosmolality)
3.5. Use only 4.2 % bicarbonate for ages < 3 months
3.6. In cases of overcompensation resulting in metabolic alkalosis presenting as: impaired tissue perfusion, hypokalemia, hypocalcemia, decrease in the patient's fibrillation threshold, sodium and water overload, the medication infusion will be discontinued and the transferring physician and Base Hospital notified

4. PROCEDURE

The infusion concentration and regulation of the infusion rate will occur within the parameters as defined by the transferring physician

APPROVED: _____ **DATE: January 15, 2020**
KARL SPORER, EMS MEDICAL DIRECTOR

THORACOSTOMY TUBES

1. PURPOSE

To authorize CCPs to monitor existing surgically placed thoracostomy tubes during scheduled interfacility transport

2. POLICY

2.1. CCPs are permitted to monitor thoracostomy tubes during scheduled interfacility transports
2.2. CCPs may not perform placement of thoracostomy tubes

3. PRECAUTIONS

3.1. Avoid pulling on the thoracostomy tube to prevent accidental dislodging of the tube
3.2. Do not permit dependent loops or kinks to form in the tubing, as this will interfere with the flow of drainage leading to increased pleural pressure or formation of clots
3.3. Do not disconnect the drainage system or puncture the tubing. Tape all connections securely to prevent violation of sterility and loss of negative pressure.

4. PROCEDURE

4.1. The collection receptacle must be kept below the level of the chest to prevent drained fluid from re-entering the pleural space. Do not allow the collection receptacle to tip over.
4.2. If hemorrhage occurs through the chest tube, observe for signs and symptoms of shock and treat according to protocol
4.3. Mechanical suction rates must remain constant during the transport with no regulation of the rate being performed by the CCP
4.4. Patients shall be placed and maintained on cardiac and pulse oximetry monitors during transport
4.5. Signed transfer guidelines from the transferring physician must be obtained prior to transport. Transfer guidelines must provide for specifying the maintenance of the chest tube either to gravity or mechanical suction drainage. The amount of mechanical suction must be specified.

5. COMPLICATIONS

5.1. If the thoracostomy tube is partially pulled out:
- **Do not push the tube back into the chest**
- **Secure the site**

5.2. If the thoracostomy tube is completely pulled out, place an occlusive dressing over the insertion site
5.3. If air leaks are present, check all connections
5.4. If the patient becomes dyspneic:
- **Assess breath sounds**
- **Contact the base hospital (needle thoracostomy may need to be performed)**

APPROVED: _____ **DATE:** **January 15, 2020**
KARL SPORER, EMS MEDICAL DIRECTOR

TOTAL PARENTERAL NUTRITION (TPN) INTRAVENOUS INFUSION

1. PURPOSE

To authorize CCPs to monitor existing intravenous Total Parenteral Nutrition infusions during scheduled interfacility transport

2. POLICY

2.1. CCPs are permitted to monitor/infuse TPN during interfacility transfers
2.2. CCPs may not initiate Total Parenteral Nutrition infusions

3. PROCEDURE

3.1. Infusion rates must remain constant during transport with no regulation of rates being performed by the CCP, except for the discontinuation of the infusion (e.g., as in a case of infiltration)
3.2. All patients who have insulin as a part of the TPN solution shall have documentation of the most recent blood sugar analysis
3.3. The CCP shall check a blood sugar prior to departure from the sending facility
3.4. TPN solution with Lipid emulsion must be infused through special filtered intravenous tubing compatible with the CCP infusion device
3.5. TPN solution intravenous line shall not be used for any medication or fluid administration

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KARL SPORER, EMS MEDICAL DIRECTOR

VENTILATOR MANAGEMENT

1. PURPOSE

To authorize CCPs to initiate, monitor and adjust ventilators

2. PRECAUTIONS

2.1. **The CCP is responsible for all airway management** and must frequently reassess endotracheal tube placement. Bilateral breath sounds and ETCO2 are to be checked after each patient movement.
2.2. Ventilators are not intended nor shall be used to reduce current personnel staffing levels

