STAFFORD COUNTY FIRE & RESCUE DEPARTMENT

SUPPLEMENTAL MEDICAL PROTOCOLS /PROCEDURES

Effective October 1, 2022

September 7, 2022

Stafford County Fire and Rescue Department (SCFRD) utilizes the Rappahannock Emergency Medical Services (REMS) Council Regional Medical Protocols. SCFRD reserves the right to amend and add administrative procedures, medical protocols and medication references as necessary and appropriate for SCFRD.

These administrative procedures, medical protocols and medication references are approved and effective October 1, 2022

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PRE-HOSPITAL PATIENT CARE PROTOCOLS

BASIC LIFE SUPPORT/ADVANCED LIFE SUPPORT

RAPPAHANNOCK SINCE 1976 EMS COUNCIL INC.

Board Approved August 17, 2022

Rappahannock EMS Council
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Fredericksburg, VA22401

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PREHOSPITAL 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,
06/2022 BOARD APPROVED AUGUST 2022

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1.0 Introduction and Use

The following protocols have been approved by the Rappahannock Emergency Medical Services Council (REMSC) Medical Direction Committee as the Prehospital 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 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 Prehospital 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 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 Medical Direction Committee. Once approved, changes will be made and revised pages will be issued to EMS Physicians, the ED medical staff (Medical Director), and to the individual agencies that will then be responsible for any necessary in-service training.

To ensure adequate notice to committee members, proposed changes must be submitted in writing at least 3 weeks prior to the meeting date, in order to include them in the meeting agenda. Emergency changes may be presented by the Chair via a regularly scheduled meeting.

Class I - Administrative Update - Limited to grammatical changes, updates to medication availability, or hyperlink corrections and formatting. Can be amended by staff with approval of the Regional Medical Director.

Class II - Minor Change – Medical Direction Committee approved changes to general procedure that does not change regional scope of practice or add medication. Medication dosage changes within current therapeutic ranges. May include language for clarification, but not change of practice. Requires an absence of opposition after email distribution to Medical Direction Committee and approval by Regional Medical Director otherwise will be brought to Medical Direction Committee for further discussion. Does not need to go to the Board of Directors for approval.

Class III - Major Change – Medical Direction Committee approved changes to scope of practice for any level, changes to medication or therapeutic ranges, changes to equipment or procedures. Requires endorsement of Medical Direction Committee and the Board of Directors before implementation.

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

A "patient" means any person with an acute symptom related to a medical and/or trauma event who receives, or should have received, health care from an EMS provider.

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 canceled 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 an ePCR.

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.

3.2.3 Guidelines for Helicopter Utilization for Scene Response

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

3.3 Code Gray (Refer to SCFRD IMD 2022-001)

If CPR has been initiated by EMS and circumstances arise where the prehospital 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 ePCR.

3.4 Death (DOA) Management (Refer to SCFRD IMD 2022-005)

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 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.

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 prehospital 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 prehospital patient care reporting procedures by making available...the minimum data set on forms." Licensed EMS agencies, prehospital 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 ambulance or personnel thereof. This report should be completed on the current written/electronic Prehospital Patient Care Report (ePCR) in use by the REMSC region. For medical-legal purposes, if the provider initiates the patient-provider relationship, an ePCR 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 prehospital 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 prehospital provider and shall be signed by a medical practitioner. The Regional EMS Physician, with the agency EMS Physician, shall approve all written standing orders. The prehospital 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 prehospital provider. The provider will then have 7 days to get their EMS Physician'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 prehospital providers should confirm appropriate DNR status immediately upon arrival. If status cannot be confirmed, the responding prehospital 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. Acceptable 'Durable DNR Order' shall also include a physician order for scope of treatment (POST), medical orders for scope of treatment (MOST), physician order for life sustaining treatment (POLST), or medical order for life sustaining treatment (MOLST), as well as out of state DNR's. Durable DNR orders, as well as the above comparable forms, shall be completed and signed by a licensed practitioner and signed by the patient or patient's authorized representative.
5. "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.
6. An incomplete DNR should prompt consultation with on-line medical control. Resuscitative efforts, once begun, can only be stopped with the guidance of medical control.
7. 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 ePCR 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 prehospital 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 3.11.

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; give only relevant and necessary information.

3.9.4 SCFRD 700 MHz Radio System

EMS clinicians shall notify the receiving hospital of their arrival and pertinent patient information using the SCFRD 700 MHz radio system, when possible. The following hospitals within the departments' service area are assigned a talk group on the SCFRD 700 MHz radio system:

Stafford Hospital (SH)
Mary Washington Hospital (MWH)
Spotsylvania Regional Medical Center (SRMC)
Sentara Northern Virginia Hospital (Sentara)

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 EMS Physician.

3.10.3 Actions

The provider may be asked by the REMSC, and/or EMS Physician, 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 shall 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 shall then indicate on the ePCR what was ordered, and the time and the reason the order could not be carried out.

In situations where the prehospital 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 prehospital 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 EMS Physician, 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 prehospital 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 EMS Physician, 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 EMS Physician 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 EMS Physician 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 prehospital 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 EMS Physician 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
Prehospital 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, EMS Physicians, and on-line medical control may give permission to deviate from protocol, unless a valid physician wishes to ride along during transport.

3.13.3 Approval

When the SCFRD ECC receives such inter-facility 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 brief patient report, any special treatment including the use of medication pumps, ventilator support.

When a patient is receiving medications via a medication pump, is chemically sedated/paralyzed, is intubated and/or on a ventilator a RN or physician must accompany the patient

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 prehospital 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. Prehospital 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 prehospital provider's procedures rests in this protocol adopted by the EMS agency, the agency EMS Physician, 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 prehospital 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 prehospital 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 prehospital EMS certification recognized at this time by the Commonwealth of Virginia are as follows:

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

The July 2022 version of the REMS protocols revised the category of Advanced Practice. The Advanced Practice designation is tied to the OEMS Scope of Practice table and Medication Formulary; this designation requires the provider to receive additional training on that particular skill/medication as designated by their current EMS Physician. They also must have specific authorization to perform/administer this skill/medication from their EMS Physician on file at the REMS Council. The duration of the EMS Physician validation will be indicated on the paperwork and limitations/duration are at the discretion of the EMS Physician. 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 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.
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 prehospital care.

Complete the ePCR, 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 ePCR. 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 EMS Physician 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 ePCR may be presented to the on-line physician for signature.

3.15.3 Refusing Transport to Recommended Facility

If a patient who is having a life-threatening emergency refuses transport to the recommended facility.

Determine if the patient has legal capacity and is mentally and physically competent to make decisions. If the patient is deemed not to have legal capacity or is mentally and/or physically incompetent then all reasonable measures should be used to transport the patient to the appropriate hospital having full emergency capability.

The patient having legal capacity, mental and physical 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. 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. Have the patient and a witness sign the transport refusal portion documenting the patient choice. Inform on-line Medical Control of the patient's destination.

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 EMS Physician.

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 EMS Physician, 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 EMS Physician 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. Patients need to be transported to a SANE (Sexual Assault Nurse Examiner) capable facility. If transporting to MWH, notify that you are transporting a" Code 27" patient. This will alert them to the need of the SANE 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 or when they inform 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 an MWH facility. A patient could then be transported to the appropriate facility based on the patient's decision.

3.18.3 SCFRD Service Area

The service area for the SCFRD shall include the following hospitals: Stafford Hospital Center (SHC), Mary Washington Hospital (MWH), Spotsylvania Regional Medical Center (SRMC) and Sentara Northern Virginia Medical Center (SNMC). 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 of the department's service area is permitted only with the permission of the Operations Deputy Chief.

3.19 Treatment of Minors

3.19.1 Indications

Prehospital 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 prehospital 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.

If the ill or injured patient is a young child and the parent is present, the prehospital 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.

3.20 Special Destinations

3.20.1 OB Patients

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.

3.20.2 Pediatric Trauma Patients

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 within the department's service area.

3.20.3 Patients in Police Custody

Patients in police custody and considered to have a non-life-threatening emergency will be transported to a hospital within the department's service area and designated by the custodial officer.

PRE-HOSPITAL PATIENT CARE PROTOCOL

MEDICAL PROTOCOLS

Section II

Rappahannock EMS Council
250 Executive Center Parkway
Fredericksburg, VA 22401

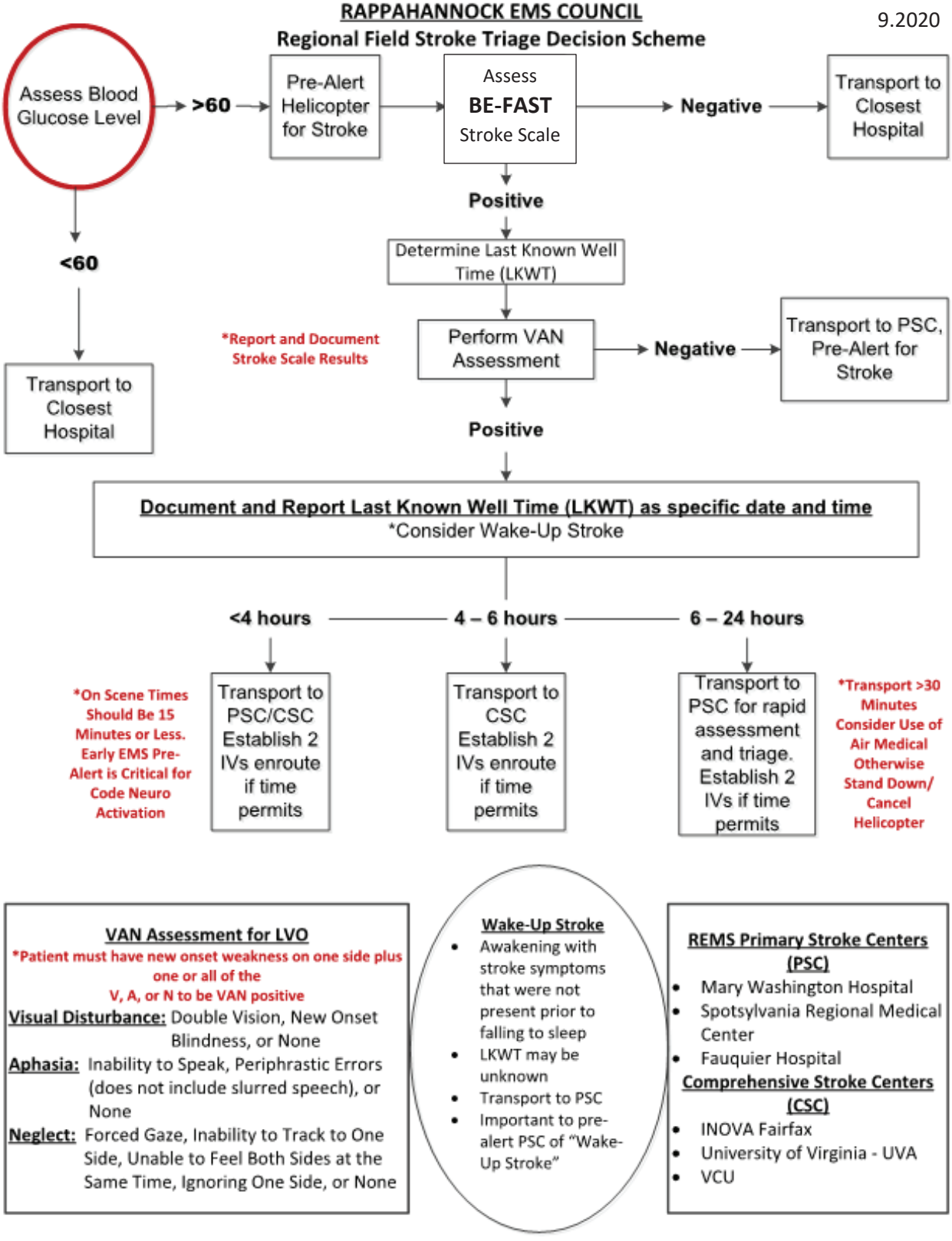
BASIC LIFE SUPPORT/ADVANCED LIFE SUPPORT
ADMINISTRATIVE PATIENT CARE PROTOCOL

BOARD APPROVED AUGUST, 2022

9.2020

RAPPAHANNOCK EMS COUNCIL

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

EMS COUNCIL INC.

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 SpO2 94-99%. Assess for and treat for shock (body positioning and warming).

GO TO APPROPRIATE PROTOCOL BASED ON ASSESSMENT FINDINGS

B

Initial Procedures May Include:
Monitor oxygen Saturation (goal is 94-99%)
Monitor blood pressure (goal is >90 SBP, MAP >60)
Check blood sugar
Obtain 12 lead EKG
Monitor capnography (goal is 35-45 mmHg)

A

Initial Procedures May Include:
Provide IV access

I

Initial Procedures May Include:
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

Revised: 07/22/2022

EMS COUNCIL INC.

RAPPAHANNOCK REGIONAL EMS COUNCIL
PATIENT CARE PROTOCOLS

Cardiac Arrest- Unknown Rhythm

Criteria: 1: Any medical cardiac arrest or near-arrest patient, including cardiac dysrhythmias such as tachycardias, bradycardias, and ineffective cardiac rhythms (VF, PEA, IVR, etc.). Treat with the appropriate algorithm within your scope of practice
2. In all cases, attempt to determine cause of the problem and resolve or treat appropriately

B	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
	Insert BIAD "Rescue Airway" such as King, Combitube, iGel, and ventilate at rate of NO FASTER THAN 1 every 6 seconds for adults and 1 every 2-3 seconds for pediatrics
A	Evaluate for and treat any causes of cardiac arrest or any other special circumstances in Special Circumstances Resuscitation Protocol
I	Upon achieving ROSC, if the patient is 13 years or older, consider placing an endotracheal tube. DO NOT STOP COMPRESSIONS or STOP RESUSCITATION to place endotracheal tube If patient had pVT or VF during their cardiac arrest and are having ventricular ectopy in ROSC, begin antiarrhythmic infusion - either lidocaine loading dose 1-1.5 mg/kg (max dose 100 mg), followed by maintenance infusion of 1-4 mg/min or 30-50 mcg/kg/min, or Amiodarone 150 mg over 10 minutes
P	Upon achieving ROSC, if the patient is 12 years or under, consider placing an endotracheal tube.

Medication Summary:

Amiodarone: 150 mg over 10 minutes
Lidocaine: 1-1.5 mg/kg loading dose (max dose 100 mg), 1-4 mg/min or 30-50 mcg/kg/min maintenance dose

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. Consider using lower end of dosing range or halving the dosage of medications in patients with renal failure, hepatic failure, and/or patients >70 years of age
6. Depth, rate of compressions and ventilation rate per current ECC guidelines

Created: 05/20/2009 **Revised: 07/22/2022**

Medical – Cardiac Arrest: Special Resuscitation Orders

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

I

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:

Cyanide Poisoning**:** 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:

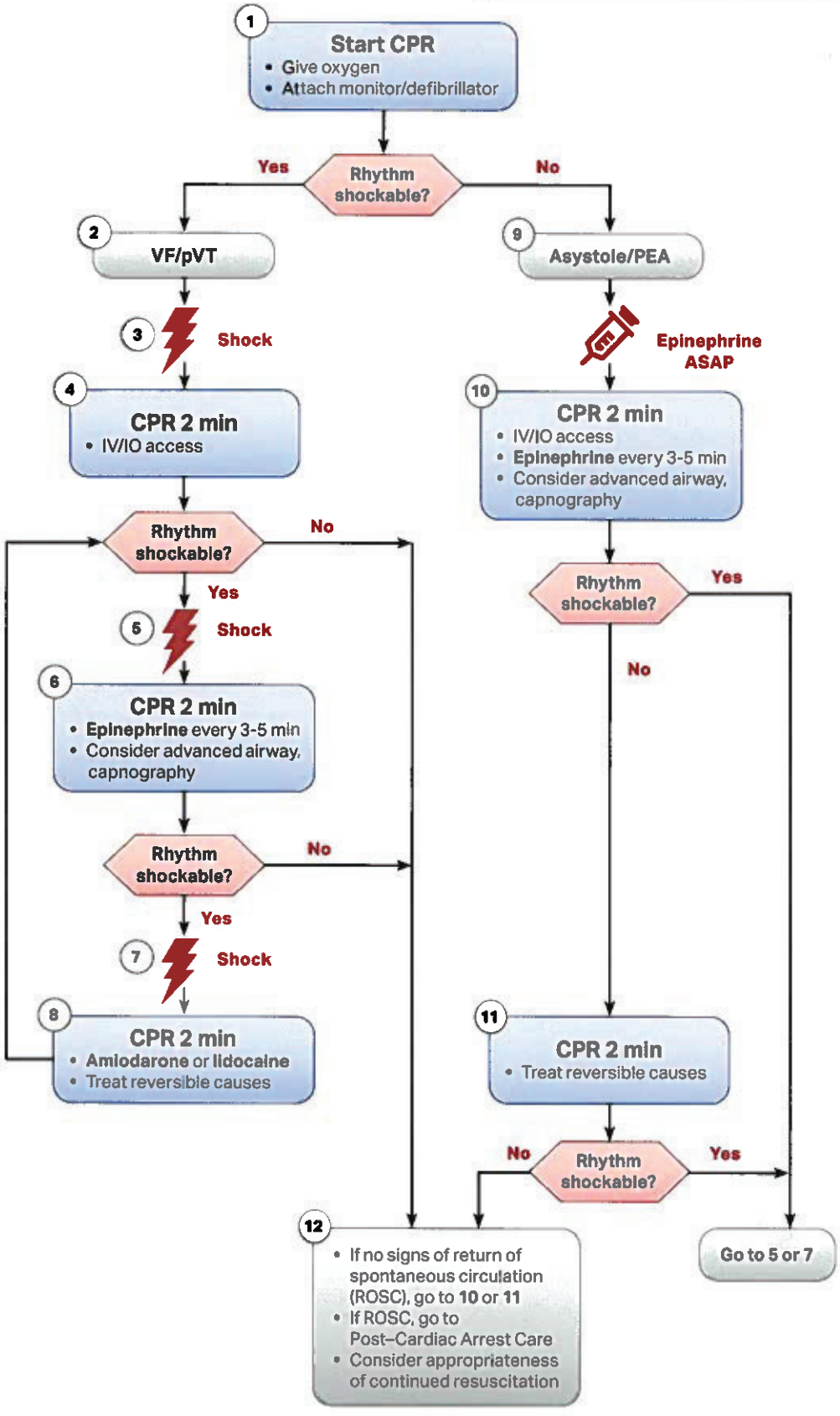
Calcium (Calcium Chloride): 1 g (*pediatric dose 20 mg/kg, max dose 1 g*)
Hydroxocobalamin (Cyanokit): 5 g Repeat once (if needed) (*pediatric dose 70 mg/kg, max dose 5 g*)
Magnesium Sulfate: 1-2 g (*pediatric dose 25-50 mg/kg, max dose 2 g)*
Sodium Bicarbonate: 50-100 mEq (*pediatric dose 1-2 mEq/kg 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. Cyanide poisoning – consider with exposure to combustion in enclosed space (house fire, suicide attempt); administer Cyanokit over 15 minutes

Adult Cardiac Arrest Algorithm

American Heart Association.

