Emergency Medical Services Program
Policies – Procedures – Protocols

Critical Care Paramedic (6006.00)

CCP policies and protocols should be used as guidelines and are not intended as a substitute for sound medical judgement.

Table of Contents

CRITICAL CARE PARAMEDIC

PURPOSE

The Critical Care Program has been developed to provide transport to patients who require, or may require care within the CCP Scope of Practice. CCP units may be used for interfacility transfers. CCP units may respond to scene calls and transport to an acute care hospital emergency department, however they are restricted to the paramedic scope of practice.

Kern County EMS (KCEMS) 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 Program authorization may be denied or withdrawn for failure to comply with program standards or failure to submit required fees.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)

STAFFING

A CCP unit is a fully equipped advanced life support Quick Response Vehicle “QRV” vehicle and/or ambulance.

- QRV shall be staffed with a minimum of one (1) qualified Critical Care Transport Paramedic.
- CCP Ambulance shall be staffed with a minimum of two (2) qualified staff with one (1) Critical Care Transport Paramedic and one (1) Kern County accredited EMT/EMTP.

Critical Care Paramedic

“Critical Care Paramedic” (CCP) is an individual who is educated and trained in critical care transport, whose scope of practice is defined by state regulation, holds a current certification as a CCP by the Board for Critical Care Transport Paramedic Certification (BCCTPC), who has a valid license issued, and is accredited by KCEMS.

Note: Authority cited: Sections 1797.107, 1797.172 and 1797.194, Health and Safety Code. Reference: Sections 1797.84, 1797.172 and 1797.194, Health and Safety Code.

A “Flight Paramedic” (FP) is an individual who is educated and trained in critical care transport, whose scope of practice is in accordance with the standards prescribed by this Chapter, has completed a training program as specified in Section 100155, holds a current certification as a FP by the International Board of Specialty Certification (IBSC), Board for Critical Care Transport Paramedic Certification (BCCTPC), has a valid license issued pursuant to this Chapter, and is accredited by a LEMSA in which their paramedic service provider is based.

Note: Authority cited: Sections 1797.107, 1797.172 and 1797.194, Health and Safety Code. Reference: Sections 1797.84, 1797.172, 1797.185 and 1797.194, Health and Safety Code.

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

- Current California Paramedic License.
- Current Board of Critical Care Paramedic Certification CCP-C (BCCTPC) or current Flight Paramedic Certificate (FP-C) by the International Board of Specialty Certification (IBSC).
- At least two (2) years full time field experience as a paramedic in an ALS system within the past five (5) years.
- 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.
- Accreditation as required by Kern County EMS.
- Successful completion of Kern County EMS approved provider education orientation and skills competency testing specific scope of practice skills used on critical care interfacility transfers (Title 22, Ch. 4, §100146(1)(S)) Critical Care Paramedic.
- Employers shall provide Kern County EMS with a list of all regular staff working on a CCP unit and shall see that the list is updat4ed whenever there is a change in personnel.
- Employers shall retain on file, always, copies of current and valid credentials for all personnel performing services under this program.

MEDICAL DIRECTION

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

CCP Scope of Practice

The CCP scope of practice includes the local EMS agency's basic and local optional scopes of practice for paramedics listed in the agency's EMS protocols. In addition, CCP's have an expanded scope that includes the administration of medications and procedures as outlined in the CCP Treatment Guidelines:

- Set up and maintain thoracic drainage systems
- Set up and maintain mechanical ventilators
- Set up and maintain IV fluid delivery pumps and devices
- Calcium channel blockers
- Blood and blood products
- Heparin IV
- Nitroglycerin IV
- Norepinephrine
- Maintain total parental nutrition

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

Transferring Physician Orders/Scene Medical Direction

For interfacility transfers:

- When the transferring physician or base hospital physician is contacted, specific orders must be based on skills and medication that are in accordance with the local EMS agency's CCP scope of practice.
- Clearly written physician orders are required and must be uploaded into the electronic patient care record (ePCR).
- Clearly written physician orders may be obtained from the hospital's medication administration record and uploaded into the ePCR.
- Verbal orders shall not be accepted from a transferring facility, except in the case of base orders due to a change in patient condition during transport.

