

CRITICAL CARE TRANSPORT – PARAMEDIC - PROGRAM STANDARDS (#4606)

- I. **PURPOSE:** The Critical Care Transport – Paramedic (CCT-P) Program has been developed to provide an alternative means of transferring stable patients who require, or who may require, care within the CCT-P Scope of Practice during transfer. CCT-P units may be used to transfer patients from acute care facilities, or other medical facilities approved by the EMS Medical Director, to other acute care facilities. Alameda County EMS authorizes and contracts with interested ambulance companies 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 Program authorization may be denied or withdrawn for failure to comply with program standards or failure to submit required fees.
- II. **STAFFING:** A CCT-P unit is a fully equipped advanced life support ambulance, staffed with a minimum of two (2) qualified staff that includes at least one (1) CCT-P.
- A. **Paramedic Personnel:** Paramedics assigned to CCT-P units shall meet the following minimum qualifications:
1. Current and valid California Paramedic License,
 2. Current accreditation in Alameda County,
 3. At least two (2) years full-time field experience as a paramedic in an ALS system,
 4. Current and continuously renewed provider status in BCLS, ACLS, PALS or PEPP, and PHTLS or BTLS,
 5. Successful completion of EMS Agency approved provider training and orientation programs specific to skills used on interfacility transfers.
- B. **EMT-1 Personnel:** EMT's assigned to CCT-P units shall meet the following minimum qualifications:
1. Current and valid EMT-I certification in California,
 2. Current provider status in BCLS,
 3. Successful completion of EMS Agency approved training program specific to skills used to assist Critical Care Transport Paramedics with patient care during ALS interfacility transfers.
- C. Employer shall provide the EMS Agency with a list of all staff working on a CCT-P unit and shall see that this list is updated whenever there is a change in personnel.
- D. Employer shall retain on file, at all times, copies of current and valid credentials for all personnel performing services under this program.
- III. **MEDICAL DIRECTION** - Personnel assigned to a CCT-P unit work under the existing medical control system and follow Alameda County EMS policies and procedures, as approved by the EMS Medical Director.
- A. **CCT- Paramedic Scope of Practice** - The Counties CCT-P Scope of Practice includes each of the County's Basic and Optional Scopes of Practice for paramedics listed in the Alameda County EMS Prehospital Care Manual. In addition, CCT-P's have an expanded scope that includes the administration of intravenous (IV) nitroglycerin (NTG), potassium chloride (KCl), lidocaine, amiodarone chloride, and heparin by IV pump. The use of Automatic Transport Ventilators (ATV) for ventilator dependent patients and midazolam for sedation of ventilator and/or agitated patients.
- B. **Transferring Physician Orders** - The transferring physician specifies standing orders for a patient based on skills and medications included in the County CCT-P scope of practice using a County-approved form.
- C. **Patient Care Outside of the Paramedic Scope of Practice**
1. When a patient's treatment/care is beyond the CCT-P paramedic scope of practice, that patient may be transported by a CCT-P unit only when:
 - a. 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,
 - b. Medication or equipment needed by the patient that is not stocked on the ambulance unit are provided by the sending facility.
 2. Accompanying licensed medical personnel providing care function under their own written standing orders and document any care provided.

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D. Exceptional Situations

1. Critical patients and “on views” - If the CCT-P unit either responds to a private request for transport and finds a patient that requires immediate ALS care, or “on-views” an emergency scene, the CCT personnel shall:
 - a. Activate the 9-1-1 system.
 - b. Provide appropriate patient care, which may include any indicated ALS interventions following Alameda County field treatment guidelines.
 - c. Initiate transport if emergency transport unit is not on-scene and ETA to closest appropriate receiving facility is shorter than ETA of the emergency transport unit.
2. Patient deterioration during transport. If the CCT-P unit responds to a private request for transport and the patient begins to deteriorate after transport has begun, personnel shall:
 - a. Provide appropriate patient care that may include any indicated ALS interventions following Alameda County EMS Field Treatment Guidelines.(Dependent on ALS Units County of Origin.)
 - b. Make base hospital contact if required by EMS protocol.
 - c. Divert to a closer facility if necessary and appropriate, based on patient condition and base hospital direction.
3. CCT-P 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.

IV. DOCUMENTATION

- A. **Patient Care Report** - A written patient care report (PCR), format of which has been approved by Alameda County EMS Agency, shall be accurately completed on each patient.
 1. The PCR shall contain available information regarding call demographics, patient assessment, care rendered, and patient response to care.
 2. A copy of the PCR shall be given to the receiving facility prior to the transfer unit departing the facility.
 3. If the patient is turned over to an emergency transport unit, a copy of the PCR shall be sent with the patient if time permits. If the PCR cannot be completed prior to patient transport, the CCT-P paramedic shall complete the PCR and fax it to the Emergency Department of the receiving facility within twenty four hours.
 4. A copy of each PCR shall also be sent by the first business day to the base hospital, if involved, following the transfer and to the EMS Agency of the responding CCT EMT – Paramedic Unit.