Advanced Cardiovascular Life Support



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 P_{ETCO_2} is low or decreasing, reassess 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 P_{ETCO_2} (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

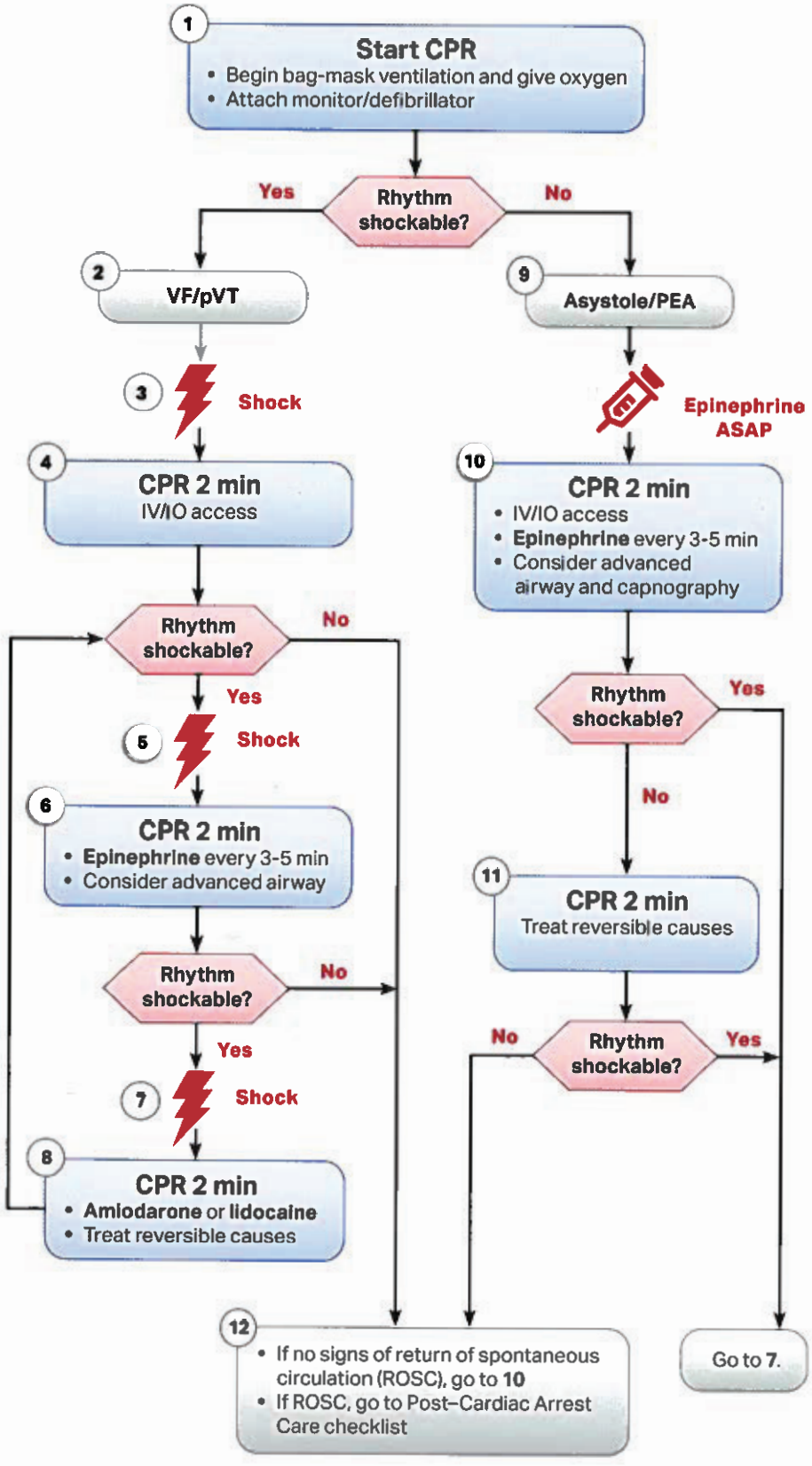
20-1110 (1 of 4) ISBN 978-1-61669-776-1 10/20 Printed in the USA

Pediatric Cardiac Arrest Algorithm

American Heart Association.

American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN®

Pediatric Advanced Life Support



CPR Quality

- Push hard (≥⅓ of anteroposterior diameter of chest) and fast (100-120/min) and allow complete chest recoil
- Minimize interruptions in compressions
- Change compressor every 2 minutes, or sooner if fatigued
- If no advanced airway, 15:2 compression-ventilation ratio
- If advanced airway, provide continuous compressions and give a breath every 2-3 seconds

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 IV/IO dose:** 0.01 mg/kg (0.1 mL/kg of the 0.1 mg/mL concentration). Max dose 1 mg. Repeat every 3-5 minutes. If no IV/IO access, may give endotracheal dose: 0.1 mg/kg (0.1 mL/kg of the 1 mg/mL concentration).
- **Amiodarone IV/IO dose:** 5 mg/kg bolus during cardiac arrest. May repeat up to 3 total doses for refractory VF/pulseless VT
  or
  Lidocaine IV/IO dose: Initial: 1 mg/kg loading dose

Advanced Airway

- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement

Reversible Causes

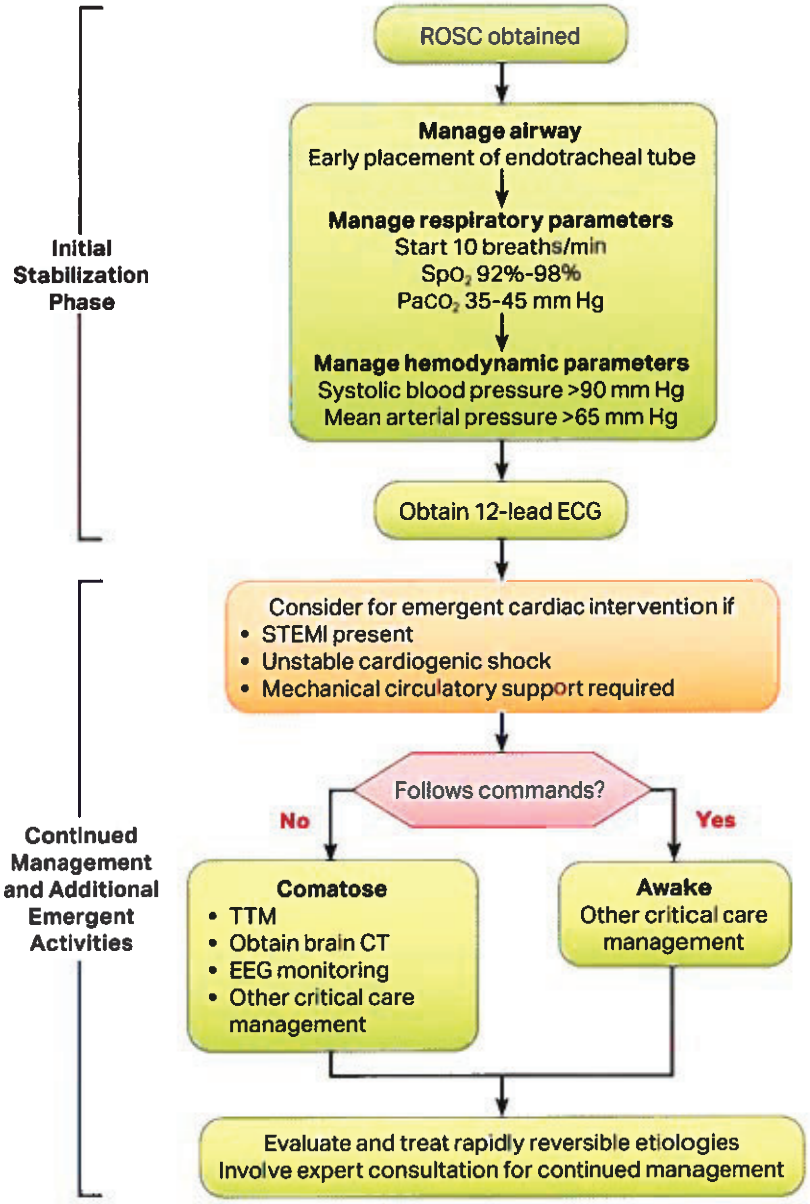
- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypoglycemia
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

20-1115 (1 of 4) ISBN 978-1-61669-781-5 10/20 Printed in the USA

Adult Post–Cardiac Arrest Care Algorithm

American Heart Association.

Advanced Cardiovascular Life Support



Initial Stabilization Phase

Resuscitation is ongoing during the post-ROSC phase, and many of these activities can occur concurrently. However, if prioritization is necessary, follow these steps:

- Airway management: Waveform capnography or capnometry to confirm and monitor endotracheal tube placement
- Manage respiratory parameters: Titrate FIO_2 for SpO_2 92%-98%; start at 10 breaths/min; titrate to $PaCO_2$ of 35-45 mm Hg
- Manage hemodynamic parameters: Administer crystalloid and/or vasopressor or inotrope for goal systolic blood pressure >90 mm Hg or mean arterial pressure >65 mm Hg

Continued Management and Additional Emergent Activities

These evaluations should be done concurrently so that decisions on targeted temperature management (TTM) receive high priority as cardiac interventions.

- Emergent cardiac intervention: Early evaluation of 12-lead electrocardiogram (ECG); consider hemodynamics for decision on cardiac intervention
- TTM: If patient is not following commands, start TTM as soon as possible; begin at 32-36°C for 24 hours by using a cooling device with feedback loop
- Other critical care management
  - Continuously monitor core temperature (esophageal, rectal, bladder)
  - Maintain normoxia, normocapnia, euglycemia
  - Provide continuous or intermittent electroencephalogram (EEG) monitoring
  - Provide lung-protective ventilation

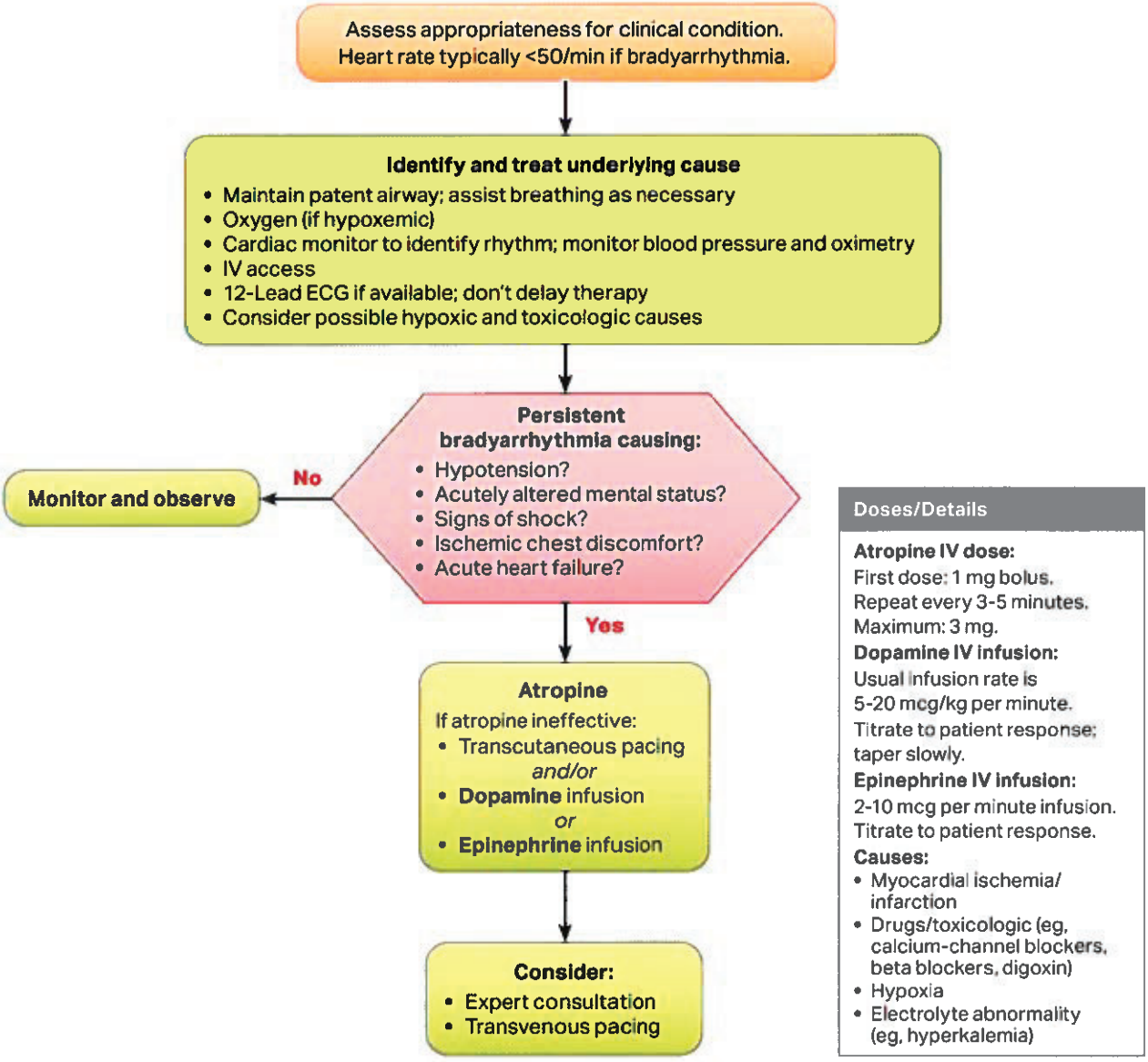
H's and T's

Hypovolemia
Hypoxia
Hydrogen ion (acidosis)
Hypokalemia/**h**yperkalemia
Hypothermia
Tension pneumothorax
Tamponade, cardiac
Toxins
Thrombosis, pulmonary
Thrombosis, coronary

Adult Bradycardia Algorithm

American Heart Association.

Advanced Cardiovascular Life Support



Doses/Details

Atropine IV dose:
First dose: 1 mg bolus.
Repeat every 3-5 minutes.
Maximum: 3 mg.

Dopamine IV infusion:
Usual infusion rate is 5-20 mcg/kg per minute.
Titrate to patient response; taper slowly.

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

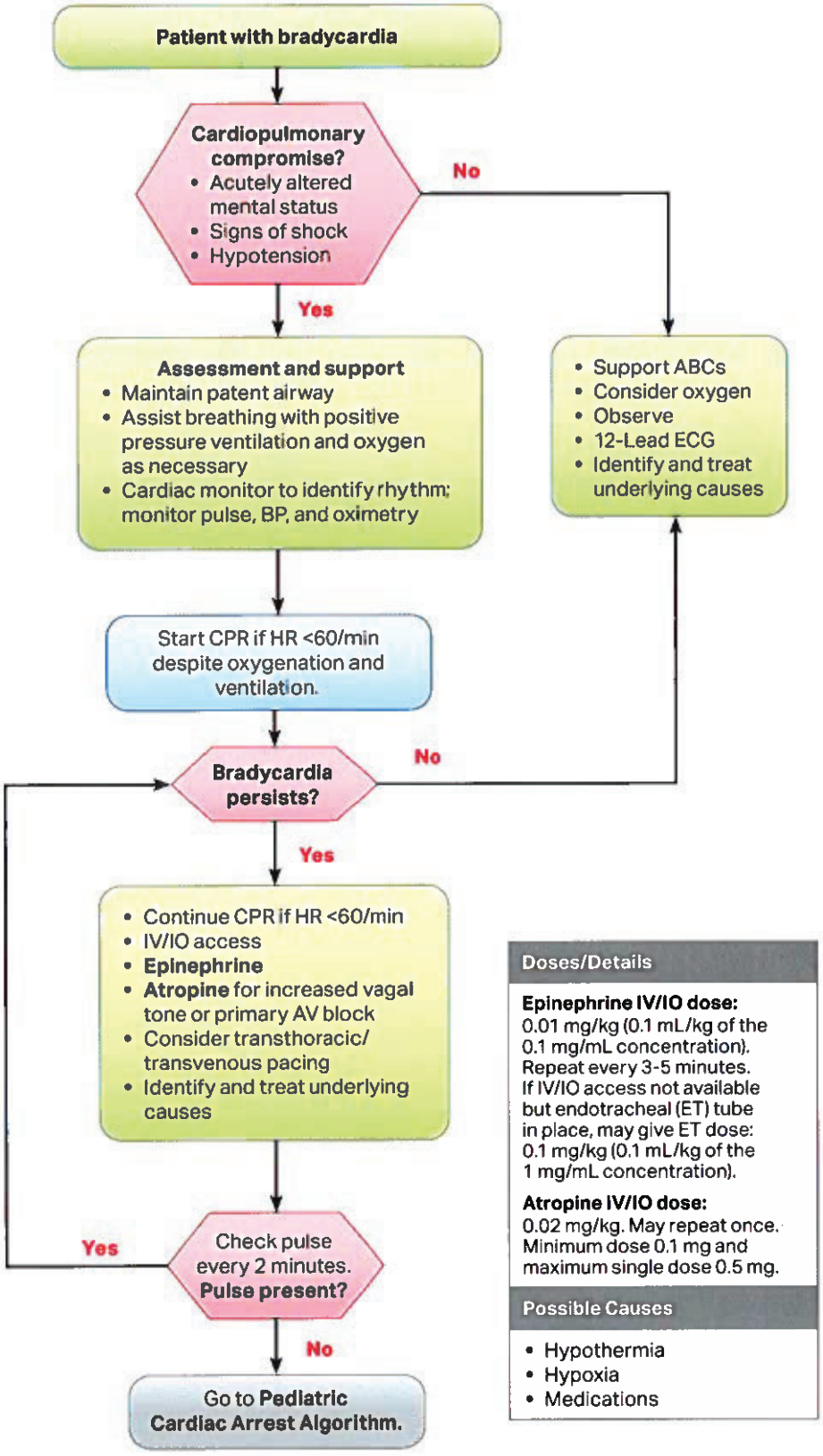
Causes:
- Myocardial ischemia/infarction
- Drugs/toxicologic (eg, calcium-channel blockers, beta blockers, digoxin)
- Hypoxia
- Electrolyte abnormality (eg, hyperkalemia)

Pediatric Bradycardia With a Pulse Algorithm

American Heart Association.

American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN™

Pediatric Advanced Life Support



Doses/Details

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

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

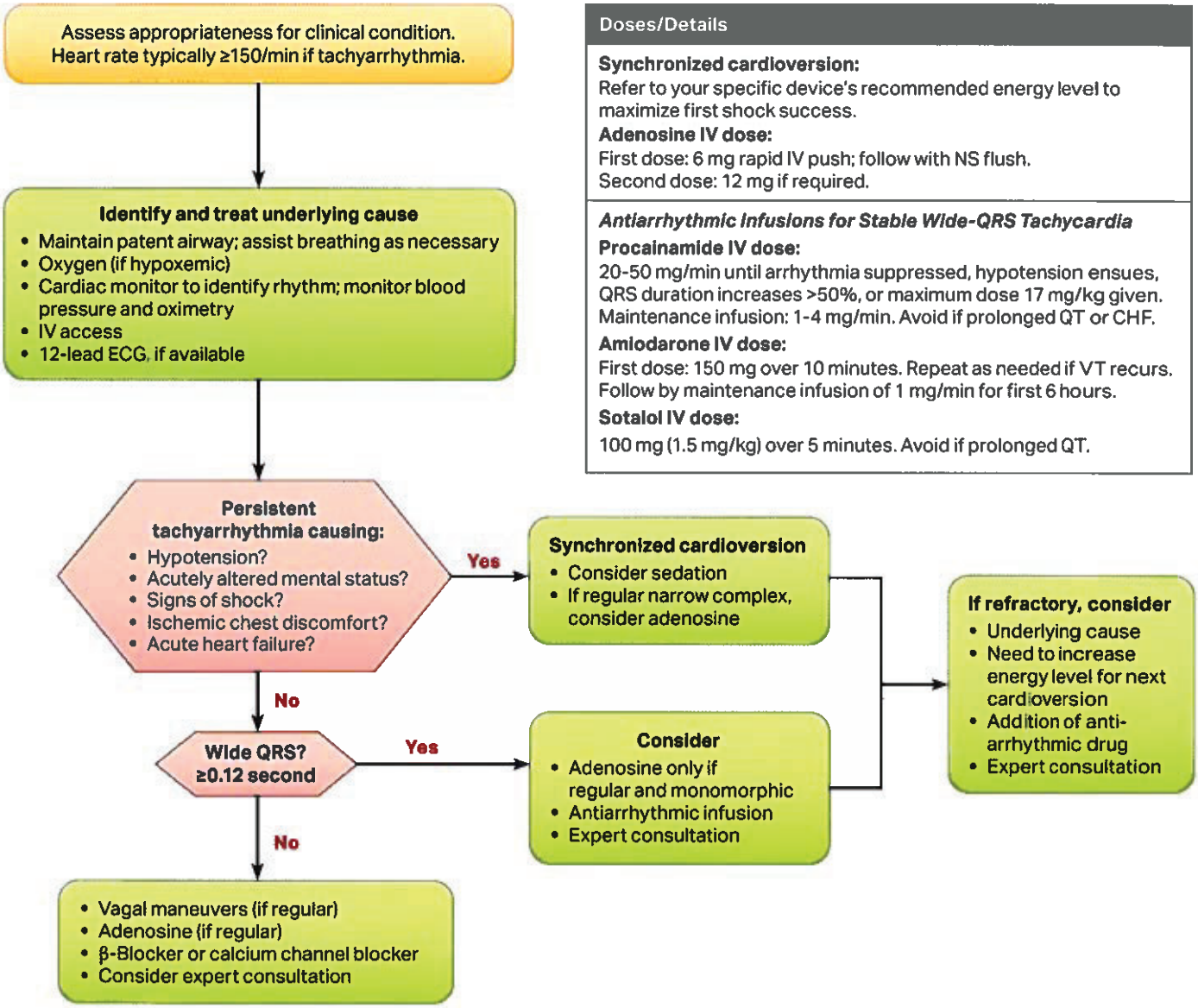
Possible Causes

- Hypothermia
- Hypoxia
- Medications

Adult Tachycardia With a Pulse Algorithm

American Heart Association.

