PRE-HOSPITAL PATIENT CARE PROTOCOL

CLINICAL PROCEDURES

Section IV

Rappahannock EMS Council
435 Hunter Street
Fredericksburg, VA 22401

BASIC LIFE SUPPORT/ADVANCED LIFE SUPPORT
CLINICAL PROCEDURE PROTOCOL

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TABLE OF CONTENTS

Scope of Practice Table

Skill or Procedure	FR	EMT-B	EMT-/E	EMT- I	EMT-P	CCP/AP
Airway – Blind Insertion Airway Device (BIAD)	X	S	S	S	S	S
Airway – BVM, Adult	S	S	S	S	S	S
Airway – BVM, Pediatric (< 16 yrs old)	S	S	S	S	S	S
Airway - CPAP/BiPAP – Adult	X	O	O	S	S	S
Airway – ET, Digital – Adult	X	X	X	S	S	S
Airway – ET, Nasal – Adult	X	X	X	X	S	S
Airway – ET, Oral – Adult	X	X	X	S	S	S
Airway – ET, Oral – Pediatric (< 16 years)	X	X	X	X	S	S
Airway – ET, Oral – Neonatal (<= 30days)	X	X	X	X	S	S
Airway – Mechanical/Transport Ventilator – Adult	X	X	X	S	S	S
Airway – Mechanical/Transport Ventilator – Pediatric (< 16 yrs old)	X	X	X	S	S	S
Airway – Nasopharyngeal	S	S	S	S	S	S
Airway – Oropharyngeal	S	S	S	S	S	S
Airway – Position (Chin-Lift; Jaw Thrust)	S	S	S	S	S	S
Airway – Needle Cricothyroidotomy	X	X	X	X	R-OMD	S
Airway – Surgical Cricothyroidotomy	X	X	X	X	R-OMD	S
Child Birth	S	S	S	S	S	S
EKG – Interpret a 12 Lead EKG	X	X	X	S	S	S
EKG – Obtain a 12 Lead EKG	X	S	S	S	S	S
EKG - Single Lead Interpretation	X	X	X	S	S	S
Electrical Therapy – Manual Defibrillation	X	X	X	C-ACLS	C-ACLS	S
Electrical Therapy – Cardioversion	X	X	X	C-ACLS	C-ACLS	S
Electrical Therapy – Transcutaneous Pacing	X	X	X	C-ACLS	C-ACLS	S
Foreign Body removal – extremities ONLY	X	X	X	X	X	S
Gastric Decompression – Adult	X	X	X	S	S	S
Gastric Decompression – Pediatric (<16 yrs old)	X	X	X	X	S	S
Hemostatic agent use	S	S	S	S	S	S
IO – Adult	X	X	X	S	S	S
IO – Pediatric (<16 yrs old)	X	X	X	C-PALS	C-PALS	S
IV – Blood Draw with IV Start	X	X	S	S	S	S
IV – Bolus Crystalloid Fluid w/o meds	X	X	S	S	S	S
IV – Monitor IV rate and patency	X	S	S	S	S	S
IV – Peripheral, Adult	X	X	S	S	S	S
IV – Peripheral, External Jugular	X	X	X	X	S	S
IV – Peripheral, Pediatric (<16 yrs old)	X	X	X	S	S	S
IV – Set Up IV Fluid and Drip Set	X	S	S	S	S	S
Mechanical CPR Device (apply & use)	S	S	S	S	S	S
Medication Administration – IH (ET)	X	X	X	S	S	S

