

STAFFORD COUNTY FIRE & RESCUE DEPARTMENT

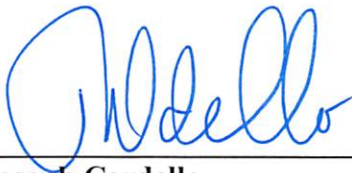
SUPPLEMENTAL MEDICAL PROTOCOLS /PROCEDURES



**STAFFORD COUNTY FIRE & RESCUE
SUPPLEMENTAL MEDICAL PROTOCOLS / PROCEDURES**

Prior Version: July 2019

Stafford County Fire & Rescue Department (SCFRD) utilizes the Rappahannock Emergency Medical Services (REMS) Council's Regional Medical Protocols. SCFRD reserves the right to amend and add administrative procedures and medical protocols as necessary and appropriate for SCFRD. These administrative procedures and medical protocols are approved, and effective January 01, 2021



Joseph Cardello
County Fire
Stafford County Fire & Rescue



Robert E. Fines, MD FACEP
Operational Medical Director
Stafford County Fire & Rescue

**STAFFORD COUNTY FIRE & RESCUE
SUPPLEMENTAL MEDICAL PROTOCOLS / PROCEDURES**

To the members of the Stafford County Fire and Rescue Department:

I am proud to serve as your Operational Medical Director (OMD). You have all been well trained and always have the best interests of your patients in mind. These medical protocols are default standards of care but each of you is entrusted with knowledge and situational awareness that best guides your judgment in each unique situation. When I am able to, please let me help in your decision –making. Afterwards, there is always an opportunity for each of us to ask “Could we have done better?” That analysis allows us all to grow and learn with one another.

Again, I appreciate the opportunity to work with each of you in support of the EMS needs in and for Stafford County.

Sincerely,

A handwritten signature in black ink that reads "Robert E. Fines". The signature is written in a cursive, flowing style.

*Robert E. Fines, MD, FACEP
OMD – Stafford County Fire & Rescue*

**STAFFORD COUNTY FIRE & RESCUE
SUPPLEMENTAL MEDICAL PROTOCOLS / PROCEDURES**

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1. Infection Control

Reference SCFRD Infection Control Plan. *Additional Guidance per SCFRD plan.*

SCFRD will appoint a designated infection control officer (DO). The DO will provide appropriate infection control guidance to the department.

- **Exposures: Provider Responsibilities.** As soon as possible after an exposure to blood and/or body fluids:
 - Eyes: Irrigate with clean water, saline, or sterile water
 - Mouth and Nose: Flush with water
 - Skin: Wash with soap and water
 - Clothing: Change contaminated clothing promptly and inspect the skin for signs of openings and contamination
 - Needle-sticks: May be squeezed, or “milked”, and washed with soap and water

Upon arrival at the hospital ER, or as soon as possible thereafter, notify a hospital official (ER physician, nurse manager, or charge nurse) of any possible exposure. Complete an infectious disease exposure report. Use one exposure report form for each provider. Notify the SCFRD on-duty EMS Supervisor who will conduct the initial investigation of the incident and make appropriate notifications.

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2. Patient Destination and Hospital Radio Reports

This protocol supersedes the REMS protocol for Transporting Patients to the Nearest Emergency Facility.

This section is to establish a procedure for transporting patients to the most appropriate hospital for emergency medical care.

In accordance with the Virginia Emergency Medical Services Regulations 12 VAC 5-31, patients shall be transported hospitals in EMS Permitted Transport Vehicles.

The service area for the SCFRD shall include the following hospitals: Stafford Hospital (SH) and Mary Washington Hospital (MWH). Under normal circumstances, SCFRD will only transport patients to hospitals within the department's service area. When providing mutual aid, SCFRD units will transport to hospitals within the service area of the jurisdiction requesting mutual aid. Ground transport to specialty hospitals outside to the department's service area is permitted only with the permission of the Operations Deputy Chief.

SCFRD will only transport to hospitals that have full emergency capabilities and will not transport to urgent care facilities or physician's offices.

All non-life threatening emergencies or stable patients should be transported to Stafford Hospital unless the patient or legal guardian specifically requests transport to Mary Washington Hospital.

- Non-life-threatening emergencies or stable patients are those that are not in immediate danger of loss of life or permanent disability if not treated immediately in a hospital emergency department with full emergency capability.
- When the patient is unable to make such a judgment the choice of an appropriate party acting on behalf of the patient will be followed.
- When no person is available to act for the patient, transport to nearest appropriate hospital per this policy.

All life-threatening emergencies or unstable patients will be transported to the nearest appropriate hospital within the departments service area, unless the injury or illness falls under special circumstances or routed by on-line Medical Control.

- Life threatening emergencies or unstable patients are those that have a sudden illness or injury where the likely outcome without immediate care in a hospital emergency department with full emergency capability will be the loss of life or permanent disability.
- Examples of life-threatening emergencies or unstable patient conditions include, but are not limited to, the following:
 - Cardiac Arrest

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- Respiratory arrest
- Obstructed airway, unable to ventilate
- Inability to establish or maintain an airway
- Persistent shock
- Symptomatic dysrhythmias
- Heat stroke
- Hypothermia
- Uncontrolled seizure
- Uncontrolled hemorrhage
- Unconsciousness
- Altered Level of consciousness
- Poisoning
- Any patient conditions the Attendant in Charge (AIC) feels could result in the loss of life or permanent disability if not treated immediately in a hospital emergency department, (this condition shall be documented on the ePCR).
- As determined by medical control (this shall be documented on the ePCR).

Special destination needs:

- Stroke or symptomatic suspected stroke patients who meet Stroke Routing criteria as defined in the Regional Stroke Triage Plan will be transported to the nearest appropriate stroke center (Primary or Comprehensive).
- STEMI patients whose field 12 Lead EKG shows an ST elevation myocardial infarction (STEMI) as interpreted by an ALS EMS provider, on-line Medical Control, or EKG device, are to be transported to the closest STEMI Center.
- OB patients who have been identified as high risk or who have not completed 34 weeks of gestation will be transported to Mary Washington Hospital for its NICU capabilities unless otherwise dictated by the patient's physician.
- Burn patients who meet trauma routing criteria as defined in the Regional Trauma Triage Plan should be transported to the closest Trauma Center or designated Burn Center.
- Trauma patients (adult or pediatric) who meet trauma routing criteria as defined in the Regional Trauma Triage Plan are to be transported to the nearest Trauma Center.
- Trauma patients not meeting trauma routing criteria who are stable should be transported to Stafford Hospital.
- Pediatric trauma patients (age <15 years) meeting trauma routing criteria should be transported to the nearest Pediatric Trauma Center. All other pediatric trauma patients should be transported to the hospital chosen by their parent or guardian or to the closest appropriate hospital in their absence within the department's service area.

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- Destination for patients under arrest or in the custody of law enforcement or correction officers:
 - Patients under arrest with a life-threatening emergency or unstable will be transported to the closest appropriate hospital.
 - Patients under arrest and considered to have a non-life-threatening emergency have no freedom of movement, or right to designate medical treatment. The patient will be transported to the hospital designated by the arresting or custodial officer.
- If patients refuse transport to the recommended hospital that have a life-threatening emergency or that are unstable and desire transport to another hospital not recommended by this protocol, then:
 - Determine if the patient has legal capacity to make decisions affecting his or her health care. The age of consent for emergency medical treatment is 14 years of age (attempt to contact parent or guardian).
 - Determine if the patient is mentally competent to make decisions at this time.
 - Alert and oriented to person, place, and time
 - GCS 15
 - No altered level of consciousness presently or during this illness or injury
 - Blood sugar within normal limits
 - No alcohol usage or medications that effect mental capacity
 - No distracting injury or pain
 - No high level of anxiety
 - No disorienting anger, rage, or fear
 - No suicidal ideation
 - No mental illness or history that would impair mental competency
 - No shock
 - Absence of any other reason the provider has to believe that the patient is not able to make a competent decision at this time
 - If the patient is deemed not to have legal capacity of mental competence to make informed health care decisions at this time then all reasonable measures should be used to transport the patient to the appropriate hospital having full emergency capability.
 - The patient having legal capacity and mental competence shall be informed of the severity of their illness or injury and that not being transported immediately to the recommended hospital for treatment may mean that they could possibly suffer death, severe life altering consequences or disability. Use of all reasonable measures to persuade the patient to go to the recommended hospital should be used. If the patient still refuses transport, the patient should be transported to the destination of their choice within the departments' service area. This must be an informed health care decision and documented accordingly. If possible

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have the patient and a witness sign the report documenting the patient choice. Inform the on-duty Operations Deputy Chief and on-line Medical Control of the patient's destination and why.

- If the patient refuses to be transported to a hospital within the departments' service area contact the on-duty Operations Deputy Chief immediately.
- General parent-child considerations:
 - In general, SCFRD will not transport non-injured or non-ill children. Law enforcement should be called for assistance.
 - For injured or ill children, if the parent is supportive, most children should be transported with a parent unless accompaniment interferes with the care of the child.
 - Children usually respond best to open and honest dialogue.
 - In situations of major trauma or cardiopulmonary arrest, the provider should consider letting the parent ride in the back with the child, unless the parent's presence would hinder the provider's ability to care for the child.
- SCFRD transport units should generally not transport more than one patient.
- This protocol may not apply in Mass Casualty Incident (MCI) events.
- The Operational Medical Director (OMD), County Fire Chief (CFC), or their designee may deviate from this protocol as they deem necessary for the benefit of the patient.
- If a patient's condition deteriorates to life-threatening or unstable while enroute to the hospital, the AIC shall notify the ECC and divert to the nearest appropriate hospital for stabilization.
- Medical control is the destination hospital of the patient.

Transport to any hospital not identified above as being in the SCFRD service area, constitutes an out-of-area transport. Transports out of the area tie up valuable emergency resources, and can delay definitive patient care. Some exceptions include, but are not limited to, when a hospital is on bypass, or during a multi-casualty and/or mass casualty incident (MCI). In the case of an MCI the transportation officer at the incident, in consultation with the hospitals, will direct the destination of patients.

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Additional Guidance, SCFRD specific radio system.

EMS units shall notify the receiving hospital of their arrival and pertinent patient information. Such notifications will be made using the SCFRD 700 MHz radio system, **when possible. The following hospitals are assigned an encrypted talk group on the SCFRD 700 MHz radio system for patient confidentiality:

Stafford Hospital Center (SHC)
Mary Washington Hospital (MWH)

Sentara Northern Virginia Hospital (Sentara)
**Must call 703-523-1469 for HEAR Report

All other hospital Talk groups in the SCFRD 700 MHz radio system are not encrypted, and the patient's identity must be protected.

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3. Special Situations

This protocol provides additional guidance and in-part supersedes the Regional Medical Protocols for Inter-Facility Transfer of Acutely Ill/Injured Patients and Direct Admissions.

3.1 Patient Refusal

Patient refusals will be obtained whenever a patient is examined.

Complete the electronic ePCR, clearly documenting the initial assessment findings and the discussions with all involved persons regarding the possible consequences of refusing treatment and/or transport. Then have the patient, or the person responsible for a minor patient, sign the refusal section. **A second EMS provider should witness the discussion. Secure a witness signature.**

3.2 Mass Patient Refusals (Bus Accident with passengers under care, i.e. school bus, nursing facility, group home etc.)

The following procedure shall apply when obtaining mass patient refusals from patients who are under custodial guardianship of school officials or designated care givers (all occupants involved in a motor vehicle collision are required to have an assessment, either brief or complete as defined below):

- a. Assess all occupants. Uninjured occupants may be assessed using the “brief assessment standard”. Injured occupants shall have a “complete assessment” as noted.
- b. Obtain each occupants name.
- c. The patient name and address on the ePCR shall correspond to the school or facility where the occupants attend or reside. Other patient demographics shall be marked as “unknown”.
- d. Each occupants name shall be listed in the school bus accident form within the ePCR. The description shall include but is not limited to: damage to the bus (both interior and exterior), speed of the accident, and any conditions causing the accident. The narrative shall also include all assessment findings.
- e. The senior school official or designated care giver on scene shall sign the signature section of the school bus accident form for all un-injured occupants. The school officials/designated care givers name and contact information shall also be recorded in the space provided in the school bus accident form.
- f. Obtain a separate refusal on adults that may be involved.

Brief Assessment- a physical exam including level of consciousness to ensure validity of findings. Vital signs may be waived due to the large number of patients to assess.

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Complete Assessment- a physical exam including level of consciousness to ensure validity of findings and a complete set of vital signs.

3.3 Inter-facility Transport of Acutely Ill or Injured Patients

Inter-facility transports are best accomplished by private air or ground ambulance services. However, there will be rare instances where a SCFRD unit may be required to provide emergent transport from one facility to a high-level care facility – such as to MWH – in order to preserve the life of the patient. By definition, these transports require an ALS transport unit.

When the SCFRD ECC receives such a request, the ECC will obtain approval from the Operational Deputy Chief, or if unavailable, the on-duty Battalion Chief or EMS Supervisor. The aforementioned supervisor will consult with requesting facility in order to make an informed decision; including a report on the patient's condition and any special treatment the patient is receiving, i.e. IV pumps, ventilators, etc.

When the patient is receiving procedures and/or medications that are outside the Regional Medical Protocols, but within the Virginia scope of practice guidelines, the physician of the requesting facility must provide written orders to the EMS crew covering these procedures and/or medications.

When a patient is receiving medications via IV pump, on a ventilator, or otherwise considered a “critical care transport”, a RN or physician must accompany the patient.

The Attendant-in-Charge (AIC) should request a patient report from the requesting facility, and any pertinent paperwork to go with the patient. If the patient is a “No Code” or has a valid “Do Not Resuscitate” order, a written order, including a pre-hospital DNR order, must accompany the patient. Assessment by the AIC should not delay transport.

If the patient's condition deteriorates while responding to the receiving facility (i.e., MWH ER) the EMS crew will perform appropriate interventions in accordance with these protocols. Consult medical control as needed.

3.4 Direct Admissions

SCFRD units shall only deliver patients to the Emergency Room. Direct admissions – with the exception of transferring appropriate patients to labor & deliver – are not authorized.

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4. Smoke Inhalation

SCFRD Specific Protocol

Criteria:

1. Patients who have a history of any of the following: Exposure to a smoke-filled environment, are victims of a fire, have a history of space heater/generator use in an enclosed space, or have been exposed to incomplete combustion or carbon-based material.
2. CO poisoning can be difficult to detect. A high index of suspicion is needed. The Lifepak monitor (if equipped) should be utilized for the assessment of CO levels. SPO2 readings may be unreliable in patient with carbon monoxide poisoning.
3. Carboxyhemoglobin readings of 10-40% will show variable signs and symptoms which may include headache, flu-like symptoms, dyspnea on mild exertion, chest pain, palpitations, cardiac dysrhythmias, irritability, weakness/fatigue, nausea & vomiting, visual disturbances, lethargy or confusion, gait disturbances, syncope, seizures, respiratory arrest, singed nasal hairs, facial/airway burns, carbonaceous sputum.
4. Treat any *symptomatic* CO exposure patient regardless of measured level. Treatment is generally indicated with SPCO readings >15% regardless of symptoms. High-Flow Oxygen is indicated for all patients with signs/symptoms consistent with CO poisoning.
5. Carbon Monoxide has a 250x greater affinity to hemoglobin than that of oxygen. The fetus of the pregnant patient is at increased risk due to affinity of fetal hemoglobin for CO. Treat pregnant patients with CO exposure regardless of level.
6. Consider CO poisoning in cases of multiple patients from the same environment with similar symptoms/complaints.
7. Patients who smoke may have consistent carboxyhemoglobin levels as high as 10%.
8. If the patient has a 20% carboxyhemoglobin level the TRUE SpO2 will be 80% as 20% of the receptor sites are bound by CO.
9. Atmospheric CO monitors shall be maintained on the Lifepak for licensed EMS Transport vehicles.
10. Cyanide poisoning may also be present in victims of smoke inhalation and can present with similar symptoms. Cyanide poisoning should be considered for smoke inhalation victims who present with: Exposure to fire smoke in an enclosed area, soot present around the face and oropharynx, and an altered mental status.
10. Be sure to document the SpCO and ETCO2 levels. Contact Medical Control early for treatment advisement and destination determination considerations.

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The CyanoKit shall not be administered to pregnant patients.

Provider:	Order/Treatment:	Order Type:
EMR	Ensure safety. Remove patient to safe environment. If available, monitor patient's SpCO level. Administer high concentration O2 via NRB mask.	S-Standing
EMT	If the patient presents with an elevated SpCO over 15% and associated symptoms, transport to a hyperbaric chamber may be considered.	S-Standing
AEMT	Monitor patient's ETCO2 level. Establish IV access – fluid resuscitation shall be administered to maintain a systolic BP as per REMS Medical Protocol Hypotension/Shock Non-Trauma. Administer Albuterol 2.5 mg and Atrovent 0.5 mg via nebulizer if dyspnea or wheezing occurs (all ages). Adults only: Consider the use of CPAP in moderate to severe cases.	S- Standing
EMT-I	In patients with severe symptoms, consider treatment for Cyanide Poisoning utilizing the Cyanokit 70mg/kg up to 5g infusion (separate IV line) referring to the manufacturer supplied instructions in consultation with Medical Control. Initiate advanced airway management as dictated by patient presentation.	S-Standing

Notes: Provider safety is paramount. Due to the potential for such patient to be located in an IDLH, it may be necessary to utilize SCBA and or obtain atmospheric samples prior to accessing the patient. Utilization of additional resources such as an engine company may be necessary to facilitate extrication.

PRE-HOSPITAL PATIENT CARE PROTOCOLS

BASIC LIFE SUPPORT/ADVANCED LIFE SUPPORT



Board Approved August 2020

**Rappahannock EMS Council
435 Hunter Street
Fredericksburg, VA 22401**

PRE-HOSPITAL PATIENT CARE PROTOCOLS

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8.0	Calcium Chloride/Gluconate
9.0	Dextrose 10% (D10)
10.0	Diltiazem HCl (Cardizem)
11.0	Diphenhydramine (Benadryl)
12.0	Dopamine (Dobutrex)
13.0	Enalapril (Vasotec)
14.0	Epinephrine
15.0	Etomidate (Amidate)
16.0	Fentanyl Citrate (Sublimaze)
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18.0	Glucagon (GlucaGen)
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21.0	Ketorolac (Toradol)
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25.0	Methylprednisolone (Solu-Medrol)
26.0	Midazolam (Versed)
27.0	Metoprolol (Lopressor)
28.0	Naloxone (Narcan)
29.0	Nitroglycerin (Nitrostat)
30.0	Ondansetron (Zofran)
31.0	Pralidoxime (2-Pam®, Protopam Chloride®)
32.0	Rocuronium Bromide
33.0	Sodium Bicarbonate 8.4%
34.0	Tranexamic Acid (TXA)
35.0	Vecuronium Bromide

PRE-HOSPITAL PATIENT CARE PROTOCOL

ADMINISTRATIVE

Section I

**Rappahannock EMS Council
435 Hunter Street
Fredericksburg, VA 22401**

**BASIC LIFE SUPPORT/ADVANCED LIFE SUPPORT
ADMINISTRATIVE PATIENT CARE PROTOCOL**

**REVISED 06/2007; 12/2009; 07/2011; 06/2012; 10/2017; 05/2019
BOARD APPROVED JUNE 19, 2019**

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Rappahannock EMS Council
Administrative Patient Care Protocol

2020 – 2021

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1.0 Introduction and Use

The following protocols have been approved by the Rappahannock Emergency Medical Services Council (REMSC) Guidelines and Training Committee as the Pre-Hospital Patient Care Protocol for agencies in the REMSC region. These treatments were developed through input and guidance from ALS and BLS providers in the region, as well as the various medical directors. The protocols are designed to provide information on procedures providers at different levels are permitted to do and denote standing orders for certain conditions. The medical director may choose to modify certain treatment recommendations for specific conditions and may even limit performance authorization for any provider at any level. These modifications should be supported by written documentation and may be maintained in a file at the regional council or at the individual agency.

The treatment protocols are designed to give reminders and guidance for various conditions but are NOT a replacement for sound clinical judgment. As clinical guides, they are not intended to be educational documents and training should be completed PRIOR to their use to understand the information contained and the guidance that it provides. They also outline care for a typical presentation and may not fit exactly with the patient who has combined symptoms from multiple conditions. In cases where progressive care is indicated by permission for repeat orders, it is assumed that the prior care was not effective and the patient continues with symptoms or worsens. If additional treatment is not necessary you are not obligated to complete the entire treatment protocol just because it is written.

The provider may contact on-line medical control for guidance and assistance. Many of the protocols are designed to allow providers to initiate appropriate care promptly without requiring contact with medical control first. With that acknowledgment comes the medical director's expectation that providers perform complete assessments, recognize proper signs and symptoms, and provide condition-related therapy by utilizing ardent clinical assessment skills and keen critical thinking and clinical judgment. The order of treatment in the protocol may not always be appropriate for all patients and based on clinical judgment it may be modified by providers. If there are questions or uncertainties medical control should be used rather than making assumptions and providing unsuitable care.

The physician providing on-line medical control has the authority to suspend or deviate from the protocol and may provide additional or changed orders which are not specified in the regional protocol. Any order received from medical control must be reduced to writing and documented on the patient care report.

Treatment is broken into categories depending on how the physician group recommends that it be used. In previous versions there was a conditional category that addressed supplemental certification with classes like ACLS, PALS, PEPP, ITLS, etc. It is the expectation that ALS providers (EMT-I and EMT-P) maintain certification in ACLS and PALS. Many of the treatment algorithms are based on science and information from

Rappahannock EMS Council
Administrative Patient Care Protocol

these classes and where applicable, treatment recommendations from ACLS, PALS, and NRP are included in the protocols. All protocols are standing orders, unless otherwise noted.

A complete Pre-Hospital Patient Care Protocol consists of all sections including Administrative, Clinical Procedures, Medical and Trauma. A copy of this document should be kept at the emergency department (ED), each EMS agency, and in every ambulance unit in the REMSC region. Additional copies are available at www.REMSCouncil.org.

Each protocol is dated by month and year. It will be reviewed as needed by the REMSC Guidelines and Training Committee and the Protocol Sub-Committee. Revisions are made to individual treatment protocols as needed and periodic complete reviews are done triennially. Any provider may submit input for changes to the regional protocols by submitting written requests and ideas to the REMS Council with attention to “protocol updates”. All suggestions will be routed through the Protocol Sub-committee, who will make recommendations to the Guidelines and Training Committee who will make recommendations to the Medical Direction Committee. Once approved, changes will be made and revised pages will be issued to Operational Medical Directors, the ED medical staff (Medical Director), and to the individual agencies that will then be responsible for any necessary in-service training.

If it is a significant change, the G&T Committee will forward recommendations to the REMS Council Board of Directors. Once changes have been made, dates will be updated to indicate the change and the new protocol will be posted to the internet on the REMS Council website. Notification will be made to providers in the region through information on social media, announcements on the website, posting at the regional hospitals, and information in the newsletter and other communication devices.

2.0 Acknowledgements

The Rappahannock Emergency Medical Services Council Board of Directors would like to thank each person who took the time to review and revise our existing protocol and to write a new protocol that reflects the current standard of quality patient care for our region. As new science updates produce changes in the standard of care, we continue to revise the protocols to reflect these updates.

Special thanks to Dr. Tania White, Regional Medical Director, for her ongoing contributions and for being open to our ideas. **Thanks to everyone who assisted in this project.**

3.0 Administrative Guidelines

3.1 Abandoned Infant

3.1.1 Overview (Virginia Safe Haven Law)

The Code of Virginia § 18.2-371.1 identifies that parents may surrender their newborn infant to EMS personnel. The code reads, "... parent safely delivered the child to a hospital that provides 24-hour emergency services or to an attended rescue squad that employs emergency medical technicians, within the first 14 days of the child's life. In order for the affirmative defense to apply, the child shall be delivered in a manner reasonably calculated to ensure the child's safety..." If a provider is approached by this situation, the provider should attempt to gain as much information concerning the infant as possible from the parent. Once the infant has been turned over to EMS, the infant should be transported to the closest emergency room. Explain the situation to the Charge Nurse and be sure to document their name on your call sheet. The hospital will notify social services.

3.2 Air Medical Utilization

3.2.1 Overview

Air Medical Services (AMS) are a valuable resource in the REMSC. It is important that EMS personnel utilize consistent and appropriate criteria when requesting air medical service for assistance with patient care and transport. These criteria are consistent with national AMS utilization criteria. It is important that review of appropriate helicopter utilization be a part of EMS training, as well as a component of agency, and regional level retrospective quality improvement process.

3.2.2 Management

The helicopter is an air ambulance and an essential part of the EMS system. It may be considered in situations where:

1. The use of the helicopter would speed a patient's arrival to a hospital capable of providing definitive care and that is felt to be significant to the patient's condition, or (i.e. neurosurgery/thrombectomy, PCI, reimplantation, or other time-sensitive surgical interventions);
2. Specialty services offered by the air medical service would benefit the patient prior to arrival at the hospital (i.e. blood products, RSI/Cric/airway management, pediatric or burn specialty services needed).
3. Specialty services are needed by the patient which are not available at the local/regional level (i.e. VAD, artificial heart, STEMI complications).