- When radio communications are not possible, the CCP will provide care per the LEMSA's ALS protocols and CCP field manual treatment guidelines until radio contact can be made with the base hospital physician.
- Patient Deterioration During Transport: If, during an interfacility transport, the patient begins to deteriorate after transport has begun, personnel shall:
    - Provide appropriate care that may include any indicated BLS, ALS, and CCP interventions following appropriate EMS protocols.
    - Make base hospital contact for any patient deterioration.
    - 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 local EMS agency within 24 hours of the incident.

STANDARD OF CARE

- All patients shall be placed on continuous EKG, NIBP, and SpO2 monitoring.
- End-Tidal CO2 monitoring shall be utilized for:
    - All invasive and non-invasive ventilated patients.
    - All patients receiving sedation and/or pain medications.
    - Strongly recommended for non-intubated patients at high risk for airway, ventilatory, and/or circulatory compromise.
- Vital signs shall be recorded at a minimum of every 15 minutes for all stable patients and a minimum of every 5 minutes for unstable patients or patients on titrating vasoactive medications.

CRITICAL CARE PARAMEDIC (CCP) – PROGRAM STANDARDS

All medication infusions shall be crosschecked with hospital staff and/or CCT crewmembers.

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 notify the transferring physician or, the base physician if the transferring physician is unavailable, to discuss alternative options.

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

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

Continuous Quality Improvement Plan

A CCP program shall have a written CQI plan approved by the local EMS agency. This plan shall complement the EOA provider's existing CQI plan. CQI plans shall include provisions for continuing education including types of activities, frequency, and required hours.

The provider's CQI staff shall evaluate CCP transfers for appropriateness.

The provider's CQI staff shall perform 100% chart review of CCP level transfers to identify areas with opportunities for improvement or prevention of harm. KCEMS shall be notified immediately of any critical findings.

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

- Review of transferring physician orders and evidence of compliance with orders
- Documentation of vital signs per policy 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 hospital or transferring physician contact for orders during transport

The CCP provider shall provide to Kern County EMS, at its sole expense, all hardware and software necessary for reviewing and monitoring ePCR.

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

Kern County EMS will receive quarterly reports summarizing CQI activity and identified trends and resolutions.

CCP COMPETENCY STANDARDS

All critical care transport paramedics shall meet the following requirements to maintain Kern County EMS's approval in order to function with their advanced CCP scope of practice:

Minimum of six (6) shifts per quarter on a CCP unit unless specifically waived by Kern County EMS.

Completion of annual CCP policy and skills competency education with evaluation including the following:

- Oral intubation (Adult)
- Supraglottic airway insertion
- Bougie insertion
- Needle thoracostomy
- Intraosseous insertion
- Ventilator application
- CCP drip calculations
- CCP clinical policies

Compliance with Paramedic and CCP policy and skills competency standards is required to maintain standing as an active CCP. Any variance requires the approval of the local EMS Medical Director. The skills list may be expanded at the discretion of the local EMS agency. Educational standards time requirements must be approved by the local EMS agency for all CCP unit staff.

CCP UNIT EQUIPMENT

CCP units are required to comply with Kern County EMS's ordinances, service provider agreements, etc.

CCP units are required to comply with ALS Transport Equipment and Supply Standards, Inspections and Specifications defined in the Kern County EMS policies.

CRITICAL CARE PARAMEDIC (CCP) – PROGRAM STANDARDS

The following additional equipment is required and must be approved by the LEMSA's Medical Director:

- AC Power Inverter (if applicable)
- Mechanical Ventilator (with associated accessories including HME and extra power source)
- Mechanical Infusion Pump (multiple channels and/or a back-up device)
- Portable Doppler
- Oral Thermometer (or other temperature monitoring device such as a cardiac monitor temp cable)
- Additional equipment as required by the LEMSA and/or EMS provider's EMS Medical Director(s).