Advanced Cardiovascular Life Support



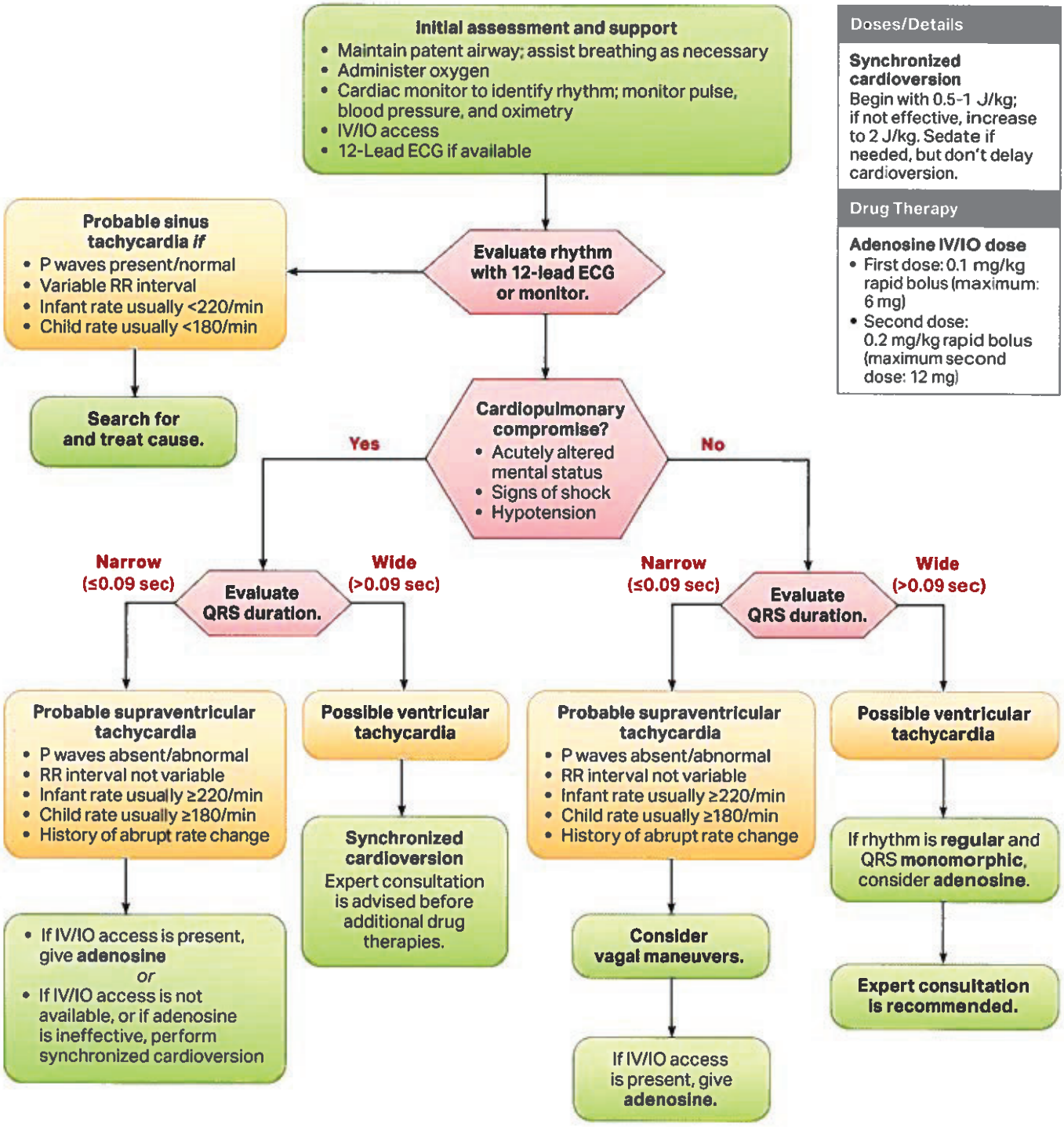
Doses/Details
Synchronized cardioversion: Refer to your specific device's recommended energy level to maximize first shock success. **Adenosine IV dose:** First dose: 6 mg rapid IV push; follow with NS flush. Second dose: 12 mg if required.
Antiarrhythmic Infusions for Stable Wide-QRS Tachycardia **Procainamide 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.

20-1110 (2 of 4) ISBN 978-1-61669-776-1 10/20 Printed in the USA

Pediatric Tachycardia With a Pulse Algorithm

American Heart Association. | American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN™

Pediatric Advanced Life Support



20-1115 (2 of 4) ISBN 978-1-61669-781-5 10/20 Printed in the USA

Medical – Supraventricular Tachycardia (Including Atrial Fibrillation)

Criteria: Adult patients who are symptomatic and stable, with stable atrial fibrillation or atrial flutter (usually greater than 150 bpm) and a pulse.

I	If SBP > 130 mmHg, administer Cardizem 0.25 mg/kg IV/IO over two minutes (max 20 mg to achieve desired heartrate < 120 bpm); if no improvement after 15 minutes and SBP remains > 130 mmHg, administer 0.35 mg/kg IV/IO over two minutes (max 25 mg to achieve desired heartrate <120 bpm) If Cardizem is not available, or SBP < 130 mmHg, administer Metoprolol 5 mg q 5 minutes SIVP, to a max total dose of 15 mg to achieve desired heartrate < 120 bpm.

Medication Summary:

Diltiazem (Cardizem): 0.25 mg/kg first dose; 0.35 mg/kg second dose; max total dose of 20 mg
Lopressor (Metoprolol): 5 mg, repeat every five minutes; max total dose 15 mg

Notes:

- For patients over 70 years old, reduce Cardizem bolus by half.
- Unstable criteria: altered mental status, hypotension, ischemic chest pain, signs of shock, and acute heart failure.

Exposure- Radiologic Agent

Criteria: Patients who have been exposed to known/unknown levels of radioactive contamination.

B	Encapsulate patient using blankets and sheets to limit contaminates from spreading off the patient.
A	If hypotensive, establish peripheral IV/IO and administer Normal Saline or Lactated Ringers.

Notes:

1. Lifesaving medical attention takes priority over contamination control. Patient monitoring to determine level and extent of contamination may be deferred to the hospital. ***In order to contain contaminates to the patient, once encapsulated limit procedures to only those that are lifesaving.***
2. EMS personnel shall report to the Radiological Officer for radiological briefing and to receive dosimetry. The Radiological Officer shall inform EMS personnel of basic radiological status, recommend protective clothing usage, and controls required to prevent cross contamination from the patient.
3. Level of scene decontamination will be determined and conducted by Hazardous Materials personnel
4. EMS personnel shall establish a control boundary around the contaminated patient and determine if the medical status allows time for detailed contamination monitoring and decontamination. Limit personnel to the minimum needed to provide the necessary care.
5. To prevent spread of radioactive materials, secure items used in poly bags or over pack drums labeled hazardous material.
6. VCU is the preferred hospital for receipt of contaminated patients. Notify the VCU Emergency Communications at 804-828-8888 when enroute to the hospital. VCU may divert radiologically contaminated patients to other hospitals (e.g., Mary Washington Hospital) with radiological emergency response capability. While enroute, the AIC shall notify the receiving hospital staff of contamination status, if known.
7. Upon arrival at the hospital, EMS shall remain in the vehicle while hospital staff conduct proper monitoring of the ambulance. Follow the direction of the hospital staff for the transfer of the patient into the designated patient receiving location.
8. Both the crew and ambulance are to remain at the hospital until a contamination survey is performed and the ambulance and crew are clear of radioactive material. Secure contaminated items in the hospital over pack drums labeled hazardous material.
9. Should crew members be contaminated, follow the direction of Hazardous Materials personnel for decontamination instruction/location.
10. Primary and Backup Hospital for North Anna Power Station:
    Primary: Virginia Commonwealth University (VCU), 1006 E Marshall St, Richmond, VA 23298
    Backup: Mary Washington Hospital, 1001 Sam Perry Blvd, Fredericksburg, VA 22401

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 for a medical procedure (such as cardioversion), and/or to maintain sedation after a procedure

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 longer procedural sedation and/or anxiety management administer **Midazolam** 0.02 mg/kg, max single dose 5mg (*pediatric dose 0.1 mg/kg, max dose 5 mg*). 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*

General – Behavioral/Patient Restraint cont'd

P

For brief procedural sedation administer **Etomidate** 0.3 mg/kg. *Pediatric dose the same.*

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: 0.02 mg/kg (max 5mg), (*pediatric dose 0.1 mg/kg, max dose 5 mg*); 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

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.

General – Indwelling Medical Device/Equipment

Criteria: Patients with ventricular assist devices and other implanted medical equipment

E M R	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 Identify and attempt to contact the patient's primary caretaker (spouse, guardian, etc) as well as their VAD coordinator as early as possible
B	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 Ensure to transport all available VAD equipment with the patient (spare batteries, troubleshooting equipment, replacement parts, etc) Utilize end-tidal CO2 to assess quality of ventilation and perfusion. Provide supplemental Oxygen to ensure optimal perfusion
A	If patient is demonstrating signs of hypoperfusion, administer 250 cc bolus of Normal Saline or Lactated Ringers 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

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

I

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

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 or Lactated Ringers. **Temperature >104F:** Bolus chilled Normal Saline or Lactated Ringers, 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

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*) 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*)
	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.
I	If the patient is altered and SBP < 90mmHg, use push pressor **Epinephrine 1:100,000** 5-20 mcg q 3-5 minutes or **Epinephrine** 2-10 mcg/min infusion**.** 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. Infusion: 2-10 mcg/min. 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 9 ml of Normal Saline to provide 10 mcg/ml. **To mix an Epinephrine infusion** – mix 1 mg (1 mL) of 1:1000 Epinephrine in 1L of fluid (to produce 1 mcg/ml). See Epinephrine infusion drip chart in reference section for further.

Created: 05/20/2009 **Revised 08/09/2022**

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 Normal Saline or Lactated Ringers to achieve SBP at or above 90 mmHg and administer 20 cc/kg if < 90 mmHg

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 Normal Saline or Lactated Ringers 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

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. **Do not delay care on the scene for interventions**. An early report should be given. State "**Code STEMI**" at beginning of report

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

If the patient is currently having pain, has not taken three (3) or more tablets, administer 0.4 mg of SL **Nitroglycerin** tablets/spray or 1 inch of **Nitro Paste** TD (patient's or STAT kit supplied). Administer additional doses (q 5 minutes) up to two (2) doses

A

Establish IV; administer 20 cc/kg bolus of Normal Saline or Lactated Ringers if the patient is hypotensive (SBP < 90 mmHg or MAP < 60)

I

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

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

If patient does not respond to **Epinephrine**, begin **Dopamine** drip (5-20 mcg/kg/min) and titrate to maintain adequate perfusion

Medication Summary

Aspirin (Disprin): 81 mg x4 (do not exceed 324 mg concurrent to patient's intake)
Dopamine (Intropin): 5-20 mcg/kg/min
Epinephrine: 2-10 mcg/min infusion or 1:100,000 push pressor 5-20 mcg q 3-5 minutes
Fentanyl (Sublimaze): 0.5-1.0 mcg/kg (max single dose 100 mcg)
Nitroglycerin: 0.4 mg SL, spray or 1 inch paste transdermal

Notes:
1. 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
2. BLS providers must be trained on equipment/acquisition of 12 lead in order to perform as standing order
3. Avoid precipitous drop of BP greater than 10% (30% if relatively hypertensive) through the administration of NTG
4. In the setting of an AMI, PVC's may be resulting from cardiac ischemia. Treat the chest pain not the PVC's.
5. If 12 lead EKG shows right-sided infarct, NTG is not recommended and crystalloid fluid may be necessary to support BP
6. **To mix the Epinephrine push pressor** – mix 1ml 1:10,000 Epinephrine in 9 ml of Normal Saline to provide 10 mcg/ml. **To mix an Epinephrine infusion** – mix 1 mg (1 mL) of 1:1000 Epinephrine in 1L of fluid (to produce 1 mcg/ml). See Epinephrine infusion drip chart in reference section for further.

Created: 05/20/2009 **Revised 08/13/2022**

General - Epistaxis

Criteria: Patients who are experiencing bleeding from their nose

B	Have patient lean forward and apply direct pressure with a thumb and forefinger to their nose (pinch), for 10-15 minutes. If the patient is able, they can perform this treatment
A	If bleeding cannot be controlled by direct pressure, apply 200 mg of **Tranexamic Acid** to rolled gauze and insert into bleeding nostril, or administer via mucosal atomization device.

Medication Summary:

Tranexamic Acid (Cyklokapron): 200mg topical

Notes:

1. TXA can only be used in patients greater than 11 years of age
2. Uncontrolled epistaxis can lead to hemorrhagic shock

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 or Lactated Ringers. Titrate IV fluid to achieve a systolic BP > 90 mm Hg up to 2 L. If sepsis is suspected (see note below), administer 30 ml/kg bolus instead. See note 1 for further. Administer **Ondansetron** 4 mg (*pediatric dose is 2 mg*) 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 fluid challenge, 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: 2-10 mcg/min infusion or 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, peripheral edema, and JVD. 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 9 ml of Normal Saline to provide 10 mcg/ml. **To mix an Epinephrine infusion** – mix 1 mg (1 mL) of 1:1000 Epinephrine in 1L of fluid (to produce 1 mcg/ml). See Epinephrine infusion drip chart in reference section for further.
4. Avoid creating hypertension
5. General sepsis criteria and findings:
    1. Patient >18 years old and not pregnant
    2. Patient meets at least two of the following Systemic Inflammatory Response Syndrome symptoms: temperature > 38C (100.4F) or < 36C (96.8F), heart rate > 90bpm, or respiratory rate > 20 or mechanically ventilated
    3. Suspected or confirmed infection
    4. Hypoperfusion manifested by any of the following: systolic BP less than 90, MAP < 60, altered mental status, EtCO2 < 20 cmH2O, known lactate level > 4 mmol/L or WBC count > 12,000 or < 4,000

Created: 05/20/2009 **Revised 08/13/2022**

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 or Lactated Ringers. 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)*

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 or Lactated Ringers. 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 08/13/2022**

Medical –Pulmonary Edema/CHF

Criteria: Patients exhibiting signs of congestive heart failure or acute pulmonary edema

B

For patients in moderate to severe respiratory distress, consider CPAP/BiPAP 5-10

I

If SBP < 100 mmHg (MAP < 65 mmHg), administer **Epinephrine** push pressor 5-20 mcg 1:100,000 q 3-5 minutes or **Epinephrine** infusion 2-10 mcg/min

If SBP > 175 mmHg and Heart Rate > 60 bpm, administer 0.4 mg **Nitroglycerin** SL and 1 inch **Nitro paste** TD. If respiratory distress persists and SBP > 175 mmHg, repeat q 5 minutes as long as respiratory distress persists and SBP remains > 175 mmHg

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)

Medication Summary:

Epinephrine 1:100,000 5-20 mcg push pressor or 2-10 mcg/min infusion
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)
Nitroglycerin 0.4 mg SL q 5 minutes
Nitroglycerin paste 1 inch transdermal

Notes:

1. Avoid Nitroglycerin with any patient that has use Viagra, Cialis, Levitra or herbal equivalents within the past 24 hours
2. BLS should consider ALS assistance
3. **To mix the Epinephrine push pressor** – mix 1ml 1:10,000 Epinephrine in 9 ml of Normal Saline to provide 10 mcg/ml. **To mix an Epinephrine infusion** – mix 1 mg (1 mL) of 1:1000 Epinephrine in 1L of fluid (to produce 1 mcg/ml). See Epinephrine infusion drip chart in reference section for further.

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

If patient has a rescue inhaler, administer one dose if they have not already had two doses in the last 30 minutes. 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

Consider CPAP for distress NOT related to allergic reaction

A

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

Administer **Methylprednisolone** 125 mg IV if no relief or improvement from first dose of Albuterol (*pediatric dose 2 mg/kg IV, maximum dose 125 mg*)

For a severe asthma attack with deteriorating patient condition administer **Epinephrine** 1:1,000 0.3 mg IM (pediatric 0.01 mg/kg; max dose 0.3 mg)

P

For Asthma: if no response to Albuterol consider **Magnesium Sulfate** 50 mg/kg IV over 10-20 minutes (*pediatric dose 50 mg/kg – max dose 2 g*). Can repeat 30 mg/kg x1 q10 minutes. Do not exceed 2.5 g total

For croup, ARDS, and/or status asthmaticus administer 3 ml **Epinephrine** 1:10,000 diluted with 3 cc NS by nebulizer (*pediatric dose the same*)

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)*
Ipratropium Bromide (Atrovent): 0.5 mg (*adult and pediatric the same*)
Magnesium Sulfate: 50 mg/kg IV over 10-20 minutes, 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

Medical-Seizure

Criteria: Patients who are having seizures

B

If respirations are <8, assist with BVM ventilations

If it's an adult patient who is hypoglycemic, administer 1 mg **Glucagon** IM

A

If patient is hypoglycemic, administer 100 cc **Dextrose 10%** (*pediatric dose is 5 cc/kg*). Repeat after 2 minutes if symptoms are not resolved

For active seizure administer **Midazolam** 2-5 mg repeat every 5 minutes (*pediatric dose is 0.1 mg/kg up to max single dose of 2 mg*) - may repeat once after 5 minutes

Medication Summary:

Dextrose 10%: 100 cc, repeat after 2 min if necessary (*pediatric dose is 5 cc/kg, and neonatal is 2 cc/kg*)
Glucagon (Glucagen): 1 mg IM
Midazolam (Versed): 2-5 mg, repeat after 5 min (*pediatric dose: 0.1 mg/kg max of 2 mg*)

Notes:
1. Versed may cause respiratory depression - monitor respiratory effort closely after administration, provide Oxygen, monitor and protect airway

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
250 Executive Center Parkway
Fredericksburg, VA 22401

BASIC LIFE SUPPORT/ADVANCED LIFE SUPPORT
ADMINISTRATIVE PATIENT CARE PROTOCOL

BOARD APPROVED AUGUST, 2022

Rappahannock EMS Council
Regional Field Trauma Triage Decision Scheme

Measure vital signs and level of consciousness

Glasgow Coma Scale	< 14 or
Systolic blood pressure	< 90 or
Respiratory Rate	< 10 or >29 (<20 in infant < one year)

YES

Take to trauma center. Steps 1 and 2 attempt to identify the most seriously injured patients. These patients should be transported preferentially to a Level I or Level II Trauma Center.

NO

Assess the patient's injuries. Do they have:

- Penetrating injuries to head, neck, torso, and extremities proximal to elbow and knee.
- Flail Chest
- Two or more proximal long-bone fractures
- Crushed, degloved, or mangled extremity
- Amputation proximal to wrist and ankle
- Pelvic fractures
- Open or depressed skull fracture
- Paralysis

YES

Take to trauma center. Steps 1 and 2 attempt to identify the most seriously injured patients. These patients should be transported preferentially to a Level I or Level II Trauma Center.

NO

Assess mechanism of injury and evidence of high-energy impact. Is injury a result of:

AUTO V. PEDESTRIAN/BICYCLIST THROWN, RUN OVER, OR WITH SIGNIFICANT (>20 MPH) IMPACT

FALLS:
- Older adults (55 and over): >20 ft. (one story is equal to 10 ft.)
- Children: >10 ft. or 2-3 times the height of the child

HIGH-RISK AUTO CRASH:
- Intrusion: >12 in. occupant site; >18 in. in any site
- Ejection (partial or complete) from automobile
- Death in same passenger compartment
- Vehicle automatic crash notification data consistent with high risk injury

MOTORCYCLE CRASH >20 MPH

YES

Transport to closest appropriate hospital. Preferentially a Level I, II, or III Trauma Center.

NO

Assess special patient or system considerations.

AGE: Older Adults (above age 55)
Children should be triaged preferentially to a pediatric-capable trauma center.

ANTICOAGULATION AND BLEEDING DISORDERS

BURNS: Without other trauma mechanism: Triage to burn facility
With trauma mechanism: Triage to trauma center

TIME SENSITIVE EXTREMITY INJURY

END-STAGE RENAL DISEASE REQUIRING DIALYSIS

EMS PROVIDER JUDGMENT

YES

Contact medical control and consider transport to a trauma center or specialty care hospital.

NO

Transport according to normal operational procedures.

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.

Traumatic Cardiac Arrest

Criteria: All viable patients in cardiac arrest secondary to blunt and or/penetrating trauma

B	Insert BIAD "Rescue Airway" such as King, CombiTube, iGel, and ventilate at a rate of NO FASTER THAN 1 every 6 seconds for adults; 1 every 2-3 seconds for pediatrics.
	Termination of CPR is recommended if no signs of life after 10 minutes of high quality BLS resuscitation obtain a Code Gray
A	Administer fluid 2 liters Normal Saline or Lactated Ringers rapid bolus If severe hemorrhage is suspected cause of cardiac arrest administer 2 g **Tranexamic Acid** slow IV/IO push
I	Identify and correct reversible causes of cardiac arrest before starting ACLS/PALS Perform bilateral lateral needle decompression; repeat as needed If hypoxia is suspected, and the patient is 13 years or over, consider placing endotracheal tube during CPR. Do NOT stop compressions or stop resuscitation to place endotracheal tube
P	If hypoxia is suspected, and the patient is 12 years or younger, consider placing endotracheal tube during CPR. Do NOT stop compressions or stop resuscitation to place endotracheal tube If there is suspicion for cardiac tamponade, perform pericardiocentesis

Medication Summary

Tranexamic Acid (Cyklokapron): 2 g over slow IV/IO push

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

Injury – Bleeding/Hemorrhage Control

Criteria:
1. Patients with uncontrolled or profuse bleeding resulting from trauma
2. Patients in traumatic cardiac arrest who recently had vital signs

B

Apply direct pressure.
- If bleeding is to an extremity, apply a tourniquet. Dress the wound once bleeding is controlled.
- If the wound is in a torso or junctional area, expose the wound and remove any clots or dressings and pack the wound with hemostatic or sterile gauze. If the wound is a scalp laceration, apply direct pressure. Hold 10 pounds of pressure for 3 minutes with hemostatic gauze, or 10 pounds of pressure for 10 minutes with sterile gauze. Apply pressure dressing once bleeding is controlled.
- These patients require rapid transport.