Patients in cardiac arrest who are not hypothermic are generally excluded as candidates for air transport

Dispatch, Police, Fire, or EMS should evaluate the situation/condition and, if necessary, place the helicopter on standby.

The helicopter may be requested to respond to the scene:

- If ALS personnel request the helicopter
- If BLS personnel request the helicopter when ALS is delayed or unavailable
- In the absence of an EMS agency, when any emergency service requests it, if it is felt to be medically necessary

When EMS arrives, they should assess the situation. If the ***most highly trained EMS personnel on scene*** determine the helicopter is not needed, it should be cancelled as soon as possible.

Air medical services may be considered in situations where the patient is inaccessible by other means, or if utilization of existing ground transport service threatens to overwhelm the local EMS system. In this case a specialty unit with rescue capabilities (i.e. hoisting equipment or FLIR) may be the most appropriate resource.

An EMS service should not wait on the scene, or delay transport to wait for the arrival of a helicopter. If the patient is packaged and ready for transport, the EMS service should initiate transport to the hospital and reassign the landing zone. The helicopter may intercept an ambulance during transport at an alternate landing site. If a hospital helipad is utilized for patient pick-up, you should notify hospital security that you will be using their LZ.

THIS IS A GUIDELINE AND IS NOT INTENDED TO SPECIFICALLY DEFINE EVERY CONDITION IN WHICH AIR MEDICAL SERVICES SHOULD BE REQUESTED. GOOD CLINICAL JUDGEMENT SHOULD BE USED AT ALL TIMES.

Transfer of Patient Care, Documentation, and Quality Improvement:

As with other instances where care of a patient is transferred, all patient related information, assessment findings, and treatment will be communicated to flight crew.

At the completion of the EMS call, all of the details of the response, including, but not limited to, all patient related information, assessment findings, and treatment, must be documented on a PPCR.

With helicopter utilization, as with all EMS responses, the treatment and transportation of patients will be reviewed as a part of a Quality Improvement process and providers should complete a shared-concern QI form to advise the REMS Council of the event.

3.2.3 Guidelines for Helicopter Utilization for Scene Response

Refer to the trauma triage and stroke/STEMI triage guidelines.

3.3 Code Gray

If CPR has been initiated by EMS and circumstances arise where the pre-hospital provider believes resuscitative efforts may not be indicated, the provider should confirm that the patient is apneic and pulseless, and, when possible, note the ECG rhythm and verify absence of cardiac activity by auscultation and/or ultrasound. The provider should then contact medical control so that the on-line physician can decide whether or not to continue resuscitative efforts. Providers should alert on-line medical control that they have a potential “Code Gray” call. The provider should then summarize why resuscitative efforts may not be indicated. The provider should then report the ECG rhythm and interventions performed. Then, if, and only if, directed by on-line medical control, may the providers stop resuscitative efforts. If code gray orders are received while transporting (i.e. moving the patient into the ambulance), the providers are to continue non-emergency to the hospital in which the order was received. The deceased is to be taken to the emergency room. Under no circumstances will the providers take a patient directly to the morgue.

NOTE: Patients who are hypothermic or are victims of cold water drowning should receive FULL resuscitative efforts. Patients with electrical injuries, including those struck by lightning that may initially be pulseless and apneic, should receive FULL resuscitative efforts as well.

Any medical equipment attached or inserted into a patient MUST remain in place once a code gray order has been received. The provider is not to remove anything from the body unless specifically directed to do so by medical control or the Medical Examiner on scene. Any such actions must be fully documented within the PPCR.

3.4 Death (DOA) Management

3.4.1 Indications

Unattended deaths in the field (meaning unattended by a physician or Hospice) are the exclusive jurisdiction of the Medical Examiner. Generally, when EMS is called to verify a DOA, the scene is turned over to law enforcement who, in turn, contacts the Medical Examiner for release to a funeral home or the Medical Examiner’s office for autopsy.

If a patient is determined to be dead on arrival (DOA) or if the cessation of resuscitative efforts on scene is authorized by on-line medical control, follow local protocol

concerning notification of the proper law enforcement authorities and/or medical examiner. Should an unusual situation occur where transport may be necessary, EMS should only transport a DOA to a hospital.

NOTE: It is essential to maintain a Chain of Custody in regards to any DOA case involving the Medical Examiner. Providers should remain on scene until the arrival of either the Medical Examiner or law enforcement personnel.

3.4.2 Management

Providers should make every effort not to unnecessarily disrupt or disturb the scene. All DOA calls are a potential crime scene until proven otherwise. Document the following:

1. Apnea and pulselessness (no cardiac activity by auscultation and/or ultrasound)
2. Presence or absence of rigor
3. Approximate down time
4. A short medical history, including the name of the primary physician and the general condition of the scene and the body

Be attentive to the emotional needs of the patient's survivors. If possible, leave survivors in the care of family and/or friends.

NOTE: Patients who are hypothermic or are victims of cold water drowning should receive FULL resuscitative efforts. Patients with electrical injuries, including those struck by lightning that may initially be pulseless and apneic, should receive FULL resuscitative efforts as well.

A copy of the PPCR should be delivered to the Medical Examiner through the hospital EMS Coordinator in a reasonable period of time not to exceed 48 hours following the call.

As a courtesy, share the information that you have gathered with the law enforcement official in charge on the scene. Do not assume that the officer knows that he/she is the one that should make contact with the Medical Examiner. Remember, that some newer officers may not be familiar with Medical Examiner laws. As time and conditions permit, lend whatever assistance you can to the officer and any family present.

3.5 Direct Admissions

3.5.1 Indications

Ambulance crews involved in transporting direct admission patients to hospitals should be able to return to service as quickly as possible. **All 911 calls, or calls handled by state/municipal/volunteer services, shall only take patients to the ED.** Private ambulance services serve to fill the direct admission gap. It also is important that direct admission patients be properly treated and spared unnecessary costs.

3.5.2 Management

When responding to a direct admission call, ambulance crews should notify the receiving hospital's ED as early as possible to allow the ED staff to follow-up with hospital admissions. Upon arrival at the hospital, the AIC should speak directly with the ED charge nurse or appropriate hospital contact. The charge nurse and AIC will determine the following:

1. Is the direct admission patient's room ready?
2. Is the ambulance crew needed to take the patient to the room?
3. Is the crew available to take the patient to the room?

If the answer to any of the above questions is "no", the AIC will turn over care of the patient to the ED staff. The crew will then return to service as quickly as possible. If the answer to all of the above questions is "yes", the crew may assist as necessary. Any complaint or problem involving a direct admission will be resolved at a later time through direct discussion between the ED nurse manager, or appropriate hospital contact, and the chief operating officer of the pre-hospital agency, or persons designated by those individuals.

3.6 Documentation and Confidentiality

3.6.1 Indications

Under existing Virginia law, all licensed EMS agencies are required to "participate in the pre-hospital patient care reporting procedures by making available...the minimum data set on forms." Licensed EMS agencies, pre-hospital providers, and the Commonwealth of Virginia are required to keep patient information confidential.

3.6.2 Management

Each EMS agency should, in consultation with the agency's legal counsel, develop a procedure dealing with how and when patient information will be released to the patient, the patient's family, law enforcement officials, the news media, and/or any other parties requesting the information.

The procedure **MUST** include development of a release form, which will be signed by a responsible person for that patient's information.

Documentation of patient care should, at a minimum, meet the OEMS requirements.

1. A patient care report will be written for each patient who is seen, treated and/or transported by an ambulance or personnel thereof. This report should be completed on the current written/electronic Pre-hospital Patient Care Report (PPCR) in use by the REMSC region. For medical-legal purposes, if the provider initiates the patient-provider relationship, a PPCR should be completed.
2. If a patient refuses treatment and/or transport, documentation should include the following:

- a. The patient's full name
 - b. The reason for response
 - c. Reason for the patient's refusal
 - d. Vital signs and times (when possible)
 - e. Any physical signs or symptoms that are present
 - f. Perceived competency of the patient
 - g. Patient's level of consciousness
 - h. Names and signatures of witnesses
 - i. Signature of the patient
3. When a patient is transported, a copy of the report should be provided to the receiving hospital.
4. Medications may be administered by a pre-hospital provider upon an oral order or written standing order of an authorized medical practitioner in accordance with §54.1-3408 of the Code of Virginia. Oral orders shall be reduced to writing by the pre-hospital provider and shall be signed by a medical practitioner. The Regional OMD, with the agency OMD, shall approve all written standing orders. The pre-hospital provider shall make a record of all medications administered to a patient. If the patient is not transported to the hospital, or if the attending medical practitioner at the hospital refuses to sign the record, a copy of this record shall be signed by the pre-hospital provider. The provider will then have 7 days to get their OMD's signature and get the paperwork to the pharmacy in accordance with current Board of Pharmacy regulations.
5. EMS agencies are urged to develop, in consultation with legal counsel, an incident report form for quality assurance purposes, and to document any additional information relevant to the treatment and transport of patients.
6. Agencies should have a minimum set of security guidelines for narcotics boxes. Suggestions may include the following:
 - a. Video cameras of areas where locked med boxes are stored
 - b. Keep a current list of providers who have keys for drug boxes
 - c. Keypad entry or other such security system for storage bags
 - d. Designated areas where drug boxes are to be located, both in the ambulance and in the squad bay
 - e. Written policy for reprimanding offenders

3.7 Durable Do Not Resuscitate Orders (DNR)

Validity of a DNR order is determined by the DNR meeting the requirements of "Durable Do Not Resuscitate" guidelines as described by the OEMS pursuant to 12VAC5-66

which was effective July 20, 2011. Additional information and the current DNR form are available at <http://www.vdh.virginia.gov/oems/ddnr/>.

3.7.1 Management

The responding pre-hospital providers should confirm appropriate DNR status immediately upon arrival. If status can not be confirmed, the responding pre-hospital providers should perform routine patient assessment and resuscitation or intervention efforts. The following procedures should be followed:

1. Determine that a valid DNR is present and in effect. It is NOT necessary that the original EMS-DNR order be present and legible copies may be accepted.
2. If the patient does not have an EMS DNR authorized “Alternate DDNR Jewelry” can be honored at any time, but it must contain equivalent information to the state form.
3. A verbal order from a physician can be honored by a certified EMS provider. The verbal order may be by a physician who is physically present and willing to assume responsibility or it may be from on-line medical control.
4. “Other” DNR orders include a physician’s written DNR order that is in a format other than the state form is also acceptable. “Other” DNR orders should be honored by EMS providers when the patient is within a licensed healthcare facility or being transported between healthcare facilities.
5. An incomplete DNR should prompt consult with on-line medical control. Resuscitative efforts, once begun, can only be stopped with the guidance of medical control.
6. All providers are strongly encouraged to review the Virginia DNR, as there are some limitations, such as intubation and no CPR.

Providers should use the standard PPCR for full documentation of the DNR case, including the format and authorization for DNR and/or the order number on the form and/or bracelet in the case of an EMS-DNR.

3.8 Extraordinary Care Not Covered by this Protocol

3.8.1 Indications

There may be rare cases in which a physician providing on-line medical control may feel it is absolutely necessary to direct a pre-hospital provider to provide care, which is not explicitly listed within protocol, in order to maintain the life of a patient.

3.8.2 Management

During consultation, both the consulting physician and the ALS provider *must* acknowledge and agree that the order is absolutely necessary to maintain the life of the patient. The ALS provider *must* feel capable, based on the instructions given by the consulting physician or previous training, of correctly performing the care directed by the

consulting physician. If the ALS provider receives an order for care not covered in this protocol, and is not comfortable with performing that order, or does not agree that the order is absolutely necessary to maintain the life of the patient, the provider should proceed with the directions contained in protocol 3.12.

Anytime this authority is exercised by a REMS EMS provider a QI review will automatically occur and the provider should complete a shared-concern inquiry form to notify the REMS Council of the event.

3.9 HEAR Usage & On-Line Medical control

3.9.1 Indications

To contact appropriate medical control/ HEAR radio at hospitals.

3.9.2 Management

The presence of multiple facilities in the REMS region allows for more HEAR stations. Squad patient reports should be destination specific. A squad's call for on-line medical control should be destination specific and on-line medical control will occur with the facility that is receiving the patient.

3.9.3 Hospital Report

The region as well as the hospitals are frequently inundated with patient transport and other related patient care issues. Therefore, all effort should be made to provide as much notice as possible to the receiving facility. The report should be limited to a one-minute report that highlights important areas that will impact the receiving facility. **DO NOT RAMBLE ON** with innocent details that are not necessary such as "the car was yellow and had out of state license plates" or "patient has a history of kidney stones 18 years ago" when the patient has a foot injury.

3.10 Impaired Field Providers

3.10.1 Indications

Field providers will **NOT** appear for duty, be on duty, or respond via privately-owned-vehicle (POV) while under the influence of any prescribed, or over-the-counter, medications that could impair their ability to drive or otherwise provide quality patient care. Field providers will **not** appear for duty, be on duty, or respond POV while under the influence of intoxicants or illegal substances, to any degree whatsoever, or with an odor of intoxicants on their breath.

3.10.2 Management

In the event that it can be reasonably thought that a provider is under the influence or have an odor of intoxicants on their breath during an emergency call, the provider shall be removed from the scene of the call, and, after an investigation where they are found to be in violation, the provider will be subject to disciplinary action by the OMD.

3.10.3 Actions

The provider may be asked by the REMSC, and/or OMD, to take a drug or alcohol test. If the drug/alcohol test is positive, confirmatory testing may be indicated and paid for by the individual. The provider may, at his or her own expense, have a test performed using the same sample. The above expenses may be taken care of by the individual agencies per policies.

3.11 Inability to Carry Out a Physician Order

3.11.1 Indications

Occasionally, a situation may arise in which a physician's order cannot be carried out, the ALS provider is unable to administer an ordered medication, a medication is not available, contact is not possible with on-line medical control, it is out of the provider's scope of practice, or a physician's order is inappropriate.

3.11.2 Management

If a provider is unable to carry out the physician order, the provider ***must*** notify the consulting physician immediately that the order could not be carried out and give the reason why it could not be carried out. The provider ***must*** then indicate on the PPCR what was ordered, and the time and the reason the order could not be carried out.

In situations where the pre-hospital care provider is unable to establish communications with a medical command facility after at least two attempts each, on two different means of communications, the provider may:

- provide care within their scope of practice
- follow the appropriate protocol as standing order indicated by your level of certification
- document the issue on a shared concern inquiry form and route it through the QI process.

3.12 Infection Control

3.12.1 Exposure to Blood and Body Fluid Provider Responsibilities

As soon as possible after exposure to blood and/or body fluids:

Eyes: Irrigate with clean water, saline, or sterile water

Mouth and Nose: Flush with water

Skin: Wash with soap and water

Clothing: Change contaminated clothing promptly and inspect the skin for signs of openings and contamination

Needle-sticks: Wash with soap and water

Upon arrival at the hospital ED, or as soon as possible thereafter, notify a hospital official/representative (ED physician, ED nurse manager, charge nurse) of any possible

exposure (or follow your department's exposure control plan). Notify the agency's designated Infection Control Officer (ICO) as soon as possible of any possible exposure, and of emergency, non-emergency, and follow-up care.

Obtain and complete, before leaving the hospital, a REMSC infectious disease exposure report, which is available in the emergency department, or agency form (follow your department's exposure control plan). Use one exposure report form for each provider. Distribute copies as indicated on the report.

3.12.1.1 Exposure: Hospital Responsibilities

Notify the EMS agency's designated ICO when a patient transported by its providers is determined to have an airborne, or blood borne, infectious disease, and an exposure has occurred. Furnish the pre-hospital providers with a REMSC infectious disease exposure report(s). Providers may use their agency's form, or their designated ICO may complete this, and all other, required forms.

After receiving the completed exposure report, perform the appropriate testing on the source patient and render appropriate initial treatment to the exposed provider as determined by the ED physician (or follow your department's exposure control plan for treatment of the provider). Providers have the right to refuse treatment after informed consent.

Furnish test results to the exposed providers, and agency designated ICO, as soon as possible, or within 48 hours after the exposure (as outlined in the Ryan White Law (Public Law 101-381)).

Notify the EMS agency's designated ICO, in writing, of the exposure, ensuring that providers get any emergency treatment indicated, and that all appropriate hospital reports are completed. Providers must contact their agency's designated ICO to report the exposure for emergency, non-emergency, or follow-up care.

All treatment for exposure management will follow the published recommendations set forth by the U.S. Public Health Department (the Centers for Disease Control and/or the Advisory Committee on Immunization Practices).

3.12.1.2 Exposure: EMS Agency Responsibilities

Appoint and educate, by the first of July each year, one individual to serve as the agency's designated ICO. This individual will be familiar with the agency's infectious disease control plan, the REMSC infectious disease exposure report, and this protocol. The individual will also be familiar with airborne and blood borne pathogens, other infectious diseases, the OSHA blood borne pathogen standard 1910.1030, and the recommendations of the CDC. The individual's name, and that of the agency's OMD, will be furnished each year to the REMSC.

Ensure that decontamination procedures, according to the agency's exposure control plan, are completed **immediately**, or as soon as possible, after the incident.

Notify the pre-hospital agency's designated ICO of the exposure, or possible exposure, and the actions that have been taken. Notify the designated ICO from any other agency who may have had personnel exposed during the incident.

Respond to the receiving hospital's infection control liaison immediately after receipt of written notification of an exposure. Work with the agency OMD, or other designated physician, and the receiving hospital to ensure that the provider has received appropriate follow-up care, all appropriate reports have been completed and filed, and that the incident has been brought to a closure.

3.13 Inter-facility Transfer of Acutely Ill/Injured Patients

3.13.1 Indications

A physician requests an inter-facility transport of a patient for whom procedures and/or medications have been initiated that are beyond the normal scope of the EMS agency's protocol or practices. These transfers would generally not be initiated through 9-1-1 dispatch, but rather through a private service (ground or air.)

3.13.2 Management

The inter-facility transport should be performed by an ALS-equipped and ALS-staffed ambulance and should take place only after the receiving physician has conferred with the sending physician. Prior to dispatch, the sending physician/institution will provide the EMS agency with a patient report that includes the patient's condition and any special treatment the patient is receiving. If the treatment is outside of the provider's scope of practice, the agency's Operational Medical Director (OMD) MUST be contacted for transport approval and to determine if other appropriate personnel should accompany the patient. It is not acceptable to get orders and/or extend the scope of practice from a physician at the hospital where the transfer originates. During transport, questions regarding patient care should be directed to the transferring physician or the agency OMD rather than the receiving hospital.

The Attendant-in-Charge (AIC) should request a patient report from the health care personnel on scene and should obtain the pertinent paperwork to go with the patient, including the face sheet, transport sheet, lab work, x-rays etc. If the patient is a "No Code" or has a valid "Do Not Resuscitate" order, a written order, including a pre-hospital DNR order, must accompany the patient. Assessment by the AIC should not delay transport.

Once the ambulance crew arrives at the transferring or receiving hospital, and the patient's condition has deteriorated to a life-threatening situation where immediate intervention is necessary, the AIC will consult with the attending physician if he/she is available. If the attending physician is not immediately available, the AIC should contact the agency OMD or on-line medical control for additional instructions.

An ALS provider may monitor and administer standard medications as ordered by the patient's transferring physician with on-line medical control as needed during transfer. The administration of any medication not covered by protocol will be recorded on the Pre-hospital Patient Care Report, noting the name of the transferring physician, Medical Control contacted, dosage of the medication, and the route administered. Only approved medical control providers, OMDs, and on-line medical control may give permission to deviate from protocol, unless a valid physician wishes to ride along during transport.

3.14 Patient and Scene Management

3.14.1 Management of the Patient

The AIC on the first arriving unit will have the authority for patient care and management at the scene of an emergency until relieved by a provider of higher certification. Authority for management of the emergency scene, exclusive of medical control over the patient, will rest with the appropriate on-scene public safety officials, fire, law enforcement etc.

If other medical professionals at the emergency scene offer or provide assistance in patient care, the following will apply:

1. Medical professionals who offer their assistance at the scene should be asked to identify themselves and their level of training. The pre-hospital provider should request that the individual provide proof of their identity if that person wants to continue to assist with patient care after the ambulance has arrived.
2. Physicians are the only medical professionals who may assume CONTROL of the patient's care. Pre-hospital providers should recognize the knowledge and expertise of other medical professionals and use them for the best patient care possible. All medical professionals who assist or offer assistance should be treated with courtesy and respect.
3. The authority for medical control of the pre-hospital provider's procedures rests in this protocol adopted by the EMS agency, the agency OMD, and the Regional Medical Director.
4. A physician at the scene, who renders care to a patient, prior to arrival of an EMS unit, may retain ALS Medical authority for the patient if he/she desires. The pre-hospital provider will advise the physician who wants to supervise or to direct patient care that the physician MUST accompany the patient to the receiving hospital to maintain continuity of patient care. If requested, the physician will be provided access to the services and equipment of the ambulance and/or EMS agency. Documentation of these events will be complete and will include the physician's name. Should the physician not wish to ride along to the hospital with the patient, that physician's instruction may be ignored and the providers must follow their protocol.
5. If there is a conflict about patient care or treatment protocol, the pre-hospital provider will contact on-line medical control, via the HEAR radio or cellular

telephone, for instructions. Under no circumstances should this conflict interfere with prudent patient care.

In the event there is a question about the number of patients/victims on scene, providers should make a reasonable effort to utilize all resources available to confirm that all patient/victims have been found and are accounted for.

The five levels of pre-hospital EMS certification recognized at this time by the Commonwealth of Virginia are as follows:

1. Emergency Medical Responder (EMR) whose authority is superseded by the
2. Emergency Medical Technician (EMT) whose authority is superseded by the ...
3. Advanced Emergency Medical Technician (AEMT) whose authority is superseded by the...
4. Emergency Medical Technician - Intermediate (EMT-I) whose authority is superseded by the...
5. Emergency Medical Technician - Paramedic (EMT-P) whose authority is superseded by the Physician

The July 2011 revision of the REMS protocols provided a “new” category of critical care paramedic/advanced practice paramedic. In order to qualify for this category the provider must be a valid Nationally Registered EMT-Paramedic and have successfully completed an advanced practice curriculum and/or a critical care course (such as CICP, FPC, CCEMTP, etc). In order to be able to practice as a CCP/AP in the REMS Council there must be validation of this training on-file at the REMS Council in the provider’s file AND the OMD where the provider is practicing (or the regional OMD) must certify their capabilities for this level of practice. Duration of the OMD validation will be indicated on the paperwork and limitations/duration are at the discretion of the OMD. Without valid current paperwork on file at REMS, the provider will ONLY be authorized to practice at their Virginia EMS Certification level and are NOT considered CCP/AP even with current critical care certifications.

3.15 Patient Refusal

3.15.1 Indications

1. If a patient (or the person responsible for a minor patient) refuses care after EMS providers have been called to the scene, whether injured or not.
2. If the EMS provider knows there is an injury or illness, but the patient (or the person responsible for a minor patient) refuses care and is transported to their doctor or an ED by friends or acquaintances.

3.15.2 Management

Complete an initial assessment (including vital signs where possible) of the patient, with particular attention to the patient’s neurological status. Determine if the patient is

competent to make a valid judgment concerning the extent of their illness or injury, head injury, ETOH use, or other substance ingestion.

If the EMS provider has doubts about whether or not the patient is competent to refuse care, the provider should seek guidance from on-line medical control. Clearly explain to the patient, and all responsible parties, the possible risks and/or overall concerns associated with refusal of care. The statement “risk of death and/or permanent disability” must be verbalized. Avoid performing any advanced life support procedures on a patient who has refused pre-hospital care.

Complete the PPCR, clearly documenting the initial assessment findings and the discussions with all involved persons regarding the possible consequences of refusing treatment and/or transport. A second EMS provider should witness the discussion. After the form has been completed, have the patient, or the person responsible for a minor patient, sign the refusal section provided on the PPCR. If possible, have two witnesses present and secure their signatures.

Patients who wish to be transported should be transported. When abuse of the 911 system is raised as a concern by a squad to the OMD or the regional council, proper referral to law enforcement will ensue after notification.

Providers should realize the availability of on-line medical control for any patient contact, including refusals. EMS providers may obtain a patient refusal without contacting medical control providing the risk statement above has been made and documented.

If on-line medical control is contacted, the PPCR may be presented to the on-line physician for signature.

3.16 Quality Improvement

3.16.1 Indications

The REMS Quality Improvement (QI) Committee is responsible for implementing a risk management program, including ongoing evaluation of EMS systems and compliance by EMS providers to the standards of care. Each agency is also responsible for implementing a quality improvement program. Quality Management Reports are to be provided per your agency's OMD.

3.16.2 Management

The REMS Regional QI Committee will provide a positive feedback system through provider input, hospital input, informal methods, and recognition events. Further, the QI Committee will make recommendations to the OMD, hospital, and the Training and Guidelines Committee on training needs and policy. Squads in the REMSC region should follow approved QI policies and be involved with their OMD in both commendations and disciplinary actions.

3.17 Abuse & Neglect

3.17.1 Indications

Domestic violence is physical, sexual or psychological abuse and/or intimidation, which attempts to control another person in a current or former family, dating, or household relationship. The recognition, appropriate reporting, and referral of abuse is a critical step to improving patient safety, providing quality health care, and preventing further abuse.