AMIODARONE

PURPOSE

To authorize CCP's to initiate or monitor existing intravenous Amiodarone Hydrocholoride infusions.

POLICY

CCP's are permitted to initiate or monitor Amiodarone Hydrochloride infusions.

PRECAUTIONS

Injection incompatibility: The following medications shall not be mixed in the same IV tubing as Amiodarone Hydrochloride because it will precipitate:

- Heparin Sodium
- Sodium Bicarbonate

Amiodarone should not be given in the presence of ventricular escape rhythm or other bradycardias.

Amiodarone concentrations should not exceed 2 mg/ml unless a preexisting central venous catheter is used in infusions being administered greater than 1 hour in duration.

Monitor for prolonged Q-T interval.

Amiodarone requires a 0.22 micron in-line filter or an IV tubing that has a 0.22 micron filter built in.

PROCEDURE

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

- Due to the initial bolus given over time an IV infusion pump must be used.
- Vital signs must be monitored every 5 minutes.

ADMINISTRATION

V-Tach and Atrial Fibrillation:

- Follow detailed instructions given by the sending facility.

BLOOD PRODUCTS

PURPOSE

To authorize CCP's to monitor existing blood product infusions during transport.

POLICY

CCP's are permitted to monitor/infuse blood products during interfacility transports.

CCP's may not adjust blood product infusions without specific transferring physician parameters or base hospital physician consult.

Use of a buddy light or other warming measure is preferred.

ADVERSE REACTIONS

Hemolytic Reactions: The most life-threatening manifestations may vary considerably as: fever, headache, chest or back pain, pain at the infusion site, hypotension, nausea, generalized bleeding or oozing from 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. Administer fluid challenge of normal saline.

Febrile Non-Hemolytic Reaction: Chills and fever with a rise from baseline temperature of 1 degree C or 1.8 degrees F.

Allergic Reaction: Characterized by appearance of hives, urticaria, and itching. Enter Allergic Reaction Protocol after discontinuing the infusion.

Anaphylaxis: May occur after administration of only a few ml's of a plasma containing component. Symptoms include coughing, bronchospasms, respiratory distress, vascular instability, nausea, abdominal cramps, vomiting, diarrhea, shock, altered mental status and loss of consciousness. See Anaphylaxis Protocol after discontinuing the infusion.

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.

PROCEDURE

Identify the patient and blood by checking the patient ID band against the blood/blood product label and the actual order for name, blood type, unit identifying number, and expiration date.

Monitor the patient's condition and vital signs before, during, and after blood product infusion.

Blood products infusion parameters:

- Infusion will be through filtered blood tubing. Stable patients shall have blood infused via 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.

In cases of a suspected adverse transfusion reaction, discontinue the blood product infusion. Notify the transferring physician and/or base hospital. Treat signs/symptoms per LEMSA's protocol as needed. Keep blood products and deliver with the patient for possible testing.

Documentation must include:

•Physicians order

•Product Received (whole blood, packed cells, plasma, or platelets)

•Drip rate

•Volume infused during transport

•Temperature check every 10 minutes with vitals

•Any adverse side effects

CALCIUM CHANNEL BLOCKERS

PURPOSE

To authorize the CCP to monitor and adjust existing Calcium Channel Blocker (CCB) infusions.

POLICY

CCP's are permitted to monitor and adjust Calcium Channel Blocker infusions.

CCP's may not initiate Calcium Channel Block infusions.

PRECAUTIONS

Use caution with patients with liver and renal disease.

Side effects can include dizziness, palpitations, fatigue, headache, and nausea.

PROCEDURE

Calcium channel blockers are used for a variety of reasons to include lowering blood pressure, relaxation of blood vessels, slow and/or regulate heart rate, relieve angina, and for CAD.