Medication Administration – IH (MDI)	X	S	S	S	S	S
Medication Administration – IH (Nebulizer)	X	S	S	S	S	S
Medication Administration – IM	X	X	S	S	S	S
Medication Administration – IN	X	X	S	S	S	S
Medication Administration – IV – Adult	X	X	S	S	S	S
Medication Administration – IV – Pediatric	X	X	X	S	S	S
Medication Administration – Maintain Continuous IV Drip or Piggyback	X	X	X	S	S	S
Medication Administration – Patient Assisted with Home Prescription	X	S	S	S	S	S
Medication Administration – PO	X	S	S	S	S	S
Medication Administration – PR	X	X	X	S	S	S
Medication Administration – SL	X	S	S	S	S	S
Medication Administration – SQ	X	X	S	S	S	S
Medication Administration – Start Continuous IV Drip	X	X	X	S	S	S
Medication Administration – TD	X	X	X	S	S	S
Needle Chest Decompression - Adult	X	X	X	C-ITLS	C-ITLS	S
Needle Chest Decompression – Neonatal (< 30 days)	X	X	X	C-NRP	C-NRP	S
Needle Chest Decompression – Pediatric (< 16 years)	X	X	X	C-PALS	C-PALS	S
Pericardiocentesis	X	X	X	X	X	S
Suction Endotracheal	X	X	X	S	S	S
Suction Meconium Aspiration with ET	X	X	X	X	C-NRP	S
Therapeutic Hypothermia	X	X	S	S	S	S

CERTIFICATION DEFINITIONS

FR = Currently certified as a Virginia EMT-First Responder with no OEMS and/or OMD limitations
EMT-B = Currently certified as a Virginia EMT-Basic with no OEMS and/or OMD limitations
EMT-E = Currently certified as a Virginia EMT-Enhanced with no OEMS and/or OMD limitations
EMT-I = Currently certified as a Virginia EMT-Intermediate with no OEMS and/or OMD limitations
EMT-P = Currently certified as a Virginia EMT-Paramedic with no OEMS and/or OMD limitations
CCP/AP = Currently certified as a National Registry and Virginia EMT-Paramedic who has completed an advanced practice curriculum or an advanced/critical care certification such as FP-C, CCEMT-P, CICP, etc. Also recommended to include ATLS training and EMS degree. ALSO must have current OMD authorization to practice at this level on file at the REMS Council.

ORDER DEFINITIONS

S = Standing order – may be performed based simply on EMS Certification as defined above
O = On-line medical control order is required PRIOR to attempting the procedure
C-ACLS = Conditional upon provider having current ACLS card; ***without current ACLS reverts to "O"***
C-PALS = Conditional upon provider having current PALS, PPC or PEPP; ***without it reverts to "O"***
C-ITLS = Conditional upon provider having current ITLS/PHTLS; ***without certification it reverts to "O"***
C-NRP = Conditional upon provider having current NRP; ***without certification it reverts to "O"***
R-OMD = Restricted to specific providers – regardless of Virginia EMS certification – that have specific authorization from OMD on file at REMS
X – NOT PERMITTED

Authorized Medication Table

Medication – generic name (trade)	FR	EMT-B	EMT-/E	EMT- I	EMT-P	CCP/AP
Acetylsalic Acid (Aspirin)	X	S	S	S	S	S
Adenosine (Adenocard)	X	X	X	S	S	S
Amidate (Etomidate)	X	X	X	S	S	S
Amiodarone (Cordarone)	X	X	X	S	S	S
Atropine Sulfate (Atropine)	X	X	X	S	S	S
Calcium Chloride (Calcium)	X	X	X	S	S	S
Dextrose 50%, 25%, 10% (D50,D25,D10)	X	X	S	S	S	S
Diazepam (Valium)	X	X	X	S	S	S
Diltiazem Hydrochloride (Cardizem)	X	X	X	S	S	S
Diphenhydramine (Benadryl)	X	X	S	S	S	S
Dopamine (Dobutrex)	X	X	X	S	S	S
Epinephrine (IM)	X	S	S	S	S	S
Epinephrine (IV/IO/SQ)	X	X	S	S	S	S
Fentanyl Citrate (Sublimaze)	X	X	X	S	S	S
Furosemide (Lasix)	X	X	X	S	S	S
Glucagon (GlucaGen)	X	X	S	S	S	S
Ipratropium (Atrovent)	X	S	S	S	S	S
Ketamine (Ketalar)	X	X	X	X	X	S
Lidocaine (Xylocaine)	X	X	X	S	S	S
Lorazepam (Ativan)	X	X	X	S	S	S
Magnesium Sulfate (Magnesium)	X	X	X	S	S	S
Methylprednisolone (Solu-Medrol)	X	X	X	S	S	S
Midazolam Hydrochloride (Versed)	X	X	X	S	S	S
Morphine Sulfate (Morphine)	X	X	X	S	S	S
Naloxone (Narcan)	X	X	S	S	S	S
Nitroglycerin (Nitrostat) (SL)	X	S	S	S	S	S
Nitroglycerin (Tridil) (IV)	X	X	X	X	S	S
Ondansetron (Zofran)	X	X	S	S	S	S
Oxygen	S	S	S	S	S	S
Pralidoxime (Protopam Chloride)	S	S	S	S	S	S
Proventil / Ventolin (Albuterol)	X	S	S	S	S	S
Sodium Bicarbonate	X	X	X	S	S	S
Vasopressin (Pitressin)	X	X	X	S	S	S
Wysolone (Prednisolone)	X	X	X	S	S	S