Abuse is the physical and/or mental injury, sexual abuse, neglect treatment, or maltreatment of a child, senior citizen, or incapacitated adult by another person. Abuse may be at the hand of a parent, caregiver, spouse, neighbor, or adult child of the patient. The recognition of abuse and the proper reporting is a critical step to improve the health and wellbeing of these at-risk populations.

3.17.2 Precautions/Contraindications

Ensure compliance with “Mandatory Reporter” status under the Code of Virginia. The Code of Virginia 63.2-1606 for Adult/Elder Abuse and 63.2-1509 for Pediatric Abuse identifies any emergency medical personnel certified by the Board of Health as a mandated reporter. Reports of suspected cases should be made immediately.

Assessment of an abuse case based upon the following principles:

- Protect the patient from harm, as well as protecting the EMS team from harm and liability
- Suspect that the patient may be a victim of abuse, especially if the injury/illness is not consistent with the reported history
- Respect the privacy of the patient and family
- Collect as much information and evidence as possible and preserve physical evidence.

3.17.3 Management

1. Assess the/all patient(s) for any psychological characteristics of abuse, including excessive passivity, compliant or fearful behavior, excessive aggression, violent tendencies, excessive crying, behavioral disorders, substance abuse, medical non-compliance, or repeated EMS requests. This is typically best done in private with the patient.
2. Assess the patient for any physical signs of abuse, especially any injuries that are inconsistent with the reported mechanism of injury. Defensive injuries (e.g. to forearms), and injuries during pregnancy are also suggestive of abuse. Injuries in different stages of healing may indicate repeated episodes of violence.
3. Assess all patients for signs and symptoms of neglect, including inappropriate level of clothing for weather, inadequate hygiene, absence of attentive caregiver(s), or physical signs of malnutrition.

4. Immediately report any suspicious findings to both the receiving hospital (if transported) and to the appropriate social services agency.

- Child abuse or neglect, contact Child Protective Services at 1-800-552-7096
- Elder abuse or neglect (including incapacitated adults), contact Adult Protective Services at 1-888-832-3858

If sexual abuse/assault is suspected contact your local Police/Sheriff's Dept. If transporting to MWH, notify that you are transporting a "Code 27" patient. This will alert them to the need of the SANE (Sexual Abuse Nurse Examiner) team. Be sure to preserve all evidence which is very important to potential court proceedings; patients should be turned over directly to hospital staff rather than placed in waiting room.

3.18 Transporting Patients to the Nearest Emergency Facility

3.18.1 Indications

Ambulances in this region will transport emergency patients to the nearest facility with full emergency capability (no urgent care businesses). No family member, friend, or even physician (except authorized on-line medical control), can instruct EMS personnel to bypass an emergency facility. With the exception of certain very specific groups such as certain types of trauma patients (burn patients, pediatrics, etc.), emergency patients should be transported to the nearest facility.

3.18.2 Management

Patients who have emergency conditions (typically cardio-respiratory events) require treatment to be the fastest possible. Transports out of the immediate region use valuable emergency resources and failure to go to the nearest qualified facility could subject the EMS community to legal consequences if the patient developed any problems during transport.

Patients who can safely tolerate a direct trip to a more distant facility (typically a tertiary care center, or a preferred destination) should not be classified as emergency patients. Ambulances may bypass a closer emergency facility during a disaster, mass casualty or similar incident (to adequately distribute low priority patients to other area hospitals so as not to inundate the main area hospital, this decision will usually be made by the EMS officer at the incident in consultation with the regional hospital coordination center (RHCC)), when the closest emergency facility is temporarily shut down (for an emergency situation such as a fire in the hospital or other event), or when the closest emergency facility informs the EMS provider to bypass their facility due to other emergency conditions.

When there is a choice of hospitals that are equal distance and equal capabilities appropriate to the patient's condition, the patients should be given a choice of which facility they would like to go. For example, the patient may be asked if they would prefer

an HCA facility or a MWH facility. A patient could then be transported to the appropriate facility based on the patient's decision.

3.19 Treatment of Minors

3.19.1 Indications

Pre-hospital providers are called to treat a young patient and there is no parent or other person responsible for the minor present. **NOTE:** Under Virginia law, a minor is defined as a person under the age of 14 years.

3.19.2 Management

The pre-hospital provider may treat and/or transport any minor who requires immediate care to save his/her life or to prevent serious injury, under the doctrine of implied consent. If a minor refuses care, the provider should contact on-line Medical Control for additional instructions (see section 3.16 Patient Refusal). If a minor is injured or ill, but not critical, and no parental contact is possible, the provider should contact on-line medical control for additional instructions. The provider should ALWAYS act on the side of appropriate patient care. Careful and complete documentation is ALWAYS important. If the ill or injured patient is a young child and the parent is present, the pre-hospital provider should contact medical control and consider the following in regard to transport:

1. Transport conscious children with a parent unless it interferes with proper patient care.
2. In cases of major trauma or cardiopulmonary arrest, exercise judgment in allowing parents to accompany the child in the ambulance.
3. Allow the parent to hold and/or touch the child whenever possible.

Both parent and child will respond to open and honest dialogue. If the minor is ill and parental consent is denied, medical control should be contacted for further instructions.

PRE-HOSPITAL PATIENT CARE PROTOCOLS

BASIC LIFE SUPPORT/ADVANCED LIFE SUPPORT



Board Approved August 2020

**Rappahannock EMS Council
435 Hunter Street
Fredericksburg, VA 22401**

PRE-HOSPITAL PATIENT CARE PROTOCOL

MEDICAL PROTOCOLS

Section II

**Rappahannock EMS Council
435 Hunter Street
Fredericksburg, VA 22401**

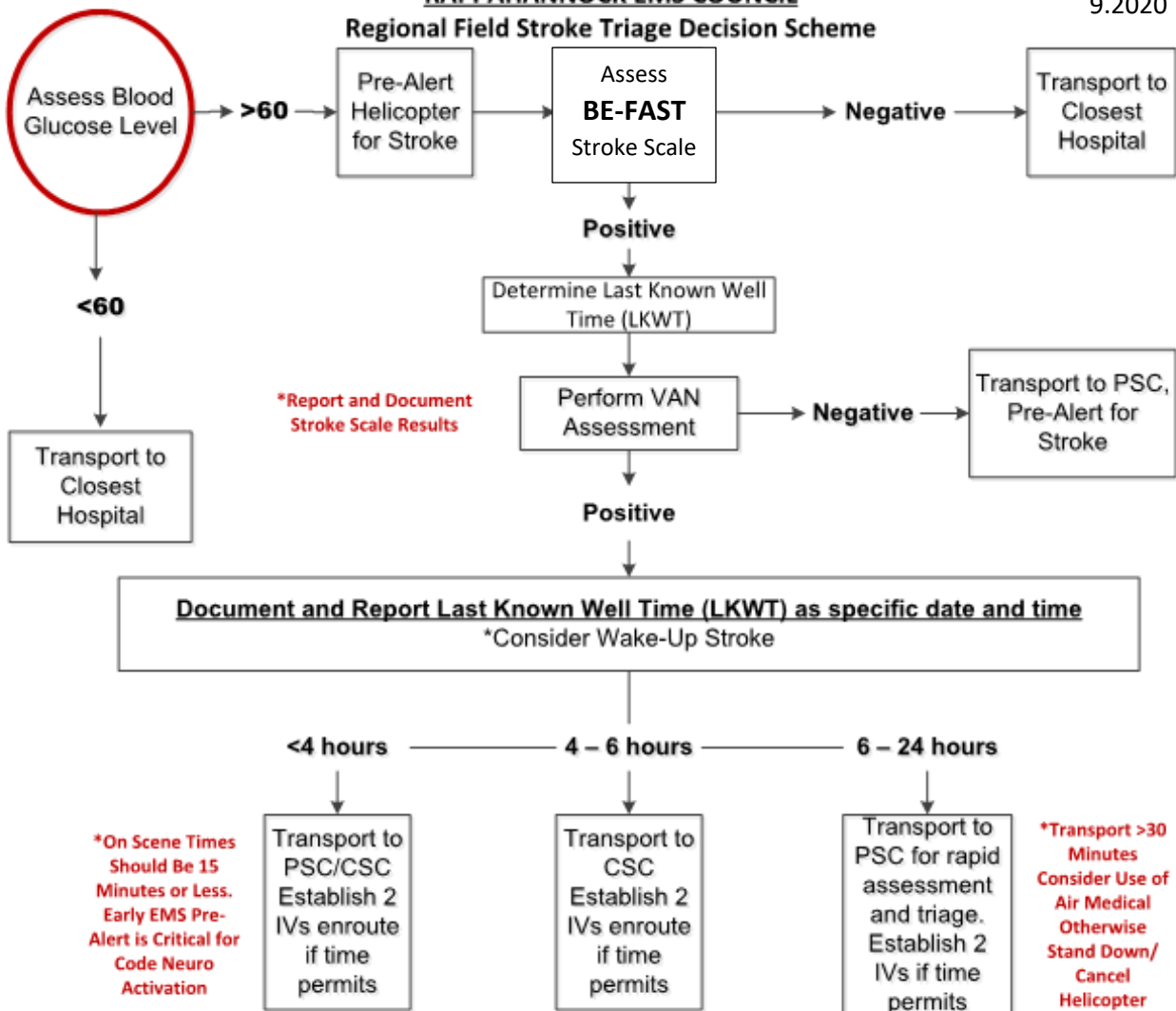
**BASIC LIFE SUPPORT/ADVANCED LIFE SUPPORT MEDICAL PATIENT
CARE PROTOCOL**

BOARD APPROVED AUGUST 19, 2020

RAPPAHANNOCK EMS COUNCIL

9.2020

Regional Field Stroke Triage Decision Scheme



VAN Assessment for LVO

***Patient must have new onset weakness on one side plus one or all of the V, A, or N to be VAN positive**

Visual Disturbance: Double Vision, New Onset Blindness, or None

Aphasia: Inability to Speak, Periphrastic Errors (does not include slurred speech), or None

Neglect: Forced Gaze, Inability to Track to One Side, Unable to Feel Both Sides at the Same Time, Ignoring One Side, or None

Wake-Up Stroke

- Awakening with stroke symptoms that were not present prior to falling to sleep
- LKWT may be unknown
- Transport to PSC
- Important to pre-alert PSC of "Wake-Up Stroke"

REMS Primary Stroke Centers (PSC)

- Mary Washington Hospital
- Spotsylvania Regional Medical Center
- Fauquier Hospital

Comprehensive Stroke Centers (CSC)

- INOVA Fairfax
- University of Virginia - UVA
- VCU

RAPPAHANNOCK REGIONAL EMS COUNCIL PATIENT CARE PROTOCOLS

Universal Patient Care/Initial Patient Contact Protocol	
Criteria: Should be used for any patient contact	
EMR	Establish Scene Safety Utilize Appropriate PPE Request Additional Resources, as needed Consider need for C-Spine, if trauma patient If patient is in Cardiac Arrest, go to Cardiac Arrest algorithms
B	Perform Primary and Secondary assessments Obtain vital signs (HR, RR, BP, Temp, and pain scale) Position/open airway manually, and utilize Oral/Nasal airway as necessary. Administer Oxygen as needed to assure SpO ₂ 94-99%. Assess for and treat for shock (body positioning and warming).
GO TO APPROPRIATE PROTOCOL BASED ON ASSESSMENT FINDINGS	
B	<u>Initial Procedures May Include:</u> Monitor oxygen Saturation (goal is 94-99%) Monitor capnography (goal is 35-45 mmHg) Monitor blood pressure (goal is >90 SBP, MAP >60) Check blood sugar Obtain 12 lead EKG
A	<u>Initial Procedures May Include:</u> Provide IV access
I	<u>Initial Procedures May Include:</u> Perform 4/12 lead interpretation

Notes:

1. Decontaminate and remove patient clothes if they have been exposed to any dangerous or noxious substances
2. EMS reports must be completed in compliance with OEMS Rules and Regulations
3. Timing of transport should be based on patient's clinical condition
4. All patient care must be appropriate for your level of training and as authorized by your OMD
5. It may be necessary to reference several protocols while treating a patient. Refer to the appropriate protocols and provide the required interventions as necessary
6. Airway management, oxygen administration, IV procedures, and cardiac monitoring should be performed as indicated based on the results of the patient assessment or protocols
7. EMT's may conduct a 12 Lead EKG and transmit to the Emergency Department, but may not interpret the rhythm

RAPPAHANNOCK REGIONAL EMS COUNCIL PATIENT CARE PROTOCOLS

Cardiac Arrest- Unknown Rhythm	
<p>Criteria: 1: Any medical cardiac arrest or near-arrest patient, including cardiac dysrrthmias such as tachycardias, bradycardias, and ineffective cardiac rhythms (VF, PEA, IVR, etc.). Treat with the appropriate algorithm within your scope of practice</p> <p>2. In all cases, attempt to determine cause of the problem and resolve or treat appropriately</p>	
B	<p>Recommend use of automated chest compression device and CPR feedback mechanisms. Movement and/or transport of the patient while performing manual CPR is not recommended. Consider elevating patient's head 30 degrees if using mechanical CPR device</p> <p>Insert BIAD "Rescue Airway" such as King, Combitube, iGel, and ventilate at rate of NO FASTER THAN 1 every 5-6 seconds</p>
A	<p>Evaluate for and treat any causes of cardiac arrest (ex: hypovolemia- treat with 20 cc/kg isotonic fluid boluses; or any other special circumstances in Special Circumstances Resuscitation Protocol</p>
I	<p>Upon return of spontaneous circulation (ROSC) consider placing an endotracheal tube. DO NOT STOP COMPRESSIONS or STOP RESUSCITATION to place endotracheal tube</p>

Notes:

1. Patients that have ROSC should be stabilized to ensure optimal patient outcome. Recommendation is that the patient have 10 minutes of spontaneous circulation (see ROSC algorithm) PRIOR to transporting the patient
2. Immediately return to chest compressions after any rhythm or pulse check, pauses to deliver a shock should last no more than 5 seconds; have defibrillator charged and ready to go prior to stopping compressions
3. ACLS/PALS treatment algorithms should be utilized - see enclosed references. ROSC algorithm is based on adult patient, adjust for pediatric ROSC and use weight-based dosing and age-appropriate dosing. Pediatric patient is one with no signs of puberty.
4. If appropriate, contact medical control for Code Grey after potential causes have been corrected and patient remains unresponsive to therapy
5. Cardizem (Diltiazem) is contraindicated in patients with history of Wolf-Parkinson-White Syndrome (WPW). Lopressor may be substituted based on drug availability
6. Consider halving the dosage of medications in patients with renal failure, hepatic failure, and/or patients >70 years of age
7. Depth, rate of compressions and ventilation rate per current ECC guidelines

RAPPAHANNOCK REGIONAL EMS COUNCIL PATIENT CARE PROTOCOLS

Medical – Cardiac Arrest: Special Resuscitation Orders

Criteria: Patients found in cardiac arrest, from a possible cause not covered by standard ACLS/PALS algorithms

P

If patient is found in cardiac arrest with one of these causes suspected, use appropriate ACLS/PALS algorithm while considering:

Electrolyte abnormalities:

Hyperkalemia: Administer **Calcium** 1 g (*pediatric dose 20 mg/kg, max dose 1 g*) and **Sodium Bicarbonate** 50-100 mEq, (*pediatric dose 1-2 mEq/kg to max dose 100 mEq*) through separate IV lines

Hypomagnesia (Torsades): Administer **Magnesium** 1-2 g (*pediatric dose 25-50 mg/kg, max dose 2 g*)

Toxins:

Carbon Monoxide: Mix **Hydroxocobalamin** according to manufacturer's recommendations. Administer 5 g, (*pediatric dose 70 mg/kg, max dose 5 g*) repeat once if patient does not improve after completion

Tricyclic Antidepressant OD: Administer **Sodium Bicarbonate** 50-100 mEq (*pediatric dose 1-2 mEq/kg, max dose 100 mEq*)

Medication Summary:

Calcium (Calcium Chloride): 1 g (*pediatric dose 20 mg/kg, max dose 1 g*)

Hydroxocobalamin (Cyanokit): 5 g Repeat once (if needed) (*pediatric dose 70 mg/kg, max dose 5 g*)

Magnesium Sulfate: 1-2 g (*pediatric dose 25-50 mg/kg, max dose 2 g*)

Sodium Bicarbonate: 50-100 mEq (*pediatric dose 1-2 mEq/kg to max dose 100 mEq*)

Notes:

1. Hyperkalemia – consider in patients with dialysis, crush syndrome, profound dehydration. Medications should be given as slow IVP
2. Hypomagnesia – consider with overuse of diuretics, chronic alcoholism/malnutrition, renal failure. May present with Torsades de Pointes. Medications should be given as slow IVP
3. Carbon Monoxide – consider with exposure to combustion in enclosed space (house fire, suicide attempt); administer Cyanokit over 15 minutes

ACLS Cardiac Arrest Algorithm Update

The ACLS Adult Cardiac Arrest Algorithm and the ACLS Adult Cardiac Arrest Circular Algorithm were updated to include lidocaine as an alternative antiarrhythmic to amiodarone for treatment of shock-refractory VF/pVT. The lidocaine dose was added within the algorithm's Drug Therapy box, and a minor edit was made in the CPR Quality box as detailed in the next sections.

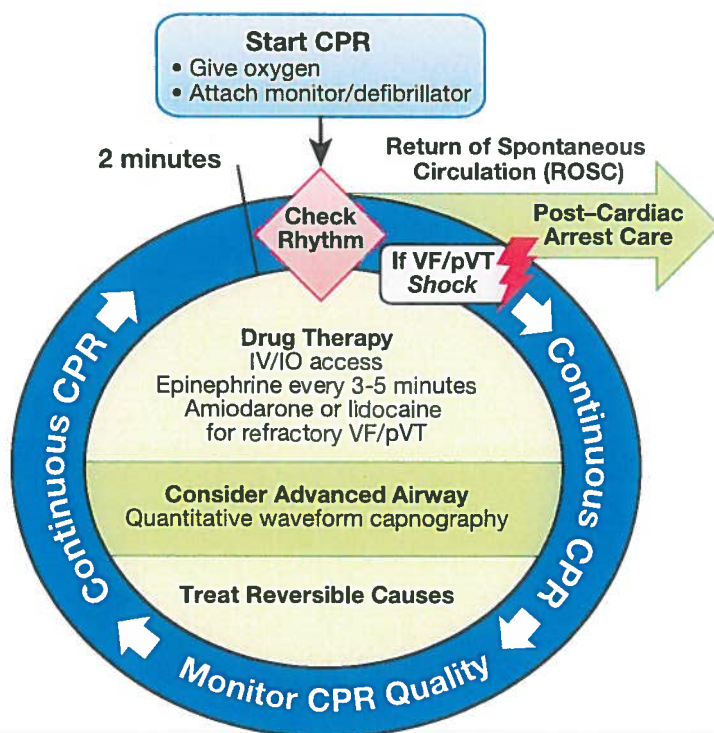
Changes to the Adult Cardiac Arrest Algorithm—2018 Update.

Within the VF/pVT branch of the algorithm, lidocaine was added as an alternative to amiodarone in Box 8. In the algorithm's CPR Quality box, the fourth bullet text was changed from "Rotate compressor every 2 minutes, or sooner if fatigued" to "Change compressor every 2 minutes, or sooner if fatigued." Within the al-

gorithm's Drug Therapy box, the lidocaine dose was added as an alternative to amiodarone in the second bullet text.

Changes to the Adult Cardiac Arrest Circular Algorithm—2018 Update (Figure 3). Within the circle, under "Drug Therapy," the last drug was changed from "Amiodarone for refractory VF/VT" to "Amiodarone or lidocaine for refractory VF/pVT." Within the algorithm's CPR Quality box, the fourth bullet text was changed from "Rotate compressor every 2 minutes, or sooner if fatigued" to "Change compressor every 2 minutes, or sooner if fatigued." Within the algorithm's Drug Therapy box, the lidocaine dose was added as an alternative to amiodarone in the second bullet text.

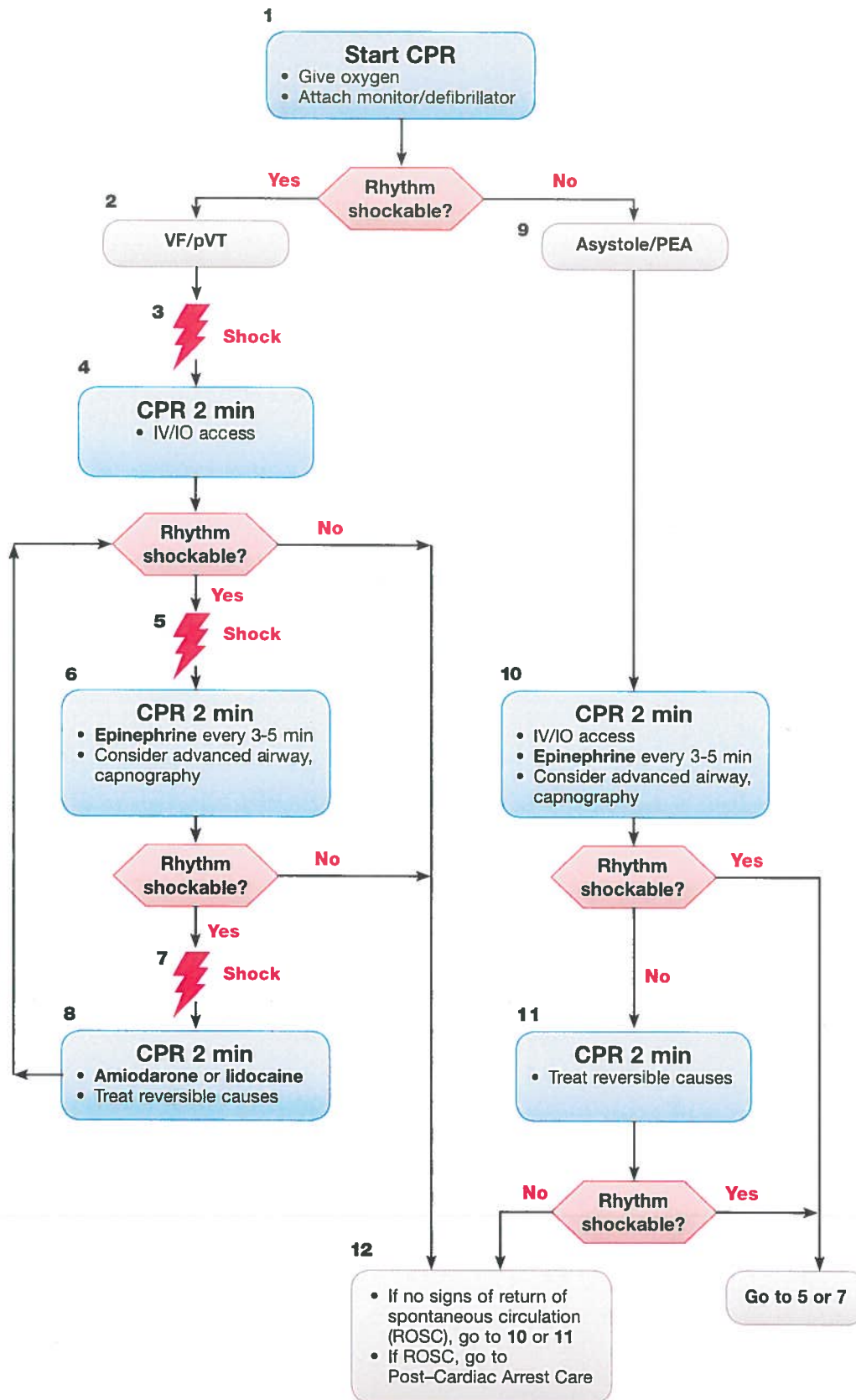
Adult Cardiac Arrest Circular Algorithm—2018 Update



CPR Quality
<ul style="list-style-type: none"> • Push hard (at least 2 inches [5 cm]) and fast (100-120/min) and allow complete chest recoil. • Minimize interruptions in compressions. • Avoid excessive ventilation. • Change compressor every 2 minutes, or sooner if fatigued. • If no advanced airway, 30:2 compression-ventilation ratio. • Quantitative waveform capnography <ul style="list-style-type: none"> – If PETCO₂ <10 mm Hg, attempt to improve CPR quality. • Intra-arterial pressure <ul style="list-style-type: none"> – If relaxation phase (diastolic) pressure <20 mm Hg, attempt to improve CPR quality.
Shock Energy for Defibrillation
<ul style="list-style-type: none"> • Biphasic: Manufacturer recommendation (eg, initial dose of 120-200 J); if unknown, use maximum available. Second and subsequent doses should be equivalent, and higher doses may be considered. • Monophasic: 360 J
Drug Therapy
<ul style="list-style-type: none"> • Epinephrine IV/IO dose: 1 mg every 3-5 minutes • Amiodarone IV/IO dose: First dose: 300 mg bolus. Second dose: 150 mg. <p style="text-align: center;">-OR-</p> <ul style="list-style-type: none"> • Lidocaine IV/IO dose: First dose: 1-1.5 mg/kg. Second dose: 0.5-0.75 mg/kg.
Advanced Airway
<ul style="list-style-type: none"> • Endotracheal intubation or supraglottic advanced airway • Waveform capnography or capnometry to confirm and monitor ET tube placement • Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions
Return of Spontaneous Circulation (ROSC)
<ul style="list-style-type: none"> • Pulse and blood pressure • Abrupt sustained increase in PETCO₂ (typically ≥40 mm Hg) • Spontaneous arterial pressure waves with intra-arterial monitoring
Reversible Causes
<ul style="list-style-type: none"> • Hypovolemia • Hypoxia • Hydrogen ion (acidosis) • Hypo-/hyperkalemia • Hypothermia • Tension pneumothorax • Tamponade, cardiac • Toxins • Thrombosis, pulmonary • Thrombosis, coronary

Figure 3. Adult Cardiac Arrest Circular Algorithm.