CCB's prevent calcium from entering the cells of the heart and arteries. Calcium causes the heart and arteries to contract more strongly. By blocking calcium, CCB's allow blood vessels to relax and open. Some CCB's are also used to slow down and regulate the heart rate.

Regulation of the infusion rate will occur within the parameters as defined by the transferring physician or base hospital orders.

ADMINISTRATION

Common Calcium Channel Blockers and doses include, but not limited to, the following:

- Cardizem: 5 -15 mg/hr. Ensure HR goal or other goal (SBP and/or MAP) is obtained from sending facility.
- Nicardipine: Max 15 mg/hr and titrate q 10 mins by increments of 2.5 mg/hr. Ensure SBP and/or MAP goal is obtained from sending facility.
- Nifedipine: 10 mg PO q 20 mins and may repeat up to a max of 30 mg (severe HTN leading to eclampsia/ pre-eclampsia or rapid BP lowering required)
- Clevidipine: 1-2 mg/hr with a max of 16 mg/hr. Ensure SBP and/or MAP goal is obtained from sending facility.

These medications and doses are for reference only. Transferring physician will select the medication and dose for infusions with orders for transport guidelines and titration, if applicable.

DOPAMINE HYDROCHLORIDE

PURPOSE

To authorize CCP's to initiate, monitor and adjust existing intravenous Dopamine infusions.

POLICY

CCP's are permitted to monitor and adjust Dopamine infusions.

CCP's may not initiate Dopamine infusions without transferring or base physician consult.

PRECAUTIONS

Use caution in patients who may be volume depleted. Focus is on sufficient volume replacement first.

Patients on Dopamine may experience tachydysrhythmias and treat as indicated.

PROCEDURE

Indications include cardiogenic and/or distributive shock. Norepinephrine is preferred first line vasopressor over Dopamine.

For septic shock, Dopamine is used only as an alternative to Norepinephrine in a select group of patients, specifically those with a low risk of tachyarrhythmias and absolute or relative bradycardia.

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/min increments q 5 mins.

Typical concentration for Dopamine is 400 mg/250 ml D5W. Caution that double strength concentrations do exist in some hospitals.

Typical Dopamine infusion dose range is 5-20 mcg/kg/min. Hold for a heart rate >140.

The maximum Dopamine dose is 20 mcg/kg/min in most circumstances.

In cases of severe hypertension, the medication infusion will be slowly titrated down and, if necessary, discontinued and the transferring physician or base hospital physician notified.

ADMINISTRATION

CCP's may initiate Dopamine infusions in conjunction with transferring or base physician consult.

Titrate to achieve a MAP of >65 mmHg or heart rate > 70 bpm depending on indication of use.

Blood pressure shall be monitored every 5 minutes.

HEPARIN

PURPOSE

To authorize CCP's to monitor existing intravenous Heparin infusions.

POLICY

CCP's are permitted to monitor Heparin infusions during transport and care.

CCP's may not initiate Heparin infusions.

PROCEDURE

Heparin Infusion Parameters

Medication concentration will not exceed 100 units/ml. Examples of concentrations used:

- 25,000 units/250 ml
- 50,000 units/500 ml

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 the case of bleeding).

Typical starting rates are 12 units/kg/hr or 18 units/kg/hr based on indication. Infusion rates will be set based upon sending facility MD order. Vital signs are to be monitored as indicated in the transfer orders.

In the event of the patient developing bleeding, the CCP shall discontinue the infusion and notify the transferring and/or base hospital physician.

NITROGLYCERIN

PURPOSE

To authorize CCP's to monitor and adjust existing Nitroglycerin infusions.

POLICY

CCP's are permitted to monitor and adjust Nitroglycerin infusions during interfacility transports.

PROCEDURE

Regulation of the infusion rate will occur within parameters as defined by the transferring or base hospital physician, but in no case will changes be greater than 5 mcg/min increments every 5 mins.