ORDER DEFINITIONS

S = Standing – may be administered based on EMS Certification as defined in scope of practice

X – Medication NOT PERMITTED to be administered at that certification level

Rappahannock EMS Council
Regional Treatment Protocols
Clinical Procedures

12-lead Electrocardiogram

Criteria:

1. All patients that are complaining of chest pain (exception for trauma with no suspicion of myocardial contusion).
2. Any patient who has a complaint or finding of syncope without seizure or blood loss; CHF or pulmonary edema; overdose; back pain without trauma; shortness of breath with clear breath sounds; and/or unexplained diaphoresis.
3. Any patient found to have a heart rate greater than 150 or less than 50.

Provider:	Order/Treatment:	Order Type:
FR	1. Treatment of life-threatening conditions should occur prior to obtaining a 12-lead EKG. 2. Administer Oxygen and assure SaO2 > 90%. Assess for and treat for shock (body position and warming).	S - Standing
EMT-B	3. If patient's condition warrants, request ALS. DO NOT wait on scene or delay patient transport waiting for ALS. 4. Place 10 electrodes on patient's chest in this order and location: RA - right arm, upper arm, or upper chest near the right shoulder LA - left arm, upper arm, or upper chest near the left shoulder RL - right leg or lower abdominal quadrant near the right hip LL - left leg or lower abdominal quadrant near the left hip V1 - 4th intercostal space, immediately to the right of the sternum V2 - 4th intercostal space, immediately to the left of the sternum V4 - 5th intercostal space, midclavicular line left chest (V4 should be placed prior to V3 and V4R is the same landmark, right chest) V6 - 5th intercostal space, midaxillary line of left chest V3 - midway between V2 and V4 V5 - midway between V6 and V4 5. Once the EKG is obtained, print a copy and read the text information printed on the strip. See CP protocol for additional. 6. Transmit the EKG or provide to ALS when they arrive.	S - Standing

Notes:

1. The accuracy of information obtained from an EKG is dependent on the proper placement of the electrodes. When applying the arm and leg leads the right and left should at the same location (for example, you can use the right shoulder and left shoulder but you can NOT use the right wrist and left shoulder).
2. The mid-axillary line divides the anterior and posterior portions of the body and can be found by making an imaginary line down from the middle of the armpit.
3. Correct placement of the precordial (chest) leads requires locating landmarks. The Angle of Louis is located at the sternal ridge on the upper third of the sternal bone and it is the point where the manubrium meets the sternal body. This is the point where the second rib attaches and the space below the sternal ridge is the second intercostal space. Using palpation, and counting two ribs down from this point you will locate the fourth intercostal space.

