

PRE-HOSPITAL PATIENT CARE PROTOCOL

CLINICAL PROCEDURES

Section IV

**Rappahannock EMS Council
250 Executive Center Parkway
Fredericksburg, VA 22401**

**BASIC LIFE SUPPORT/ADVANCED LIFE SUPPORT
CLINICAL PROCEDURE PROTOCOL**

REVISED 06/07, 12/09, 06/11, 10/17, 05/19, 04/22, 07/22, 01/23
BOARD APPROVED 06/07; 12/15; 10/17; 06/19, 05/22

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Scope of Practice Table

Skill or Procedure	EMR	EMT	AEMT	EMT- I	EMT-P
Airway – Blind Insertion Airway Device (BIAD)	X	AP	S	S	S
Airway – BVM, Adult & Pediatric	S	S	S	S	S
Airway - CPAP/BiPAP – Adult	X	AP	AP	AP	AP
Airway – High Flow Nasal Cannula	X	X	AP	AP	AP
Airway – ET, Nasal – Adult	X	X	X	X	S
Airway – ET, Oral – Adult	X	X	X	S	S
Airway – ET, Oral – Pediatric (< 12 years)	X	X	X	X	AP
Airway – ETCO2	X	AP	S	S	S
Airway – Mechanical Ventilator – Monitor existing home/chronic ventilator	X	R-OMD	R-OMD	S	S
Airway – Mechanical Ventilator – Initiate/manage	X	X	X	AP	AP
Airway – Oropharyngeal or Nasopharyngeal	S	S	S	S	S
Airway – Position (Chin-Lift; Jaw Thrust)	S	S	S	S	S
Airway – Rapid Sequence Intubation (RSI)	X	X	X	X	AP
Airway – Needle Cricothyroidotomy	X	X	X	X	R-OMD
Airway – Surgical Cricothyroidotomy	X	X	X	X	R-OMD
Childbirth	S	S	S	S	S
EKG – Interpret a 12 Lead EKG	X	X	X	S	S
EKG – Obtain a 12 Lead EKG	S	S	S	S	S
EKG - Single Lead Interpretation	X	X	X	S	S
Electrical Therapy – Manual Defibrillation	X	X	X	S	S
Electrical Therapy – Cardioversion	X	X	X	S	S
Electrical Therapy – Transcutaneous Pacing	X	X	X	S	S
Extracorporeal Membrane Oxygenation (ECMO)	X	X	X	X	X
Gastric Decompression	X	X	S	S	S
Bleeding Control	S	S	S	S	S
Intra-aortic Balloon Pump (IABP) transport	X	X	X	X	X
IO – Initiate	X	X	S	S	S
IV – Access Indwelling Port (Mediport)	X	X	X	AP	AP
IV – Access PICC	X	X	X	R-OMD	S
IV – Monitor IV rate and patency	X	S	S	S	S
IV – Peripheral, Initiate	X	X	S	S	S
IV – Set Up IV Fluid and Drip Set	X	S	S	S	S
IV – Umbilical Catheter	X	X	X	X	AP
Mechanical CPR Device (apply & use)	S	S	S	S	S
Medication Administration – IH (ET)	X	X	X	S	S
Medication Administration – IH (MDI)	X	S	S	S	S
Medication Administration – IH (Nebulizer)	X	R-OMD	S	S	S
Medication Administration – IM	X	R-OMD	S	S	S
Medication Administration – IN* Fixed Dose Medication	S	S	S	S	S
Medication Administration – IN* Dose Calculation/Measurement	X	X	S	S	S

Skill or Procedure	EMR	EMT	AEMT	EMT- I	EMT-P
Medication Administration – IV – Adult	X	X	S	S	S
Medication Administration – IV – Pediatric	X	X	S	S	S
Medication Administration – Patient Assisted with Home Prescription	X	S	S	S	S
Medication Administration – PO	X	S	S	S	S
Medication Administration – PR	X	X	S	S	S
Medication Administration – SL	X	S	S	S	S
Medication Administration – SQ	X	X	S	S	S
Medication Administration – TD	X	S	S	S	S
Needle Chest Decompression	X	X	X	S	S
Pericardiocentesis	X	X	X	X	AP
Resuscitative Endovascular Balloon Occlusion	X	X	X	X	X
Suction Endotracheal	X	S	S	S	S
Suction Meconium Aspiration with ET	X	X	X	X	AP
Therapeutic Hypothermia	X	X	X	X	X
Pre-Hospital Ultrasound	X	X	X	X	R-OMD

CERTIFICATION DEFINITIONS

EMR = Currently certified as a Virginia EMT-First Responder with no OEMS/EMS PHYSICIAN limitations
EMT = Currently certified as a Virginia EMT-Basic with no OEMS/EMS PHYSICIAN limitations
AEMT = Currently certified as a Virginia Advanced EMT with no OEMS/EMS PHYSICIAN limitations
EMT-I = Currently certified as a Virginia EMT-Intermediate with no OEMS/EMS PHYSICIAN limitations
EMT-P = Currently certified as a Virginia EMT-Paramedic with no OEMS/EMS PHYSICIAN limitations
AP = Advanced Practice per OEMS Scope of Practice. Requires a provider to receive additional training designated by current EMS PHYSICIAN. ALSO, must have specific authorization to perform this skill/procedure on file at the REMS Council. These items are identified with a red background in the protocols.