Adult Cardiac Arrest Algorithm—2018 Update



CPR Quality

- Push hard (at least 2 inches [5 cm]) and fast (100-120/min) and allow complete chest recoil.
- Minimize interruptions in compressions.
- Avoid excessive ventilation.
- Change compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 30:2 compression-ventilation ratio.
- Quantitative waveform capnography
 - If PETCO₂ <10 mm Hg, attempt to improve CPR quality.
- Intra-arterial pressure
 - If relaxation phase (diastolic) pressure <20 mm Hg, attempt to improve CPR quality.

Shock Energy for Defibrillation

- **Biphasic:** Manufacturer recommendation (eg, initial dose of 120-200 J); if unknown, use maximum available. Second and subsequent doses should be equivalent, and higher doses may be considered.
- **Monophasic:** 360 J

Drug Therapy

- **Epinephrine IV/IO dose:** 1 mg every 3-5 minutes
- **Amiodarone IV/IO dose:** First dose: 300 mg bolus. Second dose: 150 mg.
- **-OR-**
- **Lidocaine IV/IO dose:** First dose: 1-1.5 mg/kg. Second dose: 0.5-0.75 mg/kg.

Advanced Airway

- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement
- Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions

Return of Spontaneous Circulation (ROSC)

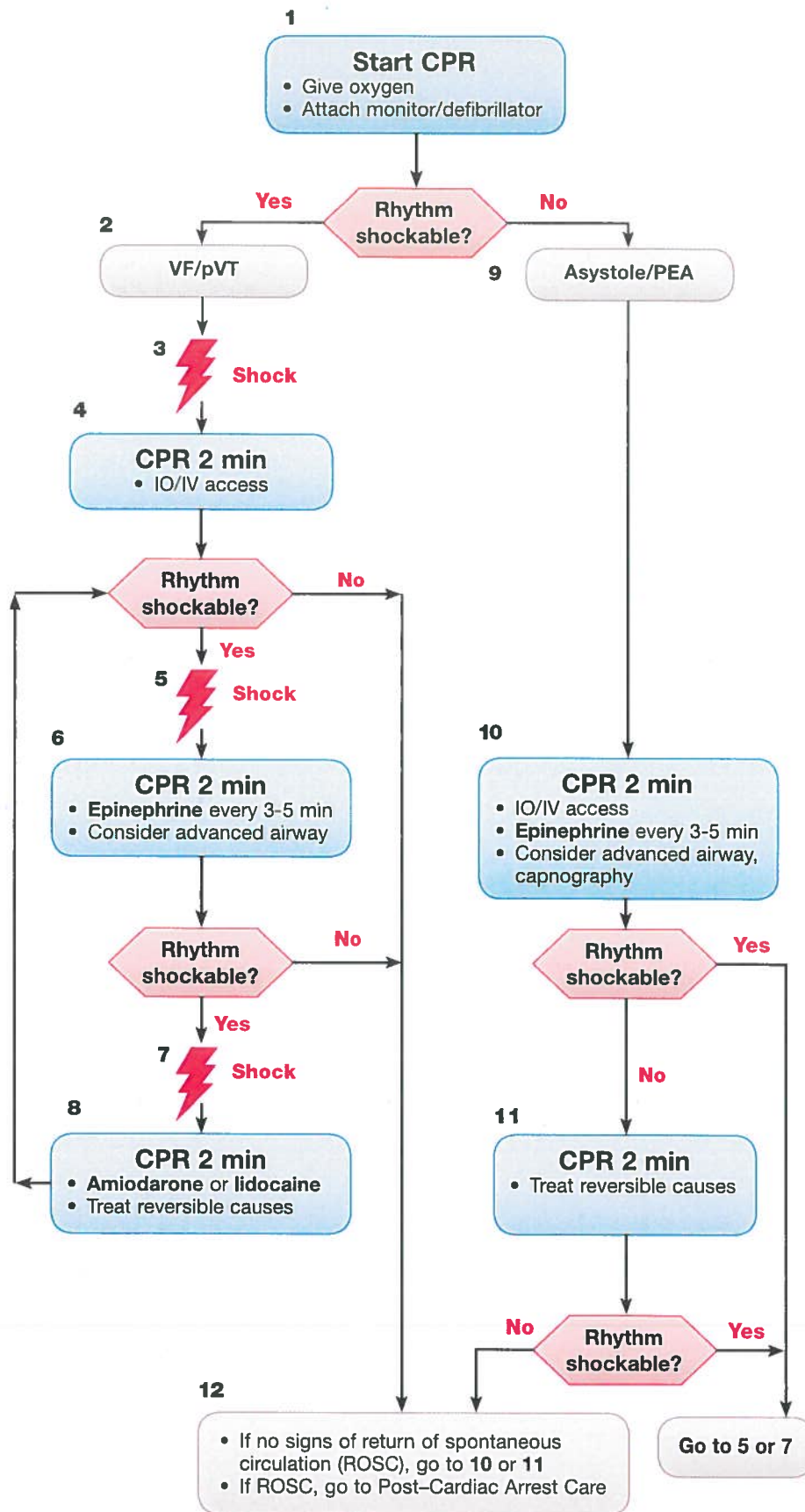
- Pulse and blood pressure
- Abrupt sustained increase in PETCO₂ (typically ≥40 mm Hg)
- Spontaneous arterial pressure waves with intra-arterial monitoring

Reversible Causes

- Hypovolemia
- Hypoxia
- Hydrogen ion (acidosis)
- Hypo-/hyperkalemia
- Hypothermia
- Tension pneumothorax
- Tamponade, cardiac
- Toxins
- Thrombosis, pulmonary
- Thrombosis, coronary

Figure 2. Adult Cardiac Arrest Algorithm.

Pediatric Cardiac Arrest Algorithm—2018 Update



CPR Quality

- Push hard ($\geq \frac{1}{3}$ of anteroposterior diameter of chest) and fast (100-120/min) and allow complete chest recoil.
- Minimize interruptions in compressions.
- Avoid excessive ventilation.
- Change compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 15:2 compression-ventilation ratio.

Shock Energy for Defibrillation

First shock 2 J/kg, second shock 4 J/kg, subsequent shocks ≥ 4 J/kg, maximum 10 J/kg or adult dose

Drug Therapy

- **Epinephrine IO/IV dose:** 0.01 mg/kg (0.1 mL/kg of the 0.1 mg/mL concentration). Repeat every 3-5 minutes. If no IO/IV access, may give endotracheal dose: 0.1 mg/kg (0.1 mL/kg of the 1 mg/mL concentration).
- **Amiodarone IO/IV dose:** 5 mg/kg bolus during cardiac arrest. May repeat up to 2 times for refractory VF/pulseless VT.
- OR-
- **Lidocaine IO/IV dose:** Initial: 1 mg/kg loading dose. Maintenance: 20-50 mcg/kg per minute infusion (repeat bolus dose if infusion initiated >15 minutes after initial bolus therapy).

Advanced Airway

- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement
- Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions

Return of Spontaneous Circulation (ROSC)

- Pulse and blood pressure
- Spontaneous arterial pressure waves with intra-arterial monitoring

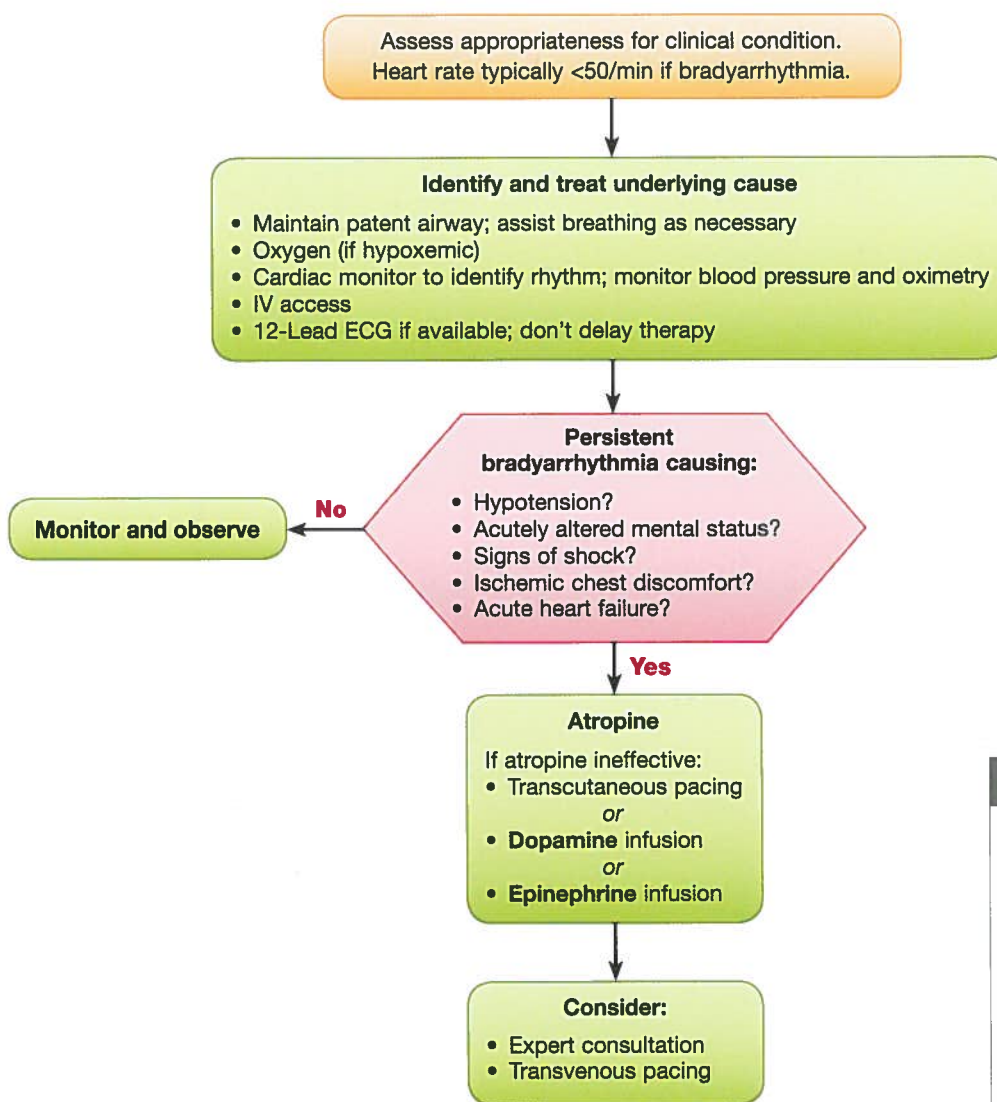
Reversible Causes

- Hypovolemia
- Hypoxia
- Hydrogen ion (acidosis)
- Hypoglycemia
- Hypo-/hyperkalemia
- Hypothermia
- Tension pneumothorax
- Tamponade, cardiac
- Toxins
- Thrombosis, pulmonary
- Thrombosis, coronary

Figure 4. Pediatric Cardiac Arrest Algorithm.

Adult Bradycardia With a Pulse Algorithm

Advanced Cardiovascular Life Support



Doses/Details

Atropine IV dose:
First dose: 0.5 mg bolus.
Repeat every 3-5 minutes.
Maximum: 3 mg.

Dopamine IV infusion:
Usual infusion rate is
2-20 mcg/kg per minute.
Titrate to patient response;
taper slowly.

Epinephrine IV infusion:
2-10 mcg per minute
infusion. Titrate to patient
response.

Pediatric Bradycardia With a Pulse and Poor Perfusion Algorithm

1

Identify and treat underlying cause

- Maintain patent airway; assist breathing as necessary
- Oxygen
- Cardiac monitor to identify rhythm; monitor blood pressure and oximetry
- IO/IV access
- 12-Lead ECG if available; don't delay therapy

2

Cardiopulmonary compromise?

- Hypotension
- Acutely altered mental status
- Signs of shock

No

Yes

3

CPR if HR <60/min
with poor perfusion despite
oxygenation and ventilation

4a

- Support ABCs
- Give oxygen
- Observe
- Consider expert consultation

No

4

Bradycardia persists?

Yes

5

- **Epinephrine**
- **Atropine** for increased vagal tone or primary AV block
- Consider transthoracic pacing/transvenous pacing
- Treat underlying causes

6

If pulseless arrest develops, go to Cardiac Arrest Algorithm

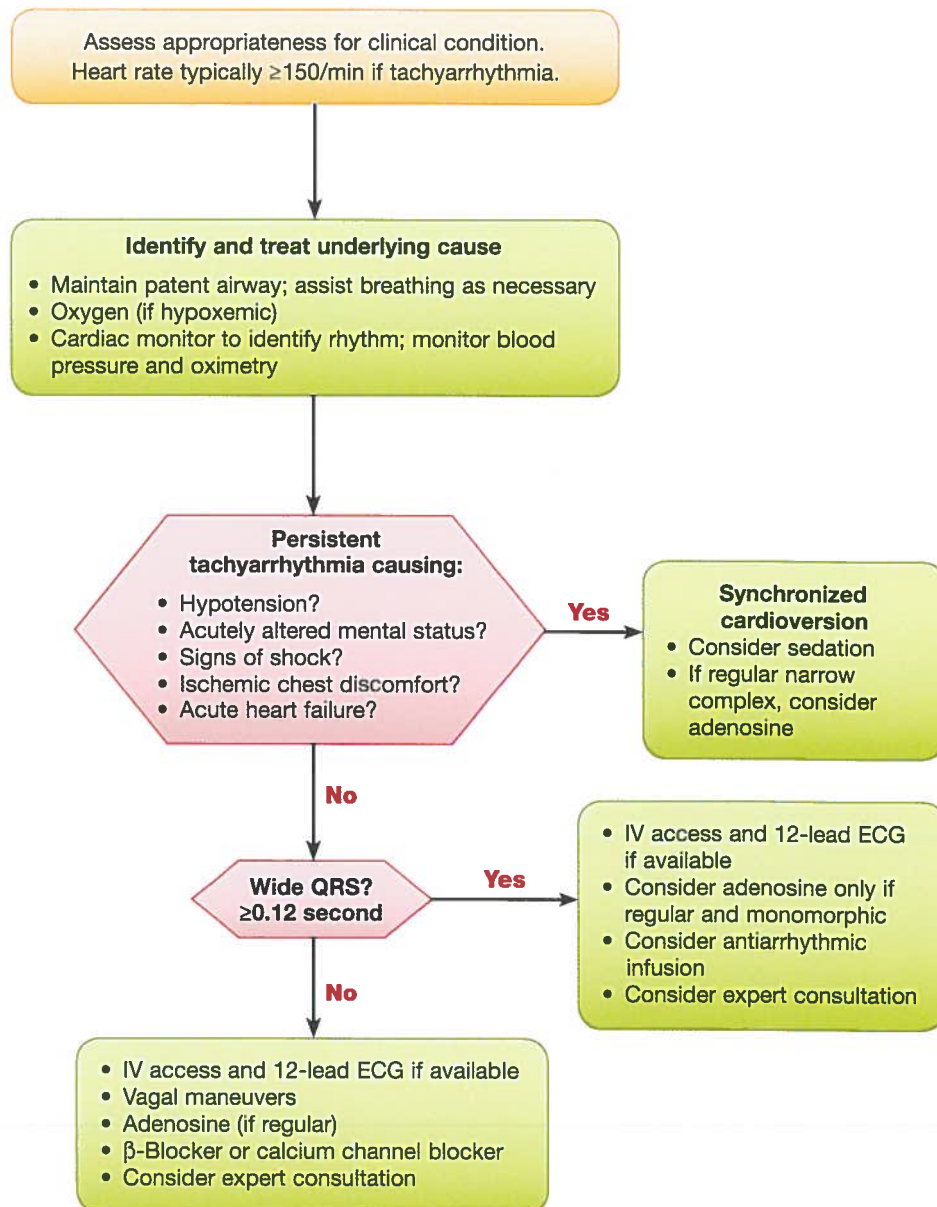
Doses/Details

Epinephrine IO/IV dose:
0.01 mg/kg (0.1 mL/kg of 1:10 000 concentration). Repeat every 3-5 minutes. If IO/IV access not available but endotracheal (ET) tube in place, may give ET dose: 0.1 mg/kg (0.1 mL/kg of 1:1000).

Atropine IO/IV dose:
0.02 mg/kg. May repeat once. Minimum dose 0.1 mg and maximum single dose 0.5 mg.

Adult Tachycardia With a Pulse Algorithm

Advanced Cardiovascular Life Support



Doses/Details

Synchronized cardioversion:

Initial recommended doses:

- Narrow regular: 50-100 J
- Narrow irregular: 120-200 J biphasic or 200 J monophasic
- Wide regular: 100 J
- Wide irregular: defibrillation dose (*not* synchronized)

Adenosine IV dose:

First dose: 6 mg rapid IV push; follow with NS flush.
Second dose: 12 mg if required.

Antiarrhythmic Infusions for Stable Wide-QRS Tachycardia

Procainamide IV dose:

20-50 mg/min until arrhythmia suppressed, hypotension ensues, QRS duration increases $>50\%$, or maximum dose 17 mg/kg given. Maintenance infusion: 1-4 mg/min. Avoid if prolonged QT or CHF.

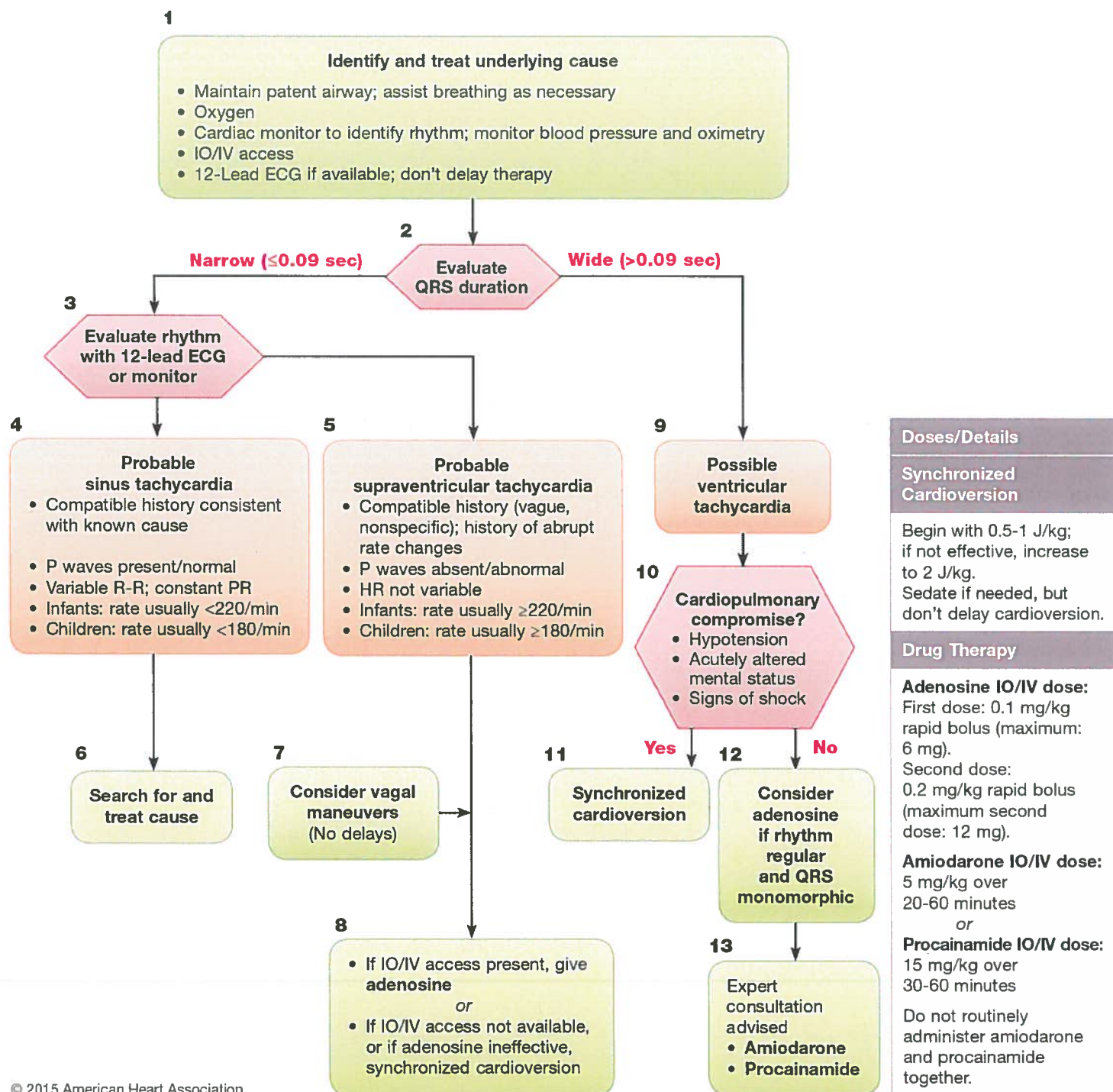
Amiodarone IV dose:

First dose: 150 mg over 10 minutes. Repeat as needed if VT recurs. Follow by maintenance infusion of 1 mg/min for first 6 hours.

Sotalol IV dose:

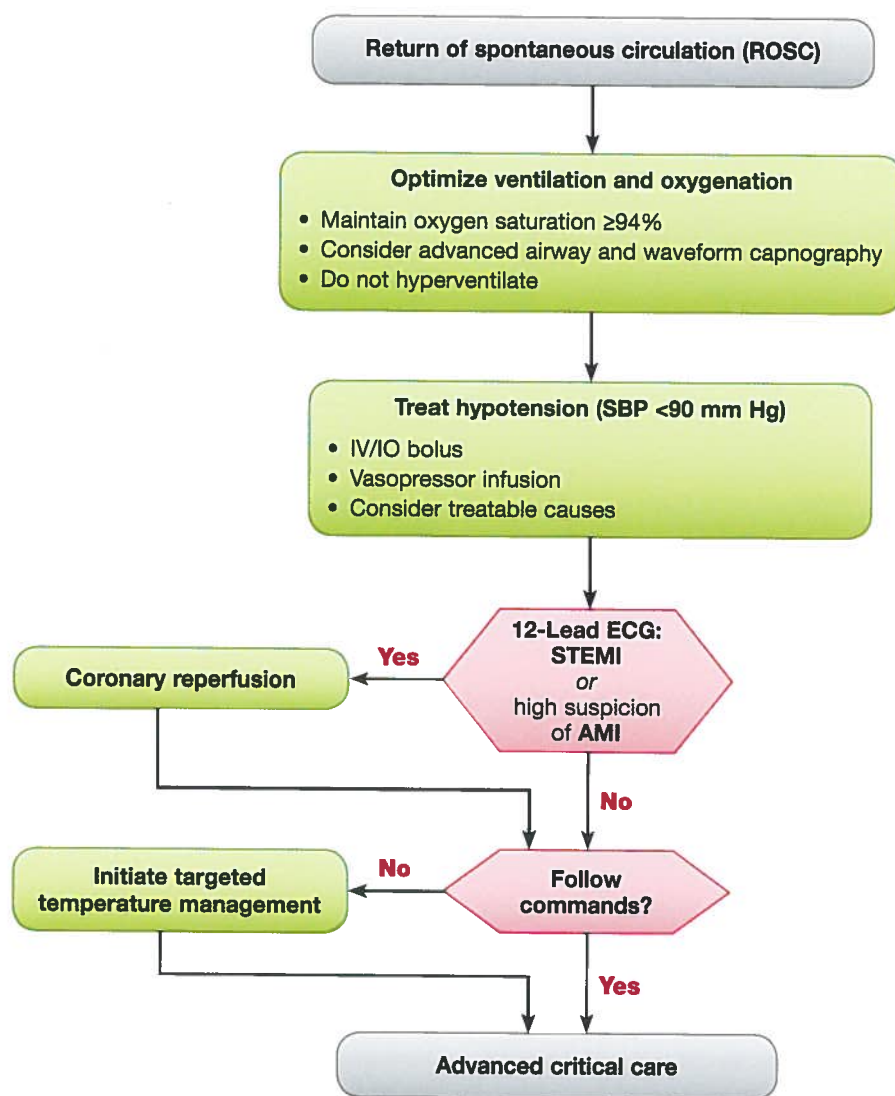
100 mg (1.5 mg/kg) over 5 minutes. Avoid if prolonged QT.