Rappahannock EMS Council
Regional Treatment Protocols
Clinical Procedures

Airway Management

Criteria:

1. Patients that are not able to maintain a secure natural airway.

Provider:	Order/Treatment:	Order Type:
FR	1. Administer Oxygen and assure SaO2 > 90%. Assess for and treat for shock (body position and warming).	S - Standing
EMT-B	2. Position/open airway manually (head-tilt chin-lift or jaw thrust). 3. Insert OPA or NPA depending patient's tolerance and condition. 4. If respirations are < 8, assist with BVM and supplemental Oxygen. 5. If the patient has no gag and accepts the oral airway, place BIAD (King, Combitube, pTl, etc.)	S - Standing
EMT-I	6. If BLS procedures are not adequate to secure the airway prepare for endotracheal intubation. 7. If the patient has no gag reflex and has accepted the OPA, place oral ETT.	S - Standing
EMT-P	8. If the patient has a patent gag or is combative/resisting airway management administer 0.3 mg/kg IV Etomidate (Amidate) and then attempt to place ETT. 9. After successful intubation, maintain sedation with 0.1 mg/kg IV Versed (Midazolam), maximum single dose of 10 mg. 10. If the patient has no contraindications, a nasotracheal intubation can be performed instead of oral intubation when complications with equipment prevent standard endotracheal intubation. 11. If UNABLE to ventilate the patient with BVM and BLS procedures AND UNABLE to intubate or secure airway with rescue airway perform a needle or surgical cricothyroidotomy.	S - Standing
EMT-P	12. Once a secure airway (ETT) has been placed, the patient should be managed with a mechanical ventilator. - tidal volume of 5-8 cc/kg, rate of 8-12 for adults, - ventilator settings should be adjusted to maintain SaO2 >90% and ETCO2 between 35 and 45. 13. Patients with a secure airway should also have an OG/NG tube placed to relieve any gastric distention that occurred during BVM ventilation.	S - Standing
CCP / AP	14. If unable to achieve adequate sedation with Etomidate alone, you may add Fentanyl (Sublimaze) 1-2 mcg/kg up to maximum single dose of 250 mcg. 15. If patient condition doesn't warrant surgical or needle cric but still requires secured airway, perform retrograde intubation.	S - Standing

Notes:

1. Versed and Valium both cause respiratory depression - monitor ventilatory effort closely after administration, provide Oxygen, monitor and protect airway. Consider using MIDAZOLAM (VERSED) for sepsis patients.
2. Intubated patients must have confirmation through ETCO2 capnometry and should be monitored through continuous ETCO2 capnography.

Rappahannock EMS Council
Regional Treatment Protocols
Clinical Procedures

Fibrinolytic Screening

Criteria:

1. Patients 18 years of age or older that are a candidate for fibrinolytics and displaying symptoms of acute myocardial infrarction* or acute cerebrovascular accident.

Provider:	Order/Treatment:	Order Type:
CCP / AP	1. If the patient (or person providing HPI) is a reliable historian gather the appropriate information and complete EMS fibrinolytic screening. 2. Contraindications for screening include: - hemophilia; active ulcerative disease; pregnancy; GI/GU bleeding - trauma or significant surgery within 2 weeks; any active bleeding - suspected aortic dissection; BP > 220 SBP and 110 DBP - patient received more than 10 minutes of chest compressions/CPR	S - Standing
CCP / AP	3. Check for the following exclusion criteria and deliver the completed checklist with the patient to the receiving facility: - Have you had any active internal bleeding within the last four weeks (black/tarry stools or hematemesis)? - Have you ever had a CVA or TIA? - Have you had ANY surgery in the last four weeks? If so, what? - Have you been told you have a brain tumor, AVM, or aneurysm? - Do you have hemophilia or any known bleeding disorders? - Have you used cocaine or amphetamines in the last three days? - Have you been told you have pericarditis or endocarditis? - Are you pregnant? - Have you taken any oral anticoagulation medication in the last three days? Provider Questions: - Does the patient have VS that exceeds 180 systolic or 110 diastolic? - Does the patient have signs of cardiogenic shock, SBP < 90 mmHG or are they intubated? - Has the patient received CPR or had significant trauma? - Does the patient have symptoms of a dissecting aneurysm (back pain, unequal BP, unequal pulses, etc)? 4. If the patient's and provider's answers to ALL of the above questions are NO inform the receiving facility the patient is a potential candidate for fibrinolytics and has passed an EMS screening.	S - Standing