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
R-OMD = Skill is standing order per OEMS Scope of Practice, is but restricted to specific providers within the REMS Council – regardless of Virginia EMS certification – that have specific authorization from current EMS PHYSICIAN on file at REMS. These items are identified with a red background in the protocols.
X = NOT PERMITTED

Authorized Medication Table

Medication – generic name (trade)	EMR	EMT	AEMT	EMT- I	EMT-P
Acetylsalicylic Acid (Aspirin)	X	S	S	S	S
Adenosine (Adenocard)	X	X	X	S	S
Albuterol (Proventil)	X	S	S	S	S
Amidate (Etomidate)	X	X	X	X	AP
Amiodarone (Cordarone)	X	X	X	S	S
Atropine Sulfate (Atropine)	X	X	X	S	S
Calcium (Calcium Chloride / Gluconate)	X	X	X	S	S
Dextrose 50%, 25%, 10% (D50, D25, D10)	X	X	S	S	S
Diltiazem Hydrochloride (Cardizem)	X	X	X	S	S
Diphenhydramine (Benadryl)	X	X	S	S	S
Dopamine (Dobutrex)	X	X	X	S	S
Epinephrine	X	S	AP	S	S
Fentanyl Citrate (Sublimaze)	X	X	S	S	S
Furosemide (Lasix)	X	X	X	S	S
Glucagon (GlucaGen)	X	S	S	S	S
Ipratropium (Atrovent)	X	S	S	S	S
Ketamine (Ketalar) – Pain Management	X	X	X	S	S
Ketamine (Ketalar) – Sedation/Restraint	X	X	X	X	AP
Ketorolac (Toradol)	X	X	S	S	S
Lidocaine (Xylocaine)	X	X	S	S	S
Metoprolol (Lopressor)	X	X	X	S	S
Magnesium Sulfate (Magnesium)	X	X	X	S	S
Methylprednisolone (Solu-Medrol)	X	X	S	S	S
Midazolam Hydrochloride (Versed) - Sedation	X	X	X	S	S
Midazolam Hydrochloride (Versed) - Anticonvulsant	X	X	S	S	S
Naloxone (Narcan)	S	S	S	S	S
Nitroglycerin	X	S	S	S	S
Ondansetron (Zofran)	X	S	S	S	S
Oxygen	S	S	S	S	S
Rocuronium (Zemuron)	X	X	X	X	AP
Sodium Bicarbonate	X	X	X	S	S
Tranexamic Acid	X	X	S	S	S
Vecuronium (Norcuron)	X	X	X	X	AP

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
 AP = Advanced Practice per OEMS Scope of Practice. Requires a provider to receive additional training designated by current EMS PHYSICIAN. ALSO, must have specific authorization to perform this skill/procedure on file at the REMS Council. These items are identified with a red background in the protocols.



**RAPPAHANNOCK REGIONAL EMS COUNCIL
PATIENT CARE PROTOCOLS**

Clinical Procedures – 12-lead Electrocardiogram	
Criteria:	
<ol style="list-style-type: none"> 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 	
EMR	Treatment of life-threatening conditions should occur prior to obtaining a 12-lead EKG.
B	<p>If patient's condition warrants, request ALS. DO NOT wait on scene or delay patient transport waiting for ALS</p> <p>Place 10 electrodes on patient's chest in this order and location:</p> <ul style="list-style-type: none"> 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 <p>Once the EKG is obtained, print a copy and read the text information printed on the strip. See CP protocol for additional information. Transmit the EKG or provide to ALS when they arrive.</p>
Notes:	
<ol style="list-style-type: none"> 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) 	