Pediatric Tachycardia With a Pulse and Poor Perfusion Algorithm



Adult Immediate Post-Cardiac Arrest Care Algorithm—2015 Update

Advanced Cardiovascular Life Support



Doses/Details

Ventilation/oxygenation:
Avoid excessive ventilation. Start at 10 breaths/min and titrate to target PETCO₂ of 35-40 mm Hg. When feasible, titrate FIO₂ to minimum necessary to achieve SpO₂ ≥94%.

IV bolus:
Approximately 1-2 L normal saline or lactated Ringer's

Epinephrine IV infusion:
0.1-0.5 mcg/kg per minute (in 70-kg adult: 7-35 mcg per minute)

Dopamine IV infusion:
5-10 mcg/kg per minute

Norepinephrine IV infusion:
0.1-0.5 mcg/kg per minute (in 70-kg adult: 7-35 mcg per minute)

Reversible Causes

- Hypovolemia
- Hypoxia
- Hydrogen ion (acidosis)
- Hypo-/hyperkalemia
- Hypothermia
- Tension pneumothorax
- Tamponade, cardiac
- Toxins
- Thrombosis, pulmonary
- Thrombosis, coronary

RAPPAHANNOCK REGIONAL EMS COUNCIL PATIENT CARE PROTOCOLS

General – Behavioral/Patient Restraint

Criteria:

1. Patients without the capacity to refuse treatment, who are exhibiting behavior that presents a clear and present danger to themselves, the EMS crew, or others
2. Patients who require management of anxiety and/or sedation prior to a medical procedure such as cardioversion

B

Ensure sufficient number of personnel are present to control the patient while applying restraints. Utilize law enforcement assistance where possible

Inform the patient that you intend to restrain them and why. This should not be used or perceived as a threat or ultimatum to patient

Perform thorough physical assessment sufficient to document findings and injuries present before application of restraints

Utilize soft restraints and/or cravat to prevent the patient from harming themselves and providers

Place patient on stretcher in supine position, apply chest belt high on the chest, apply lower extremity belt, and then apply abdominal/waist strap and shoulder straps. After application of safety belts, ensure the patient can still take full inspiratory breaths. Adjust as needed

Four-point soft restraints shall be applied as to not impair circulation in the extremity. The dominant arm of the patient should be restrained above the patient's head

Circulatory checks distal to the restraints shall be performed immediately after application of four-point restraints and again performed (and documented) every 15 minutes

If the patient has a seizure, CUT/RELEASE THE RESTRAINTS IMMEDIATELY

I

For brief procedural sedation administer **Etomidate** 0.3 mg/kg, for longer procedural sedation and/or anxiety management administer **Midazolam** 0.02 mg/kg, max single dose 5mg. Repeat x1 after 10 minutes if needed

For chemical restraint in lieu of or in addition to physical restraint, administer **Midazolam** 2-5 mg

Consider administration of 25 mg **Diphenhydramine**. *Pediatric dose is 1 mg/kg with a max single dose of 25 mg*

RAPPAHANNOCK REGIONAL EMS COUNCIL PATIENT CARE PROTOCOLS

General – Behavioral/Patient Restraint cont'd

P

For chemical restraint in lieu or in addition to physical restraint. Administer 2 mg/kg IM **Ketamine**; repeat x1 after 10 minutes if needed. If appropriate and available, 1-2 mg/kg IV **Ketamine** can be used in lieu of IM, repeat x1 after 5 minutes if needed

Medication Summary:

Benadryl (Diphenhydramine): 25 mg (*pediatric dose 1 mg/kg, max of 25 mg*)

Etomidate (Amidate): 0.3 mg/kg (*pediatric dose same as adult*)

Ketamine (Ketalar): 2 mg/kg IM repeat x1 q 10 minutes; 1-2 mg/kg IV (*pediatric dose same, max dose 100 mg IV and 200 mg IM*)

Midazolam (Versed): Procedural Sedation: 0.2 mg/kg (max 5mg); Chemical Restraint: 2-5 mg (*pediatric dose 0.1 mg/kg max dose 5 mg*)

Notes:

1. Documentation in patient care report must include evidence of need for restraint, treatment that was necessary and, in the patient's best interest, type and location of restraint(s), injuries that occurred during or after restraint, and every 15-minute circulation checks
2. Restraints, both physical and chemical, should be considered a "last resort". The least-restrictive means to maintain provider and patient safety should be used
3. Do not position or transport any restrained patient prone, or in such a way that could impair the patient's respiratory or circulatory status.
4. Administer sedating agents cautiously in patients where alcohol or other depressant use is suspected
5. Use caution with Versed administration in the elderly

Created 09/04/2015

Revised 04/20/2020

RAPPAHANNOCK REGIONAL EMS COUNCIL PATIENT CARE PROTOCOLS

General-Hospice Care

Criteria: Patients under the care of hospice that may require assistance, reassurance, or help with patient's prescribed hospice medication, but not transport.

EVERY EFFORT SHOULD BE MADE TO CONTACT PATIENT'S HOSPICE PROVIDER
BEFORE MAKING A TRANSPORT DECISION

B	Administer oxygen for relief of labored breathing
A	Administer patient's hospice medications * as directed on prescription label based on signs and symptoms, making sure to observe the five rights of medication administration

Notes:

1. Patient's experiencing a medical or traumatic emergency not related to their hospice diagnosis should be treated like all other patients
2. Hospice patients may have an altered mental status or be unresponsive, **Naloxone** is only indicated with a respiratory rate less than 6 and the patient is not actively dying.
3. Consider using hospice and/or medical control for questions on patient treatment/transport
4. All patients requesting transport will be transported to the closest appropriate facility
5. * Example home medications include: **Alprazolam** (Xanax), **Clonazepam** (Klonopin), **Diazepam** (Valium), **Haloperidol** (Haldol), **Fentanyl** (Sublimaze), **Lorazepam** (Ativan), and **Morphine**. Providers can administer medications that are within the state scope of practice for their practice level – see Virginia OEMS Scope of Practice Formulary for EMS Providers.



RAPPAHANNOCK REGIONAL EMS COUNCIL PATIENT CARE PROTOCOLS

General – Indwelling Medical Device/Equipment	
Criteria: Patients with ventricular assist devices and other implanted medical equipment	
E M R	<p>If patient is unconscious carefully evaluate for reversible causes prior to initiating CPR - chest compressions may cause irreversible damage to devices. PRIOR TO CPR - check reference guide to see if CPR is allowed for patient's particular indwelling medical device</p> <p>Identify and attempt to contact the patient's primary caretaker (spouse, guardian, etc) as well as their VAD coordinator as early as possible</p>
B	<p>Work with the caregiver, patient, and VAD coordinator to determine if the problem is related to the implanted device. If so, attempt to arrange transport to patient's VAD center</p> <p>Ensure to transport all available VAD equipment with the patient (spare batteries, troubleshooting equipment, replacement parts, etc)</p> <p>Utilize end-tidal CO2 to assess quality of ventilation and perfusion. Provide supplemental Oxygen to ensure optimal perfusion</p>
A	If patient is demonstrating signs of hypoperfusion, administer 250 cc bolus of NS q 5 min until improvement is noted

Notes:

1. Patients with properly functioning VAD's may NOT have a detectable pulse, normal blood pressure, or Oxygen Saturation
2. Patients with medical or trauma situations not related to a device malfunction should be treated traditionally. For example, a diabetic who has a VAD and has hypoglycemia is treated traditionally. Also, a VAD patient suffering from a traumatic injury should be treated and transported using standard trauma triage guidelines
3. Please refer to <http://mylvad.com/content/ems> and see the reference section for a color-coded guide to various devices that are on the market



RAPPAHANNOCK REGIONAL EMS COUNCIL PATIENT CARE PROTOCOLS

General – Pain Control

Criteria: Patients with pain resulting from chronic/acute medical or trauma conditions who are experiencing moderate to severe pain

A

If age is <65 and patient has NO history of renal failure, NO suspected active bleeding, and NO need for surgical intervention, consider **Ketorolac** 30 mg (*pediatric dose is 0.5 mg/kg – max dose 30 mg*)

Administer **Fentanyl** 0.5-1 mcg/kg (single dose max is 100 mcg). *Pediatric dosing is the same.* Repeat every 15 minutes as needed provided respiratory effort and blood pressure remains sufficient

P

If Fentanyl is not effective or available, administer **Ketamine** 0.25-0.5 mg/kg. *Pediatric dosing is the same.* Repeat once after 10 minutes if needed

Medication Summary:

Fentanyl (Sublimaze): 0.5-1.0 mcg/kg (single dose max 100 mcg) (*pediatric dose same as adult*)

Ketamine (Ketalar): 0.25-0.5 mg/kg; Repeat x1 q 10 if needed (*pediatric dose same as adult*)

Ketorolac (Toradol): 30 mg (*Pediatric Dose 0.5 mg/kg max dose 30 mg*)

Notes:

1. If greater than 300 mcg of Fentanyl is necessary to manage the patient's condition, contact medical control for additional orders
2. DO NOT use Ketorolac in patients who meet trauma triage criteria to be seen at a trauma center
3. DO NOT use Ketorolac in patients with suspected intracranial hemorrhage
4. Ketorolac is only for patients > 2 years of age
5. Consider lower dosing for parenteral analgesic in geriatric patients
6. Should monitor GCS and use pain scale to monitor efficacy

RAPPAHANNOCK REGIONAL EMS COUNCIL PATIENT CARE PROTOCOLS

Medical – Allergic Reaction/Anaphylaxis

Criteria: Any patient who is having an adverse reaction to a foreign substance.

B

If the patient has a history of allergic reaction and is currently experiencing symptoms of anaphylaxis, administer Epinephrine utilizing the color-coded syringe or a kit approved by the agency's OMD

A

For dystonic reaction, administer **Diphenhydramine** 25 mg

MINOR allergic reaction, administer **Diphenhydramine** 25-50 mg (*pediatric dose 1 mg/kg – max dose 50 mg*)

SEVERE allergic reaction, administer **Epinephrine** (1:1,000) 0.3 mg IM (*pediatric dose 0.01 mg/kg – max dose 0.3 mg*), in addition to **Diphenhydramine**. If patient is deteriorating rapidly, consider administering 1:10,000 **Epinephrine** 0.3 mg IV instead.

If the reaction has systemic involvement or is severe, administer **Methylprednisolone** 125 mg (*Pediatric dose 2 mg/kg up to max dose of 125 mg*)

I

If the patient is altered and SBP < 90mmHg, use push pressor **Epinephrine 1:100,000 5-20 mcg q 3-5 minutes**. If **Epinephrine** is not available administer **Dopamine infusion 5-20 mcg/kg/min** to maintain SBP greater than 90 mmHg or MAP > 60.

Medication Summary

Diphenhydramine (Benadryl): 25-50 mg Minor Allergic Reaction; 25 mg Dystonic Reaction (*pediatric dose 1 mg/kg max dose 25 mg*)

Dopamine: 2-20 mcg/kg/min

Epinephrine: 1:1,000 0.3 mg IM; *Pediatric Dose: 0.01mg/kg; max dose 0.3 mg*

Severe allergic reaction: 1:10,000 0.3 mg IV. 1:100,000 5-20 mcg push pressor

Methylprednisolone (Solu-Medrol): 125 mg; (*Pediatric dose 2 mg/kg up to max of 125 mg*)

Notes:

1. ALS should be utilized whenever possible for all severe and most moderate reactions.
2. If the substance causing the reaction is still present, minimize contact with patient and attempt to isolate the substance.
3. If pediatric patient has a PMH of anaphylaxis and is exhibiting signs and symptoms of allergic reaction, do not wait for progression to severe allergic reaction before administering Epinephrine.
4. **To mix the Epinephrine push pressor – mix 1ml 1:10,000 Epinephrine in 9ml of Normal Saline to provide 10 mcg/ml.**

RAPPAHANNOCK REGIONAL EMS COUNCIL PATIENT CARE PROTOCOLS

Medical – Altered Mental Status

Criteria:

1. Patients that are unresponsive or a GCS < 15
2. Thorough attempts should be made to determine the cause of the altered LOC, and specific management should be made based on the cause

B

If BGL < 60 and patient is able to swallow effectively administer oral glucose

If patient is unable to swallow, administer 1mg **Glucagon** IM/SQ

A

Titrate IV fluid to achieve SBP at or above 90 mmHg and administer 20 cc/kg if < 90

If BGL < 60 administer 100cc of **Dextrose 10%**

- Repeat after 2 minutes if symptoms are not resolved
- Pediatric dose for **Dextrose 10%** is 5 cc/kg IV and Neonatal (< 30 days) is 2 cc/kg
If unable to achieve IV access, administer 1 mg **Glucagon** IM/SQ

If BGL > 500 or "high" administer 20 cc/kg IV NS to maximum of 2 liters

Medication Summary:

Dextrose 10%: 100 cc (*Pediatric dose – 5cc/kg IV; Neonatal dose 2cc/kg*)

Glucagon (Glucagen): 1mg IM/SQ

Notes:

1. Possible causes of unconsciousness: A E I O U T I P S - Acidosis/alcohol, Epilepsy/Ethylene glycol, Infection, Overdose, Uremia (Renal Failure), Trauma/tumor, Insulin, Psychosis, and Stroke
2. Administration of medications by BLS providers must be in a color-coded and/or dose-limiting device

RAPPAHANNOCK REGIONAL EMS COUNCIL PATIENT CARE PROTOCOLS

Medical- Chest Pain - Cardiac Suspected	
Criteria: Patients with chest pain can have a variety of conditions - some of which are life-threatening. Determination should be made as to the root cause of the problem with special attention on early recognition and proper treatment of life-threatening conditions	
B	<p>Perform 12-lead EKG immediately. If machine interpretation includes "acute", "acute MI", or "infarct" statement, begin urgent transport to facility capable of PCI. If possible, transmit EKG to receiving facility. <u>Do not delay care on the scene for interventions.</u> An early report should be given. State "Code STEMI" at beginning of report</p> <p>If the patient has not taken > 160 mg of Aspirin in the preceding four hours, administer four (4) 81 mg chewable Aspirin from the STAT Kit</p> <p>If the patient is currently having pain, has not taken three (3) or more tablets, administer 0.4 mg of SL Nitroglycerin tablets/spray (patient's or STAT kit supplied). Administer additional doses (q 5 minutes) up to two (2) tablets or 0.8 mg</p>
A	<p>Establish IV; administer 20 cc/kg bolus of Normal Saline if the patient is hypotensive (SBP < 90 mmHg or MAP < 60)</p>
I	<p>If patient's pain is >5 on pain scale administer Fentanyl 0.5-1.0 mcg/kg (max single dose is 100 mcg) IV q15 minutes until patient is pain free</p> <p>If systolic BP is <90 mmHg (unrelated to analgesia) begin Epinephrine push pressor 5-20 mcg 1:100,000 q 3-5 minutes or Epinephrine infusion (2-10 mcg/min) to maintain BP</p> <p>If patient does not respond to Epinephrine, begin Dopamine drip (2-20 mcg/kg/min) and titrate to maintain adequate perfusion</p>
<p style="text-align: center;">Medication Summary</p> <p>Aspirin (Disprin): 81 mg x4 (do not exceed 324 mg concurrent to patient's intake)</p> <p>Dopamine (Intropin): 2-20 mcg/kg/min</p> <p>Epinephrine: push pressor (1:100,000) 5-20 mcg q 3-5 minutes</p> <p>Fentanyl (Sublimaze): 0.5-1.0 mcg/kg (max single dose 100 mcg)</p> <p>Nitroglycerin (Nitrostat): 0.4 mg SL, spray</p>	
<p><u>Notes:</u></p> <ol style="list-style-type: none"> Chest pain should always be considered caused by life-threatening conditions until proven otherwise. If transport to cardiac catheterization facility is > 45 minutes consider alternate means of transport or possibility of transport to closer facility that can provide initial stabilization and then transfer BLS providers must be trained on equipment/acquisition of 12 lead in order to perform as standing order Avoid precipitous drop of BP greater than 10% (30% if relatively hypertensive) through the administration of NTG In the setting of an AMI, PVC's may be resulting from cardiac ischemia. Treat the chest pain not the PVC's. If 12 lead EKG shows right-sided infarct, NTG is not recommended and crystalloid fluid may be necessary to support BP To mix the Epinephrine push pressor – mix 1ml 1:10,000 Epinephrine in 9ml of Normal Saline to provide 10 mcg/ml 	
<div style="display: flex; justify-content: space-between;"> Created: 05/20/2009 Revised 08/27/2020 </div>	



EMS COUNCIL INC.

RAPPAHANNOCK REGION EMS PROTOCOLS

Medical - Heat Emergencies

Criteria: Any patient with a heat related emergency with core temperature greater than 100.4

B

Temperature 100.4-104F: Remove clothing, use passive cooling

Temperature >104F: Remove clothing, use active cooling measures (iced sheets, topical application of chilled water, ice packs at neck/groin/armpits, etc.)

A

Temperature 100.4-103.9F: Bolus 1 L Normal Saline.

Temperature >104F: Bolus chilled NS, not to exceed 1 L

Notes:

1. If patient has altered mental status, transport emergently regardless of temperature.
2. Only cool patient to 102°
3. Preferred way to take patient's temperature is rectally and should be monitored throughout treatment

Created: 04/06/2020

Revised:

RAPPAHANNOCK REGION EMS PROTOCOLS

Medical- Hypotension/Shock Non-Trauma

Criteria: Patients that are symptomatic and have systolic blood pressure of < 90 mmHg

B	Administer 4mg ODT Ondansetron to treat and prevent vomiting
A	Administer 20 cc/kg bolus of Normal Saline. Titrate IV fluid to achieve a systolic BP > 90 mmHG up to 2 L Administer Ondansetron 4 mg (<i>pediatric dose is 2 mg</i>) to treat or provide prophylaxis against nausea. May repeat x1 after 5 minutes if needed
I	If patient remains hypotensive with signs of hypoperfusion after NS, administer Epinephrine push pressor 5-20 mcg 1:100,000 q 3-5 minutes or Epinephrine infusion (2-10 mcg/min), or begin Dopamine infusion 5-20 mcg/kg/min. Titrate for SBP at or above 90 mm Hg or MAP > 60.

Medication Summary:

Dopamine (Intropin): 5-20 mcg/kg/min

Epinephrine: 1:100,000 5-20 mcg push pressor

Ondansetron (Zofran): 4 mg IV (*pediatric dose 2 mg*)

Notes:

1. Whenever administering IV fluid bolus, especially in patients with existing cardiac disease, monitor closely for sign of pulmonary edema. If patient develops SOB or rales, stop fluid bolus and move to vasopressor therapy
2. Volume deficit from vomiting, diarrhea, or other forms of infection should be treated aggressively with isotonic boluses prior to beginning vasopressor and require a medium or large bore peripheral line
2. All patients with unstable VS should be monitored by EKG and pulse oximetry. Whenever possible also evaluate capnography
3. **To mix the Epinephrine push pressor – mix 1ml 1:10,000 Epinephrine in 9ml of Normal Saline to provide 10 mcg/ml**
4. Avoid creating hypertension



RAPPAHANNOCK REGIONAL EMS COUNCIL PATIENT CARE PROTOCOLS

Medical – Nausea/Vomiting

Criteria: Patients with nausea and/or vomiting

B

Administer 4 mg ODT **Ondansetron**

A

Establish IV access based on patient presentation. Administer 20 cc/kg bolus of Normal Saline. Titrate IV fluid to achieve a systolic BP > 90 mmHg up to 2 Liters.

Administer 4 mg IV **Ondansetron** (*pediatric dose is 2 mg*) to treat or provide prophylaxis against nausea. May repeat x1 after 5 min if needed.

Medication Summary:

Ondansetron (Zofran): 4 mg ODT ; 4 mg IV (*Pediatric dose – 2 mg*)

**RAPPAHANNOCK REGIONAL EMS COUNCIL
PATIENT CARE PROTOCOLS**

Medical-Overdose/Poisoning/Toxic Ingestion

Criteria: Patients with intentional or accidental exposure to medications and substances that affect various body systems

B

If the suspected overdose/poisoning is an opioid AND the patient is unconscious and has insufficient respiratory effort, administer 1 pre-filled syringe of **Naloxone** IN/IM from the STAT kit

A

Administer 20 cc/kg bolus of Normal Saline. Titrate IV fluid, up to 2 L, to achieve a systolic BP > 90 mmHg or MAP > 60

If the suspected overdose/poisoning is an opioid AND there is significant respiratory depression administer **Naloxone** beginning at 0.5 mg, IV/IM/IO/IN/Neb every 2-5 min titrating repeat doses for effective respiratory function. Pediatric dose for **Naloxone** is 0.1 mg/kg to maximum dose of 2 mg, titrated for effective respiratory function

Contact poison control (1-888-222-1222) for assistance when with other substances

Medication Summary:

Naloxone (Narcan): Adult: 0.5 mg IV/IM/IO/IN/Neb every 2-5 minutes (*pediatric: 0.1 mg/kg up to 2mg*)

Notes:

1. Always consider the fact that multiple substances may be involved and symptoms from conflicting substances may be masked. Whenever possible, gather the substance and transport with the patient for evaluation at the receiving facility
2. Treatment is generally supportive. Induction of emesis is rarely appropriate
3. Some drugs and substances have specific antidotes, it is important to accurately and quickly recognize the substance(s) that are involved.
4. BLS providers may access/use Narcan from the STAT kit, medication box, or other approved pharmacy source per department policy and procedures

Created 05/20/2009

Revised 09/11/2018

RAPPAHANNOCK REGIONAL EMS COUNCIL PATIENT CARE PROTOCOLS

Medical - Respiratory Distress/Asthma/COPD/Croup/Reactive Airway	
Criteria: Includes any patient who is having difficulty breathing or disordered breathing related to an acute or chronic process	
B	<p>If patient has a rescue inhaler, administer one dose if they have not already had two doses in the last 30 minutes. Consider CPAP for distress NOT related to allergic reaction</p> <p>If the patient is in moderate to severe respiratory distress, administer a nebulizer of Albuterol 2.5 mg and Ipratropium Bromide 0.5 mg from the STAT kit together</p>
A	<p>Repeat 2.5mg of Albuterol as needed (online medical control required for > 7.5 mg). Albuterol pediatric dose the same if > 2 years of age; < 2 years of age administer 1.25 mg diluted with 2 cc NS</p> <p>Administer Methylprednisolone 125 mg IV if no relief or improvement from first dose of Albuterol (<i>pediatric dose 2 mg/kg IV, maximum dose 125 mg</i>)</p> <p>For a severe asthma attack with deteriorating patient condition administer Epinephrine 1:1,000 0.3 mg IM (<i>pediatric 0.01 mg/kg; max dose 0.3 mg</i>)</p>
I	<p>For CHF or pulmonary edema: apply one inch of Nitroglycerin paste</p> <p>Consider 0.5 mg/kg IV Furosemide if patient does not take already. If patient is prescribed Lasix, consider 1.0 mg/kg (max single dose of 40 mg)</p>
P	<p>For Asthma: if no response to Albuterol consider Magnesium Sulfate 50 mg/kg IV (<i>pediatric dose 50 mg/kg – max dose 2 g</i>). Can repeat 30 mg/kg x1 q10 minutes. Do not exceed 2.5 g total</p>
CCP/ AP	<p>For croup, ARDS, and/or status asthmaticus administer 3 ml Epinephrine 1:10,000 diluted with 3 cc NS by nebulizer (<i>pediatric dose the same</i>)</p>

Medication Summary:

Albuterol (Ventolin): 2.5 mg if >2 years old; if <2 years old, administer 1.25 mg diluted with 2 cc NS

Epinephrine 1:1,000: Adult- 0.3 mg IM, *Pediatric- 0.01 mg/kg to a maximum of 0.3 mg*

Epinephrine - Racemic: 3 ml Epinephrine 1:10,000 and 3 cc NS by nebulizer (*adult and pediatric the same*)

Furosemide (Lasix): 0.5 mg/kg IV if patient does not take as home med; if they do, consider 1.0 mg/kg IV (max single dose 40 mg)

Ipratropium Bromide (Atrovent): 0.5 mg (*adult and pediatric the same*)

Magnesium Sulfate: 50 mg/kg IV, repeat in 10 minutes at 30 mg/kg but do not exceed 2.5 g total (*adult and pediatric dose the same; peds max 2 g*)

Methylprednisolone (Solu-Medrol): Adult- 125 mg, *pediatric: 2 mg/kg, max of 125 mg*

Nitroglycerin (Nitrostat): one inch of paste TD

Notes:

1. Perform detailed assessment and gather appropriate PMH to determine suspected cause of dyspnea
2. Epinephrine is a potent inotrope and chronotrope and should be used with extreme caution in patients greater than 60 years of age, pre-existing cardiomyopathy, and those with a heart rate > 120
3. Contact Medical Control for total administration greater than 7.5 mg Albuterol