Notes:

1. * Ischemic chest pain greater than 30 minutes, but less than 12 hours and/or ST elevation > 1 mm in 2 or more contiguous leads or ST elevation > 2mm in 2 or more contiguous precordial leads or presumed new LBBB

Rappahannock EMS Council
Regional Treatment Protocols
Clinical Procedures

Intravenous and Intraosseous Access

Criteria:

1. Patients that require ALS interventions or would benefit from fluid administration.
2. IO should be considered in patients who are in cardiac arrest or after failed IV access (> 90 seconds) during life-threatening circumstances when the patient's condition is dependent on prompt vascular access.

Provider:	Order/Treatment:	Order Type:
EMT-E/AEMT	1. Primary sites for IV access are peripheral (hands, arms, antecubital fossa, and saphenous vein) with alternates as scalp veins and external jugular veins. 2. Peripheral IVs should be established within 90 seconds if the patient is critical and they should NEVER delay transport of the patient.	S - Standing
EMT-I	3. When an IV is not able to be established after adequate attempts (more than 2 attempts, more than 1 provider, more than several minutes of delay in attempting) CONSIDER placing an IO based on the patient's condition and the need for access. 4. When the patient is unresponsive or unstable and vascular access is deemed potentially life-saving, an IO line should be established. 5. Once the IO is established, flush the line with 20-40mg of 2% Lidocaine for adults (*0.5 mg/kg for pediatric patients*) if the patient is responsive to pain.	S - Standing

Notes:

1. Absolute contraindications for IO include a fracture in the bone to be used, relative contraindications include a fracture in the same extremity. IO should be deferred in limbs or sites where circulation from that limb is severely compromised. Limit of one IO attempt per limb.

Rappahannock EMS Council
Regional Treatment Protocols
Clinical Procedures

Mark I Kit

Criteria:

1. Patients that symptomatic after exposure to organophospharous pesticides or nerve agents.

Provider:	Order/Treatment:	Order Type:
FR	1. Administer Oxygen and assure SaO2 > 90%. Assess for and treat for shock (body position and warming).	S - Standing
EMT-B	2. Obtain and administer the Mark I autoinjector kit (Atropine 2mg and 2 PAM C1 600 mg IM) every five (5) minutes while symptoms persist until a total of three (3) have been given	S - Standing
EMT-I	3. If the Mark I kits are unavailable or signs/symptoms of organophosphate persist consider Atropine Sulfate 2 mg IV/IO/IM q 5 minutes to maximum dose of 6 mg or 0.04 mg/kg . 4. If patient is actively seizing, administer Mark I kit in ADDITION to anti-convulsants per seizure protocol.	S - Standing

Notes:

1. Signs and symptoms of nerve agent exposure (SLUDGEM)
   - salivation, lacrimation, urination, defecation, GI distress, emesis, and miosis
2. Mark I kits are NOT approved for children < 14 years of age.
3. Duodote autoinjector kits may be substituted for Mark I kits if available.

Rappahannock EMS Council
Regional Treatment Protocols
Clinical Procedures

Needle Chest Decompression

Criteria:

1. Patients with blunt or penetrating trauma to the chest who have diminished or absent breath sounds with TWO of the following: poor ventilation, jugular vein distention, tracheal deviation, or signs/symptoms of shock (hypotension, respiratory distress, etc)
2. Indicated for large pneumothorax and/or hemopneumothorax in patients with respiratory distress or patients with clinical signs of tension pneumothorax.
3. Patients in cardiac arrest with signs of chest/abdominal trauma.