V. CCT-P STAFF PREPARATION AND COURSE APPROVAL PROCESS

- A. Submit a Paramedic Interfacility Transfer Program Application, completed checklist, and supporting documentation to the EMS Agency for approval at least 2 weeks prior to the course start date.

VI. Paramedic interfacility didactic and clinical training requirements**A. Didactic - paramedic**

1. Minimum number of hours for course is 80 didactic hours plus 40 clinical hours.
2. Method of assessing successful course achievement/evaluation must be described.
3. Principle instructor of paramedic training must be a CCT EMT – Paramedic (with approval of the EMS Medical Director)), registered nurse or physician knowledgeable in the subject matter.

B. Course Content o Include:

1. Breathing and airway management
 - a. Pulmonary anatomy and physiology
 - ✓ Upper and lower airway anatomy
 - ✓ Mechanics of ventilation
 - ✓ Gas exchange

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- b. Respiratory pathophysiologies (including signs and symptoms)
 - ✓ Respiratory failure
 - ✓ Atelectasis
 - ✓ Pneumonia
 - ✓ Pulmonary embolism
 - ✓ Pneumothorax / hemothorax
 - ✓ Pleural effusion
 - ✓ Chronic obstructive pulmonary disease
 - ✓ Adult respiratory distress syndrome (ARDS)
- c. Breathing Assessment
 - ✓ Obtaining a relevant history
 - ✓ Physical exam
 - ✓ Breath sounds
 - ✓ Percussion
 - ✓ Pulse oximetry
 - ✓ Capnography (end tidal CO2 monitoring)
- d. Tracheostomies
 - ✓ Types of tracheostomies
 - ✓ Tracheostomy care
- e. Endotracheal intubation – review of procedure
- f. Esophageal tracheal airway device (combitube)
- g. Laryngeal tracheal mask device
- h. Needle cricothyrotomy – review of procedure
- i. Pharmacological agents
 - ✓ Bronchodilators
 - ✓ Anti-inflammatory agents
 - ✓ Antibiotics
 - ✓ Sedation
 - ✓ RSI
- j. Chest tubes
 - ✓ Operation of and troubleshooting,
 - ✓ Indications for and positioning of dependent tubing,
 - ✓ Varieties available,
 - ✓ Gravity drainage,
 - ✓ Suction drainage,
 - ✓ On-going assessments of drainage amount and color
- k. Pleural decompression – review of procedure
- l. Portable ventilators
 - ✓ Principles of ventilator operation
 - ✓ Procedures for transferring ventilator patients
 - ✓ Complications of ventilator management
 - ✓ Troubleshooting and practical application
- 2. Laboratory values
 - (a) Arterial blood gases
 - ✓ The pH scale
 - ✓ Bodily regulation of acid-base balance
 - ✓ Acid-base derangements
 - ✓ Practical evaluation of arterial blood gas results
 - (b) Review of the following laboratory tests to include normal values, possible implications of abnormal values, and interrelationships.
 - (c) Urinalysis
 - ✓ Normal output

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- ✓ Specific gravity
 - ✓ PH range
 - (d) Complete blood count (CBC)
 - ✓ H&H
 - ✓ RBC
 - ✓ WBC with differential
 - ✓ Platelets
 - (e) Other:

<ul style="list-style-type: none"> ✓ Acid phosphate ✓ Albumin ✓ Alkaline phosphate ✓ Amylase ✓ AST ✓ Bilirubin ✓ Calcium ✓ Chloride ✓ Cholesterol ✓ CK/CKMB ✓ Creatinine ✓ Globulin ✓ Glucose ✓ Lactate 	<ul style="list-style-type: none"> ✓ LDH ✓ Lipase ✓ Magnesium ✓ Phosphate ✓ Potassium ✓ Protein, total ✓ PT/INR & PTT ✓ SGOT ✓ SGPT ✓ Sodium ✓ Triglycerides ✓ Troponin ✓ Urea nitrogen/BUN ✓ Uric acid
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 - (f) Practical application of laboratory values to patient presentations.
- 3. Pharmacology and infusion therapies:
 - (a) Review of common medications encountered in the critical care environment to include those in the following categories:
 - ✓ Analgesics
 - ✓ Antianginals
 - ✓ Antiarrhythmics
 - ✓ Anticoagulants
 - ✓ Antihypertensives
 - ✓ Bronchodilators
 - ✓ Paralytics
 - ✓ Sedatives
 - ✓ Thrombolytics
 - ✓ Vasopressors
 - ✓ Volume expanders
 - (b) Review of drug calculation math
 - ✓ IV bolus medication
 - ✓ IV infusion rates (By volume and by rate)
 - (c) Detailed instruction (drug action and indications, dosages, IV calculation, adverse reactions, contraindications and precautions) on following medications:
 - ✓ IV NTG
 - ✓ Heparin
 - ✓ KCl infusion
 - ✓ Lidocaine
 - (d) Blood and blood products
 - ✓ Blood components and their uses in therapy
 - ✓ Administrative procedures
 - ✓ Administration of blood products
 - ✓ Transfusion reactions – recognition, management

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4. Infusion pumps:
 - (a) Operation of, indications for and troubleshooting
 - (b) Discussion of various pumps that may be encountered
 - (c) Discussion of prevention of “run-away” IV lines while transitioning
 - (d) Practical application of transfer of IV infusions, setting drip rates and troubleshooting
 - (e) Procedures to be used when reestablishing IV lines
5. Hemodynamic monitoring and invasive lines:
 - (a) Non-invasive monitoring
 - ✓ NIBP
 - ✓ Pulse oximetry
 - ✓ Capnography
 - ✓ Proper heart, breath, arterial bruit and bowel sounds auscultation
 - (b) Invasive monitoring (use, care, and complication management)
 - ✓ Arterial
 - ✓ Swan-Ganz
 - (c) Vascular access devices
 - ✓ Hickman-Broviac
 - ✓ Porta-cath
 - (d) Dressing and site care
 - (e) Management of complications
6. 12-lead EKG interpretation:
 - (a) Essential 12 lead interpretation
 - (b) Acquisition and transmission
 - (c) Acute coronary syndromes
 - (d) The high acuity patient
 - (e) Bundle branch block and the imitators of ACS
7. Implanted cardioverter defibrillators:
 - (a) Eligible populations
 - (b) Mechanism
 - (c) Complications and patient management
8. Cardiac pacemakers
 - (a) Normal operations, troubleshooting and loss of capture
 - ✓ Implanted devices
 - ✓ Unipolar and bipolar
 - (b) Transvenous pacemakers
 - (c) Transcutaneous pacing
9. Indwelling tubes: (the following should be discussed, described, and preferably demonstrated and/or viewed)
 - (a) Urinary:
 - ✓ Foleys
 - ✓ Suprapubic
 - (b) Nasogastric (NG)
 - (c) PEG
 - (d) Dobhoff
10. Isolation issues:
 - (a) Common pathogens
 - ✓ HIV
 - ✓ Hepatitis
 - ✓ Vancomycin resistant enterococcus (VRE)
 - ✓ Multiple-antibiotic resistant bacteria (MRSA)
 - ✓ Tuberculosis (TB)
 - (b) Procedures for self-protection and decontamination

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- (c) Exposure procedures
 - 11. Shock and multi-system organ failure
 - (a) Pathophysiology of shock
 - (b) Types of shock
 - (c) Shock management
 - (d) Multi-system organ failure
 - ✓ Recognition and management of sepsis
 - ✓ Recognition and management of disseminated intravascular coagulation (DIC)
 - 12. Special population considerations:
 - (a) Renal and peritoneal dialysis
 - (b) Pediatric
 - (c) High Risk OB
 - (d) Neurological
 - (e) Trauma
 - 13. Role of interfacility transfer paramedic:
 - (a) Healthcare system explained
 - (b) Critical care vs. 911 system
 - (c) Hierarchy of hospital / facility nursing staff
 - (d) Hospital charts – where to look for what
 - (e) Physician orders vs. ALS protocols
 - 14. Medical–legal issues:
 - (a) EMTALA
 - (b) COBRA
 - (c) Review of CA paramedic scope of practice and local optional scope
 - (d) Consent issues
 - (e) DNR and physician orders for modified resuscitation
 - 15. CCT operational procedures:
 - (a) Dispatching and deployment
 - (b) Recognition of patients who require a higher level of care
 - ✓ What to do if you are not comfortable with a transport/patient
 - (c) Review of specific county policies
 - (d) Obtaining and receiving reports from sending / receiving facilities
 - (e) Re-calculate infusion drip/dose rate prior to accepting patient
 - (f) Notification to receiving hospital while en route (cell phone)
 - ✓ Patient status and ETA
 - (g) What to do if the patient deteriorates
 - (h) Diversion issues
 - (i) Wait and return calls – continuity of care issues
 - 16. Documentation:
 - (a) Patient consent forms
 - (b) Physician order sheets
 - (c) Critical care flow sheets
 - ✓ Adult
 - ✓ Pediatric
 - ✓ Perinatal
- C. CLINICAL – PARAMEDIC**
- 1. Minimum number of hours for course is 40 clinical hours.
 - 2. Clinical rotation to include the following minimums:
 - (a) 8 hours with respiratory therapist
 - (b) Ride-along observation of 4 interfacility critical care transports, which must include one ventilator transport.

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D. DIDACTIC – EMT-I DRIVER/ASSISTANT

1. A minimum of 750 hours of clinical field experience as an EMT – 1A must be achieved before the Critical Care Transport EMT –P Orientation Course may be taken.
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.
3. Method of assessing successful course achievement/evaluation must be described.
4. Principle instructor of paramedic training must be a CCT EMT – Paramedic, registered nurse or physician knowledgeable in the subject matter.
5. Course content to include:
 - a. Role of the Critical Care EMT:
 - ✓ Critical Care vs. BLS system
 - ✓ EMTALA
 - ✓ COBRA
 - ✓ Reviewed of CA EMT – I scope of practice
 - b. Infusion Pumps:
 - ✓ Operation of and troubleshooting
 - ✓ Discussion of various pumps that may be encountered
 - c. Indwelling Tubes: (The following should be discussed, described and preferably demonstrated and/or viewed)
 - ✓ Urinary:
 - Foleys
 - Suprapubic
 - Nasogastric
 - PEG
 - Dobhoff
 - d. Non –Invasive Monitoring
 - ✓ NIBP
 - ✓ Pulse Oximetry
 - ✓ Capnography
 - e. 12 Lead EKG:
 - ✓ Correct lead placement
 - f. Recognition of proper equipment for assisting the CCT EMT –P with the following procedures:
 - ✓ Intubation
 - ✓ Emergent Cardioversion or Defibrillation
 - ✓ Pleural Decompression
 - ✓ Needle Cricothyrotomy
 - g. Isolation Issues:
 - ✓ Common Pathogens
 - HIV
 - Hepatitis
 - Vancomycin resistant enterococcus (VRE)
 - Methicillin – resistant staphylococcus aureus (MRSA)
 - Tuberculosis (TB)
 - ✓ Procedures for self – protection and decontamination
 - h. Documentation:
 - ✓ Patient consent forms
 - i. CCT Operational Procedures:
 - ✓ Dispatching and deployment
 - ✓ Review of specific County Policies

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VI. CONTINUOUS QUALITY IMPROVEMENT (CQI) PLAN

- A. A CCT-P program shall have a written CQI plan approved by the EMS Agency.
- B. A Registered Nurse or physician shall have clinical oversight of the CCT-P CQI plan.
- C. Provider's CQI staff shall evaluate all CCT-P transfers for medical appropriateness.
 - 1. Specific review for use of intravenous NTG, Heparin, Amiodarone and KCl will include:
 - a. Review of transferring physician's orders and evidence of compliance with orders.
 - b. Documentation of vital signs, including frequency.
 - c. Documentation of any side effects/complications including hypotension, bradycardia, increasing chest pain, arrhythmia, altered mental status, and interventions with these events.
 - d. Documentation of any unanticipated discontinuation or rate adjustments of infusions along with rationale and outcome.
 - e. Review of any base contact or contact or transferring physician for orders during transport.
 - 2. Significant complications shall be communicated to the EMS agency by the next business day.
- D. CQI Plans shall include provisions for continuing education including types of activities, frequency, and required hours.
- E. EMS Agency will receive quarterly reports summarizing CQI activity, identified trends, and resolutions.

VII. COMPETENCY STANDARDS - All critical care transport paramedics shall meet the following requirements to maintain their County approval to function with their advanced scope of practice:

- A. Minimum of six shifts per quarter on a CCT – P Unit
- B. Completion of annual CCT – P competency skills listing will include the following:
 - 1. Oral intubation, adult and pediatric
 - 2. Combitube insertion
 - 3. Bougie insertion
 - 4. Needle Cricothyrotomy
 - 5. Needle Thoracostomy
 - 6. Intraosseous Needle Insertion
 - 7. Ventilator Application
 - 8. CCT – P Drip Calculations
- C. Compliance with competency standards is required to maintain standing as an active CCT-P in Alameda County. Any variance requires approval of the EMS Medical Director.
- D. **Skill list may be expanded at the discretions of the Local EMS Agency**
- E. Educational standards time requirements must be approved by the EMS Agency.