RAPPAHANNOCK REGIONAL EMS COUNCIL PATIENT CARE PROTOCOLS

Medical-Seizure	
Criteria: Patients who are having seizures	
B	<p>If respirations are <8, assist with BVM ventilations</p> <p>If it's an adult patient who is hypoglycemic, administer 1 mg Glucagon IM</p>
A	<p>If patient is hypoglycemic, administer 100 cc Dextrose 10% (<i>pediatric dose is 5 cc/kg</i>). Repeat after 2 minutes if symptoms are not resolved</p> <p>For active seizure administer Midazolam 2-5 mg repeat every 5 minutes (<i>pediatric dose is 0.1 mg/kg up to max single dose of 2 mg</i>) - may repeat once after 5 minutes</p>
<p style="text-align: center;">Medication Summary:</p> <p>Dextrose 10%: 100 cc, repeat after 2 min if necessary (<i>pediatric dose is 5 cc/kg, and neonatal is 2 cc/kg</i>)</p> <p>Glucagon (Glucagen): 1 mg IM</p> <p>Midazolam (Versed): 2-5 mg, repeat after 5 min (<i>pediatric dose: 0.1 mg/kg max of 2 mg</i>)</p>	
<p><u>Notes:</u></p> <p>1. Versed may cause respiratory depression - monitor respiratory effort closely after administration, provide Oxygen, monitor and protect airway</p>	



RAPPAHANNOCK REGION EMS PROTOCOLS

OB/GYN- Eclampsia

Criteria: Pre-eclampsia includes symptoms of peripheral edema, hypertension, and visual changes or disturbances. Eclampsia is any pregnant patient (in second or third trimester) who is having seizure activity

B

Check blood sugar

A

For active seizure, administer 2 mg IV/IN **Midazolam**. May repeat x1 after 5 minutes if necessary

I

ONLINE MEDICAL CONTROL: Obtain approval then administer **Magnesium Sulfate** 2-4 g IV/IO over 20 minutes per online medical control

P

Administer **Magnesium Sulfate** 2-4 g IV/IO infusion over 20 minutes for eclamptic patients

Medication Summary:

Magnesium Sulfate: 2-4 g IV/IO over 20 minutes

Midazolam (Versed): 2-5 mg IV/IN, repeat after 5 min

Notes:

1. When transporting a pregnant patient, transport in the left lateral recumbent position to avoid supine hypotension
2. If patient is distinctly pre-eclamptic with symptoms of a headache, EMT-I and EMT-P providers may contact online medical control to request **Magnesium Sulfate** as a preventative measure
3. **Calcium chloride/gluconate** should be available as an antidote for signs of magnesium toxicity (flushed skin, diaphoresis, hypotension, flaccid paralysis, hypothermia, respiratory depression/paralysis, cardiac and CNS depression)
4. Stopping the seizure takes priority over magnesium administration

PRE-HOSPITAL PATIENT CARE PROTOCOL

TRAUMA PROTOCOLS

Section III

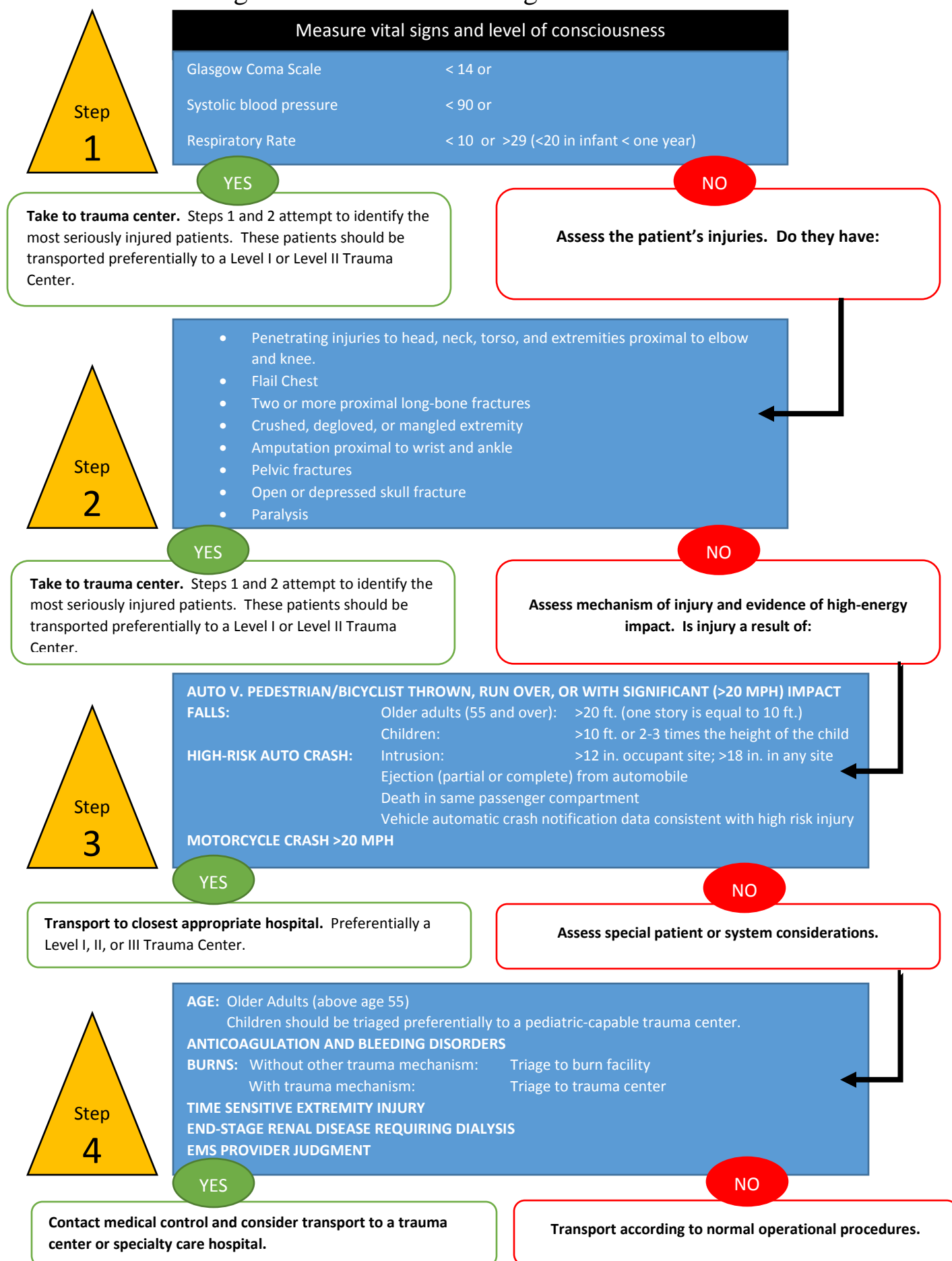
**Rappahannock EMS Council
435 Hunter Street
Fredericksburg, VA 22401**

**BASIC LIFE SUPPORT/ADVANCED LIFE SUPPORT
ADMINISTRATIVE PATIENT CARE PROTOCOL**

BOARD APPROVED AUGUST 2020

Rappahannock EMS Council

Regional Field Trauma Triage Decision Scheme



NOTE: Pre-hospital providers should transport trauma patients with uncontrolled airway, uncontrolled hemorrhage, or if CPR is in progress to the closest emergency department for stabilization and transfer to a Trauma Center.

RAPPAHANNOCK REGIONAL EMS COUNCIL PATIENT CARE PROTOCOLS

Traumatic Cardiac Arrest	
Criteria: All viable patients in cardiac arrest secondary to blunt and or/penetrating trauma	
B	<p>Insert BIAD “Rescue Airway” such as King, CombiTube, iGel, and ventilate at a rate of NO FASTER THAN 1 every 5-6 second.</p> <p>Termination of CPR is recommended if no signs of life after 10 minutes of high quality BLS resuscitation obtain a Code Gray</p>
A	<p>Administer fluid 2 liters NS rapid bolus</p> <p>If severe hemorrhage is suspected cause of cardiac arrest administer 1 g Tranexamic Acid over 10 minutes</p>
I	<p>Identify and correct reversible causes of cardiac arrest before starting ACLS/PALS</p> <p>Perform bilateral lateral needle decompression; repeat as needed</p> <p>If hypoxia is suspected consider placing endotracheal tube during CPR. Do NOT stop compressions or stop resuscitation to place endotracheal tube</p>
CCP/ AP	<p>Perform pericardiocentesis</p>

Medication Summary
Tranexamic Acid (Cyklokapron): 1 g over 10 minutes

Notes:

1. Non-viable patients include those who have injuries not compatible with life (i.e. decapitation, body mutilation, massive open head trauma)
2. Defer backboard usage until after ROSC but consider stabilizing fractured pelvis
3. After ROSC, transport patient immediately per trauma triage guidelines

RAPPAHANNOCK REGIONAL EMS COUNCIL PATIENT CARE PROTOCOLS

Injury – Bleeding/Hemorrhage Control	
<p>Criteria:</p> <ol style="list-style-type: none"> 1. Patients with uncontrolled or profuse bleeding resulting from trauma 2. Patients in traumatic cardiac arrest who recently had vital signs 	
B	<p>Apply direct pressure</p> <ul style="list-style-type: none"> - If bleeding is uncontrolled, expose the wound and remove standing clots and dressing - Using a gloved hand, apply direct pressure to the specific bleeding source for 3-5 minutes - Once bleeding is controlled, pack the wound with sterile gauze - If the bleeding continues after 3-5 minutes of focused direct pressure on the bleeding source, or if there are too many bleeding sources, pack the wound with hemostatic gauze - If bleeding is profuse, or if there is a partial or complete amputation. Apply tourniquet if anatomically appropriate
A	<p>For patients greater than 11 years of age with sustained tachycardia and hypotension (hemorrhagic shock) related to profuse hemorrhage, who have suffered an injury within the previous three (3) hours, administer Tranexamic Acid 1 g over 10 minutes</p>
<p>Notes:</p> <ol style="list-style-type: none"> 1. Providers are encouraged to follow current TECC guidelines for the management of injuries 	
<p>Medication Summary:</p>	
<p>Tranexamic Acid (Cyklokapron): 1 g over 10 minutes</p>	

RAPPAHANNOCK REGIONAL EMS COUNCIL PATIENT CARE PROTOCOLS

Injury - Burns	
Criteria: Patients with chemical, electrical, thermal, and/or radiation burns	
EMR	<p>Safely remove patient from source. Stop the burning process</p> <p>Watch for and PREVENT hypothermia</p>
A	<p>Administer NS IV 500 cc/hr (<i>for children age 6-13, 250 cc/hr, age <6, 125 cc/hr</i>)</p> <p>Administer Fentanyl 1-2 mcg/kg – may repeat once after 5-10 minutes (<i>pediatric dose 1-3 mcg/kg, max single dose of 100 mcg</i>)</p>

Medication Summary:
Fentanyl (Sublimaze): 1-2 mcg/kg, repeat once after 5-10 mins (<i>Pediatric dose: 1-3 mcg/kg max 100 mcg</i>)

Notes:

1. Patients with isolated burns to critical areas (head/face/airway, hands/feet, genitalia, or with circumferential burns or TBSA that meets criteria for treatment in a burn center should be transported directly to the burn center whenever possible
2. Patients with multiple trauma AND burns are considered trauma patients and should be transported to the closest appropriate trauma center
3. Ensure scene safety and contact additional resources for scenes involving hazardous materials, dangerous chemicals, or radiation exposures
4. Remember to use DRY sterile dressings as bandages in order to prevent hypothermia
5. If greater than 300 mcg of Fentanyl is necessary to manage the patient's condition, contact medical control for additional orders

RAPPAHANNOCK REGIONAL EMS COUNCIL PATIENT CARE PROTOCOLS

Injury – Head (Traumatic Brain Injury)	
Criteria: Patients that have suffered blunt or penetrating ISOLATED head trauma and as a result are unresponsive or presenting with a GCS at or <12	
B	Maintain neutral position of head, elevate head of bed or LBB 20 degrees. Avoid hyperventilation. Ventilate patients at a rate to achieve ETCO ₂ at 40 mmHg
A	Administer 20 cc/kg NS (max dose 1 L). Titrate NS to achieve SBP at or above 100 mmHg (MAP > 65) With signs of herniation*, hyperventilate the patient to achieve ETCO ₂ of 35 mmHg
I	Administer 5-20 mcg Epinephrine (1:100,000) q 3-5 minutes as push pressor. Titrate for MAP > 65
CCP/ AP	If patient has TBI with GCS < 9 and/or patient is not able to maintain a secure airway, refer to RSI Airway management

Medication Summary:
Epinephrine (1:100,000): 5-20 mcg push pressor – may repeat q 3-5 minutes to maintain MAP > 65

Notes:

1. In order to be eligible to intubate, CCP/AP providers must have had one successful intubation in the preceding six months and/or have completed OMD-approved agency training on airway management in the preceding 12 months; documentation to be maintained at the agency and/or council
2. Patients with significant blunt trauma should be assumed to have a spinal injury until proven otherwise by X-Ray and should be fully immobilized
3. Goals are to minimize ICP increase and to promote cerebral perfusion through the maintenance of sufficient circulation and oxygenation
4. Recommend the use of GCS to monitor and trend patient improvement or deterioration. Providers are encouraged to review the Excellence in Prehospital Injury (EPIC) and other evidence-based practice guidelines
5. **To mix Epinephrine push pressor – mix 1 ml 1:10,000 in 9ml of Normal Saline to provide 10 mcg/ml**
6. * Herniation = blown or unequal pupils, GCS 3, and/or posturing

Created: 05/20/2009

Revised: 05/08/2019

RAPPAHANNOCK REGIONAL EMS COUNCIL PATIENT CARE PROTOCOLS

Injury – Multisystem	
Criteria: Patients who require complex or extended extrication and who will benefit from anxiolysis or significant pain management in order to accommodate the extrication or patient manipulation required for disentanglement; patients with prolonged immobility at risk for crush syndrome	
I	<p><u>ANXIETY MANAGEMENT/SEDATION</u></p> <p>Administer Midazolam 2-5 mg (<i>pediatric dose 0.1 mg/kg, max dose 2 mg</i>). If no response, or not available, administer Fentanyl 2 mcg/kg every 15 minutes (<i>pediatric dose is the same, max dose 100 mcg</i>)</p>
CCP / AP	<p><u>CHEMICAL EXTRICATION AND/OR CRUSH SYNDROME</u></p> <p>Administer Fentanyl 1-1.5 mcg/kg IV (<i>pediatric dose is the same, max dose 50 mcg</i>) and Ketamine 0.5-1 mg/kg IV or 1-2 mg/kg IM (<i>pediatric dose the same, max dose 50 mg IV or 100 mg IM</i>). Closely monitor for respiratory depression</p> <p>In cases where an adult has concurrent crush injury and extrication time may be prolonged, CONSIDER 100 mEq Sodium Bicarbonate in 1000 cc NS and infuse at 100-150 cc/hour</p> <p>If EKG indicates moderate to severe hyperkalemia, administer 100 mEq Sodium Bicarbonate and 1g Calcium (do not comingle/mix Bicarb and Calcium) and administer 10-20 mg nebulized Albuterol over 15-20 minutes. If hyperkalemia persists, patient remains pinned for extended period, and time permits, consider requesting insulin from nearest facility. Contact medical control for orders for insulin and Dextrose</p>
<p style="text-align: center;">Medication Summary:</p> <p>Albuterol (Ventolin): 10-20 mg Calcium (Calcium Chloride): 1 g Fentanyl (Sublimaze): Anxiety: 2 mcg/kg (<i>pediatric max dose 100 mcg</i>); Chemical Extrication 1.0-1.5 mcg/kg (<i>pediatrics max dose 50 mcg</i>) Ketamine (Ketalar): 0.5-1 mg/kg IV; 1-2 mg/kg IM (<i>pediatric max dose 50 mg IV or 100 mg IM</i>) Midazolam (Versed): Anxiety/Sedation: 2-5 mg (<i>pediatric dose 0.1 mg/kg, max dose 2 mg</i>) Sodium Bicarbonate: 100 mEq; infusion at 100-150 cc/hour</p>	
<p><u>Notes:</u></p> <ol style="list-style-type: none"> 1. Patients with multiple trauma AND burns are considered trauma patients and should be transported to the closest trauma appropriate trauma center 2. If patient has open extremity injury, specific care should be taken to prevent further contamination during transport 3. Patients with crush injuries (anything with significant force or weight, or entrapment greater than fifteen minutes) may show signs/symptoms of pain outside normal bounds, redness, and swelling and decreased pulses 4. Patients with unstable pelvic fractures may show signs/symptoms of obvious pain and deformity; treat with stabilization and compression 5. Consider TXA for traumatic cerebral hemorrhage 	
<div> <div>Created: 10/15/2015</div> <div>Last Revised 04/22/2020</div> </div>	

RAPPAHANNOCK REGIONAL EMS COUNCIL PATIENT CARE PROTOCOLS

Spinal Immobilization/Clearance

Criteria:

1. Patients 14 years of age or older with low risk of occult spinal cord injury who are not grossly impaired by drugs or alcohol and who are capable of providing sound assessment feedback and information.
2. Traditional spinal immobilization is useful in some patients. Without clear evidence of occult and/or spinal cord injury, the general and routine use of KED's and backboards is prohibited as a patient safety concern. The use of a standing backboard for ambulatory patients at the scene is expressly prohibited.
3. The decision to use a backboard is a separate decision from spinal motion restriction (SMR). In fact, SMR should be used in all traumatic injuries where there is a mechanism for spinal injury.

B

1. Perform a complete and thorough patient assessment.
2. Patients with NO dangerous mechanism of injury¹ and no special circumstances² should be transported in a position of comfort. NO BACKBOARD should be used for immobilization.
3. With a reliable history and after a physical examination, any blunt trauma patient with bony tenderness along midline spine, numbness or tingling in the extremities, or a dangerous mechanism of injury¹ shall receive SPINAL MOTION RESTRICTION.
4. Patients with penetrating trauma that do not demonstrate clear neurological deficit do not require spinal immobilization.
5. For patients with multi-system trauma or who are severely impaired and unable to provide assessment feedback, use traditional FULL SPINAL IMMOBILIZATION.
6. Patients with dangerous mechanism of injury¹ or plausible spinal cord injury who are unresponsive or unable to provide and assessment feedback should receive FULL SPINAL IMMOBILIZATION.

Notes:

1. ¹Dangerous MOI = fall from elevation (greater than 10 feet or 5 stairs), axial loading to the head (dive into shallow water and striking head), high-speed MVC (>60 mph), rollover, or ejection, motorized recreational vehicles; pedestrian/bicycle struck.
2. ²Special circumstances = known spinal disease, previous c-spine surgery, language barrier, significant intoxication that impairs assessment, significant distracting injuries (multiple fractures, etc), GCS < 14.
3. Spinal Motion Restriction (SMR) = appropriate C-Collar in place, patient supine on padded stretcher. Whenever there is question or doubt, the patient should receive SMR.
4. Immobilization should not interfere with assessment and/or patient care (e.g. airway management, treatment of neck wounds, etc) and should not increase the patient's discomfort.
5. A backboard may be used as a method of transport to remove a patient from the environment, in appropriate circumstances, and may be used to transfer the patient to the transport stretcher.

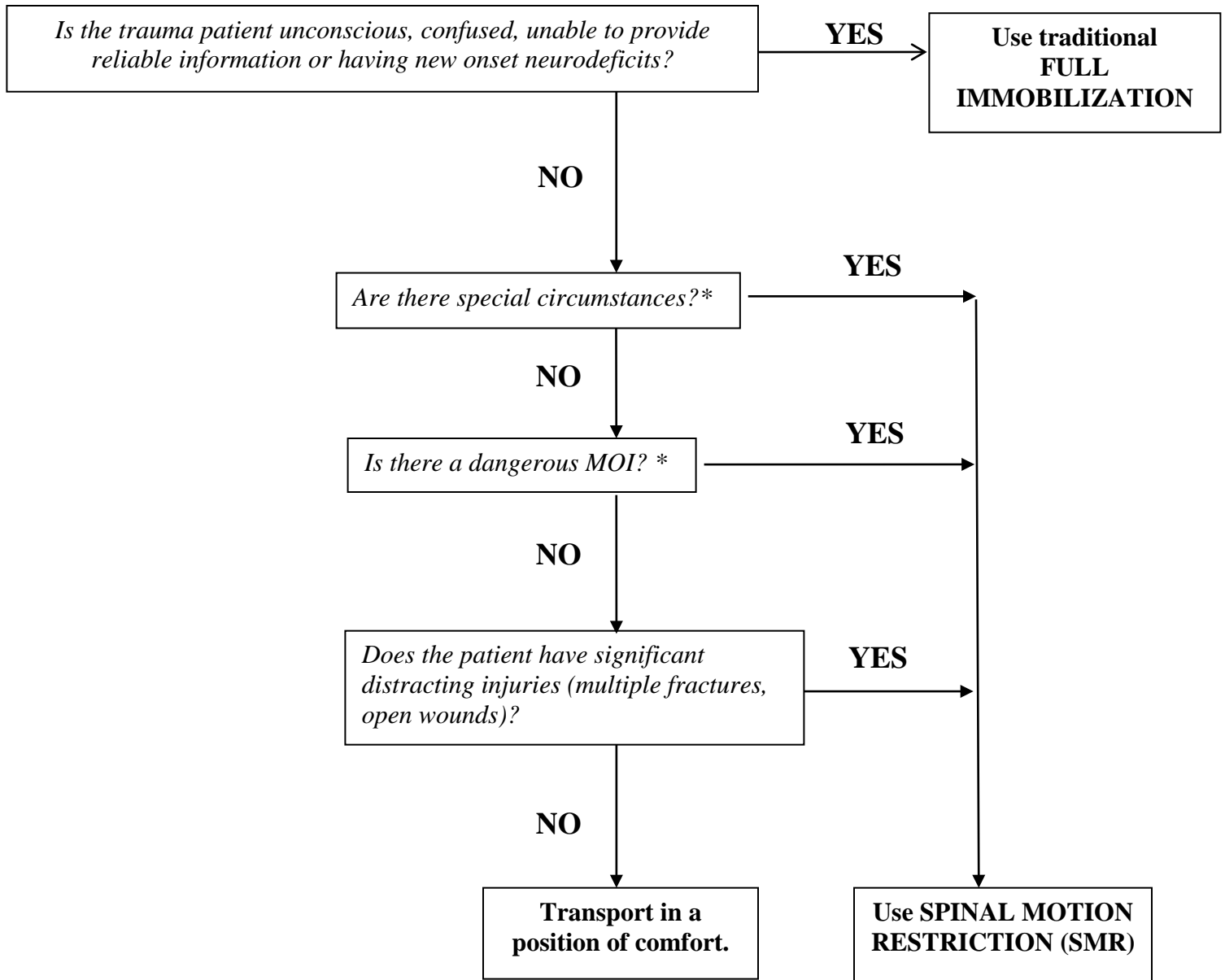
Created: 05/20/2009

Revised: 11/19/2014

Rappahannock EMS Council

Regional Treatment Protocols

Collect HPI, PMH, and perform a physical exam. C-Spine precautions may be needed until completed.