**RAPPAHANNOCK REGIONAL EMS COUNCIL
PATIENT CARE PROTOCOLS**

Airway- Management	
Criteria: Patients that are not able to maintain a secure airway.	
B	If respirations are <8, assist with BVM ventilations and supplemental Oxygen.
	If the patient has no gag and accepts the oral airway, place BIAD.
I	If BLS procedures are not adequate to secure the airway, and the patient is 13 years or older, insert an oral endotracheal tube. Place OG/NG tube placed to relieve any gastric distention.
	Once a definitive airway 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 an appropriate SaO2 and ETCO2.
P	If BLS procedures are not adequate to secure the airway, and the patient is 12 years or younger, insert an oral endotracheal tube.
	If patient has a patent gag or is combative/resisting airway management, see RSI protocol.
	If the patient has no contraindications, a nasotracheal intubation can be performed instead of oral intubation when complications with equipment prevent standard endotracheal intubation.
If UNABLE to ventilate the patient with BVM ventilations and BLS procedures AND UNABLE to intubate or secure with rescue airway perform a needle or surgical cricothyroidotomy.	
<p><u>Notes:</u></p> <ol style="list-style-type: none"> 1. If a portion or combination of steps resolves the barrier to airway management, placement of endotracheal tube is not a required end-point. 2. If above attempts are unsuccessful, delayed sequence intubation should be considered. 3. Intubated patients must have confirmation through ETCO2 capnometry and shall be monitored through continuous ETCO2 capnography. 4. Providers are encouraged to research and use shock index as an indicator of post-intubation complications such as hypotension. The prevention of hypotension and other complications are important to ensure the most favorable patient outcome long term. 	



RAPPAHANNOCK REGIONAL EMS COUNCIL

PATIENT CARE PROTOCOLS

Airway- Rapid Sequence Intubation (RSI- Paralytic)

Criteria:

1. Patients who are not able to maintain a secure natural airway and need AIRWAY PROTECTION due to hemorrhage, aspiration, edema, and risk for airway occlusion; patients who need AIRWAY PROTECTION due to altered LOC, head injury, multiple trauma, burns, overdose, stroke, infections, etc.
2. Patients suffering from respiratory failure due to uncontrolled seizure activity, status asthmaticus, shock, or other conditions.
3. Patients with a projected poor clinical course.

B

If respirations are <8, assist with BVM ventilations and supplemental Oxygen.

Apply nasal cannula and administer 10 lpm of Oxygen.

For hypotension with signs of hypoperfusion after NS: administer 5-20 mcg **Epinephrine 1:100,000** q 2-5 minutes as a push pressor or 2-10 mcg/min as an infusion. Titrate for SBP > 90 mmHg or MAP > 60.

For induction: administer 0.3 mg/kg IV/IO **Etomidate**. For paralysis: administer 0.1 mg/kg IV/IO **Vecuronium** or 1 mg/kg **Rocuronium**.

After successful intubation, maintain sedation with 0.1 mg/kg **Midazolam**, maximum single dose of 10 mg.

P

If unable to achieve adequate sedation with Etomidate alone, you may add **Fentanyl** 1-2 mcg/kg up to max single dose of 250 mcg or **Ketamine** 2 mg/kg IV.

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 an appropriate SaO₂ and ETCO₂

Place OG/NG tube to relieve any gastric distention.

Medication Summary:

Epinephrine: 2-10 mcg/min as an infusion or 1:100,000 push dose pressor 5-20 mcg IV/IO q 3-5 min

Etomidate (Amidate): 0.3 mg/kg IV/IO

Fentanyl (Sublimaze): 1-2 mcg/kg IV/IO up to max single dose of 250 mcg

Ketamine (Ketalar): 2 mg/kg IV/IO

Midazolam (Versed): 0.1 mg/kg IV/IO to a max single dose of 10 mg

Rocuronium (Zemuron): 1 mg/kg IV/IO

Vecuronium (Norcuron): 0.1 mg/kg IV/IO

Notes:

1. **To mix the Epinephrine push pressor** – mix 1ml 1:10,000 Epinephrine in 9 ml of Normal Saline to provide 10 mcg/ml. **To mix an Epinephrine infusion** – mix 1 mg (1 mL) of 1:1000 Epinephrine in 1L of fluid (to produce 1 mcg/ml). See Epinephrine infusion drip chart in reference section for further.
2. Intubated patients must have confirmation through ETCO₂ capnometry and shall be monitored through continuous waveform ETCO₂ capnography.
3. Providers are encouraged to research and use the shock index as an indicator of post-intubation complications such as hypotension. The prevention of hypotension and other complications are important to ensure the most favorable patient outcome long term.

Created: 10/15/2015

Revised: 07/22/2022



RAPPAHANNOCK REGIONAL EMS COUNCIL PATIENT CARE PROTOCOLS

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 condition that is dependent on prompt vascular access.
3. Providers must have the appropriate equipment prior to making attempt at access of specialty lines (i.e.: Huber needle for port access).
4. For Port, PICC, and Central Line Access, patient must meet medical necessity criteria for vascular access while not meeting criteria for intraosseous access.

A

Once IO is established, flush the line with 20-40 mg of 2% **Lidocaine** for adults, (*0.5 mg/kg for pediatric patients*) if the patient is responsive to pain.

I

The following criteria/steps apply to ALL types of devices that are listed for access

- a) if possible, confirm with patient that device is in good condition and able to be used
- b) open necessary supplies and maintain aseptic field; don mask and gloves
- d) ensure the patient's face is turned away from the site/access
- e) after administration of medications and IV fluids, flush with 20 cc of saline
- f) document procedure and rationale in patient care report
- g) If patient is unstable, DO NOT delay access, place an IO.

* If the patient has a peripherally inserted central catheter (PICC) or central line consider access in lieu of traditional IV access. Locate the injection port and scrub IV hub with alcohol for 15 seconds. Insert the IV line tubing and secure. Verify patency by flushing with 20 cc saline. ***

P

* If the patient has indwelling medication port consider access of mediport in lieu of traditional IV access. Palpate port location and septum. Ready extension set and non-coring needle. Cleanse implanted port site with alcohol in a circular manner. After drying completely, use chlorhexidine in a scrubbing fashion. Allow to dry completely. Use non-dominant gloved hand to palpate and stabilize implanted port. Insert coring needle via septum of port until tip comes in contact with back of port. Aspirate for blood return and flush with 20 cc NS. Cover site with biopatch or tegaderm. ***

Medication Summary:

Lidocaine 2%: 20-40 mg (*pediatric dose: 0.5 mg/kg*)

Notes:

1. * Requires agency OMD approval for skill ***
2. 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.
3. Primary sites for IV access are peripheral (hands, arms, antecubital fossa, and saphenous vein) with alternates as scalp veins and external jugular veins.



RAPPAHANNOCK REGIONAL EMS COUNCIL
PATIENT CARE PROTOCOLS

Mark I Kit	
Criteria: Patients that are symptomatic after exposure to organophosphorus pesticides or nerve agents	
B	Obtain and administer the Mark I auto-injector kit (Atropine 2mg and 2PAM C1 600 MG IM) every five minutes while symptoms persist. Max of three doses
A	If the Mark I kits are unavailable or signs/symptoms of organophosphate persist consider Atropine 2 mg IV/IO/IM (<i>Pediatric dose 0.04 mg/kg</i>) every 5 minutes to max dose of 6 mg If patient is actively seizing, administer Mark I kit in ADDITION to anticonvulsants per seizure protocol
<u>Medication Summary:</u>	
Atropine: 2 mg IV/IO/IM q 5 min to max dose of 6 mg (<i>Pediatric dose 0.04 mg/kg</i>)	
<u>Notes:</u> <ol style="list-style-type: none">1. Signs and symptoms of nerve agent exposure (SLUDGEM): salivation, lacrimation, urination, defecation, GI distress, emesis, and miosis2. Mark I kits are NOT approved for children <14 years of age3. Duodote auto-injector kits may be substituted for Mark I kits if available4. Chempack is available by contacting the Mary Washington Hospital HEAR phone. See algorithm in reference section for further.	

Created: 06/27/2011

Revised 07/21/2022



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RAPPAHANNOCK REGIONAL EMS COUNCIL PATIENT CARE PROTOCOLS

Needle Chest Decompression

Criteria:

1. Patients with blunt or penetrating trauma to the chest or 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.
4. Patients with large pneumothorax viewed by US.

I

Assess breathing and chest rise; if signs or symptoms of TENSION PNEUMOTHORAX, perform lateral (4th/5th ICS) needle thoracostomy. Repeat as necessary

P

If patient is in cardiac arrest and has chest trauma, perform pericardiocentesis

Notes:

1. Patients who are not hypotensive or in respiratory distress are NOT generally considered to have an injury which requires NCD.

Created: 05/20/2009

Revised 07/22/2022



**RAPPAHANNOCK REGIONAL EMS COUNCIL
PATIENT CARE PROTOCOLS**

Ventilators and CPAP

Criteria:

1. CPAP: Patients that are awake but in respiratory distress related to pulmonary edema, asthma, or COPD
2. Ventilators: Patients that have been intubated and require positive pressure ventilation

B

Based on the patient's condition (see Respiratory Distress protocol) if CPAP has been deemed necessary, assemble the equipment. Assess for contraindications. If none, apply mask to patient and begin CPAP at 5 cmH₂O, titrate pressure to a maximum of 10 cmH₂O

I

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 a rate of 8-12 for adults
-titrate for ETCO₂ of 35-45 and SpO₂ appropriate for condition

Notes:

1. CPAP contraindications: decreased LOC, hypoventilation, airway trauma, pneumothorax, tracheostomy, recent lung surgery, and extremely unstable vital signs (imminent cardiac arrest)

Created 05/20/2009

Revised 07/21/2022