A

For patients greater than 11 years of age with tachycardia and hypotension (hemorrhagic shock) related to profuse hemorrhage, who have suffered an injury within the previous three (3) hours, administer **Tranexamic Acid** 2 g slow IV/IO push

Notes:
1. Providers are encouraged to follow current TECC guidelines for the management of injuries

Medication Summary:

Tranexamic Acid (Cyklokapron): 2 g slow IV/IO push

Injury - Burns

Criteria: Patients with chemical, electrical, thermal, and/or radiation burns

EMR	Safely remove patient from source. Stop the burning process. Watch for and PREVENT hypothermia, dry sterile dressings shall be used for wound care
A	Administer Normal Saline or Lactated Ringers IV 500 mL/hr (*for children age 6-13, 250 mL/hr, age <6, 125 mL/hr*) Administer **Fentanyl** 1-2 mcg/kg, q 5 minutes, max dose 300 mcg (*pediatric dose 1-3 mcg/kg, max single dose of 100 mcg*)
I	If cyanide poisoning is suspected, mix **Cyanokit** according to manufacturer's recommendations. Administer 5g (*pediatric dose 70mg/kg, max dose 5g*), repeat once it patient does not improve. 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): 1-2 mcg/kg, repeat once after 5-10 mins *(pediatric dose: 1-3 mcg/kg max 100 mcg).* Contact medical control if more than 300 mcg is needed to manage patient condition.
Ketamine (Ketalar): 0.25-0.5 mg/kg; repeat once after 10 if needed (p*ediatric dose same as adult*)
Hydroxocobalamin (Cyanokit): 5g Repeat once (if needed) (*Pediatric dose 70mg/kg, max dose 5g*)

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 closest appropriate trauma center
3. Fluid resuscitation should be aggressively monitored to avoid fluid overload.
4. A high index of suspicion and low intubation threshold should be practiced for all burns involving the patient's airway. Delayed sequence intubation should be considered for all airway burns. Additional DSI consideration should be given if patient care is hindered due to inability to manage pain, or if injuries could potentially effect ability to ventilate (i.e., circumferential thoracic burns).
5. Circumferential burns can pose significant vascular risk to an extremity.
6. Remove the patient's rings, bracelets, contacts and other potentially constricting or interfering items.
7. Patient decontamination should be considered and attempted prior to transport, and receiving hospital should be made aware of any special circumstances or considerations.

Injury- Diving Emergencies

Criteria: Patients suffering from suspected dive related trauma including Decompression Sickness (DCS) and Arterial Gas Emboli (AGE)

B	Administer 100% oxygen via non-rebreather. Assess for and treat signs of shock. Complete the Divers Alert Network (DAN) Neurological Assessment
A	If hypotensive, establish peripheral IV/IO and administer Normal Saline or Lactated Ringers.
I	Assess for possible over pressurization injury. Decompress chest if tension pneumothorax is suspected.

Notes:

1. 1. Contact the Diver's Alert Network (DAN) as soon as possible- they will serve as Medical Direction. DAN will provide the primary care provider(s) with pertinent treatment information and transport destination recommendations.
    a. DAN Emergency Assistance Number: **1-(919)-684-9111** (24-hour number)
    b. Confirm type of compressed air utilized in SCUBA (i.e., Air, Nitrox, Heliox, etc.)
2. Begin a chain-of-custody of the diver's gear for investigation purposes if deemed necessary.
3. Decompression Sickness (DCS) is categorized by Type I and Type II
    a. **Type I** - Includes joint pain and symptoms involving the skin, or swelling and pain in lymph nodes.
    b. **Type II** - In the early stages, symptoms may not be obvious and the stricken diver may consider them inconsequential. The diver may feel fatigued or weak and attribute the condition to overexertion. Even as weakness becomes more severe the diver may not seek treatment until walking, hearing, or urinating becomes difficult. Type II symptoms are divided into three categories: neurological, inner ear (staggers), and cardiopulmonary (chokes).
4. Arterial Gas Embolism (AGE) is caused by entry of gas bubbles into the arterial circulation as a result of pulmonary over inflation syndrome. The signs and symptoms of AGE may include near immediate onset of altered LOC, dizziness, paralysis or weakness, paresthesia, vision abnormalities, convulsions or personality changes.

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 ETCO2 at 40 mmHg
A	Administer 20 cc/kg Normal Saline or Lactated Ringers (max dose 1 L). Titrate to achieve SBP at or above 100 mmHg (MAP > 65) With signs of herniation*, hyperventilate the patient to achieve ETCO2 of 35 mmHg
I	Administer 5-20 mcg **Epinephrine** (1:100,000) q 3-5 minutes as push pressor or 2-10 mcg/min **Epinephrine** infusion. Titrate for MAP > 65
P	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: 2-10 mcg/min infusion or 5-20 mcg 1:100,000 push pressor – may repeat q 3-5 minutes to maintain MAP > 65

Notes:

1. Patients with significant blunt trauma should be assumed to have a spinal injury until proven otherwise by X-Ray and should be fully immobilized
2. Goals are to minimize ICP increase and to promote cerebral perfusion through the maintenance of sufficient circulation and oxygenation
3. 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
4. **To mix the Epinephrine push pressor** – mix 1ml 1:10,000 Epinephrine in 9 ml of Normal Saline to provide 10 mcg/ml. **To mix an Epinephrine infusion** – mix 1 mg (1 mL) of 1:1000 Epinephrine in 1L of fluid (to produce 1 mcg/ml). See Epinephrine infusion drip chart in reference section for further.
5. * Herniation = blown or unequal pupils, GCS 3, and/or posturing

Created: 05/20/2009 **Revised: 08/13/2022**

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

ANXIETY MANAGEMENT/SEDATION

Administer **Midazolam** 2-5 mg (*pediatric dose 0.1 mg/kg, max dose 2 mg*). If no response, or not available, administer **Fentanyl** 2 mcg/kg every 15 minutes (*pediatric dose is the same, max dose 100 mcg)*

CHEMICAL EXTRICATION AND/OR CRUSH SYNDROME

Administer **Fentanyl** 1-1.5 mcg/kg IV *(pediatric dose is the same, max dose 50 mcg)*

In cases where an adult has concurrent crush injury and extrication time may be prolonged, CONSIDER 100 mEq **Sodium Bicarbonate** in 1000 cc NS/LR and infuse at 100-150 cc/hr

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

Administer **Ketamine** 1-2 mg/kg IV or 2-4 mg/kg IM (*pediatric dose the same, max dose 50 mg IV or 100 mg IM*). Closely monitor for respiratory depression

Medication Summary:

Albuterol (Ventolin): 10-20 mg
Calcium (Calcium Chloride): 1 g
Fentanyl (Sublimaze): Anxiety: 2 mcg/kg (*pediatric max dose 100 mcg*); Chemical Extrication 1.0-1.5 mcg/kg (*pediatrics max dose 50 mcg*)
Ketamine (Ketalar): 1-2 mg/kg IV; 2-4 mg/kg IM (*pediatric max dose 50 mg IV or 100 mg IM*)
Midazolam (Versed): Anxiety/Sedation: 2-5 mg (*pediatric dose 0.1 mg/kg, max dose 2 mg*)
Sodium Bicarbonate: 100 mEq; infusion at 100-150 cc/hour

Notes:

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

Created: 10/15/2015 **Last Revised 08/13/2022**

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 injury[1] and no special circumstances[2] 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 injury[1] 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 injury[1] or plausible spinal cord injury who are unresponsive or unable to provide and assessment feedback should receive FULL SPINAL IMMOBILIZATION.

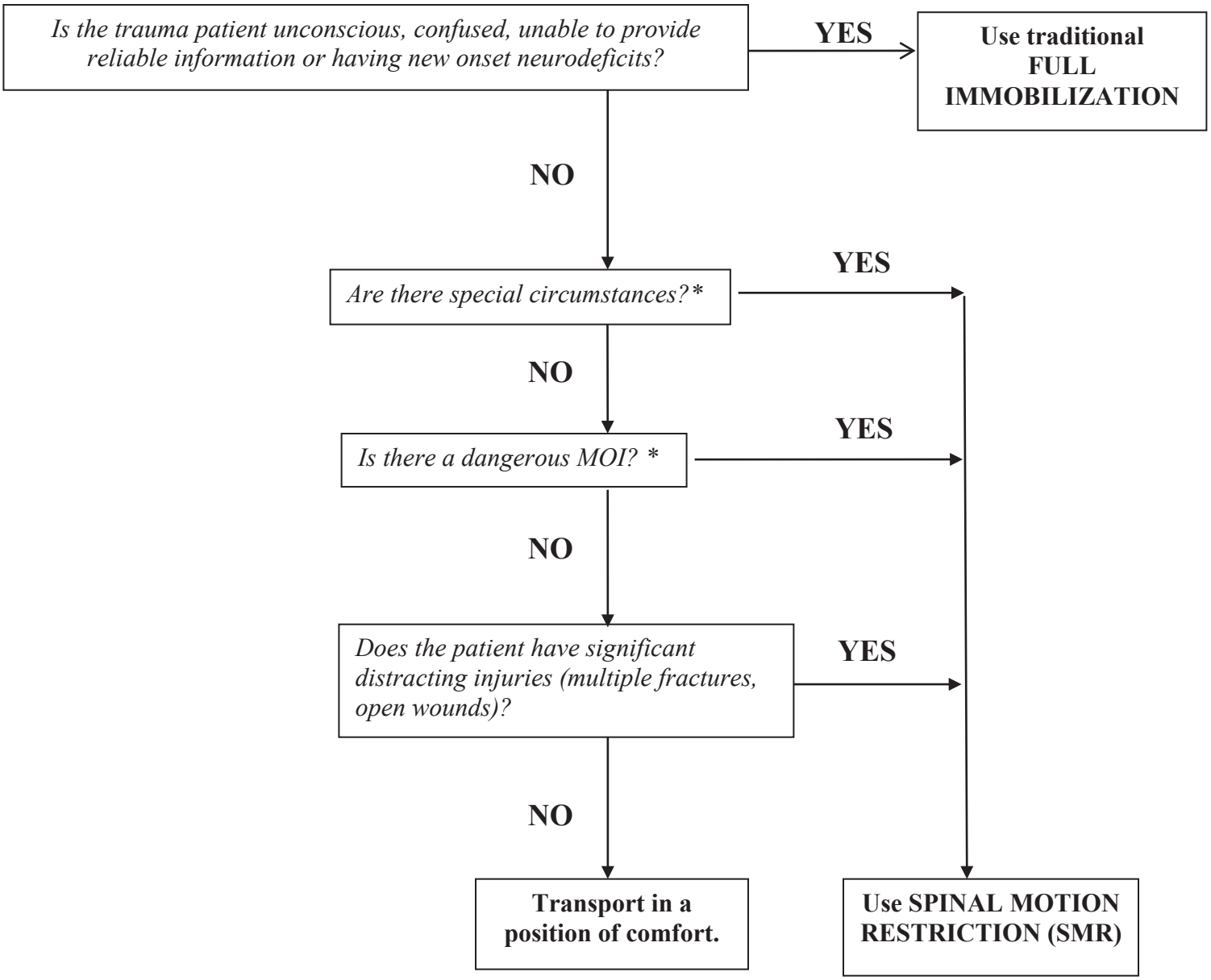
Notes:

1. [1]Dangerous 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. [2]Special 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
250 Executive Center Parkway
Fredericksburg, VA 22401

BASIC LIFE SUPPORT/ADVANCED LIFE SUPPORT
CLINICAL PROCEDURE PROTOCOL

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

TABLE OF CONTENTS

Scope of Practice Table

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

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

CERTIFICATION DEFINITIONS

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

ORDER DEFINITIONS

S = Standing order – may be performed based simply on EMS Certification as defined above
O = On-line medical control order is required PRIOR to attempting the procedure
R-OMD = Skill is standing order per OEMS Scope of Practice, is but restricted to specific providers within the REMS Council – regardless of Virginia EMS certification – that have specific authorization from current EMS PHYSICIAN on file at REMS. These items are identified with a red background in the protocols.
X = NOT PERMITTED

Authorized Medication Table

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

ORDER DEFINITIONS

S = Standing – may be administered based on EMS Certification as defined in scope of practice
X = Medication NOT PERMITTED to be administered at that certification level
AP = Advanced Practice per OEMS Scope of Practice. Requires a provider to receive additional training designated by current EMS PHYSICIAN. ALSO, must have specific authorization to perform this skill/procedure on file at the REMS Council. These items are identified with a red background in the protocols.

Clinical Procedures – 12-lead Electrocardiogram

Criteria:

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

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

Notes:

1. The accuracy of information obtained from an EKG is dependent on the proper placement of the electrodes. When applying the arm and leg leads the right and left should at the same location (for example, you can use the right shoulder and left shoulder but you can NOT use the right wrist and left shoulder)

Airway- Management	
Criteria: Patients that are not able to maintain a secure airway.	
B	If respirations are <8, assist with BVM ventilations and supplemental Oxygen.
	If the patient has no gag and accepts the oral airway, place BIAD.
I	If BLS procedures are not adequate to secure the airway, and the patient is 13 years or older, insert an oral endotracheal tube. Place OG/NG tube placed to relieve any gastric distention.
	Once a definitive airway has been placed, the patient should be managed with a mechanical ventilator. -tidal volume of 5-8 cc/kg, rate of 8-12 for adults, -ventilator settings should be adjusted to maintain an appropriate SaO2 and ETCO2.
P	If BLS procedures are not adequate to secure the airway, and the patient is 12 years or younger, insert an oral endotracheal tube.
	If patient has a patent gag or is combative/resisting airway management, see RSI protocol. If the patient has no contraindications, a nasotracheal intubation can be performed instead of oral intubation when complications with equipment prevent standard endotracheal intubation.
	If UNABLE to ventilate the patient with BVM ventilations and BLS procedures AND UNABLE to intubate or secure with rescue airway perform a needle or surgical cricothyroidotomy.

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.
2. If above attempts are unsuccessful, delayed sequence intubation should be considered.
3. Intubated patients must have confirmation through ETCO2 capnometry and shall be monitored through continuous ETCO2 capnography.
4. Providers are encouraged to research and use shock index as an indicator of post-intubation complications such as hypotension. The prevention of hypotension and other complications are important to ensure the most favorable patient outcome long term.

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PATIENT CARE PROTOCOLS

Airway- Rapid Sequence Intubation (RSI- Paralytic)

Criteria:

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

B

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

Apply nasal cannula and administer 10 lpm of Oxygen.

P

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

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

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

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

Once a secure airway (ETT) has been placed, the patient should be managed with a mechanical ventilator:
-tidal volume of 5-8 cc/kg, rate of 8-12 for adults
-ventilator settings should be adjusted to maintain an appropriate SaO2 and ETCO2

Place OG/NG tube to relieve any gastric distention.

Medication Summary:

Epinephrine: 2-10 mcg/min as an infusion or 1:100,000 push dose pressor 5-20 mcg IV/IO q 3-5 min
Etomidate (Amidate): 0.3 mg/kg IV/IO
Fentanyl (Sublimaze): 1-2 mcg/kg IV/IO up to max single dose of 250 mcg
Ketamine (Ketalar): 2 mg/kg IV/IO
Midazolam (Versed): 0.1 mg/kg IV/IO to a max single dose of 10 mg
Rocuronium (Zemuron): 1 mg/kg IV/IO
Vecuronium (Norcuron): 0.1 mg/kg IV/IO

Notes:

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

Created: 10/15/2015 **Revised: 07/22/2022**

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**

Mark I Kit

Criteria: Patients that are symptomatic after exposure to organophosphorus pesticides or nerve agents

B

Obtain and administer the **Mark I** auto-injector kit (Atropine 2mg and 2PAM C1 600 MG IM) every five minutes while symptoms persist. Max of three doses

A

If the Mark I kits are unavailable or signs/symptoms of organophosphate persist consider **Atropine** 2 mg IV/IO/IM (*Pediatric dose 0.04 mg/kg*) every 5 minutes to max dose of 6 mg

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

Medication Summary:

Atropine: 2 mg IV/IO/IM q 5 min to max dose of 6 mg (*Pediatric dose 0.04 mg/kg*)

Notes:

1. Signs and symptoms of nerve agent exposure (SLUDGEM): salivation, lacrimation, urination, defecation, GI distress, emesis, and miosis
2. Mark I kits are NOT approved for children <14 years of age
3. Duodote auto-injector kits may be substituted for Mark I kits if available
4. Chempack is available by contacting the Mary Washington Hospital HEAR phone. See algorithm in reference section for further.

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 (4^{th}/5^{th} ICS) needle thoracostomy. Repeat as necessary
P	If patient is in cardiac arrest and has chest trauma, perform pericardiocentesis

Notes:

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

Ventilators and CPAP

Criteria:

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

B	Based on the patient's condition (see Respiratory Distress protocol) if CPAP has been deemed necessary, assemble the equipment. Assess for contraindications. If none, apply mask to patient and begin CPAP at 5 cmH2O, titrate pressure to a maximum of 10 cmH2O
I	Non-trauma patients that have been intubated and have a secure airway should be ventilated with a mechanical ventilator (hand bag trauma patients unless peak airway pressures can be closely monitored) -tidal volume of 5-8 cc/kg and a rate of 8-12 for adults -titrate for ETCO2 of 35-45 and SpO2 appropriate for condition

Notes:

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

Created 05/20/2009 **Revised 07/21/2022**

PRE-HOSPITAL PATIENT CARE PROTOCOL

REFERENCE SECTION

Section V

Rappahannock EMS Council
250 Executive Center Parkway
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, 07/22, 01/23
BOARD APPROVED 06/07; 06/11; 12/15; 10/17, 06/19

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.

Level I Trauma Centers	***Level II Trauma Centers***	***Level III Trauma Centers***
Carillion 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

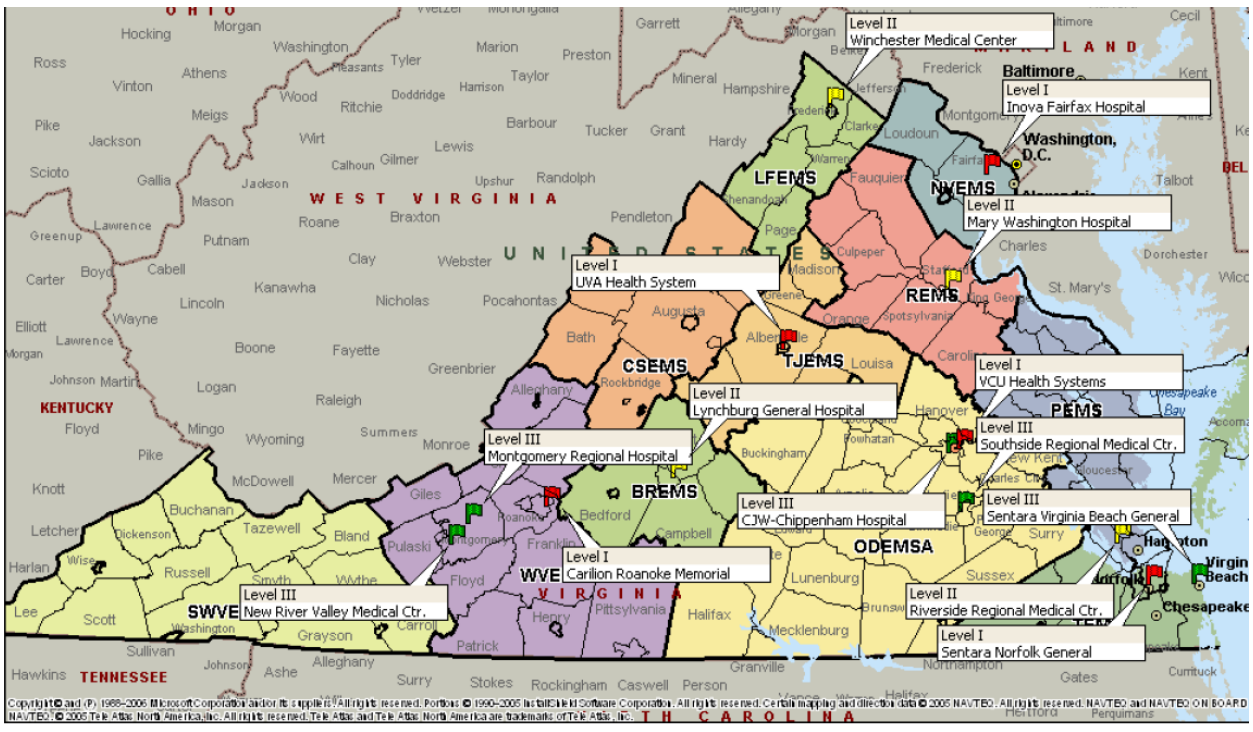
Level I trauma centers have an organized trauma response and are required to provide total care for every aspect of injury, from prevention through rehabilitation. These facilities must have adequate depth of resources and personnel with the capability of providing leadership, education, research, and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

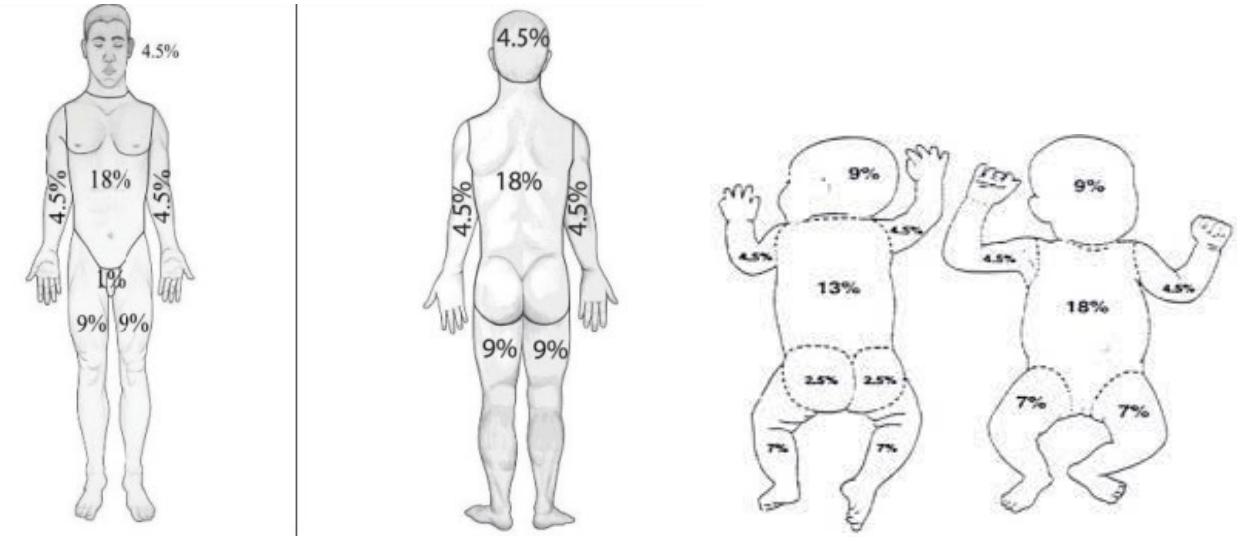
Level III trauma centers, through an organized trauma response, can provide prompt assessment, resuscitation, stabilization, emergency operations and also arrange for the transfer of the patient to a facility that can provide definitive trauma care. Level III centers should also take on responsibility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



Burn Classifications:

1. Critical Burns (**Burn Center Referral Criteria**)
    a. Partial-thickness and full-thickness >10% TBSA in patients under 10 or over 50 years
    b. Partial-thickness and full-thickness >20% TBSA in all other age groups
    c. Inhalation, significant chemical, or circumferential burns
    d. Any Third-degree (full-thickness) burns >5% in any age group
    e. Burns involving face, hands, feet, genitalia, perineum, or major joints
    f. Pediatric burns
2. Moderate Burns
    a. Full-thickness of <10% TBSA excluding face, hands, feet, genitalia, perineum, or major joints
    b. Partial-thickness of 15-30% TBSA *(less than 5 years: 10%-20% TBSA)*
    c. Superficial involving more than 50% TBSA
3. Minor Burns
    a. Full-thickness <2% TBSA excluding face, hands, feet, genitalia, perineum, or major joints.
    b. Partial-thickness burns <15% *(less than 5 years: less than 10%)*
    c. Superficial burns of less than 50%

First-degree burns (Superficial w/o blister formation) are not included in TBSA calculation



Rappahannock EMS Council
Protocol Reference

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**	Thrombectomy Capable
	Inova Mount Vernon Hospital	Primary
Charlottesville	**Martha Jefferson Hospital**	Comprehensive
	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	Thrombectomy Capable
	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 (FMC[1]) 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]	BEFAST/VAN 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 BEFAST/VAN 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 patients name over an unencrypted radio if needed for patient care.

[6] Other pertinent information includes terminal illness, hospice, blood thinner status, etc. (2022-07)

Standard Medication Infusions

Amiodarone:

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; the concentration is 1600mcg/ml
- Using a microdrip (60 gtts /ml) – 1600 mcg / 60 gtts
  - 60 gtts/min (1 drop every second) = 1600 mcg / min
  - 45 gtts /min (1 drop every 1.5 seconds) = 1200 mcg / min
  - 30 gtts /min (1 drop every 2 seconds) = 800 mcg / min
  - 15 gtts /min (1 drop every 4 second) = 400 mcg / min

Epinephrine: Mix 1 mg in 1L of Normal Saline or Lactated Ringers; the concentration is 1 mcg/ml

ADULT DOSING: 10 gtts/ml set	ADULT DOSING: 15 gtts/ml set
1 mcg/min = 10 gtts/min	1 mcg/min = 15 gtts/min
2 mcg/min = 20 gtts/min	2 mcg/min = 30 gtts/min
3 mcg/min = 30 gtts/min	3 mcg/min = 45 gtts/min
4 mcg/min = 40 gtts/min	4 mcg/min = 60 gtts/min
5 mcg/min = 50 gtts/min	5 mcg/min = 75 gtts/min
6 mcg/min = 60 gtts/min	6 mcg/min = 90 gtts/min
7 mcg/min = 70 gtts/min	7 mcg/min = 105 gtts/min
8 mcg/min = 80 gtts/min	8 mcg/min = 120 gtts/min
9 mcg/min = 90 gtts/min	9 mcg/min = 135 gtts/min
10 mcg/min = 100 gtts/min	10 mcg/min = 150 gtts/min

Magnesium Sulfate: Mix 2 – 4 g (desired dose) in 250 ml of D5W
2000 mg/250ml = 8 mg/ml = 200 mg/min (60 gtts set) wide open
3000 mg/250ml = 12 mg/ml = 300 mg/min (60 gtts set) wide open
4000 mg/250ml = 16 mg/ml = 400 mg/min (60 gtts set) wide open

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 **T**riage **A**nd **R**apid **T**reatment) 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, **S**AFETY, **S**URVEY, **S**END, **S**ET-UP AND **S**TART/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.
Closed	When the hospital is unable to accept patients due to closure of business operations or experiencing events dangerous to life safety. The Emergency Department is closed to all EMS traffic except those noted in the Contraindications.

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

Regional EMS Chempack Activation

The Centers for Disease Control and Prevention (CDC) has partnered with the Virginia Department of Health (VDH) and local agencies to place nerve agent antidotes in various facilities throughout Virginia.

Each CHEMPACK container weighs about 700 pounds. Individual boxes may be removed from the container and transported to the field or to another hospital. Pharmaceuticals found in the container include Atropine, Pralidoxime, Diazepam, Atropen and Mark-1 Nerve Agent Antidote Kits. Medications distributed to the EMS field are provided as auto-injectors.

When to Use Regional Chempack

[] An event in Rappahannock EMS region involving a suspected or confirmed nerve agent and normally available supplies are of insufficient quantity to provide treatment

[] Field or Hospital Competent Authority recognizes need for additional Resources

Competent Authority is defined as:
Incident Commander, EMS Operations Officer, Hazardous Materials Officer, Hospital ED Senior Physician or Nursing Supervisor, District Health Director, VDH Local Chempack Coordinator, VA State Health Commissioner

YES →

Competent Authority makes request to Mary Washington Hospital ED by HEAR radio or phone (540) 373-0348

Provide MWH ED the Following Information

[] Caller / Competent Authority's Name

[] Caller Contact Phone Number

[] Type of Incident / Number of Casualties

[] Chempack Delivery Location / Physical Address of Incident

[] Receiving Agency Name / Point of Contact on Scene

[] Radio channel and phone number of Fire/EMS agent on scene to use for ongoing communications during the event

← Hospital will complete Chempack Deployment Intake form and activate deployment procedures with Chempack Delivery Agency

Prepare to Receive Chempack from Delivery Agency

[] Delivery agency will contact incident scene enroute

[] Documentation of Transfer of Chempack Contents / Diazepam Custody required to be signed by receiving agency (Chempack Controlled Substance Transfer Form)

[] Follow your regional or agency patient treatment protocols for administration

[] Field Incident Commander should notify the RHCC of incident and Chempack use. RHCC will support field transport destination decisions for NVHA Hospitals

→ Unused Chempack Medications and Completed Chempack Controlled Substance Transfer form returned to Regional VDH Chempack Coordinator (on scene or call 1-866-531-

	STAFFORD COUNTY FIRE AND RESCUE DEPARTMENT **INTERIM MEDICAL DIRECTIVE**
	NUMBER: 2022-001 — **DATE:** January 10, 2022
	ISSUED BY: Robert E. Fines, MD, FACEP Operational Medical Director — Robert E Fines
	SUBJECT: Termination of Resuscitative Efforts (TOR)
	SUPPLEMENT MEDICAL PROTOCOLS/PROCEDURES: Administrative-Section I, 3.3 Code Grey

PURPOSE:
This policy outlines the Termination of Resuscitative Efforts (TOR) for Stafford County EMS Clinicians.

POLICY
Under select circumstances, it is reasonable and appropriate for EMS Clinicians engaged in the resuscitation of a patient to stop, assess progress, and then terminate further efforts if the patient has not responded. For patients who meet the criteria below and fail to respond to resuscitative efforts, termination of efforts is permitted with Online Medical Control (OLMC).

DEFINITION:
For cases considered for TOR, a reasonable trial of resuscitative efforts has been delivered for a minimum of 20 minutes from initiation of advanced life support (ALS) care (application of ECG monitor and identification of initial rhythm). A trial of resuscitative efforts includes:

- CPR.
- Defibrillation (if applicable).
- Successful ventilation via advanced airway (King LTS-D Airway or Endotracheal Tube).
- Successful vascular access (IO or IV).
- Appropriate pharmacological intervention.
- Verify the absence of cardiac activity by auscultation and/or ultrasound; and record the EKG rhythm in leads II and III.

PROCEDURE:
For patients who have met the criteria for TOR, a formal Code Gray request should be made to OLMC via the HEAR Channel or HEAR Phone, and communicated in the following order:

- Agency/Unit
- Code Gray Request
- Age and Gender
- Witnessed or Unwitnessed Cardiac Arrest
- Total downtime (without CPR)
- Any pre-arrival CPR/efforts
- Duration of EMS resuscitative efforts
- Summary of EMS Treatment: Presenting EKG, CPR, Medications, Advance Airway, Absence cardiac activity by auscultation and observation in leads II and III.
- Current EKG rhythm, and Capnography
- Pupillary Response

- Pertinent medical history.
- Resuscitation efforts have been explained to family members and are aware of the request for TOR.

Resuscitative efforts may not be terminated in the following circumstances:

- Cardiac arrest from hypothermia, or drowning/cold water immersion
- Cardiac arrest from electrical injury, including those struck by lightning
- ROSC (transient or permanent) at any point during the resuscitation
- Patients in law enforcement, or correctional custody, to include patients/inmates at the Rappahannock Regional Jail, Stafford Detention/Diversion Center or in any law enforcement vehicle, intake or holding facility.

NOTES:

- Record time of death declared by OLMC/Doctor # in the ePCR.
- Advise law enforcement of TOR and document their name and badge number in the ePCR.
- Ensure all interventions are left in place
- If in public view a clean sheet can be used to cover the patient if permitted by on-scene law enforcement.
- If family counseling and support resources are unavailable, counseling and related assistance may be offered

STAFFORD COUNTY FIRE AND RESCUE DEPARTMENT
INTERIM MEDICAL DIRECTIVE

NUMBER: 2022-002	**DATE:** January 31, 2022
ISSUED BY: Robert E. Fines, MD, FACEP Operational Medical Director	
SUBJECT: Use of Orogastric Tubes	
SUPPLEMENT MEDICAL PROTOCOLS/PROCEDURES: Clinical Procedures-Section IV Airway-Management	

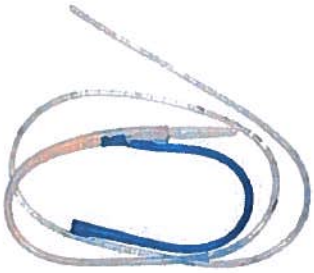
PURPOSE:
This policy outlines the use and placement of orogastric tubes (OG) for Stafford County EMS Clinicians.

POLICY
OG tubes may be placed after an advanced airway has been secured. Clinicians trained in their use according to manufacturer's guidelines, the following procedure, and as approved by the Operational Medical Director are authorized to place an OG tube. OG tube placement is permitted by EMT, AEMT, EMT-I, and EMT-P clinicians.

DEFINITION:
Prehospital resuscitation efforts using mouth-to-mouth or bag-valve-mask ventilation may cause gastric distention. Gastric distention compromises oxygenation and ventilation and increases the risk of aspiration, decreases venous return, and increases intra-abdominal pressure which all hinder adequate resuscitation. Gastric distention can be easily reduced with the use of an OG tube.

An OG tube is a dual-lumen tube that is passed through the mouth, down through the oropharynx and esophagus into the stomach. The tube has cm markings allowing clinicians to easily determine tube depth during placement. The large lumen allows for easy suction of gastric contents and decompression while the smaller vent lumen allows for atmospheric air to equalize the vacuum pressure in the stomach preventing the tube from adhering to and damaging the stomach lining.

INDICATIONS:
Patients orotracheally intubated or a King LTS-D Airway is in place.



CONTRAINDICATIONS:
Known or suspected caustic ingestion and esophageal disease.

OG TUBE SELECTION:
Three different-sized OG tubes will be used depending on the patient's size.

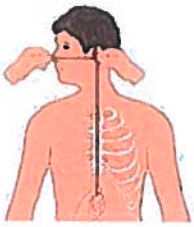
Patients with a King LTS-D Airway

King LTS-D Airway	3	4	5
Tube Color	Yellow	Red	Purple
Patient Size	4 to 5ft	5 to 6ft	>6ft
OG Tube Size	18fr	18fr	18fr

Patients orotracheally intubated (ETT)

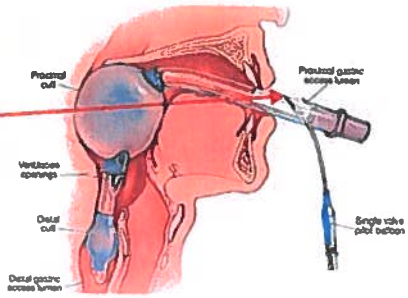
ETT Tube	<4.5mm	5-6.5mm	>6.5mm
Patient Size	<15kg (33lbs)	15 to 35kg (33-75lbs)	>4ft/>75lbs
OG Tube Size	10fr	16fr	18fr

OG TUBE DEPTH MEASUREMENT:



1. Hold end of OG tube (the end with the eyelet) over the patient's xiphoid process.
2. Extend the OG tube up the chest to the patient's earlobe.
3. Hold OG tube at the patient's earlobe and extend it over the cheek to the patient's lips.
4. Note the OG tube's cm markings at the lips. Mark tube with a marker, or with a piece of tape.

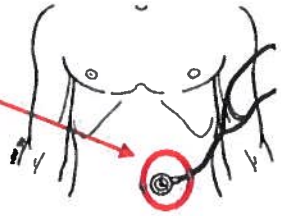
PROCEDURE: King LTS-D Airway



1. Identify the appropriate size OG tube and the correct depth.
2. Lubricate the OG tube tip with a water-soluble gel.
3. Insert the OG tube into the proximal gastric access lumen.
4. Advance OG tube to the pre-determined depth.
5. Secure OG tube to King Airway with tape.
6. Attached OG tube to suction and suction until no return of stomach contents.
7. Turn off suction, leave the OG tube in place.
8. If the OG tube is disconnected from the suction tubing, connect the clear tube to the blue air vent lumen using the plastic male adapter.

PROCEDURE: Endotracheal Tube (ETT)

1. Identify the appropriate size OG tube and the correct depth.
2. Curl OG tube tip with a slight curvature.
3. Lubricate the OG tube tip with a water-soluble gel.
4. Insert OG tube behind the ETT, toward the roof of the mouth, and down the midline of the oropharynx.
5. Advance to the pre-determined depth.
6. If resistance is met, stop advancement and adjust direction slightly before reattempting.
7. Confirm placement by:
    a. Aspirate gastric contents with a Toomey syringe, and,
    b. With the Toomey syringe, inject 30ml air into the OG tube while auscultating over the stomach area listening for a "swoosh" sound.
        i. Pediatrics: 10ml of air
8. Secure OG tube to ETT with tape.
9. Attached OG tube to suction and suction until no return of stomach contents.
10. Turn off suction, leave the OG tube in place.
11. If the OG tube is disconnected from the suction tubing, connect the clear tube to the blue air vent lumen using the plastic male adapter.



NOTES & PRECAUTIONS:

1. Do not apply continuous suction. After stomach contents have been removed, turn off suction.
2. There is no need to inject air to confirm the OG tube placement when using the King LTS-D Airway. The King LTS-D has a lumen channel with direct access into the esophagus.
3. Document use in electronic Patient Care Report (ePCR).

RESTOCKING

OT Tubes and the Toomey Syringe can be ordering on FacilityDude and will be added to the Bound Tree Ordering System once it is operational. It is not available as a one-for-one exchange as local medical facilities.

	STAFFORD COUNTY FIRE AND RESCUE DEPARTMENT **INTERIM MEDICAL DIRECTIVE**	
	NUMBER: 2022-003	**DATE:** March 8, 2022
	ISSUED BY: Robert E. Fines, MD, FACEP Operational Medical Director	Robert E Fines
	SUBJECT: Atrial Fibrillation/Atrial Flutter	
	SUPPLEMENT MEDICAL PROTOCOLS/PROCEDURES: Medical Protocols-Section II, Adult Tachycardia with a Pulse Algorithm	

PURPOSE:
To provide supplement direction to the Rappahannock Emergency Medical Service (REMS) Patient Care Protocol- Adult Tachycardia with a Pulse Algorithm. This directive outlines the treatment of Atrial Fibrillation and Atrial Flutter for Stafford County EMS Clinicians.

DEFINITION:
Atrial Fibrillation (A-Fib) is a narrow complex tachycardia that is irregularly irregular. A-Fib may cause syncope, orthostatic hypotension, or hypotension due to loss of atrial kick. Rate related signs and symptoms usually occur at rates greater than 150 beats per minute (bpm).

Chronic A-Fib is the most common dysrhythmia seen in patients over 65 years old. In these patients, A-Fib is generally well tolerated, and the ventricular rate is controlled. Chronic A-Fib with rapid ventricular rate may be due to medication non-compliance or other underlying illnesses including fever, infection, ischemia, PE, etc.

New onset A-Fib with rapid ventricular response are the most clinically relevant.

Atrial Flutter (AF) is similar to A-Fib; the atria beat regularly, but faster than usual and more often than the ventricles, there may be four atrial beats to every one ventricular beat. Atrial flutter is less common, but has similar symptoms (feeling faint, tiredness, palpitations, shortness of breath or dizziness). About a third of people with atrial flutter also have atrial fibrillation.

A-Fib and AF are treated the same in the prehospital setting. The prehospital care goals are to identify the tachycardic rhythm, classify as stable or unstable, and treat accordingly.

ASSESSMENT: <u>BLS</u>
- Perform patient assessment. Obtain vital signs and blood glucose.
- Ensure oxygenation, and monitor NIBP, HR, RR, SpO_2, and $ETCO_2$.
- Place patient on cardiac monitor, attached . Obtain a 12 lead EKG and transmit to the receiving facility.

<u>ALS</u>
- Establish vascular access
- Identify the tachycardic rhythm: A-Fib or AF with ventricular rate greater than 150 bpm
- Classify as stable or unstable:
  Stable: Conscious/alert, SBP >90mm Hg, MAP >65mm Hg
  Unstable: Altered mental status, hypotension, shock, ischemic chest pain/discomfort, dizzy, skin is pale, cool or diaphoretic, dyspnea, tachypnea

TREATMENT:

Stable: Diltiazem (Cardizem) 0.25 mg/kg IV/IO (max of 20 mg) over 2 minutes. If patient is >70 years of age, reduce the bolus by ½. If rate does not slow within 15 minutes, administer Diltiazem 0.25 mg/kg IV/IO (max of 20 mg).

If Diltiazem is not available:

Metoprolol (Lopressor) 5 mg slow IV/IO push, repeat every 5 minutes to a max. dose of 15 mg to achieve a desired heart rate of less than 120.

Unstable: If patient is conscious, administer Versed 2mg IV/IO/IN/IM slow, do not delay cardioversion if patient is extremely unstable.

Deliver Synchronized Cardioversion 100 J, if refractory, increase energy to 150 J, 200 J as needed.

NOTES:

- Monitor and document NIBP, HR, RR, SpO_2, and $ETCO_2$ after each medication administration and synchronized cardioversion.
- Patients requiring synchronization should have the Physio Control therapy cables, and limb leads attached to the patient.
- Ensure the SYNC Button is activated for each synchronized cardioversion.
- Diltiazem, Metoprolol and Synchronized Cardioversion are considered Standing Orders for EMT-I and EMT-P clinicians.

	STAFFORD COUNTY FIRE AND RESCUE DEPARTMENT **INTERIM MEDICAL DIRECTIVE**
	NUMBER: 2022-004 — **DATE:** March 8, 2022
	ISSUED BY: Robert E. Fines, MD, FACEP Operational Medical Director — Robert E Fines
	SUBJECT: Continuous Pulmonary Airway Pressure (CPAP)
	SUPPLEMENT MEDICAL PROTOCOLS/PROCEDURES: Medical Protocols-Section II, Medical-Respiratory Distress/Asthma/COPD/Coup/Reactive Airway

PURPOSE:
To provide supplement direction to the Rappahannock Emergency Medical Service (REMS) Medical-Respiratory Distress/Asthma/COPD/Coup/Reactive Airway Patient Care Protocol. This directive outlines the use of Continuous Pulmonary Airway Pressure (CPAP) for Stafford County EMS Clinicians.

DEFINITION:
CPAP is a noninvasive positive pressure ventilation device for patients with for Asthma, Chronic Obstructive Pulmonary Disease (COPD) and Congestive Heart Failure (CHF). CPAP has drastically reduced the length of hospitalization stays and those who would have required intubation.

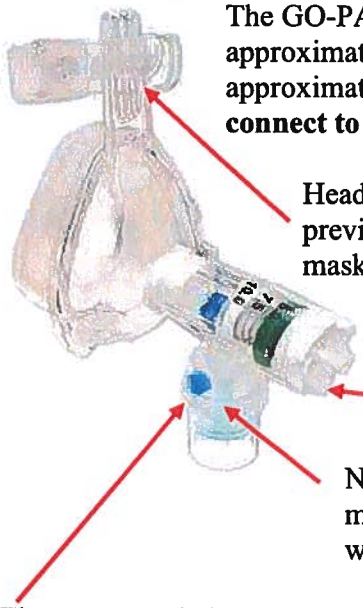
The department is switching to the Pulmodye GO-PAP CPAP Device. The GO-PAP is a disposable CPAP device, uses 10LPM of oxygen and delivers approximately 30% FiO2, at 5, 7.5 or 10cm of PEEP. Its use is further explained under **GO-PAP INFORMATION** below.

INDICATIONS
- Adult Use Only
- CPAP should be applied for moderate to severe respiratory distress due to Asthma. COPD or CHF.
  - Asthma: Refractory to inhaled beta-agonists (MDI/NEB), shortness of breath with wheezing or decreased air entry, accessory muscle use and/or tripod positioning, cyanosis, mottled skin, nasal flaring, and retractions.
  - CHF: Rales/rhonchi, hypoxia, tachypnea, peripheral edema, jugular venous distention (JVD), ascites, orthopnea and/or frothy sputum.
  - COPD: Smoking history, pursed lip breathing, cyanosis/red face, dyspnea on exertion, chronic barrel chest.
- Moderate to severe respiratory distress.
  - Increased work of breathing: retractions, rate greater than 30, unable to speak in full sentences.
  - Abnormal lung sounds: bilateral rales (at least half-full), diffuse wheezes, diminished breath sounds.
  - Respiratory insufficiency: O2 saturation less than 94% on 10 lpm, less than 90% on room air.

CONTRAINDICATIONS
- Inability to protect airway: decreased LOC, vomit/secretions, decreased cough/gag, unable to hold head up.
- Inadequate respiratory drive: cardiac/respiratory arrest, respiratory rate less than 10.
- Pneumothorax.
- SBP < 90 mmHg or MAP < 70 mm Hg

- Gastric distension.
- Inability to fit or tolerate mask.
- Respiratory distress related to allergic reaction

GO-PAP INFORMATION



The GO-PAP is supplied by a standard oxygen bared outlet at 10LPM and delivers approximately 90LPM at 30% FiO2. With a full D size oxygen cylinder, you have approximately 40 minutes of run time with this device. **The GO-PAP does not connect to the 50 psi DISS Fitting on the portable oxygen cylinder.**

Headgear: The Go-PAP uses the same head gear as the O2-Max CPAP previously used and includes the Omni Clip which allows you to adjust the mask in, out, up and down to fit the patient.

Adjustable PEEP Valve: 5, 7.5, or 10cm H2O PEEP, is independent of the oxygen flow, do not have to adjust the oxygen to maintain PEEP levels.

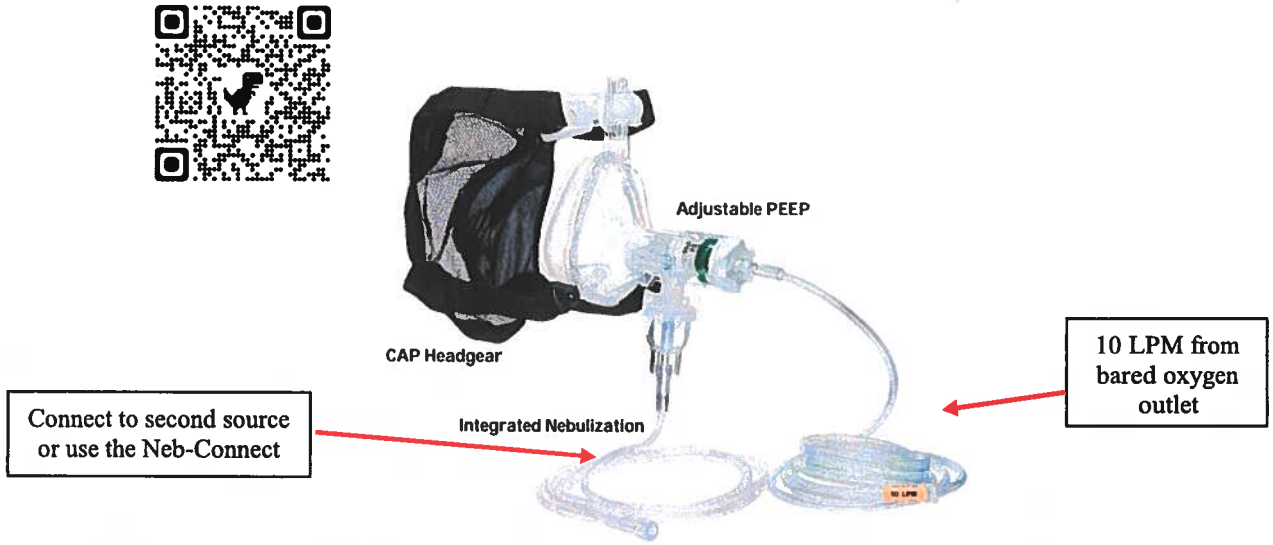
Nebulization Inlet: GO-PAP offers an integrated nebulization inlet while maintaining a consistent flow to the patient. You can use the CPAP with or without a nebulizer.

The accompanied nebulizer has a port you can inject medications without detaching the nebulizer from the CPAP. All common nebulizers can be attached to this CPAP.

Neb-Connect: The Neb-Connect is an attachment that connects to the 50 psi DISS Fitting on the portable oxygen cylinder, and allows you to connect the nebulizer tubing to an oxygen source since the CPAP is already connected to the bared oxygen outlet. You simply open the white valve to flow oxygen to the nebulizer.

Neb-Connect™

For more information go to https://www.pulmodyne.com/product/go-pap or select QR Code.



PROCEDURE

- Connect and monitor end-tidal CO2 cannula (sidestream capnography).
- Connect CPAP to bared oxygen source and select 10 LPM oxygen flow.
- Fit patient with CPAP mask, coaching techniques can assist in alleviating fear associated with placing a mask on a patient's face who is in respiratory distress. Allowing patient to hold mask in place prior to engaging headgear straps may assist.
- Titrate PEEP to 7.5 or 10.0 cm H2O if needed, until signs of clinical improvement are observed.
- Evidence of clinical improvement includes:
    - Improved heart rate, respiratory rate, oxygen saturation and capnography.
    - Decreased work of breathing.
    - Patient reports improvement in dyspnea and/or you observe increase in verbal communication.

Closely monitor CPAP administration and immediately discontinue if the patient's status worsens to include:

- Can no longer protect their airway.
- Fails to maintain an adequate respiratory drive.
- Develops hypotension SBP < 90mm Hg.
- Unable to tolerate the CPAP despite reasonable efforts.

If no improvement, switch to BVM respiratory assistance.

Any interruptions in CPAP should be brief. If, for example, nitroglycerin therapy is indicated at least two providers should be present to efficiently coordinate mask removal, medication administration, and mask replacement. Consider applying Nitropaste during CPAP Use.

NOTES:

- CPAP application is a Standing Order for EMT, AEMT, EMT-I and EMT-P clinicians.
- Clinicians should administer CPAP immediately and not wait until the patient has been transferred to the transport unit.
- Critical patients can become dependent on CPAP and clinicians shall not withdraw CPAP without alternative therapies to sustained their condition.
- Notify ED early for appropriate transition to hospital staff.
- GO-PAP CPAP will be added to the oxygen or airway bag as we standardize the EMS Bags.
- GO-PAP CPAP will be added to FacilityDude and the Bound Tree EMS Online Ordering System.

	STAFFORD COUNTY FIRE AND RESCUE DEPARTMENT **INTERIM MEDICAL DIRECTIVE**	
	NUMBER: 2022-005	**DATE:** March 8, 2022
	ISSUED BY: Robert E. Fines, MD, FACEP Operational Medical Director	Robert E Fines
	SUBJECT: Determination of Dead on Arrival (DOA)	
	SUPPLEMENT MEDICAL PROTOCOLS/PROCEDURES: Administrative Protocols-3.4 Death (DOA) Management, 3.4.2 Management	

PURPOSE:
This policy outlines the determination of patients that meet the Dead-on-Arrival (DOA) criteria for Stafford County EMS Clinicians.

POLICY:
Under select circumstances, it is reasonable and appropriate for EMS Clinicians to determine when resuscitative efforts can be withheld. For patients who meet the criteria below, resuscitative efforts can be withheld and the patient pronounced DOA.

DEFINITIONS:
Dependent Lividity: Settling of blood in gravity-dependent portions of the body (back/buttocks) causing a purplish red discoloration of the skin. It starts twenty minutes to three hours after death, with maximum lividity occurring in 6 to 12 hours.

Rigor Mortis: Stiffening of muscles in the body. It begins approximately three to four hours after death and is first observed in the muscles of the face and jaw.

INDICATIONS:
Indications for withholding resuscitation efforts include:

- Confirmation of a valid Virginia Durable Do Not Resuscitate (VDDNR), other authorized DNR orders following the Office of EMS regulations, and the REMS DNR Protocol, or;

- Conditions incompatible with life:
  - Decomposition
  - Decapitation
  - Incineration

- Signs of non-recent death
  - Dependent Lividity
  - Rigor Mortis

If resuscitative efforts have begun before the arrival of EMS Clinicians and the patient meets the criteria for withholding resuscitation, efforts can be discontinued.

CONTRAINDICATIONS:
Resuscitative efforts shall not be withheld in the following circumstances:

- Cardiac arrest with hypothermia or cold-water immersion.
- Cardiac arrest with electrical injury (electrocution), including those struck by lightning.
- Patients in third-trimester pregnancy

PROCEDURE:

Clinicians shall confirm the patient is unresponsive, apneic, pulseless.

Assessment shall include:

- Pupils do not respond to light.
- Absence of apical heart activity by auscultation or ultrasound (if available)
- ECG confirms no electrical activity (Asystole) in Leads II & III (if ALS is available).

EXCLUSION: Patients with a VDDNR, other authorized VAOEMS DNR; and those that are decomposed, decapitated or incinerated.

DOCUMENTATION:

The following shall be documented in the patient's ePCR:

- Patient assessment findings - unresponsive, apneic, pulseless, dependent lividity, rigor mortis, and any other significant clinical findings.
- Pupillary function
- Apical heart sounds
- Heart rhythm in Leads II & III (if ALS)
- Time of pronouncement of death
- Name of law enforcement officer body transferred to

NOTE:

- Patients with an implantable pacemaker may continue to generate organized ECG complexes after death and until the pacemaker is deactivated.
- After death, the body's temperature remains unchanged for up to three hours; relying on the body's temperature to determine time of death is unreliable.
- Consult with law enforcement before moving or covering the body. Using hospital linens can potentially contaminate crime scenes however protecting the body from public view needs to be considered.
- Offer counseling and related assistance as needed.

	STAFFORD COUNTY FIRE AND RESCUE DEPARTMENT **INTERIM MEDICAL DIRECTIVE**
	NUMBER: 2022-006 — **DATE:** September 2, 2022
	ISSUED BY: Robert E. Fines, MD, FACEP Operational Medical Director
	SUBJECT: Smoke Inhalation
	SUPPLEMENT MEDICAL PROTOCOLS/PROCEDURES: Section VII, SCFRD Interim Medical Directives

PURPOSE:
To provide supplement direction to the Rappahannock Emergency Medical Service (REMS) Patient Care Protocol- Injury Burns. This directive outlines additional treatment for smoke inhalation, including carbon monoxide (CO) and/or cyanide poisoning patients for Stafford County EMS Clinicians.

DEFINITION: CO is an odorless, colorless gas that can cause sudden illness and death. CO is found in combustion fumes, such as those produced by cars and trucks, small gasoline engines, stoves, lanterns, burning charcoal and wood, gas ranges and heating systems. CO from these sources can build up in enclosed or semi-enclosed spaces.

Criteria: Patients who have been exposed to a smoke-filled environment, exposed to high level of carbon monoxide and/or may have cyanide poisoning	
B	Remove patient to safe environment. Monitor patient's SpO2, ETCO2 and SpCO level. Administer high concentration O2 via NRB mask. Obtain blood glucose level
A	Establish IV access – fluid resuscitation shall be administered to maintain a systolic BP as per REMS Medical Protocol. Administer Albuterol 2.5 mg and Atrovent 0.5 mg via nebulizer if dyspnea or wheezing occurs (all ages). Adults Only: Consider CPAP in moderate to severe cases.
I	Severe symptoms, administer 5g Hydroxocobalamin Cyanokit, repeat once (if needed). (Pediatric dose 70mg/kg, max dose 5g). Refer to Medication Reference 18.5 Hydroxobalamin (Cyanokit) Infusion for further direction Initiate advanced airway management as dictated by patient presentation. Obtain a 12 Lead ECG: Patients with ECG ischemic changes, unconsciousness, respiratory or cardiac arrest with ROSC may benefit from Hyperbaric Oxygen (HBO) therapy. Also refer to the Injury-Burns Protocol for patients with thermal inhalation injuries. On-line Medical Control can be consulted for destination determination.

Medication Summary:

Albuterol 2.5 mg and Atrovent 0.5 mg via nebulizer

Hydroxocobalamin (Cyanokit): 5g Repeat once (if needed) (Pediatric dose 70mg/kg, max dose 5g). Refer to Medication Reference 18.5 Hydroxobalamin (Cyanokit) Infusion for further direction

Notes:

Patients exposed to exhaust from gasoline operated vehicles and appliances (portable generators) are at a high-risk for CO poisoning, especially enclosed spaces. Charcoal operate grills can also produce large level of CO in enclosed spaces.

CO poisoning can be difficult to detect. SpO2 readings may be unreliable. The LifePak monitor, using the Masimo Carboxyhemoglobin (SpCO) Cable/Sensor should be utilized for the assessment of SpCO levels.

SpCO %	Clinical Manifestations
0-4%	None – Normal
5-9%	Minor Headache
10-19%	Headache, Shortness of Breath
20-29%	Headache, Nausea, Dizziness, Fatigue
30-39%	Severe Headache, Vomiting, ALOC
40-49%	Confusion, Syncope, Tachycardia
50-59%	Seizures, Shock, Apnea, Coma
60% -up	Coma, Death

Treat symptomatic CO exposure patient regardless of measured SpCO 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.

CO 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.

Consider CO poisoning in cases of multiple patients from the same environment with similar symptoms/complaints. Suppression/Hazmat resources should be requested to determine atmospheric conditions.

Patients who smoke may have consistent carboxyhemoglobin levels as high as 10%.

Cyanide poisoning may also be present in victims of smoke inhalation, exposure to cyanide based products/chemicals (jewelry cleaners) and can present with similar symptoms. Cyanide poisoning should be considered for smoke inhalation victims who present with exposure to smoke in an enclosed area, soot present around the face and oropharynx, and an altered mental status. Patients exposed to exhaust from gasoline operated vehicles and appliances (portable generators) are at a low-risk for cyanide positioning.

Patients that continue to cough, produce sputum with noted voice changes should be accessed for inhalation thermal injuries.

	STAFFORD COUNTY FIRE AND RESCUE DEPARTMENT **INTERIM MEDICAL DIRECTIVE**
	NUMBER: 2023-001 — **DATE:** January 1, 2023
	ISSUED BY: Robert E. Fines, MD, FACEP Operational Medical Director
	SUBJECT: Blood Administration Protocol
	SUPPLEMENT MEDICAL PROTOCOLS/PROCEDURES: Section II Medical Protocols: Hypotension/Shock Non-Trauma, Section III Trauma Protocols: Bleeding/Hemorrhage Control, and Section VI Medication Reference

PURPOSE
This protocol outlines how blood will be administered by Stafford County ALS Clinicians.

POLICY
Authorized Paramedic level ALS Clinicians may administer blood to patients who meet the criteria as outline in this Interim Medical Directive (IMD).

Clinicians shall refer to General Order 2023-001 *Blood Administration* for administrative and operational requirements; and to EMS Training Bulletin 2023-001 *Blood Administration* for specific equipment specifications and step-by-step instructions.

DEFINITION
Shock Index: Shock index (SI) is an indicator of the severity of hypovolemic shock and is calculated by dividing the heart rate (HR) by systolic blood pressure (SBP). A normal SI is 0.5 to 0.7 in healthy adults. Indications for blood administration require a SI of ≥ 1.0.

PATIENT CRTERIA
- Hemodynamically unstable trauma or medical patient with signs/symptoms (tachycardia, hypotension, decrease distal pulses, pallor, and altered mental status) consistent with hemorrhagic shock **and,**
- Patient's SI ≥ 1.0.

CLINICAL CONSIDERATIONS
Clinicians are encouraged to consult online medical control for patients that do not meet the specific patient criteria yet may warrant blood administration.

Conscious patients should be informed for the reason for blood administration, its benefits, risks and give their verbal consent (see Appendix A, Page 3). Blood may be administered using implied consent if the patient is incapable of providing consent.

CONTRIDICATIONS
Cardiac Arrest
Injuries incompatible with life
Patient Refusal

PATIENT PREPARATION
EMS Clinicians shall:

- Perform a rapid assessment to determine criteria for blood administration and request EMSS.
- Document initial set of vital signs including temperature.
- Establish two large bore IVs and identify the largest IV for infusing blood
  Blood can be administered through an IO however the flow rate is comparably slower than through an IO.
- Attach IV Extension Tubing between the IV Catheter and Blood Y Administration Set. The IV Extension will allow connection for the Qinflow Compact Disposable Unit (CDU).
- Do not delay transport while waiting on the EMSS, unless preparing for air-medical transport.

INSPECTION

An authorized ALS Clinician shall:

- Check that the blood type is O-Positive Blood
- Check the expiration date to ensure the blood is in date
- Check the Hemo-Trac Blood Temperature Indicator is displaying **Green**.
  If the Hemo-Trac Blood Temperature Indicator is displaying **Blue** it shall not be used.
- Record or remove a Blood W Number or label.

SETUP

Option 1: Blood administration using Standard Blood Y Administration Set with Pressure Infuser Bag

Option 2: Blood administration using LifeFlow Infuser with LifeFlow Blood Y Administration Set. The LifeFlow Infuser with LifeFlow Blood Y Administration Set shall be used for all pediatric patients who require defined dose amounts, or when administering blood through an IO.

Refer to EMS Training Bulletin 2023-001 *Stafford County Fire and Rescue Department (SCFRD) Blood Program* for step-by-step instructions.

Blood shall never be infused without being warmed with the Qinflow Warrior Base Unit and infusing through a Qinflow CDU.

DOSAGE

Adult: 1 unit Type O-Positive Blood IV rapidly administer, reassess and document vital signs. If patient remains hemodynamically unstable as defined under patient criteria then rapidly administer a second unit of blood, reassess and document vital signs.

Pediatric:10cc/kg Type O-Positive Blood IV rapidly administer, reassess and document vital signs. If patient remains hemodynamically unstable as defined under patient criteria then rapidly administer a second 10cc/kg of blood, reassess and document vital signs.

ADMINISTRATION

Check filter and tubing for adequate blood flow and absence of clot formations. If clot formation is noted or rate slows, discontinue administration and exchange with a new blood Y administration set and QuinFlow CDU.

Verify the Qinflow system warms to the set-point temperature and check the LCD display to verify normal operation. Check the LCD display following any audible notification (short or steady beep.)

Medication should not be administered through the same IV line as whole blood.

ALLERGIC REACTION
Allergic reactions may be seen in up to 1% blood transfusions. Transfusion reactions can range from mild to life-threatening events. If a patient displays signs and symptoms suggesting an Allergic Reaction the blood infusion should be stopped and disconnected. Clinicians should follow established protocols for allergic reactions or consult online medical control.

COMPLETION
Flush blood Y administration set with a small amount of Normal Saline after blood administration.

PATIENT TRANSFER
The Qinflow Warrior Base Unit or CDU is not interchangeable with devices used by air-medical services or local medical facilities. The Qinflow Warrior Base Unit or CDU shall not be loaned to air-medical services or left at the medical facility.

Blood W Numbers shall be relayed to referring air-medical services and medical facilities during patient transfer.

DOCUMENTATION
ESO Electronic Health Record (EHR)

- Under FlowChart-Blood Tab: dose (ml), route, clinician's name, patient's response and any complications. Under Comments document *Low Titer O Positive Whole Blood (LTOWB)* with the Blood W Number.
- Under Vital Sign Tab: BP, HR, RR, Sp02, GCS and Temperature recorded every 5 minutes.
- Under Narrative Tab: Document if verbal consent was obtained

Appendix A
Conscious patients should be informed for the reason for blood administration, its benefits, risks and give their verbal consent

Reason: Blood administration is provided to replace or increase the amount of blood in your body when you have been bleeding. Based upon your vital signs, and other signs/symptoms it appears you have loss a large amount of blood and it is life-threatening.

Benefits: Blood administration may correct low levels of blood components in your body, and may sustain your life. In some cases, failure to receive blood transfusion(s) may result in death.

Risks-Hemolytic Reaction (ABO Incompatibility): This is highly unlikely given that this is Type O Positive Blood and the short transport time. Some may have a small reaction if titers of Rh antigen is higher than anticipated.

Risks-Allergic or Febrile Reaction: Allergic Reactions may be seen in up to 1% of transfusions. Transfusion reactions can range from mild to life-threatening events. Transfusion reactions can rarely be fatal. The incidence of such fatal reactions varies from (~1 in 600,0001 to ~1 in 2,300,000).

Risks-Transmission of diseases:
Hepatitis B (~1 in 1,000,000) Hepatitis C (~1 in 1,200,000) HIV/AIDS (~1 in 1,500,000)

PRE-HOSPITAL PATIENT CARE PROTOCOL

MEDICATION REFERENCE

Section VI

BASIC LIFE SUPPORT/ADVANCED LIFE SUPPORT
MEDICATIONS REFERENCE

APPROVED AUGUST, 2022

Stafford County Fire and Rescue
Department

Adenosine

Mechanism of Action
Slow conduction through the AV node, thereby terminating reentry tachydysrhythmias such as SVT and restoring normal sinus rhythm.

Indications/Dosage
Adult Tachycardia/SVT: 6 mg, second dose 12 mg
Pediatric Tachycardia/SVT: 0.1 mg/kg, (max first dose is 6mg), second dose 0.2 mg/kg, (max second dose is 12 mg)

Concentration
6 mg/2 ml Vial

Route of Administration
Rapid IV/IO bolus (administered over a 1-2 second period) followed by 20 ml saline flush.

Contraindications
Second- or third-degree block

Precautions
Higher doses of adenosine are likely to be needed for patients receiving theophylline
Lower doses (3 mg or less) should be used in patients receiving Persantin
Extra caution should be used in patients receiving Tegretol, which could potentiate AV block adenosine

Side Effects
Facial flushing, coughing, dyspnea
Chest discomfort (may simulate angina)
Marked slowing of the heart rate (transient asystole may occur)

Albuterol (Proventil)

Mechanism of Action
Relaxes bronchial smooth muscle, and decreases airway resistance; suppresses the release of histamine.

Indications/Dosage
Respiratory Distress/Asthma/COPD/Croup/Reactive Airway: 2.5 mg, may repeat up 3 times
Pediatric < 2 years of age: 1.5 mg diluted with 2 cc Normal Saline.
BLS Clinician Approved Medication/Procedure

Chemical Extrication and/or Crush Syndrome:
If ECG indicates moderate to severe hyperkalemia (slow, weak pulse, prolonged PR interval, widen QRS, peaked T-Waves) administer 100 mEq Sodium Bicarbonate, 1 g Calcium, and 10-20mg (4-8 bullets) nebulized Albuterol over 15-20 minute. See Injury-Multisystem Protocol for additional directions.

Concentration
Albuterol 2.5 mg/3 cc Bullet

Route of Administration
Nebulized:

Contraindications
Hypersensitivity to the drug
Tachydysrhythmias

Precautions
Patients with underlying CAD or preexisting arrhythmias are at greater risk of myocardial ischemia and arrhythmias.

Use caution in patients receiving MAO inhibitors (Deprenyl, Seliginine, Eldepryl, Parnate, and Iproniazid) or TCAs (Amitriptyline, Desipramine).

Maybe ineffective in patients taking beta-blockers.

Side Effects
Palpitations/tachycardia
Muscle tremors
Nausea
Dizziness.
Hypokalemia in patients using cardiac glycosides (Digoxin) and diuretics.

Amiodarone

Mechanism of Action
Blocks sodium channels and exerts a non-competitive antisympathetic action. Produces a negative chronotropic effect in nodal tissues. Blocks potassium channels, which contributes to the slowing of conduction and prolongation of refractoriness. Its vasodilatory action can decrease cardiac workload and consequently myocardial oxygen consumption.

Indications/Dosage
Adult Cardiac Arrest: 1st Dose: 300 mg, 2nd Dose: 150 mg
Pediatric Cardiac Arrest: 5 mg/kg, may repeat two times for refractory VF/pulseless VT

Adult Stable Wide-QRS Tachycardia/VT: 150 mg over 10 minutes, repeat as needed if VT recurs. Follow with a maintenance infusion of 1 mg/min (see 4.1 Amiodarone Infusion)

Concentration
900 mg/18 cc Vial (protect from light)

Route of Administration
IV/IO

Contraindications
Cardiogenic shock, marked sinus bradycardia, 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 the risk of hypotension and bradycardia.
Amiodarone inhibits atrioventricular conduction and decreases myocardial contractility, increasing the risk of AV block with Verapamil or Diltiazem or hypotension with any calcium channel blocker. Use caution in pregnancy and with nursing mothers.

Side Effects
Fever
Bradycardia,
CHF
Cardiac Arrest
Hypotension
VT
Nausea

Amiodarone Infusion

Mechanism of Action
Blocks sodium channels and exerts a non-competitive antisympathetic action. Produces a negative chronotropic effect in nodal tissues. Blocks potassium channels, which contributes to the slowing of conduction and prolongation of refractoriness. Its vasodilatory action can decrease cardiac workload and consequently myocardial oxygen consumption.

Indications/Dosage
Adult Stable Wide-QRS Tachycardia: Amiodarone 150mg over 10 minutes

Adult Cardiac Arrest with ROSC: If VT or VF during their cardiac arrest and are having ventricular ectopy in ROSC begin Amiodarone 150mg over 10 minutes.

Directions
Add Amiodarone 150 mg (3 cc) to 100 cc D5W = 1.5mg/cc.
150mg over 10 minutes = 150 qtts/min using a 15 qtts/cc administration set
DO NOT MIX WITH NORMAL SALINE

Concentration
900 mg/18 cc Vial (50mg/cc) (protect from light)

Route of Administration
IV

Contraindications
Cardiogenic shock, marked sinus bradycardia, 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 the 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 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.

Aspirin

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

Indication/Dosage
Chest pain consistent with AMI: Four (4) 81 mg chewable tablets if the patient has not taken > 160 mg of Aspirin in the preceding four hours**.**
BLS Clinician Approved Medication/Procedure

Concentration
Aspirin 81 mg Chew Tablets

Route of Administration
PO

Contraindications
Active ulcer disease
Asthma

Precautions
Do not exceed 324 mg concurrent to patient's intake
Use caution in patients with bleeding disorders. Anticoagulants increase the risk of bleeding.

Side Effects
Tinnitus
Nausea
GI distress
Dyspepsia
GI bleeding

Atropine

Mechanism of Action
Atropine produces antispasmodic, antisecretory, and cardiovascular effects by blockage of acetylcholine at cholinergic receptor sites. Atropine inhibits the effects of the parasympathetic nervous system. It is a positive chronotropic with little inotropic effects.

Indications/Dosage
Adult Bradycardia: 1 mg bolus, repeat every 3-5 minutes, max. 3 mg
Pediatric Bradycardia: 0.02 mg/kg. may repeat once, min. dose is 0.1 mg and max. single dose is 0.5 mg.

Adult Organophosphate Poisoning: 2 mg IV/IO/IM q 5 minutes to max. dose of 6 mg. (If Mark I or DuoDote Auto-Injectors are not available)
Pediatric Organophosphate Poisoning: 0.04 mg/kg

Concentration
1 mg/10 cc Prefilled Syringe

Route of Administration
IV/IO

Contraindications
None in the emergency setting.

Precautions
Use caution in patients with acute MI, second-degree (Mobitz type II), or third-degree AV block. Atropine is ineffective for heart transplant patients.

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

Atrovent (Ipratropium Bromide)

Mechanism of Action
Is an anticholinergic (parasympatholytic) agent, which causes localized bronchodilation, is indicated for relief of bronchospasm associated with asthma and COPD, including chronic bronchitis and emphysema that is unresponsive to treatment with Albuterol alone.

Indications/Dosage
Respiratory Distress/Asthma/COPD/Croup/Reactive Airway: 0.5mg
BLS Clinician Approved Medication/Procedure

Concentration
Albuterol 0.5mg/2.5 cc Bullet

Route of Administration
Nebulized

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.

Calcium Chloride

Mechanism of Action
Causes a significant increase in the myocardial contractile force and appears to increase ventricular automaticity

Indications/Dosage
Adult Cardiac Arrest due to Hyperkalemia or Calcium Channel Blocker Overdose: 1 g, administer IV/IO slow over 5 minutes*

Pediatric Cardiac Arrest-due to Hyperkalemia: 20 mg/kg, max dose 1 g.*

*Only used in cardiac arrest when hyperkalemia is suspected as the cause of the cardiac arrest.

Chemical Extrication and/or Crush Syndrome:
If EKG indicates moderate to severe hyperkalemia (slow, weak pulse, prolonged PR interval, widen QRS, peaked T-Waves) administer 100 mEq Sodium Bicarbonate, 1 g Calcium and 10-20mg nebulized Albuterol over 15-20minute. See Injury-Multisystem Protocol for additional directions.

Calcium should not be given in the same IV line with Sodium Bicarb or Blood Products.

Concentration
1 g/10 cc Syringe

Route of Administration
IV/IO: Administer IV/IO slow over 5 minutes.

Contraindications
None when used to treat magnesium sulfate or calcium channel blocker overdose.

Standard contraindications for calcium chloride include VF, digitalis toxicity, and hypercalcemia.

Precautions
Not compatible with sodium bicarbonate, do not administer in the same IV/IO line.

Side Effects
Bradycardia
Peripheral vasodilatation
Local tissue necrosis with IV infiltration
Hypotension
Metallic taste

Dextrose 10% (D10)

Mechanism of Action
Increases circulating blood sugar levels.

Indications/Dosage
Adult AMS and BGL < 60: Administer 100 cc, repeat after 2 minutes if symptoms not resolved
Pediatric AMS and BGL < 60: 5 cc/kg
Neonatal (< 30 days) BGL < 60: 2 cc/kg

Advanced Practice Clinician Only: Crush Syndrome: Contact Online Medical Control

Concentration
10% (D10) 25 gm/250 cc Bag

Route of Administration
IV/IO

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

Precautions
Obtain baseline glucose level. Ensure IV site is patent prior to administration. Flush vein after administration.

Side Effects
Tissue necrosis if infiltration occurs.

Diltiazem (Cardizem)

Mechanism of Action
Calcium channel blocker. Decreases automaticity in the senatorial (SA) node and prolong 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 SVT, Diltiazem interrupts reentry in the AV node and restores normal sinus rhythm. Decreases ventricular responses rate in atrial fibrillation and flutter.

Indications
Narrow complex tachycardia arrhythmias with rapid ventricular rate to include Atrial Fibrillation (A-Fib) and Atrial Flutter (AF).

Indications/Dosage
Stable A-Fib/AF (SBP >130): Diltiazem (Cardizem) 0.25 mg/kg IV/IO (max of 20 mg) over 2 minutes.

If patient is >70 years of age, reduce the bolus by ½.

If rate does not slow < 120 bpm within 15 minutes, repeat Diltiazem 0.25 mg/kg IV/IO (max of 20 mg).

Concentration
If SBP is <130 administer Metoprolol (see Medication Reference 27.0)

Route of Administration
IV/IO

Contraindications
Hypotension
Bradycardia
Patients who present in CHF
History of Wolf-Parkinson-White (WPW) Syndrome

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

Side Effects
Hypotension
Bradycardia
Worsening CHF
2nd or 3rd degree AV block

Diphenhydramine (Benadryl)

Mechanism of Action
H1 selective histamine blocker.

Indications/Dosage
Adult Minor Allergic Reaction: 25-50 mg
Pediatric Minor Allergic Reaction: 1 mg/kg, max. dose is 50 mg

Adult Behavior/Patient Restraint: 25 mg
Pediatric Behavior/Patient Restraint: 1 mg/kg, max. single dose is 25 mg.

Dystonic Reaction: 25 mg

Concentration:
50 mg/ 1cc Vial

Route of Administration
IV/IO/IM

Contraindications
Angle-closure glaucoma
Asthma

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

Side Effects
Sedation
Disturbed coordination
Dizziness
Blurred or double vision
Hypertension
Headache
Drowsiness
Tremors
Palpitations
Nausea

Dopamine Infusion

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

Indications/Dosage
Adult ROSC: 5-10 mcg/kg per minute IV infusion.

Adult Allergic Reaction AMS and SBP < 90: 5-20 mcg/kg/min

Adult Bradycardia, Chest Pain SBP < 90: 5-20 mcg/kg/min

Directions
Infusion: Add 400 mg Dopamine to 250 cc D5W or Normal Saline = 1600 mcg/cc.

Pt Weight	40kg	50kg	60kg	70kg	80kg	90kg	100kg	110kg
2mcg/kg/min	3qtts/min	4qtts/min	5qtts/min	5qtts/min	6qtts/min	7qtts/min	8qtts/min	8qtts/min
5mcg/kg/min	8qtts/min	9qtts/min	11qtts/min	13qtts/min	15qtts/min	17qtts/min	19qtts/min	21qtts/min
10mcg/kg/min	16qtts/min	18qtts/min	22qtts/min	26qtts/min	30qtts/min	34qtts/min	38qtts/min	42qtts/min
20mcg/kg/min	32qtts/min	36qtts/min	44qtts/min	52qtts/min	60qtts/min	68qtts/min	76qtts/min	84qtts/min

Drops (qtts) per minute using a 60 gtt/cc administration set.

Concentration
400 mg/250 cc Bag = 1600 mcg/cc

Route of Administration
IV/IO

Contraindications
Tachydysrhythmias or ventricular fibrillation

Precautions
MAO inhibitors will increase alpha effects.

Side Effects
Ectopic beats, tachycardia, palpitations
Nausea, vomiting
Angina
Headache
Localized tissue necrosis if IV infiltrates

Epinephrine

Mechanism of Action
Potent catecholamine with both alpha and beta properties. Increase myocardial and cerebral blood flow during CPR. Increased contractile force, heart rate, and automaticity.

Indications/Dosage
Adult Allergic Reaction or Respiratory Distress/Asthma/COPD/Croup/Reactive Airway:
0.3 mg IM (1:1,000)

Pediatric Allergic Reaction, Respiratory Distress/Asthma/COPD/Croup/Reactive Airway:
0.01 mg IM (1:1,000), max. dose is 0.3 mg.

Adult Severe Allergic Reaction: 0.3 mg IV (1:10,000)

Adult Cardiac Arrest: 1 mg IV/IO every 3-5 minutes
Pediatric Cardiac Arrest or Bradycardia: 0.01 mg/kg IV/IO, every 3-5 minutes.

Adult Pulmonary Edema/CHF: Epinephrine push pressor 5-20 mcg, q 3-5 minutes

Adult/Pediatric Croup, ARDS, or Status Asthmaticus: 3 cc Racemic Epinephrine 1:10,000 diluted with 3 cc Normal Saline via nebulizer. (adult and pediatric)

Adult Severe Allergic Reaction, Chest Pain, Medical-Hypotension or TBI with SBP <90:
5-20 mcg Epinephrine Push Pressor.

Adult TBI (Unresponsive or presenting with GCS at or <12):
5-20 mcg Epinephrine Push Pressor. Titrate for MAP > 65

Directions:
Epinephrine Push Pressor: Mix 1 cc (1:10,000) Epinephrine in 9 cc of Normal Saline (10 mcg/cc), administer 0.5-2 cc every 2-5 minutes = 5-20 mcg

Concentration
1 mg/10 cc (1:10,000) Pre-Filled Syringe
1 mg/1 cc (1:1,000) Ampule

Route of Administration
IV/IM/IO/Nebulized

Contraindications
None with cardiac arrest or anaphylaxis

Precautions
Patients over 60 years of age, use with caution
Patients with heart rate > 120, use with caution
May precipitate angina or myocardial infarction in cardiac patients.
Protect from light and flush the line between sodium bicarbonate and epinephrine
CVD

Side Effects
Anxiety
Tremors
Palpitations/Tachycardia
Headache

Epinephrine Infusion

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/Dosage
Adult Allergic Reaction/Anaphylaxis with ALOC and SBP <90: 2-10 mcg/min
Adult Bradycardia: 2-10 mcg/min
Chest Pain, Medical Hypotension with SBP <90: 2-10 mcg/min
Pulmonary Edema/CHF SBP < 100 (MAP < 65): 2-10 mcg/min
Adult TBI: 2-10 mcg/min

Directions
Epinephrine Infusion: Add 1 mg Epinephrine into 250 cc D5W = 4 mcg/cc.

2 mcg/min	4 mcg/min	6 mcg/min	8 mcg/min	10 mcg/min
30 qtts/min	60 qtts/min	90 qtts/min	120 qtts/min	150 qtts/min

Drops (qtts) per minute using a 60 gtt/cc administration set.

Concentration
1 mg/10 cc (1:10,000) Pre-Filled Syringe
1 mg/1 cc (1:1,000) Ampule

Route of Administration
IV

Contraindications
None with cardiac arrest or anaphylaxis
Patient with coronary artery disease, use with caution
Patients over 60 years of age, use with caution
Patients with a heart rate > 120, use with caution

Precautions
May precipitate angina or myocardial infarction in cardiac patients.
Protect from light and flush the line between sodium bicarbonate and epinephrine

Side Effects
Anxiety
Tremors
Palpitations/Tachycardia
Headache

Etomidate

Continuously monitor capnography, pulse oximetry, and NIBP

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

Indications/Dosage
Advanced Practice Clinicians Only
RSI: Induction: 0.3 mg/kg IV/IO.
Brief Procedural Sedation: 0.3 mg/kg (Adult and Pediatric)

Concentration
40 mg/20 cc Vial

Route of Administration
IV/IO

Contraindications
Adrenal insufficiency

Precautions
Use 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.
Sepsis patients

Fentanyl

Continuously monitor LOC, capnography, pulse oximetry, and NIBP

Mechanism of Action
Interacts with opiate receptors decreasing pain impulse transmission at the spinal cord level and higher in the CNS. Causes peripheral vasodilation and decreases venous return

Indications/Dosage
Chest Pain: 0.5-1.0 mcg/kg, (single max. dose 100 mcg), repeat q15 min until patient is pain free.

Pain Control: 0.5-1.0 mcg/kg, (single max. dose is 100 mcg), may repeat q15 minutes

Chemical Extrication or Crush Syndrome: Adult/Pediatric: 1-1.5 mcg/kg IV
Pediatric: Max. dose is 50 mcg

Adult Burns: 1-2 mcg/kg, q 5 minutes, max. dose 300mcg.
Pediatric Burns: 1-3 mcg/kg, q 5 minutes, max. single dose is 100 mcg

Adult/Pediatric Trauma: Anxiety/Sedation: 2 mcg/kg q15 minutes
Pediatric Trauma: Max. dose is 100mcg

Advanced Practice Clinician Only:
RSI: If unable to achieve adequate sedation with Etomidate alone: Fentanyl 1-2 mcg/kg IV, (max single dose is 250 mcg).

If greater than 300 mcg of Fentanyl is necessary to manage the patient's condition, contact online medical control for additional orders

Concentration:
100 mcg/2 cc Vial

Route of Administration
IV/IM/IN

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

Side Effects
CNS: Sedation, drowsiness, lethargy, anxiety, fear, dysphoria, dizziness, 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

Furosemide (Lasix)

Mechanism of Action
A diuretic that inhibits sodium and chloride reabsorption in the kidneys. Causes venous dilation.

Indications/Dosage
CHF/Pulmonary Edema: If patient is not prescribed Lasix: 0.5 mg/kg IV. If patient is prescribed Lasix, consider 1.0 mg/kg (max single dose of 40 mg).

Concentration
100 mg/10 cc Syringe/Vial

Route of Administration
IV/IO

Contraindications
Patients who are allergic to sulfonamides or thiazides.

Precautions
Should be limited to life-threatening situations in pregnant patients
Use caution in patients in end-stage renal disease

Side Effects
Potassium depletion with accompanying dysrhythmias
Vertigo
Visual/auditory disturbances
Nausea and vomiting
Dehydration and electrolyte depletion can result

Glucagon

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

Indications/Dosage
AMS and BGL < 60: 1 mg IM/SQ
BLS Clinician Approved Medication/Procedure

Concentration
1mg/Vial

Route of Administration
IM/SQ

Contraindications
Known hypersensitivity.

Precautions
Follow with a prompt meal, orange juice, or milk as soon as the patient is Alert.
Mix only with sterile water.
Use caution in patients with liver disease or failure; patients may have little glycogen stored.

Side Effects
Nausea
Hypoglycemia
Hyperglycemia
Vomiting

Hydroxobalamin (Cyanokit) Infusion

Carried by EMS2

Mechanism of Action
Binds directly to cyanide ions creating cyanocobalamin which is excreted in the urine.

Indications/Dosage
Moderate to severe signs/symptoms of cyanide toxicity in the setting of significant smoke inhalation or other known cyanide exposure.

Adult: 5 g, repeat once if patient does not improve

Pediatric: 70 mg/kg, max. dose is 5 g, repeat once if patient does not improve

Concentration
5 g/Vial-Dry Concentration: Reconstituted with 200 cc Normal Saline to liquid form.

Directions
Adults: Using the supplied transfer spike, reconstitute 2-100 cc Normal Saline Bags (supplied) into Cyanokit Vial making 5 g/200 cc vial. Gently rotate for 30 seconds to mix. Using the supplied vented 20 drop/ml administration set infuse the Cyanokit 5 g IV over 15 minutes (4 qtts/sec) The Cyanokit is a non-collapsible vial so regular administration sets will not allow the fluid to flow. It is imperative you use the supplied vented 20 gtts/cc administration set with the non-collapsible Cyanokit Vial.

Pediatrics: Using the supplied transfer spike, reconstitute 2-100 cc Normal Saline Bags (supplied) into Cyanokit Vial making 5 g/200 cc vial. Gently rotate for 30 seconds to mix.
Draw up the desired weight-based dose/ volume (see below) from the vial and return it to the empty bag of saline and infuse with the supplied 20 gtts/cc administration set.

Weight	5 kg	10 kg	15 kg	20 kg	25 kg	30 kg	35 kg
Total	14 cc	28 cc	42 cc	56 cc	70 cc	84 cc	98 cc
20 qtts set	20 qtts/min	40 qtts/min	60 qtts/min	80 gtts/min	100 qtts/min	120 qtts/min	130 qtts/min

Route of Administration
IV/IO

Contraindications
Known hypersensitivity.

Precautions
May redden or discolor injection site, skin, and mucous membranes.
Incompatible with other medications; use a dedicated line

Ketamine

Continuously monitor LOC, capnography, pulse oximetry, and NIBP

Mechanism of Action
Blocks the NDMA Receptors in the brain producing dissociative anesthesia.

Indications/Dosage
Behavior/Patient Chemical Restraint: 2 mg/kg IM, repeat x1 q10 minutes, or 1-2 mg/kg IV (adult and pediatric). Pediatric maximum dose: 200 mg IM and 100 mg IV

Burns, Pain Control: 0.25-0.5 mg/kg; repeat x1 q10 minutes if needed (Adult and Pediatric)

Chemical Extrication or Crush Syndrome: 1-2 mg/kg IV or 2-4 mg/kg IM (pediatric dose the same, max dose 50 mg IV or 100 mg IM). Closely monitor for respiratory depression

Advanced Practice Clinician Only:
RSI: If unable to achieve adequate sedation with Etomidate alone: 2 mg/kg IV

Concentration
500 mg/10 cc Vial (50 mg/cc)

Route of Administration
IV/IO/IM

Contraindications
Hypersensitivity
Severe Hypertensive Crisis

Side Effects
May increase the effects of other sedatives, such as benzodiazepines
Closely monitor for respiratory depression
Confusion
Hallucinations
Hypertension
Tachycardia

Ketorolac (Toradol)

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

Indications/Dosage
Adult Pain Management: 30 mg if <65, no history of renal failure, no suspected active bleeding and no need for surgical intervention.
Pediatric Pain Management: 0.5 mg/kg (max dose 30 mg)

Concentration
30 mg/ 1cc Vial

Route of Administration
IV/IO/IM

Contraindications
Patients meeting trauma triage criteria
Patients with suspected intracranial hemorrhage
Ketorolac is only for patients > 2 years and < 65 years of age
Patients with allergies to ASA or other NSAIDs.
Active bleeding
Bleeding disorders
Renal failure/Dialysis.
Active peptic ulcer disease.
Pregnancy

Precautions
Patients with liver disease; a 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

Lidocaine

Mechanism of Action
Ability to decrease automaticity in ventricular myocardium and slows conduction velocity in reentrant pathways of ischemic tissue. The drug also appears to raise the fibrillation threshold.

Indications/Dosage
Adult Cardiac Arrest: (instead of Amiodarone): First Dose: 1-1.5mg/kg, Second Dose: 0.5-.075mg/kg

Adult Cardiac Arrest with ROSC: If VT or VF during cardiac arrest and after ROSC are having ventricular ectopy: Lidocaine loading dose of 1-1.5 mg/kg (max dose 100 mg) followed by a Lidocaine Infusion (see Medication Reference 23.5 Lidocaine Infusion).

IO Insertion: Adult: 20-40 mg
Pediatrics: 0.5 mg/kg

Concentration
100 mg/5 cc Prefilled Syringe

Route of Administration
IV/IO

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

Precautions
Depresses the CNS at doses above 3 mg/kg.

Side Effects
Hypotension
Conduction disturbances
Bradycardia
Tremors
Confusion
Seizures

Lidocaine Infusion

Mechanism of Action
Ability to decrease automaticity in ventricular myocardium and slows conduction velocity in reentrant pathways of ischemic tissue.

Indications
Arrest with ROSC: If VT or VF during cardiac arrest and after ROSC are having ventricular ectopy: Lidocaine loading dose of 1-1.5 mg/kg (max dose 100 mg) followed by a Lidocaine Infusion.

Dosage
1-4 mg/min

Directions
2 g/500cc (4 mg/cc)

1 mg/min	2 mg/min	3 mg/min	4 mg/min
15 qtts/min	30 qtts/min	45 qtts/min	60 qtts/min

Drops (qtts) per minute based on a 60 gtt/cc administration set.

Concentration
2 g/500 cc premixed bag

Route of Administration
IV/IO

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

Side Effects
Hypotension
Conduction disturbances
Bradycardia
Tremors
Confusion
Seizures

Magnesium Sulfate

Mechanism of Action
Smooth muscle relaxant, an electrolyte replacement for low magnesium (hypomagnesemia)

Indications/Dosage
Adult Cardiac Arrest- Torsades de Pointes: 1-2 g
Pediatric Cardiac Arrest- Torsades de Pointes: 25-50 mg/kg, max. dose is 2 g

Adult/Pediatric Asthma: 50 mg/kg IV, repeat in 10 minutes at 30 mg/kg. Not to exceed 2.5 g (adult) and 2 g (pediatric).

Concentration
5 g/10 cc Syringe/Vial

Route of Administration
IV/IO/: Give slow when administrating IV.

Contraindications
AV Block or recent myocardial infarction
Shock
Dialysis patients and those with Renal disease
Severe hypertension
Hypocalcemia

Precautions
Continuous monitor EKG and vital signs.
Calcium Chloride can be used as an antidote for signs of magnesium toxicity (flushed skin, diaphoresis, hypotension, flaccid paralysis, hypothermia, respiratory depression/paralysis, cardiac and CNS depression)

Side Effects
Flushing
Bradycardia
Decreased deep tendon reflexes
Hypothermia
Rash/Itching
Sweating
Arrhythmias
Drowsiness
Hypotension

Magnesium Sulfate Infusion

Mechanism of Action
Smooth muscle relaxant, an electrolyte replacement for low magnesium (Hypomagnesemia)

Indications/Dosage
Asthma: If no response to Albuterol consider Magnesium Sulfate: 50 mg/kg IV over 10-20 min, may repeat 30 mg/kg x1 q10 minutes. Do not exceed 2.5 g total.
Pediatric dose: 50 mg/kg – max dose 2 g

Eclampsia: 2-4 g Infusion IV/IO over 20 min. **Requires Online Medical Control for EMT-I**

Directions
Asthma Infusion: Add Magnesium Sulfate 2 g (4 cc) to 100 cc Normal Saline = 20 mg/cc.
2 g over 10 minutes = 150 qtts/min using a 15 qtts/cc administration set

Eclampsia Infusion: Add Magnesium Sulfate 4 g (8 cc) to 100 cc Normal Saline = 40mg/cc.
2 g over 20 minutes = 38 qtts/min using a 15 qtts/cc administration set
4 g over 20 minutes = 76 qtts/min using a 15 qtts/cc administration set

Concentration
5 g/10 cc Syringe/Vial

Route of Administration
IV Infusion

Contraindications
AV Block or recent myocardial infarction
Shock
Dialysis patients and those with Renal disease
Severe hypertension
Hypocalcemia

Precautions
Calcium Chloride can be used as an antidote for signs of magnesium toxicity (flushed skin, diaphoresis, hypotension, flaccid paralysis, hypothermia, respiratory depression/paralysis, cardiac and CNS depression)

Side Effects
Flushing
Bradycardia
Decreased deep tendon reflexes
Hypothermia
Rash/Itching

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 responsible for its anti-inflammatory and immunosuppressive effects.

Indications/Dosage
Severe Allergic Reaction, Respiratory Distress/Asthma/COPD/Croup/Reactive Airway: 125 mg
Pediatric Severe Allergic Reaction, Respiratory Distress/Asthma/COPD/Croup/Reactive Airway: 2 mg/kg IV, max. dose is 125 mg

Concentration
125 mg/2 cc Vial

Route of Administration
IV/IO/IM

Contraindication
Known hypersensitivity

Precautions
Only a single dose should be given in the prehospital setting.
Long-term steroid therapy can cause GI bleeding and prolonged wound care.
Pregnancy

Side Effects
Seizures
Vertigo
CHF
Hypertension
Palpitations/Tachycardia
Nausea/Vomiting/ Diarrhea
Headache
Abdominal distension
GI hemorrhage

Midazolam (Versed)

Continuously monitor LOC, capnography, pulse oximetry, and NIBP

Mechanism of Action
Binds to benzodiazepine receptor and enhances 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 anticonvulsant activity)

Indications/Dosage
Procedural Sedation or Anxiety Management: 0.02 mg/kg, max. single dose is 5 mg. Repeat one time after 10 minutes, if needed.
Pediatric dose: 0.1mg/kg, max. dose 5mg

Adult Chemical Restraint: 2-5 mg

Adult Seizure: 2-5 mg, repeat q 5 minutes.
Pediatric Seizure: 0.1 mg/kg, up to a max. single dose of 2mg, may repeat once after 5 minutes.

Eclampsia with Seizure: 2mg IV/IN, may repeat once after 5 minutes

Adult Multisystem Trauma: Sedation: 2-5 mg
Pediatric Multisystem Trauma: Sedation: 0.1 mg/kg, max. dose of 2 mg

Advanced Practice Clinician Only: POST RSI Sedation: 0.1 mg/kg, max. single dose is 10 mg.

Concentration
5mg /5 cc Vial

Route of Administration
IV/IO/IM/IN

Contraindication
Acute-angle glaucoma

Precautions
Patients with asthma, COPD, etc., are more susceptible to respiratory depression.
Effects are enhanced by other CNS depressants
Slowly metabolized in the elderly
Pregnancy
Hepatic Dysfunction
Renal insufficiency
History of drug addiction

Parkinson’s disease

Side Effects
Respiratory depression
May cause Hypotension
Nausea/vomiting

Metoprolol (Lopressor)

Mechanism of Action
Beta blocker, Class II Antiarrhythmic. It selectively blocks beta-1 receptors subsequently causing a decrease in heart rate, contractility, conductivity, and automaticity. 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
Narrow complex tachycardia with rapid ventricular rate to include Atrial Fibrillation (A-Fib) and Atrial Flutter (AF).

Indications/Dosage
Unstable Adult A-Fib/AF (SBP < 130): Metoprolol (Lopressor) 5 mg slow IV/IO push, repeat every 5 minutes to a max. dose of 15 mg to achieve a desired heart rate of less than 120.

Concentration
5 mg/5 cc Vial

Route of Administration
IV/IO

Contraindications
Bradycardia
Hypotension: <90mm Hg
Recent cocaine use
High degree heart blocks (2nd and 3rd)
Allergy to beta-blockers

Precautions
If patient is >70 years of age, reduce the bolus by ½.
Pregnancy

Side Effects
Hypotension
Shortness of Breath
Nausea
Worsening of AV block

Narcan

Mechanism of Action
A competitive opioid antagonist is a specific opioid antidote.

Indications/Dosage
Adult Opioid OD (with unconscious **and** has insufficient respiratory effort): 0.5 mg, q 2-5 minutes titrated for effective respiratory function.
BLS Clinician Approved Medication/Procedure: May administer 1 Narcan pre-filled syringe: IN/IM.

Pediatric Opioid OD (with unconscious and has insufficient respiratory effort): 0.1 mg/kg, max. dose of 2 mg, titrated effective respiratory function

*Not to be routinely used in cardiac arrest unless opioid overdose is suspected.

Concentration
2 mg/2 cc Prefilled Syringe

Route of Administration
IV/IO/IN/Nebulized

Contraindications
Hypersensitivity to the drug.
Adequate respiratory effort

Precautions
Abrupt withdrawal effects.

Side Effects
Nausea and vomiting
Acute Pulmonary Edema
Excitation for abrupt reversal of narcotic depression

Nitroglycerin (Nitro-Nitrostat-Nitropaste)

Mechanism of Action
Vascular smooth muscle relaxation leads to venous, coronary, and arterial vasodilatation, thus decreasing the workload on the heart.

Indications/Dosage
Chest Pain: 1 SL 0.4 mg tablet/ spray, (may repeat in 5 minutes for a total three doses) **or** one-inch of Nitro Paste. **BLS Clinician Approved Medication/Procedure**

Pulmonary Edema/CHF: If SBP > 175 mmHg and Heart Rate > 60 bpm, administer Nitro 0.4 mg SL **and** one-inch Nitropaste to the upper body or upper arm using a paper dose-measuring applicator. If respiratory distress persists and SBP > 175 mmHg, repeat q 5 minutes as long as respiratory distress persists and SBP remains > 175 mmHg

Concentration
0.4 mg SL Tablets (Bottle)
2% 1g Ointment (Nitropaste)

Route of Administration
SL/Transdermal

Contraindications
Hypotension
Hypersensitivity to nitrates
Patients with increased ICP (head trauma)
Right-Sided Infarct
Viagra, or similar erectile dysfunction medication, taken within the past 24 hours

Precautions
Hypotension may develop
Chronic pain management patients
Use Nitropaste for CPAP-dependent patients.

Side Effects
Headaches due to cerebral vasodilatation
Hypotension
Postural syncope

Ondansetron (Zofran)

Mechanism of Action
Antiemetic, the mechanism by which ondansetron (Zofran) works to control nausea and vomiting is not fully understood; it is believed the antiemetic properties occur as a result of serotonin receptor antagonism.

Indications/Dosage
Adult N/V: 4 mg IV or 4 mg (oral dissolving tablet) ODT, may repeat once after 5 minutes.
Pediatric N/V: 2 mg ODT, may repeat once after 5 minutes.
BLS Clinician Approved Medication/Procedure: ODT

Concentration
4 mg ODT (Bottle)
4 mg/2 cc Vial

Route of Administration
IV/IO/IM

Contraindication
Hypersensitivity to the drug

Side Effects
Drowsiness
Dizziness
Hypotension
Flushing
Musculoskeletal pain
Cardiovascular disturbances
Headache
Constipation

Pralidoxime (2-PAM®, Protopam Chloride®)

As part of a Mark 1 or DuoDote Auto Injector Kit, if equipped

Mechanism of Action
Reactivates acetylcholinesterase that has been deactivated by organophosphorus pesticides and related products. Inactivates acetylcholine at both muscarinic and nicotinic sites in the periphery.

Indications
Organophosphorus toxicity
Used as an adjunct to systemic atropine administration.

Dosage
Administer one Mark I/DuoDote Auto Injector Kit every 5 minutes to a max. dose of three.
BLS Clinician Approved Medication/Procedure

Concentration
600mg Auto Injector

Route of Administration
IM

Contraindications
SEVIN Poisoning (a carbamate insecticide, it increases drug's toxicity)
Use caution in patients with asthma, renal insufficiency, and peptic ulcers.
Mark I/DuoDote Auto Injector Kit are not approved for children less than 14 years of age

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.

Sodium Bicarbonate 8.4%

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

Indications/Dosage
Adult Cardiac Arrest: 50-100 mEq
Pediatric Cardiac Arrest: 1-2 mEq/kg, max. dose is 100 mEq

*Only used in cardiac arrest when Tricyclic Antidepressant OD is suspected as the cause of the cardiac arrest.

Chemical Extrication and/or Crush Syndrome:
When an adult has concurrent crush injury and extrication time may be prolonged: Add 100 mEq in 1000 cc Normal Saline and infuse at 100-150 cc/hour. 30 qtts/min using a 15 qtts/cc administration set = 120 cc/hour.

Chemical Extrication and/or Crush Syndrome:
If EKG indicates moderate to severe hyperkalemia (slow, weak pulse, prolonged PR interval, widen QRS, peaked T-Waves) administer 100 mEq Sodium Bicarbonate, 1 g Calcium and 10-20mg nebulized Albuterol over 15-20minute. See Injury-Multisystem Protocol for additional directions.

Sodium Bicarb should not be given in the same IV line with Calcium or Blood Products.

Concentration
50 mEq/50 cc Prefilled Syringe

Route of Administration
IV/IO

Contraindications
Respiratory or metabolic alkalosis

Precautions
Can cause alkalosis
Sodium Bicarbonate can deactivate Calcium Chloride, Dopamine, and Epinephrine if given together in the same means of access (IO/IV).

Side Effects
Volume overload
Alkalosis

Tranexamic Acid (TXA)

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

Indications/Dosage
Epistaxis: Apply TXA 200 mg to rolled gauze and insert into bleeding nostril, or administer via mucosal atomization device

Hemorrhagic Shock: TXA 2 g slow IV/IO push

Traumatic Cardiac Arrest: If severe hemorrhage is suspected administer TXA 2 g slow IV/IO push

Concentration
1 g/10 cc Vial

Route of Administration
IV/IO

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

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

Vecuronium (Norcuron)

Continuously monitor LOC, capnography, pulse oximetry, and NIBP

Mechanism of Action
Non-depolarizing neuromuscular blockade agent, paralytic, acts by competing for cholinergic receptors at the motor endplate.

Indications/Dosage
Advanced Practice Clinician Only: RSI: Paralysis 0.1 mg/kg IV/IO

Concentration
10 mg/10 cc Vial: Reconstitute with 10 cc Normal Saline

Route of Administration
IV/IO

Contraindication
Known hypersensitivity to the drug

Precaution
May cause a severe anaphylactic reaction.

Side Effects
Salivation
Premature ventricular contractions
Tachycardia