* As defined in the protocol

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**

**REVISED 06/2007, 12/2009, 06/2011, 10/2017, 05/2019,
04/2020**

**BOARD APPROVED 06/20/07; 12/16/15; 10/18/17;
06/19/19, 08/19/20**

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Scope of Practice Table

Skill or Procedure	EMR	EMT	AEMT	EMT- I	EMT-P	CCP/AP
Airway – Blind Insertion Airway Device (BIAD)	X	S	S	S	S	S
Airway – BVM, Adult & Pediatric	S	S	S	S	S	S
Airway - CPAP/BiPAP – Adult	X	S	S	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 – ETCO ₂	X	S	S	S	S	S
Airway – Mechanical/Transport Ventilator – Adult	X	R-OMD	R-OMD	S	S	S
Airway – Mechanical/Transport Ventilator – Pediatric (< 16 yrs old)	X	R-OMD	R-OMD	S	S	S
Airway – Oropharyngeal or Nasopharyngeal	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	S	S	S
Electrical Therapy – Cardioversion	X	X	X	S	S	S
Electrical Therapy – Transcutaneous Pacing	X	X	X	S	S	S
Extracorporeal Membrane Oxygenation (ECMO)	X	X	X	X	X	X
Foreign Body removal – extremities ONLY	X	X	X	X	X	S
Gastric Decompression – Adult	X	S	S	S	S	S
Gastric Decompression – Pediatric (<16 yrs old)	X	X	S	S	S	S
Hemostatic agent use	X	S	S	S	S	S
Intra-aortic Balloon Pump (IABP) transport	X	X	X	X	X	X
IO – Adult	X	X	S	S	S	S
IO – Pediatric (<16 yrs old)	X	X	S	S	S	S
IV – Access Indwelling Port (Mediport)	X	X	X	X	R-OMD	S
IV – Access PICC	X	X	X	R-OMD	S	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, Pediatric (<16 yrs old)	X	X	S	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	R-OMD	S	S	S	S

Medication Administration – IM	X	R-OMD	S	S	S	S
Medication Administration – IN	R-OMD	R-OMD	S	S	S	S
Medication Administration – IV – Adult	X	X	S	S	S	S
Medication Administration – IV – Pediatric	X	X	S	S	S	S
Medication Administration – Maintain Continuous IV Drip or Piggyback	X	X	S	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	S	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	S	S	S	S
Needle Chest Decompression - Adult	X	X	X	S	S	S
Needle Chest Decompression – Neonatal (< 30 days)	X	X	X	S	S	S
Needle Chest Decompression – Pediatric (< 16 years)	X	X	X	S	S	S
Pericardiocentesis	X	X	X	X	X	S
Resuscitative Endovascular Balloon Occlusion	X	X	X	X	X	X
Suction Endotracheal	X	X	S	S	S	S
Suction Meconium Aspiration with ET	X	X	X	X	S	S
Therapeutic Hypothermia	X	X	X	X	X	X

CERTIFICATION DEFINITIONS

EMR = Currently certified as a Virginia EMT-First Responder with no OEMS and/or OMD limitations

EMT = Currently certified as a Virginia EMT-Basic with no OEMS and/or OMD limitations

AEMT = Currently certified as a Virginia Advanced EMT 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, CCCEMT-P, CACP, 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-OMD – Conditional OMD Approval for event

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)	EMR	EMT	AEMT	EMT- I	EMT-P	CCP/AP
Acetaminophen (Tylenol)	X	S	S	S	S	S
Acetylsalicylic Acid (Aspirin)	X	S	S	S	S	S
Adenosine (Adenocard)	X	X	X	S	S	S
Albuterol (Proventil)	X	S	S	S	S	S
Amidate (Etomidate)	X	X	X	S	S	S
Amiodarone (Cordarone)	X	X	X	S	S	S
Atropine Sulfate (Atropine)	X	X	S	S	S	S
Calcium (Calcium Chloride / Gluconate)	X	X	X	S	S	S
Dextrose 50%, 25%, 10% (D50,D25,D10)	X	X	S	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 (ET)	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	S	S	S	S
Furosemide (Lasix)	X	X	X	S	S	S
Glucagon (GlucaGen)	X	S	S	S	S	S
Ibuprofen (Advil,Motrin)	X	S	S	S	S	S
Ipratropium (Atrovent)	X	S	S	S	S	S
Ketamine (Ketalar)	X	X	X	S	S	S
Lidocaine (Xylocaine)	X	X	S	S	S	S
Magnesium Sulfate (Magnesium)	X	X	X	S	S	S
Methylprednisolone (Solu-Medrol)	X	X	S	S	S	S
Midazolam Hydrochloride (Versed)	X	X	S	S	S	S
Naloxone (Narcan)	X	S	S	S	S	S
Nitroglycerin (Nitropaste) (TD)	X	X	X	S	S	S
Nitroglycerin (Nitrostat) (SL)	X	S	S	S	S	S
Nitroglycerin (Tridil) (IV)	X	X	X	X	S	S
Ondansetron (Zofran)	X	S	S	S	S	S
Oxygen	S	S	S	S	S	S
Rocuronium (Zemuron)	X	X	X	X	X	S
Sodium Bicarbonate	X	X	X	S	S	S
Tranexamic Acid	X	X	X	S	S	S
Vecuronium (Norcuron)	X	X	X	X	X	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 REGIONAL EMS COUNCIL PATIENT CARE PROTOCOLS

Clinical Procedures – 12-lead Electrocardiogram	
<p style="text-align: center;">Criteria:</p> <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	<p>Treatment of life-threatening conditions should occur prior to obtaining a 12-lead EKG.</p>
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</p> <p>Transmit the EKG or provide to ALS when they arrive. ALS providers only need to transmit EKGs with active events</p>
<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	<p>If respirations are <8, assist with BVM ventilations and supplemental Oxygen.</p> <p>If the patient has no gag and accepts the oral airway, place BIAD.</p>
I	If BLS procedures are not adequate to secure the airway, insert an oral endotracheal tube.
P	<p>If patient has a patent gag or is combative/resisting airway management, see RSI protocol.</p> <p>If the patient has no contraindications, a nasotracheal intubation can be performed instead of oral intubation when complications with equipment prevent standard endotracheal intubation.</p> <p>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> <p>Once a definitive airway has been placed, the patient should be managed with a mechanical ventilator.</p> <p style="padding-left: 40px;">-tidal volume of 5-8 cc/kg, rate of 8-12 for adults,</p> <p style="padding-left: 80px;">-ventilator settings should be adjusted to maintain an appropriate SaO₂ and ETCO₂.</p> <p>Place OG/NG tube placed to relieve any gastric distention.</p>
CCP/ AP	If patient condition doesn't warrant surgical or needle cric but still requires secured airway, consider retrograde intubation.

Notes:

1. If a portion or combination of steps resolves the barrier to airway management, placement of endotracheal tube is not a required end-point. Delayed sequence intubation should be considered.
2. Intubated patients must have confirmation through ETCO₂ capnometry and shall be monitored through continuous ETCO₂ capnography.
3. 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.

**CCP/
AP**

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. 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.

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.

If patient condition doesn't warrant surgical or needle cric but still requires secured airway, perform retrograde intubation.

Medication Summary:

Epinephrine 1:100,000: 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 Epinephrine push pressor: mix 1 ml 1:10,000 Epinephrine in 9 ml of NS to provide 10 mcg/ml.
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.

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 supplied 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.

Created: 05/20/2009

Revised 4/6/2020

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	<p>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</p> <p>If patient is actively seizing, administer Mark I kit in ADDITION to anticonvulsants per seizure protocol</p>

<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>)

<p><u>Notes:</u></p> <ol style="list-style-type: none"> 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 auto-injector kits may be substituted for Mark I kits if available
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Created: 06/27/2011	Revised 04/06/2020
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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

**CCP/
AP**

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.

RAPPAHANNOCK REGIONAL EMS COUNCIL PATIENT CARE PROTOCOLS

Ventilators and CPAP	
Criteria: <ol style="list-style-type: none"> 1. CPAP: Patients that are awake but in respiratory distress related to pulmonary edema, asthma, 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 cmH ₂ O, titrate pressure to a maximum of 10 cmH ₂ O
I	<p>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)</p> <ul style="list-style-type: none"> -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
<u>Notes:</u> <ol style="list-style-type: none"> 1. CPAP contraindications: decreased LOC, hypoventilation, airway trauma, pneumothorax, tracheostomy, recent lung surgery, and extremely unstable vital signs (imminent cardiac arrest) 	
<div style="display: flex; justify-content: space-between;"> Created 05/20/2009 Revised 04/20/2020 </div>	

PRE-HOSPITAL PATIENT CARE PROTOCOL

REFERENCE SECTION

Section V

**Rappahannock EMS Council
435 Hunter Street
Fredericksburg, VA 22401**

**BASIC LIFE SUPPORT/ADVANCED LIFE SUPPORT
ADMINISTRATIVE PATIENT CARE PROTOCOL**

REVISED 6/07, 12/09, 6/11, 12/15, 10/17, 05/19, 04/20
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Rappahannock EMS Council
Protocol Reference

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Trauma Designation

All licensed hospitals are required by the *Code of Virginia* to submit data on their trauma cases to the Virginia Statewide Trauma Registry. Of those 94 licensed hospitals, 14 have been designated as a trauma center.

<i>Level I Trauma Centers</i>	<i>Level II Trauma Centers</i>	<i>Level III Trauma Centers</i>
Carilion Roanoke Memorial Hospital	Lynchburg General Hospital	Carilion New River Valley Medical Center
Inova Fairfax Hospital	Riverside Regional Medical Center	CJW Medical Center, Chippenham Campus
Sentara Norfolk General Hospital	Winchester Medical Center	Montgomery Regional Hospital
UVA Health System	Mary Washington Hospital	Sentara Virginia Beach General Hospital
VCU Health Systems		Southside Regional Medical Center

Level I

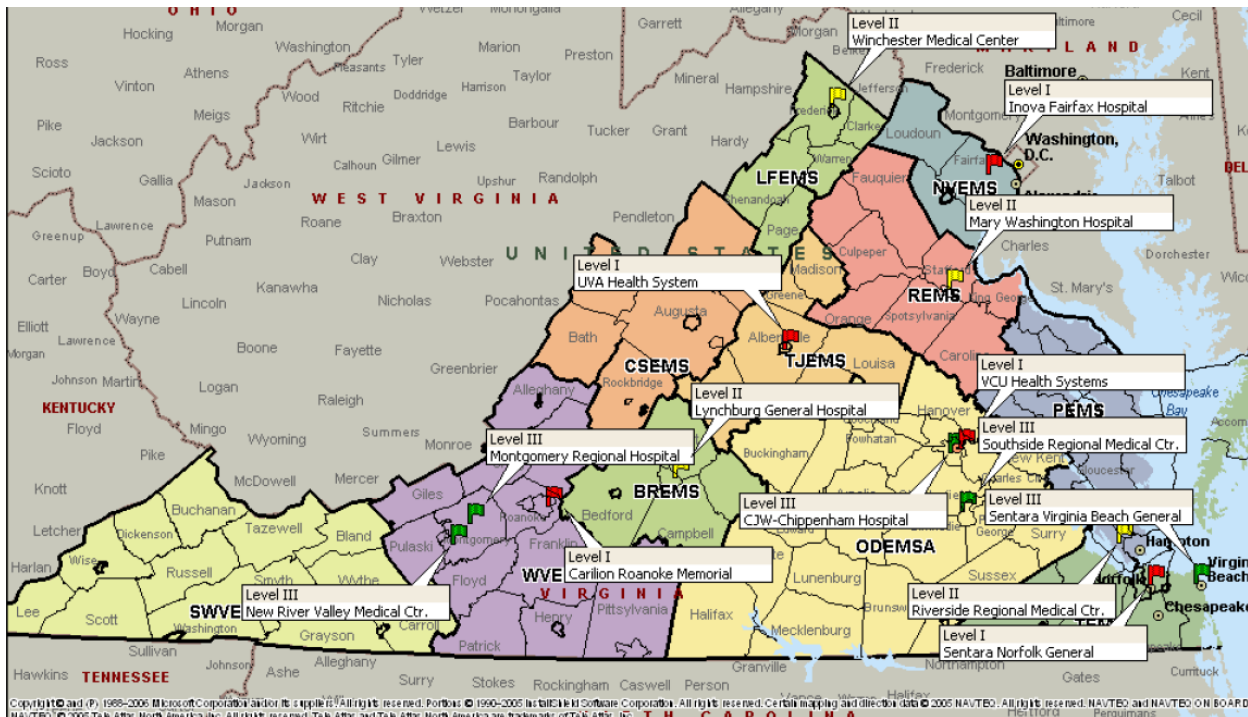
Level I trauma centers have an organized trauma response and are required to provide total care for every aspect of injury, from prevention through rehabilitation. These facilities must have adequate depth of resources and personnel with the capability of providing leadership, education, research, and system planning.

Level II

Level II trauma centers have an organized trauma response and are also expected to provide initial definitive care, regardless of the severity of injury. The specialty requirements may be fulfilled by on call staff, that are promptly available to the patient. Due to limited resources, Level II centers may have to transfer more complex injuries to a Level I center. Level II centers should also take on responsibility for education and system leadership within their region.

Level III

Level III trauma centers, through an organized trauma response, can provide prompt assessment, resuscitation, stabilization, emergency operations and also arrange for the transfer of the patient to a facility that can provide definitive trauma care. Level III centers should also take on responsibility for education and system leadership within their region.



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DESIGNATED STROKE CENTERS

The following hospitals have been designated as a Primary Stroke Center (or higher) as provided by the Virginia Stroke System Task Force web page:

Geographic Area	Hospital	Type of Stroke Center
Designated Stroke Centers within the REMS Region		
Fredericksburg	Mary Washington Hospital	Primary
Spotsylvania	Spotsylvania Regional Medical Center	Primary
Warrenton	Fauquier Hospital	Primary
Stroke Centers Outside the REMS Region Used by REMS Agencies		
Alexandria	Inova Alexandria Hospital	Primary
	Inova Mount Vernon Hospital	Primary
Charlottesville	Martha Jefferson Hospital	Primary
	University of Virginia Hospital	Comprehensive
Falls Church	Inova Fairfax Hospital	Comprehensive
Mechanicsville	Bon Secours Regional Medical Center	Primary
Richmond	Augusta Medical Center	Primary
	Bon Secours Richmond Community	Primary
	Bon Secours-St. Mary' Hospital	Comprehensive
	CJW Hospital	Comprehensive
	Henrico Doctor's Hospital	Primary
	Johnston Willis Hospital	Primary
	Parham Doctors' Hospital	Primary
	Retreat Doctors' Hospital	Primary
	VCU Health Systems	Comprehensive
Winchester	Winchester Medical Center	Comprehensive
Woodbridge	Sentara Northern VA Medical Center	Primary

A current list of all Virginia Stroke Centers may be found on the Virginia Stroke System Task Force web page: <http://www.vdh.virginia.gov/stroke/virginia-stroke-systems-task-force/>

Rappahannock EMS Council Pre-Alert Procedures: General

Pre-Alerts at First Medical Contact (FMC¹) for certain medical emergencies are critical to good patient care. It should occur immediately once the EMS provider determines the patient may be suffering from one of the conditions below. The pre-alert does not replace the standard patient report given enroute, but gives the ED physician and ED Staff enough information and time to activate the appropriate response teams, and look up patient's history, previous EKGs, previous care, etc., as appropriate.

REMS Pre-Alert Guidelines at First Medical Contact			
AMI	Stroke	Serious Trauma	Sepsis
12L EKG taken and transmitted to ED ²	Cincinnati Stroke Test Conducted	ITLS/PHTLS Assessment indicative of Load and Go Patient	SIRS + suspected infection and/or measured Lactate levels are >4 mmol/L
Initial pre-alert is given at FMC, and consists of the following:			
Time of Symptom Onset	Last Known Well Time	Mechanism of injury ³	Presentation indicative of sepsis ⁴
Age of Patient	Age of Patient	Age of Patient	Age of Patient
Signs and Symptoms	Signs and Symptoms	Signs and Symptoms	Signs and Symptoms
12L EKG interpretation (device or provider)	Results of Cincinnati Stroke Test	GCS + vital signs (if available)	Lactate levels & temperature (if available), and BP
Name of Patient ⁵ and other pertinent information ⁶	Name of Patient ⁵ and other pertinent information ⁶	N/A	N/A
The standard, follow-on HEAR report is given en route.			

¹ FMC = First Medical Contact; in this context, first contact by EMS.

² If the 12L EKG cannot be transmitted by EMS or received by the hospital, trained ALS provider interpretation is sufficient to activate the AMI/STEMI response per AHA STEMI Guidelines.

³ The ED may not have enough information during a pre-alert to initiate a trauma activation; that data may come during the normal HEAR report after a rapid trauma or head-to-toe assessment has been accomplished. Some scenarios may initiate an ED trauma alert during the EMS pre-alert without a complete assessment: gunshot to the chest, flail chest, ejection from a vehicle, multi-system trauma, unconscious, etc.

⁴ Systemic Inflammatory Response Syndrome (SIRS) is the body's response to an infection and consists of 4 findings ...

⁵ HIPAA permits the use of a patient's name over an unencrypted radio if needed for patient care.

⁶ Other pertinent information includes terminal illness, hospice, etc. (2016-07)

Standard Medication Infusions Information

Amiodarone

SVT/VT with a Pulse:

Mix 150 mg in 250 ml of D5W

Administer over 10 minutes

Using a macrodrip (10 gtts/ml): Run at 250 gtts/min

Post arrest infusion:

Mix 250 mg in 250 ml of D5W

Administer 1 mg/min

Using a microdrip (60 gtts/ml): Run at 60 gtts/min

Using a macrodrip set (10 gtts/ml): Run at 10 gtts/min

Pediatric:

Mix desired dose (5 mg/kg) in 100 ml of D5W

Using a microdrip (60 gtts/min): Run at 120 gtts/min

Using a macrodrip set (10 gtts/ml): Run at 20 gtts/min

Dopamine

Mix 400 mg in 250 ml of D5W **OR** Mix 1600 mg in 1000 ml

Concentration is 1600mcg/ml

Using a microdrip (60 q tts/ml) – 1600 mcg / 60 q tts

60 q tts/min (1 drop every second) = 1600 mcg / min

45 q tts/min (1 drop every 1.5 seconds) = 1200 mcg / min

30 q tts/min (1 drop every 2 seconds) = 800 mcg / min

15 q tts/min (1 drop every 4 second) = 400 mcg / min

Epinephrine

Mix 1 mg in 250 ml of D5W

Concentration is 4 mcg/ml

150 q tts/min (5 drops every 2 seconds) = 10 mcg / min

120 q tts/min (2 drops every second) = 8 mcg / min

90 q tts/min (2 drops every 3 seconds) = 6 mcg / min

60 q tts/min (1 drop every second) = 4 mcg / min

30 q tts/min (1 drop every 2 seconds) = 2 mcg / min

Epi push pressor – mix 1ml of Epinephrine 1:10,000 in 9ml Normal Saline = 10 mcg/ml

Magnesium Sulfate

Mix 2 – 4 g (desired dose) in 250 ml of D5W

2000 mg/250ml = 8 mg/ml = 200 mg/min (10 q tts set) wide open

3000 mg/250ml = 12 mg/ml = 300 mg/min (10 q tts set) wide open

4000 mg/250ml = 16 mg/ml = 400 mg/min (10 q tts set) wide open

Tranexamic Acid

Mix 1 g in 250 ml of D5W

Concentration is 4 mg/ml

Using a macrodrip (10 gtts/ml): Run at 250 gtts/min

Recommended fluids to have on hand:

Add-Vantage D5W 100ml bag (1 each)

D5W 250ml bag (2 each)

NS 1000ml bag (4 each)

Mass Casualty Incident – First Unit on Scene Checklist from MCI Plan

Mission/Tasks: First unit on scene gives visual size-up, assumes and announces command, and confirms incident location, then performs the 5 S's:

SAFETY assessment. Assess the scene observing for:

- ☐ Electrical hazards.
- ☐ Flammable liquids.
- ☐ Hazardous Materials
- ☐ Other life threatening situations.
- ☐ Be aware of the potential for secondary explosive devices.

SIZE UP the scene: How big and how bad is it? Survey incident scene for:

- ☐ Type and/or cause of incident.
- ☐ Approximate number of patients.
- ☐ Severity level of injuries (either Major or Minor).
- ☐ Area involved, including problems with scene access.

SEND information:

- ☐ **Contact dispatch with your size-up information and declare a Multiple or Mass Casualty Incident.**
- ☐ **Request additional resources.**
- ☐ **Notify the closest hospital / emergency department of the incident.**

SETUP the scene for management of the casualties:

- ☐ Establish staging.
- ☐ Identify access and egress routes.
- ☐ Identify adequate work areas for Triage, Treatment, and Transportation.

START (Simple Triage And Rapid Treatment) and JumpSTART (for pediatric patients).

- ☐ Begin where you are.
- ☐ Ask anyone who can walk to move to a designated area.
- ☐ Use surveyor's tape to mark patients.
- ☐ Move quickly from patient to patient.
- ☐ Maintain patient count.
- ☐ Provide only minimal treatment.
- ☐ Keep moving!
- ☐ **Remember...** Establish COMMAND, SAFETY, SURVEY, SEND, SET-UP AND START/JumpSTART

REMS Hospital Diversion Policy for Emergency Patients

- A. PURPOSE:** To maintain an orderly, systematic and appropriate distribution of emergency patients transported by ambulances during a single or multiple hospital diversion situation within the Rappahannock EMS Council region.
- B. SCOPE:** This policy pertains to all 6 acute care hospitals and all licensed EMS agencies providing ground ambulance transportation as defined in Virginia Department of Health regulations.

C. POLICY ELEMENTS:

- 1. INDICATIONS:** Acute care hospitals (those with emergency departments) occasionally become overwhelmed with patients, exceeding the capacity for the medical staff to adequately treat and monitor those patients. To alleviate this temporary situation, a receiving hospital – after completing an established process, may declare a diversion of acute patients, whereby ambulances are diverted to other area hospitals.

Ambulance diversion should occur only after the hospital has exhausted internal mechanisms to relieve the situation. When a hospital declares a diversion online medical control will recommend to the EMS ambulance crew to transport the patient to another hospital. A representative of the hospital will contact VHHA (Virginia Hospital and Healthcare Assoc.) and request a period of diversion.

- 2. CONTRAINDICATIONS:** Patients with airway obstruction, uncontrollable airway, uncontrollable bleeding, who are in extremis, or with CPR in progress should immediately be taken to the closest appropriate hospital, without regard to the hospital's diversion status.
- 3. DIVERSION OVERRULE:** Pre-hospital EMS providers may overrule diversion if a patient is in extremis, or significant weather/traffic delays, mechanical problems, etc. An EMS provider who believes an acute decompensation is likely to occur if the patient is diverted to a more distant hospital *always* has the option to take that patient to the closest Emergency Department regardless of the diversion status.
- 4. CONSIDERATIONS:** When there are questions about hospital destination in and out of hospital situations, the pre-hospital attendant-in-charge should contact the local hospital as early as possible by radio or phone for destination guidance.

CATEGORIES OF HOSPITAL STATUS	
Open	When a hospital has a full capacity for receiving its usual patient load.
Special Diversion	When a hospital is unable to handle certain types of patient.
Full Diversion	When the hospital has exhausted all resources to appropriately treat additional patients. The Emergency Department is closed to all EMS traffic except those noted in the Contraindications.
Force Open/Out of Service	The hospital Emergency Department would be on diversion, but is open because of multiple hospitals ED closures in the region.
Disaster	Critical or catastrophic circumstances result in operational shutdown. Hospital cannot receive any new patients by EMS or other means. Hospital cannot be placed in Forced Open category.

HOSPITAL SECTOR	
Culpeper Sector	UVA Culpeper Hospital
Fauquier Sector	Fauquier Hospital
Fredericksburg Sector	Mary Washington Hospital (Level II Trauma Center)
Spotsylvania Sector	Mary Washington Free Standing ED- Lee's Hill Spotsylvania Regional Medical Center
Stafford Sector	Stafford Hospital

PRE-HOSPITAL PATIENT CARE PROTOCOL

MEDICATION REFERENCE

Section VII

**Rappahannock EMS Council
435 Hunter Street
Fredericksburg, VA 22401**

**BASIC LIFE SUPPORT/ADVANCED LIFE SUPPORT
MEDICATIONS REFERENCE**

REVISED DEC 2009, JUL 2011, DEC 2016, OCT 2017, FEB 2020

BOARD APPROVED AUGUST 19, 2020

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1.0 Acetaminophen (Tylenol)

Mechanism of Action

Effects the Hypothalamus to lower temperature, may also affect the PNS to block pain impulses.

Indications

1. Headache
2. Muscle Aches
3. Backache
4. Fever

Contraindications

1. Allergy or hypersensitivity to acetaminophen
2. Severe Active Kidney Disease

Precautions

1. Patients with renal impairment
2. Excessive alcohol usage
3. Limit to no more than 4g/day for adults

Side Effects

1. Liver Failure possible with excessive administration

Suggested Routes of Administration

PO, PR

2.0 Adenosine

Mechanism of Action

The primary effect of adenosine is to slow conduction through the AV node, thereby terminating reentry tachydysrhythmias such as SVT, and restoring normal sinus rhythm.

Indications

Adenosine is regarded as the drug of choice for treatment of hemodynamically stable SVT.

Contraindications

Second- or third-degree block

Precautions

1. Adenosine may not correct atrial fibrillation, atrial flutter, or ventricular tachycardia
2. Higher doses of adenosine are likely to be needed for patients receiving theophylline or using large quantities of caffeine
3. Lower doses (3 mg or less) of adenosine should be used in patients receiving dipyridamole (Persantin)
4. Extra caution (and lower than usual doses) should be used in patients receiving carbamazepine (Tegretol), which could potentiate AV block of adenosine

Side Effects

1. Transient facial flushing, coughing, dyspnea
2. Chest discomfort (may simulate angina)
3. Marked slowing of the heart rate (transient asystole may occur)

Suggested Routes of Administration

Rapid IV/IO bolus (administered over a 1-2 second period).

3.0 Albuterol (Proventil)

Mechanism of Action

Administration by inhalation allows for preferential affinity for b2 adrenergic receptors, relaxing bronchial smooth muscle, and decreasing airway resistance; suppresses release of leukotrienes and histamine from mast cells in lung tissue.

Indications

Bronchial asthma or reversible bronchospasm with chronic bronchitis and cases of emphysema. Hyperkalemia associated with crush syndromes.

Contraindications

1. Hypersensitivity to drug
2. Tachydysrhythmias

Precautions

Patients with underlying coronary artery disease or preexisting arrhythmias are at much greater risk of myocardial ischemia and exaggerated arrhythmias. Use Albuterol with caution in patients receiving MAO inhibitors (Deprenyl, Seliginine, Eldepryl, Parnate, and Iproniazid) or TCAs (Amitriptyline, Desipramine). May be ineffective in patients taking beta-blockers.

Side Effects

Palpitations, skeletal muscle tremor, tachycardia, anxiety, nausea, dizziness. Hypokalemia in patients using cardiac glycosides (Digoxin) and diuretics.

Suggested Routes of Administration

Nebulized

4.0 Amiodarone (Cordarone)

Mechanism of Action

Amiodarone blocks sodium channels at rapid pacing frequencies and exerts a non-competitive antisympathetic action. One of its main effects, with prolonged administration, is to lengthen the cardiac action potential. In addition, it produces a negative chronotropic effect in nodal tissues. Amiodarone also blocks potassium channels, which contributes to slowing of conduction and prolongation of refractoriness. Its vasodilatory action can decrease cardiac workload and consequently myocardial oxygen consumption.