In cases of severe hypotension, the medication infusion will be discontinued, and the transferring physician notified.

In cases of severe hypotension (MAP<65 mmHg), the medication infusion will be discontinued and transferring physician notified.

Blood pressure to be monitored every 5 minutes.

Infusion will be either NS or D5W. Medication concentration will be either half-strength (25 mg/250ml or 50 mg/500 ml) or full-strength (50mg/250 ml).

NOREPINEPHRINE

PURPOSE

To authorize CCP's to monitor and adjust existing Norepinephrine infusions.

POLICY

CCP's are permitted to monitor and adjust Norepinephrine infusions during interfacility transports.

PRECAUTIONS

Use caution in patients who may be volume depleted.

Although Norepinephrine has a lower rate of dysrhythmias than Dopamine, patients on Norepinephrine may still experience tachydysrhythmias.

PROCEDURE

Regulation of the infusion rate will occur within parameters as defined by the transferring physician, or standing orders, but in no case will changes be greater than 5 mcg/min increments q 5 mins.

CCP's may titrate Norepinephrine by increments of 1-5 mcg/min q 5 mins as needed to achieve a MAP > 65mmHg.

Typical Norepinephrine dose range is 2-12 mcg/min.

The maximum Norepinephrine dose is 30 mcg/min or follow the maximum the send facility has set.

In cases of severe hypertension, the Norepinephrine infusion will be titrated down and, if necessary, discontinued, and the transferring physician or base hospital notified.

Follow Hypotension protocol if unable to sustain blood pressure and contact sending physician.

POTASSIUM CHLORIDE

PURPOSE

To authorize CCP's to monitor existing Potassium Chloride infusions.

POLICY

CCP's are permitted to monitor Potassium Chloride infusions during interfacility transports.

CCP's shall not initiate Potassium Chloride infusions.

PROCEDURE

In all instances a Potassium Chloride infusion must be regulated by a mechanical pump.

Infusion rates may not exceed 10 meq/hr with a max concentration of 0.1 mEq/mL.

Infusion rates must remain constant during transport with no regulation of rate allowed unless per specific transferring or base hospital physician.

Discontinue with extravasation or if patient cannot tolerate despite slowing infusion or running behind a fluid. Contact the sending facility for further orders.

Confirm labs have been drawn within 4 hours and potassium is less than 5 mmol/L.

Administration

Maximum rate for peripheral IV is 10 meq/hr with a max concentration of 0.1 meq/mL.

Monitor vital signs every 15 minutes.

Discontinue if extravasation or patient cannot tolerate despite slowing infusion or running behind a fluid.

TOTAL PARENTERAL NUTRITION (TPN)

PURPOSE

To authorize CCP's to monitor existing Total Parenteral Nutrition (TPN) Infusions.

POLICY

CCP's are permitted to monitor and infuse TPN during transport.

CCP's may not initiate TPN infusions.

PRECAUTION

When transporting a patient receiving TPN, or who has received TPN within the last hour prior to transport, maintain the head of the bed elevated at a minimum of 30 degrees to minimize the risk of aspiration whenever possible.

PROCEDURE

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 the case of infiltration).

All patients who have insulin as a part of their TPN solution shall have documentation of the most recent blood sugar analysis from the transferring facility.

The CCP shall check blood sugar prior to departure from the sending facility.

TPN solution with lipid emulsion must be infused through special filtered tubing compatible with the CCP infusion device.

TPN solution intravenous line shall not be used for any medication or fluid administration.

Perform blood glucose check for baseline and every 6 hours if you arrive to facility prior to 6 hours update blood glucose upon completion of transport. >90 mg/dl

If TPN needs to be discontinued, begin weaning them off slowly. This process should take a few hours. Cut the rate in half. Check a finger stick 1 hour after that, if normal, keep that rate for another 3 hours and then turn off the infusion. TPN should not be discontinued abruptly because it can cause rebound hypoglycemia.

VENTILATOR MANAGEMENT

PURPOSE

To authorize CCP's to initiate, monitor, and adjust ventilators.

POLICY

CCP's are permitted to initiate non-invasive and invasive ventilator management.

CCP's are permitted to monitor and adjust ventilator settings in all modes.

PRECAUTIONS

The CCP is responsible for all airway management and must frequently reassess ETT placement, breath sounds, and EtCO2 plus with each patient's movement.

PROCEDURE

Ventilator support must be regulated by a ventilator familiar to the CCP and approved by LEMSA.

In the event of a ventilator failure that cannot be corrected, the CCP will discontinue use of the ventilator and initiate ventilation by BVM with a PEEP valve device and notify the transferring or base hospital physician.

CCP's may utilize the transport ventilator to initiate BiPAP/CPAP/RAM cannula in NIPPV mode or ventilator support for intubated patients in IPPV mode.

Personnel shall monitor PSI level in the main and portable oxygen cylinder(s).

Patients shall be placed and maintained on the cardiac monitor, waveform EtCO2, and pulse oximetry monitored during transport. VTE's and PIP's must be documented along with vital signs per protocol.

CCP's shall continually observe the patient and document patient response to any changes.

CCP's shall chart the initial vent settings and any subsequent changes.

CCP's may adjust ventilator settings consistent with the patient's ABG values and current practice standards to maximize oxygenation, ventilation, and compliance. In general, appropriate settings are as follows:

- Consider use of pressure control (PC) at 10-15 for all patients with interstitial lung disease.
- Mode: SIMV, not AC, is the preferred mode of transport. AC can cause inadvertent breath stacking/triggering.
- Rate: Typically set between 12-20 for adults, 20-40 for peds, and 30-60 for infants. Monitor and adjust for target EtCO2.
- Tidal Volume (Vte): Set at 6 ml/kg of ideal body weight. For ARDS or excessive pressure etiologies consider 4-6 ml/kg.
- Inspiratory Time (I-times):
    - o Neonate 0.30-0.40
    - o Infant 0.40-0.50
    - o Pediatric 0.60-0.80
    - o Adult 0.8-1.0 (max 1.5)
    - o Based on age and disease process. Longer I-times can help contribute to recruitment and an increased mean airway pressure (Paw).
- FiO2: Set to maximize oxygenation and keep SpO2 between 94-99%. Patients should not routinely be set on, and maintained at, 100% FiO2.
- Alarms: High pressure set 10 above actual PIPs and low pressure set 10 below PIP's.
- PEEP: Set at a minimum of 5cm H2O (intrinsic PEEP) for adults/pediatrics and at 3cm H2O for infants. Patients with pulmonary edema, ARDS, and poor oxygenation may require higher PEEPS.

SPECIAL INFORMATION

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:

- Set rate of ventilations
- Adjustable delivered tidal volume
- Adjustable inspiratory and expiratory ratios (I:E ratio)
- Positive End-Expiratory Pressure (PEEP)
- Peak airway pressure gauge
- Modes:
    - o Assist Control (AC)
    - o Pressure Control (PC)
    - o Pressure Regulated Volume Control (PRVC)
    - o Synchronized Intermittent Mandatory Ventilation (SIMV)
    - o Controlled Mechanical Ventilation (CMV)
    - o Continuous Positive Airway Pressure (CPAP)
    - o Bi-Level Positive Airway pressure (BiPAP)
- Alarms:
    - o Peak airway pressure
    - o Disconnect
- Strongly recommended option: Blend percentage oxygen

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

- The units must be inspected and tested after every patient use.
- The units must be disinfected after use unless a disposable unit is used.

- The units shall undergo preventative resting and maintenance by qualified personnel annually.
    - 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.

CCP's must receive thorough initial and continual ventilator training. Such training shall occur, at a minimum, annually. The training shall be documented and on file with the provider.