3. PROCEDURE

3.1. **Ventilator support must be regulated by a ventilator familiar to the CCP and approved by Alameda County EMS**
3.2. If a ventilator failure occurs and cannot be corrected, the CCP is to discontinue use of the ATV and initiate ventilation by bag-valve with a PEEP valve and notify the transferring physician or the base physician if the transferring physician is not available
3.3. CCP's may utilize the transport ventilator to initiate BiPAP or ventilator support for intubated patients
3.4. Personnel shall monitor the PSI level in the oxygen cylinder
3.5. Patients shall be placed and maintained on cardiac monitoring, ETCO2, and pulse oximetry monitors during transport
3.6. CCPs shall continually observe the patient and document patient response to any changes while the device is operational. CCPs shall chart the initial settings and any subsequent changes. Such documentation shall appear on the patient care report.
3.7. CCPs may adjust ventilator setting consistent with the patients ABG values and current practice standards to maximize oxygenation, ventilation, and compliance. In general, appropriate vent settings are as follows:
    3.7.1. Consider pressure control (PC) set at 10-15 for all pediatrics and patients with interstitial lung disease
    3.7.2. SIMV (NOT AC) is the preferred mode for transport. AC can cause inadvertent breath stacking/triggering.
    3.7.3. Rate – Typically set between12-20 for adults. Utilize higher rate for acidotic patients who are paralyzed or heavily sedated. Monitor ETCO2.
    3.7.4. Tidal Volume – Set at 6-8 mg/kg of IDEAL body weight
    3.7.5. Fi02 – Set to maximize oxygenation and keep SP02 between 94-99%. Patients should not routinely be set on 100% Fi02.
    3.7.6. Alarms – High Pressure set 10 above PIPS and low pressure set 10 below PIPS
    3.7.7. PEEP – Set at a minimum of 5cm H2O (intrinsic PEEP) for adults and pediatrics, 3cm H2O for infants. Patients with pulmonary edema, ARDS, and poor oxygenation may require higher PEEPS.

4. SPECIAL INFORMATION

4.1. The ventilator that the provider is to use should be able to match the existing ventilator settings. The following minimum device features (including circuit) must be present for this category of patient:

- 4.1.1. Set rate of ventilations
- 4.1.2. Adjustable delivered tidal volume
- 4.1.3. Adjustable Inspiratory and Expiratory ratios (I:E ratio)
- 4.1.4. Positive End-Expiratory Pressure (PEEP)
- 4.1.5. Peak airway pressure gauge
- 4.1.6. Modes
  - Assist Control (AC)
  - Pressure Control (PC)
  - Pressure Regulated Volume Control (PRVC)
  - Synchronized Intermittent Mandatory Ventilation (SIMV)
  - Controlled Mechanical Ventilation (CMV)
  - Continuous Positive Airway Pressure (CPAP)
  - Bi – level Positive Airway Pressure (BiPAP)
- 4.1.7. Alarms
  - Peak airway pressure
  - Disconnect
- 4.1.8. Strongly recommended option – blend percentage oxygen

4.2. Agencies using this equipment must be certain to follow the manufacturer's instructions regarding the use, maintenance, cleaning and regular testing of this device

- 4.2.1. The units must be inspected and tested after every patient use
- 4.2.2. The units must be disinfected after use unless a disposable unit is used
- 4.2.3. The units shall undergo preventative testing and maintenance by qualified personnel annually
- 4.2.4. Agencies shall arrange for (at least) annual inspections and testing of the equipment by a manufacturer's representative (or designee). Documentation of this service shall be maintained in a service log. This record shall be kept by each agency using ATV's.

4.3. CCPs must be thoroughly trained and regularly retrained in the devices use. Such training shall occur annually and shall be documented.

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KARL SPORER, EMS MEDICAL DIRECTOR