Indications

Indicated for initiation of treatment and prophylaxis of frequently recurring ventricular fibrillation and hemodynamically unstable ventricular tachycardia in patient refractory to other therapy. Amiodarone may also be used to treat supraventricular tachycardia.

Contraindications

Contraindicated in patients with known hypersensitivity to Amiodarone, or in patients with cardiogenic shock, marked sinus bradycardia, and second – or third – degree AV block.

Precautions

May worsen existing or precipitate new dysrhythmias, including torsades de pointes, and VF. Use with beta-blocking agents could increase risk of hypotension and bradycardia. Amiodarone inhibits atrioventricular conduction and decreases myocardial contractility, increasing the risk of AV block with Verapamil or Diltiazem or of hypotension with any calcium channel blocker. Use with caution in pregnancy and with nursing mothers.

Side Effects

Adverse reactions include fever, bradycardia, CHF, cardiac arrest, hypotension, ventricular tachycardia, nausea, and abnormal liver function.

Suggested Routes of Administration

IV/IO

5.0 Aspirin (Acetylsalicylic Acid)

Mechanism of Action

Aspirin is an anti-inflammatory and a platelet function inhibitor. It has both analgesic and antipyretic properties.

Indications

1. Chest pain consistent with AMI.

Contraindications

1. Allergy or hypersensitivity to aspirin
2. Active ulcer disease
3. Asthma

Precautions

Use with caution in patients with bleeding disorders. Anticoagulants increase risk of bleeding.

Side Effects

1. Tinnitus
2. Nausea
3. GI distress
4. Dyspepsia
5. GI bleeding

Suggested Routes of Administration

PO

6.0 Atropine Sulfate (Atropine)

Mechanism of Action

Atropine produces its antispasmodic, antisecretory, and cardiovascular effects by blockage of acetylcholine at cholinergic receptor sites. Atropine inhibits effects of the parasympathetic nervous system. Positive chronotropic, with little inotropic, effects.

Indications

1. Symptomatic bradycardia
2. Organophosphate poisoning

Contraindications

None in the emergency setting.

Precautions

American Heart Association guidelines don't suggest atropine for treatment of patients with acute MI, second degree (Mobitz type II), or third degree AV block; it should be used with caution in these patients. Atropine is ineffective for heart transplant patients.

Side Effects

May precipitate tachydysrhythmias, dysphasia, erythema, flushing, headache, hypotension, mydriasis, vertigo, and xerostomia.

Suggested Routes of Administration

IV/IO

7.0 Atrovent (Ipratropium Bromide)

Mechanism of Action

Ipratropium bromide is an anticholinergic (parasympatholytic) agent, which causes localized bronchodilation.

Indications

Ipratropium bromide is indicated for relief of bronchospasm associated with asthma and chronic obstructive pulmonary disease, including chronic bronchitis and emphysema that is unresponsive to treatment with Albuterol alone.

Contraindications

Hypersensitivity to atropine or its derivatives.

Precautions

None when co-administered with Albuterol

Side Effects

Respiratory: Bronchitis, Sinusitis, exacerbation of symptoms.

CNS: Nervousness, dizziness, headache.

Cardiovascular: Palpitations.

GI: Nausea, vomiting, GI distress.

Other: Tremor, dry mouth, blurred vision.

Suggested Routes of Administration

Nebulized

8.0 Calcium Chloride/Gluconate

Indications

Calcium should be administered as an antidote to those patients receiving magnesium sulfate when the side effects, especially bradycardia or other arrhythmias, respiratory depression, hypotension or anaphylactic symptoms, become severe. Calcium should also be considered in patient with known or suspected Crush Syndrome with hyperkalemia, Calcium Channel Blocker overdose, and those with hyperkalemia.

Contraindications

When used to treat magnesium sulfate overdose or Calcium channel blocker overdose, none. Standard contraindications for calcium chloride include VF, digitalis toxicity, and hypercalcemia.

Precautions

NOT compatible with sodium bicarbonate – do not administer in the same IV line.

Side Effects

1. Bradycardia
2. Peripheral vasodilatation
3. Local tissue necrosis with IV infiltration
4. Hypotension
5. Metallic taste

Suggested Routes of Administration

IV/IO

9.0 Dextrose 10% (D10)

Mechanism of Action

Increases circulating blood sugar levels.

Indications

Hypoglycemia. Crush Syndrome; Cold Weather Emergencies.

Contraindications

1. May be detrimental to patients with cerebral ischemia, causing cerebral edema.
2. May precipitate severe neurological symptoms of Wernicke's encephalopathy in alcoholics.

Precautions

Try to obtain base line glucose level. Ensure patent IV site prior to administration. Flush vein after dose.

Side Effects

Tissue necrosis, if infiltration occurs.

Suggested Routes of Administration

IV/IO

10.0 Diltiazem HCL (Cardizem)

Mechanism of Action

Class IV antiarrhythmic agent. Decreases automaticity in the senatorial (SA) node. Prolongs refractoriness in the atrioventricular (AV) node. Inhibits the influx of extracellular calcium ions to myocardial and vascular smooth muscle cells; decreases cardiac contractility and inhibits constriction of vascular smooth muscle. In patients with PSVT, Diltiazem interrupts reentry in the AV node and restores normal sinus rhythm. Decreases ventricular responses rate in atrial fibrillation and flutter.

Indications

1. Atrial fibrillation with a ventricular response of 120 beats per minute or greater
2. PSVT refractory to vagal maneuvers and adenosine

Contraindications

1. Hypotension
2. Bradycardia
3. Patients who present in CHF
4. History of Wolff-Parkinson-White (WPW) Syndrome

Precautions

Calcium channel blockers such as Diltiazem should be used with caution in patient who receive long-term beta blocker therapy

Side Effects

1. Hypotension
2. Bradycardia
3. Worsening CHF
4. 2nd or 3rd degree AV block
5. Transient PVCs

Suggested Routes of Administration

IV/IO

11.0 Diphenhydramine (Benadryl)

Mechanism of Action

H¹ selective histamine blocker.

Indications

1. Allergic reactions
2. Urticaria (hives)
3. Anaphylaxis
4. Extrapyrimal symptoms (EPS) such as tremors and gait abnormalities, and dystonic reactions such as dysphagia, are caused by phenothiazines like chlorpromazine, thioridazine, haloperidol, or perphenazine

Contraindications

1. Angle-closure glaucoma
2. Should not be used in the management of asthma

Precautions

1. Concurrent ingestion of alcohol or other CNS depressants can produce a synergistic effect that could impair motor skills.

Side Effects

1. Sedation
2. Disturbed coordination
3. Diplopia (double vision)
4. Hypertension
5. Headache
6. Drowsiness
7. Dizziness
8. Blurred vision
9. Tremors
10. Palpitations
11. Nausea

Suggested Routes of Administration

IV/IO/IM

12.0 Dopamine (Dobutrex)

Mechanism of Action

Sympathomimetic which acts directly on alpha- and beta-adrenergic receptors. It has positive inotropic, chronotropic, and dromotropic effects.

Indications

1. To increase cardiac output in cardiogenic shock
2. Second line therapy in bradycardia
3. Second line therapy in hemorrhagic shock

Contraindications

1. Ensure patient has been treated with blood before using in hypovolemia
2. Do not use in the presence of tachydysrhythmias or ventricular fibrillation

Precautions

MAO inhibitors will increase alpha effects.

Side Effects

1. Ectopic beats, tachycardia, palpitations
2. Nausea, vomiting
3. Angina
4. Headache
5. Localized tissue necrosis if IV leaks

Suggested Routes of Administration

IV/IO

13.0 Enalapril (Vasotec)

Mechanism of Action

ACE Inhibitor. Prevents the conversion of Angiotensin into Angiotensin II causing a decrease in blood pressure.

Indications

1. Hypertensive Crisis

Contraindications

1. Hypotension
2. History of angioedema related to ACE inhibitor usage.
3. Pregnancy

Precautions

1. Patients with impaired renal function
2. Hyperkalemia

Side Effects

1. Fatigue
2. Nausea
3. Dizziness

Suggested Routes of Administration

IV/IO

14.0 Epinephrine

Mechanism of Action

Potent catecholamine with both alpha and beta properties. Increase myocardial and cerebral blood flow during CPR. Beta effects tend to be more profound and include increased contractile force, heart rate, and automaticity.

Indications

1. Severe, systematic allergic reaction and anaphylaxis
2. Dyspnea such as asthma (patients under 50 years of age) and COPD exacerbation
3. Adult and Pediatric cardiac arrest - Ventricular fibrillation, Asystole, PEA
4. Severe or Profound Hypotension related to Cardiogenic Shock (given as drip or push pressor)

Contraindications

1. None with cardiac arrest or anaphylaxis in the pre-hospital setting
2. Patient with coronary artery disease, use with caution
3. Patient is over 50 years of age, use with caution
4. Patient has a heart rate > 120, use with caution

Precautions

1. May precipitate angina or myocardial infarction in cardiac patients. Wheezing in elderly patients may be pulmonary edema or pulmonary embolism. Protect from light and flush line between sodium bicarbonate and epinephrine

Side Effects

1. Anxiety
2. Tremors
3. Palpitations
4. Tachycardia
5. Headache

Suggested Routes of Administration

IV/IM/IO/Nebulized

15.0 Etomidate (Amidate)

Mechanism of Action

A very rapid-acting, short-duration, non-barbiturate hypnotic with no analgesic properties. Onset of action of up to 1 minute, and duration from 3-5 minutes. Etomidate lowers cerebral blood flow and oxygen consumption and has minimal cardiovascular and respiratory effects.

Indications

1. Procedural sedation (pre-medication)

Contraindications

1. Known hypersensitivity
2. Adrenal insufficiency

Precautions

1. Use with caution in hypotensive patients or those with severe asthma. Not to be given in prolonged situations with multiple high doses; no more than two or three IV/IO bolus only.
2. Use with caution in patients suffering from sepsis.

Suggested Routes of Administration

IV/IO

16.0 Fentanyl Citrate (Sublimaze)

Mechanism of Action

When given, Fentanyl is similar to Morphine and Meperidine in its respiratory effects except that respiration of health individuals returns to normal more quickly after Fentanyl. Exhibits little hypnotic activity, and histamine release rarely occurs.

Indications

For relief of moderate to severe pain.

Contraindications

Patients with known hypersensitivity to Hydromorphone, intracranial lesions associated with increased ICP, depressed ventilatory function (COPD, cor pulmonale, emphysema, kyphoscoliosis and status asthmaticus).

Side Effects

CNS: Sedation, drowsiness, mental clouding, lethargy, impairment of mental and physical performance, anxiety, fear, dysphoria, dizziness, psychic dependence, and mood changes.

CV: Circulatory depression, peripheral circulatory collapse and cardiac arrest have occurred following rapid administration. Orthostatic hypotension and fainting have occurred if a patient stands up following an injection.

G.I.: Nausea and vomiting, constipation.

Resp: Respiratory depression.

Warnings

The concomitant use of other CNS depressants, including other opioids, sedatives or hypnotics, general anesthetics, phenothiazines, tranquilizers, skeletal muscle relaxants, sedating antihistamines, potent inhibitors of P450 (e.g., erythromycin, ketoconazole, and certain protease inhibitors). Alcoholic beverages may produce increased depressant effects. Hypoventilation, hypotension and profound sedation may occur.

Suggested Routes of Administration

IV/IM/IN

17.0 Furosemide (Lasix)

Mechanism of Action

Potent diuretic that inhibits sodium and chloride reabsorption in the kidneys. Causes venous dilation.

Indications

1. Congestive heart failure
2. Pulmonary edema

Contraindications

Patients who are allergic to sulfonamides or thiazides.

Precautions

1. Should be limited to life-threatening situations in pregnant patients
2. Use with caution in patients in end-stage renal disease

Side Effects

1. Potassium depletion with accompanying dysrhythmias
2. Vertigo
3. Visual/auditory disturbances
4. Nausea and vomiting
5. Dehydration and electrolyte depletion can result

Suggested Routes of Administration

IV/IO

18.0 Glucagon (GlucaGen)

Mechanism of Action

Releases stored glycogen from the liver, converting it to glucose.

Indications

Hypoglycemia. Treatment of toxic effects of calcium channel blockers or beta-blockers.

Contraindications

Known hypersensitivity.

Precautions

Follow with carbohydrates such as prompt meal, orange juice, or milk as soon as the patient is alert, or an IV is established. Mix only with sterile water. Use with caution in patients with liver disease or failure; patients may have little glycogen stored.

Side Effects

1. Nausea
2. Hypoglycemia
3. Hyperglycemia
4. Vomiting

Suggested Routes of Administration

IM

19.0 Ibuprofen (Motrin, Advil)

Mechanism of Action

Ibuprofen is a NSAID (non-steroidal anti-inflammatory drug). It has both analgesic and antipyretic properties.

Indications

1. Headaches
2. Pain to musculoskeletal system

Contraindications

1. Allergy or hypersensitivity to ibuprofen
2. Hypotension
3. History of bleeding disorders such as anemia or clotting problems

Precautions

Use with caution in patients with bleeding disorders. Anticoagulants increase risk of bleeding.

Side Effects

1. Nausea
2. GI distress
3. GI bleeding

Suggested Routes of Administration

PO

20.0 Ketamine Hcl (Ketanest)

Mechanism of Action

Blocks the NDMA Receptors in the brain producing a dissociative anesthesia.

Indications

1. An induction agent to precipitate airway management.
2. Chemical Extrication or sedation.
3. Pain management

Contraindications

1. Hypersensitivity
2. Severe Hypertensive Crisis

Side Effects

1. May increase the effects of other sedatives, such as benzodiazepines
2. Confusion
3. Hallucinations
4. Hypertension
5. Tachycardia

Suggested Routes of Administration

IV/IO/IM

21.0 Ketorolac (Toradol)

Mechanism of Action

Nonsteroidal anti-inflammatory; also exhibits peripherally acting nonnarcotic analgesic activity by inhibiting prostaglandin synthesis.

Indications

Management of moderate to severe pain. Patient with a history of narcotic medication abuse.
Musculoskeletal pain or spasm.

Contraindications

1. Hypersensitivity to the drug.
2. Patients with allergies to ASA or other NSAIDs.
3. Bleeding disorders
4. Renal failure/Dialysis.
5. Active peptic ulcer disease.
6. Head Trauma or Meets Trauma Triage Criteria
7. History or suspected current Cerebral Hemorrhage
8. Patient is pregnant

Precautions

Consider reducing dose in patients greater than 65 years of age; patients with liver disease; patient who may have had recent surgery; patients possibly needing surgery for current complaint. May increase bleeding time when administering to patients taking anticoagulants. Effects of lithium and methotrexate may be increased.

Side Effects

Anaphylaxis from hypersensitivity
Edema
Sedation
Bleeding Disorders
Rash
Nausea
Headache

Suggested Routes of Administration

IV/IO/IM

22.0 Labetalol Hydrochloride (Normodyne)

Mechanism of Action

Class II antiarrhythmic. This a selective Alpha-1 and non-selective Beta-1/Beta-2 antagonist which subsequently will cause a decrease in blood pressure.

Indications

1. Hypertensive Crisis

Contraindications

- 1. Bradycardia**
- 2. Hypotension**
- 3. High degree heart block**

Precautions

- 1. Patients with decreased renal function**

Side Effects

- 1. Altered Mental Status**
- 2. Worsening of A V block**
- 3. Fever**
- 4. Laryngospasm**
- 5. Shortness of Breath**

Suggested Routes of Administration

IV

23.0 Lidocaine 2% (Xylocaine)

Mechanism of Action

The antidysrhythmic effect of Lidocaine is attributed to its ability to decrease automaticity in ventricular myocardium and slows conduction velocity in reentrant pathways of ischemic tissue. The drug also appears to raise fibrillation threshold.

Indications

1. Ventricular fibrillation
2. Ventricular ectopy
3. Ventricular tachycardia
4. Wide complex tachycardia (unknown origin)
5. Analgesia for flushing IO

Contraindications

1. Second degree type II and third-degree heart blocks
2. PVCs caused by bradycardia
3. Idioventricular rhythm
4. Sensitivity to Lidocaine or other “caine” medications
5. VT post cocaine usage or in Hyperkalemia

Precautions

First, treat the cause of the PVCs. Depresses the CNS at doses above 3 mg/kg.

Side Effects

Hypotension
Conduction disturbances
Bradycardia
Tremors
Confusion
Seizures

Suggested Routes of Administration

IV/IO

24.0 Magnesium Sulfate

Mechanism of Action

Given as a smooth muscle relaxant or as an electrolyte replacement for hypomagnesaemia or as an antidote to specific conditions such as Torsades de Pointes or eclampsia.

Indications

1. For Torsades de Pointes
2. For the first line treatment of severe pre-eclamptic, or eclamptic, females. Severe pre-eclampsia is defined as BP \geq 140/90, and facial and peripheral edema with headaches; eclampsia is as previously defined with seizures
3. Tricyclic antidepressant toxicity
4. Status asthmaticus

Contraindications

1. AV Block or recent myocardial infraction
2. Shock
3. Dialysis patients and those with Renal disease
4. Severe hypertension
5. Hypocalcemia

Precautions

When using magnesium sulfate, continuous cardiac and vital sign monitoring must be used. If used for pre-eclampsia/eclampsia, patient should be kept quiet and transported in the left lateral recumbent position.

Side Effects

1. Flushing
2. Bradycardia
3. Decreased deep tendon reflexes
4. Hypothermia
5. Rash
6. Sweating
7. Arrhythmias
8. Drowsiness
9. Hypotension
10. Itching

Suggested Routes of Administration

IV/IO

25.0 Methylprednisolone (Solu-Medrol)

Mechanism of Action

Intermediate-acting corticosteroid related to the natural hormones secreted by the adrenal cortex. Targets cells and causes many complex reactions that are responsible for its anti-inflammatory and immunosuppressive effects.

Indications

1. Anaphylaxis
2. Respiratory distress from asthma or COPD

Contraindications

1. Known hypersensitivity

Precautions

A single dose is all that should be given in the prehospital setting. Long-term steroid therapy can cause GI bleeding and prolonged wound care. Pregnancy Category C.

Side Effects

1. Seizures
2. Vertigo
3. CHF
4. Hypertension
5. Tachycardia
6. Nausea/vomiting
7. Headache
8. Abdominal distension
9. Diarrhea
10. GI hemorrhage
11. Palpitations

Suggested Routes of Administration

IV/IO/IM

26.0 Midazolam (Versed)

Mechanism of Action

Class IV Benzodiazepine. It binds to the benzodiazepine receptor and enhances the effects of the brain chemical (neurotransmitter) GABA. Benzodiazepines act at the level of the limbic, thalamic and hypothalamic regions of the CNS to produce short acting CNS depression (including sedation, skeletal muscle relaxation and anti-convulsant activity)

Indications

1. Sedation
2. Anxiety
3. Seizures
4. Skeletal muscle relaxation

Contraindications

1. Acute-angle glaucoma

Precautions

1. Patients with respiratory insufficiency (asthma, COPD, Etc.) are more susceptible to respiratory depression. Effects are enhanced by other CNS depressants and may be more slowly metabolized in the elderly
2. Use caution when administering to patients with history of:
 - Hepatic Dysfunction
 - Renal insufficiency
 - History of drug addiction
 - Parkinson's disease
 - Myasthenia gravis
3. Pregnancy

Side Effects

1. Respiratory depression
2. May cause Hypotension
3. Nausea/vomiting

Suggested Routes of Administration

IV/IO/IM/IN

27.0 Metoprolol (Lopressor)

Mechanism of Action

Class II Antiarrhythmic. It selectively blocks beta-1 receptors in the heart subsequently causing a decrease in heart rate, contractility, conductivity, and the automaticity of the heart. This commonly causes a decrease in blood pressure and heart rate by reducing the workload on the heart, reducing the electrical conduction through the AV node, and reducing the rate of electrical signal generation at the SA node.

Indications

1. Narrow Complex Tachycardia Arrhythmias

Contraindications

1. Bradycardia
2. Hypotension
3. High degree heart blocks (2nd and 3rd)
4. Allergy to other beta blockers

Precautions

1. Age (particularly with the elderly)
2. Pregnancy (category C)

Side Effects

1. Hypotension
2. Shortness of Breath
3. Nausea
4. Worsening of AV block

Suggested Routes of Administration

IV/IO

28.0 Naloxone (Narcan)

Mechanism of Action

Competitive opioid antagonist. As such, it is a specific opioid antidote.

Indications

Reversal of opioid-induced altered mental status and respiratory depression.
Diagnosis of suspected acute opioid intoxication.

Contraindications

Hypersensitivity to drug.
Adequate respiratory effort

Precautions

Abrupt withdrawal effects.

Side Effects

1. Nausea and vomiting
2. Acute Pulmonary Edema
3. Excitation for abrupt reversal of narcotic depression

Suggested Routes of Administration

IV/IO/IN/Nebulized

29.0 Nitroglycerin (Nitrostat)

Mechanism of Action

Vascular smooth muscle relaxation leading to venous, coronary, and arterial vasodilatation. These effects lead to a decreased workload on the heart.

Indications

1. Chest pain associated with angina or MI
2. Pulmonary edema

Contraindications

1. Hypotension
2. Hypersensitivity to nitrates
3. Patients with increased ICP (head trauma)
4. Viagra, or similar erectile dysfunction medication, taken within past 24-48 hours

Precautions

1. Hypotension may develop
2. Chronic pain management patients

Side Effects

1. Headaches due to cerebral vasodilatation
2. Hypotension
3. Postural syncope

Suggested Routes of Administration

SL/Transdermal

30.0 Ondansetron (Zofran)

Indications

1. Motion sickness
2. Nausea

Contraindications

Hypersensitivity to the drug

Side Effects

1. Drowsiness
2. Dizziness
3. Hypotension
4. Flushing
5. Musculoskeletal pain
6. Cardiovascular disturbances
7. Headache
8. Constipation

Suggested Routes of Administration

IV/IO/IM/PO

31.0 Pralidoxime (2-PAM®, Protopam Chloride®)

Mechanism of Action

Reactivates Acetylcholinesterase that has been deactivated by organophosphorus pesticides and related products. Thus, inactivates acetylcholine at both muscarinic and nicotinic sites in the periphery.

Indications

Organophosphorus toxicity used as adjunct to systemic atropine administration.

Contraindications

Poisoning with SEVIN (a carbamate insecticide, it increases drug's toxicity). Use with extreme caution in patients with a history of asthma, renal insufficiency and peptic ulcers.

Side Effects

CNS:	Dizziness, headache, drowsiness and excitement.
CV:	Tachycardia.
EENT:	Blurred vision, diplopia, impaired accommodation, laryngospasm
GI:	Nausea.
Other:	Muscular weakness or rigidity and hyperventilation.

Suggested Routes of Administration

IV/IO/IM

32.0 Rocuronium Bromide (Zemuron)

Mechanism of Action

Nondepolarizing neuromuscular blocking agent with rapid to intermediate onset and intermediate duration. Cholinergic receptor antagonist. Inhibits depolarization.

Indications

To facilitate intubation.

Contraindications

Hypersensitivity, other neuromuscular blocking agents, neuromuscular disease

Precautions

May cause severe anaphylactic reaction.

Side Effects

Tachycardia, nausea/vomiting, hypotension, hypertension

Suggested Routes of Administration

IV/IO

33.0 Sodium Bicarbonate 8.4%

Mechanism of Action

Increases plasma bicarbonate, which buffers plasma H⁺ ions and raises blood pH.

Indications

Documented metabolic acidosis
Tricyclic overdose
Prolonged resuscitation with effective ventilation
Upon return of spontaneous circulation after long arrest interval

Contraindications

Respiratory or metabolic alkalosis

Precautions

Can cause alkalosis
Most vasopressors, such as dopamine, can be deactivated by the alkaline environment provided by the sodium bicarbonate

Side Effects

Volume overload
Alkalosis

Incompatibility

Do not give together in IV with calcium. This combination will produce a precipitate of calcium carbonate. Do not give together in IV with sympathomimetic drugs (e.g. epinephrine), which will be deactivated in an alkaline environment.

Suggested Routes of Administration

IV/IO

34.0 Tranexamic Acid (TXA)

Mechanism of Action

Inhibits plasminogen activation and plasma activity. Helps prevent the breakdown of clots.

Indications

To be used in patients 12 years of age and older who are experiencing hemorrhagic shock.

Cerebral hemorrhage

Contraindications

1. Injuries greater than three (3) hours old
2. Patients less than twelve (12) years of age
3. Hypersensitivity to the drug

Precautions

1. Use with caution in patients taking birth control due to an increased risk for blood clots.
2. Use with caution in patients with a history of deep vein thrombosis (DVT), pulmonary embolus, other blood clots, or severe renal failure

Suggested Routes of Administration

IV/IO

35.0 Vecuronium Bromide (Norcuron)

Mechanism of Action

Non-depolarizing neuromuscular blockade agent, paralytic, acts by competing for cholinergic receptors at the motor end plate.

Indications

To facilitate intubation, terminate laryngospasms.

Contraindications

Known hypersensitivity to the drug

Precautions

May cause severe anaphylactic reaction.

Side Effects

Salivation, premature ventricular contractions, tachycardia

Suggested Routes of Administration

IV/IO