Provider:	Order/Treatment:	Order Type:
FR	1. Administer Oxygen and assure SaO2 > 90%. Assess breathing and assist with BVM as needed. Assess for and treat for shock (bleeding control, body position and warming).	S - Standing
EMT-E/AEMT	2. Establish one, preferably two, LARGE bore peripheral IVs and titrate NS to maintain SBP at or above 100 mm Hg.	S - Standing
EMT-I	3. Assess breathing and chest, if signs of significant or TENSION PNEUMOTHORAX (not a simple pneumothorax) perform anterior (2^{nd}/3^{rd} ICS) needle thoracostomy. If large hemothorax is suspected perform lateral (4^{th}/5^{th} ICS) needle thoracostomy.	S - Standing
CCP / AP	4. If patient is in cardiac arrest and has chest trauma, perform pericardiocentesis.	S - Standing

Notes:

1. Consider mechanism of injury and provide spinal precautions as necessary for the injury and patient condition.
2. Patients who are not hypotensive or in respiratory distress are NOT generally considered to have an injury which requires NCD.

Rappahannock EMS Council
Regional Treatment Protocols
Clinical Procedures

Therapeutic Hypothermia

Criteria:

1. Patients > 45 kg (with signs of puberty) in confirmed non-traumatic cardiac arrest.
2. Unwitnessed cardiac arrest patients that have ROSC after CPR who had initial presenting rhythm of VF or VT.
3. Witnessed cardiac arrest patients that have ROSC after CPR (regardless of presenting rhythm).

Provider:	Order/Treatment:	Order Type:
FR	1. Administer Oxygen and assure SaO2 > 90%. Assess for and treat for shock (body position ONLY - do not warm the patient).	S - Standing
EMT-B	2. Perform 12 lead EKG as soon as practical after ROSC.	S - Standing
EMT-I	3. Follow standard ACLS/PALS post-resuscitation treatment algorhithms. 4. Obtain baseline core temperature if possible. 5. Begin rapid administration of 30 cc/kg (maximum of 2000 cc) cooled normal saline IV or IO. 6. If unable to secure IV/IO apply ice packs to groin, neck, and axilla. 7. Attach impedance threshold device (ITD) to ETT if available. 8. Maintain MAP > 80 mmHg using Dopamine infusion 2-20 mcg/kg/min. 9. Monitor patient for shivering and treat with Versed (Midazolam) 0.1 mg/kg up to maximum single dose of 10 mg - AVOID HYPOTENSION and closely monitor VS.	S - Standing

Notes:

1. Strongly consider transporting patient to facility with established hypothermia protocol and notify receiving facility or air transport agency that you have initiated therapeutic hypothermia.
2. Shivering is considered uncomfortable and it is a source of heat, which interferes with this therapy and it increases the metabolic demands of the patient. Eliminate shivering when the BP will tolerate sedation.
3. IV fluids should be maintained at 4 degrees Celcius (39 degrees Fahrenheit).

Rappahannock EMS Council
Regional Treatment Protocols
Clinical Procedures

Ventilators and CPAP

Criteria:

1. CPAP: Patients that are awake but in respiratory distress related to pulmonary edema, asthma, COPD, and have a pulse oximetry reading less than 90%.
2. Ventilators: Patients that have been intubated and require positive-pressure ventilation.

Provider:	Order/Treatment:	Order Type:
EMT-B	1. Based on the patient's condition (see difficulty breathing protocol) if CPAP has been deemed necessary, assemble the equipment. 2. Assess for contraindications. If none, apply mask to patient and begin CPAP at 5 mmHg, titrate pressure to maximum of 10 mmHg looking for SaO2 >90% Contraindications: decreased LOC, hypoventilation, airway trauma, pneumothorax, tracheostomy, and extremely unstable vital signs (cardiopulmonary arrest imminent).	O - Med Control
EMT-I	3. Virginia EMT-I and EMT-P can apply and use CPAP with same parameters without requiring medical control. Consider sedation from the altered states of comfort protocol if the patient's VS will tolerate.	S - Standing
EMT-I	4. Non-trauma patients that have been intubated and have a secure airway should be ventilated with a mechanical ventilator (hand bag trauma patients unless peak airway pressures can be closely monitored). - Tidal volume of 5-8 cc/kg and rate of 8-12, titrate for ETCO2 of 35-45 and SaO2 >90%.	S - Standing

Notes: