Caroline County Prehospital Patient Care Protocols

Caroline County Fire Rescue Protocols last revised May 2026

Caroline County Fire-Rescue and Emergency Management
233 West Broaddus Ave
Bowling Green, VA 22427

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CAROLINE COUNTY PREHOSPITAL PATIENT CARE PROTOCOLS

ADMINISTRATIVE

Section I

Updates & Changes to Caroline County Protocols

Below are the following updates and changes that have been made to Caroline County Fire-Rescue's prehospital patient care protocols.

Update / Change	**Date**
Reformatted protocols	03/12/2026
Added medication dosages to medication section (Section VI)	03/13/2026
Updated AHA protocols to 2025	03/15/2026
Fixed broken QR codes	03/16/2026
Updated CHEMPACK and RHCC protocols	05/18/2026

1.0 Introduction and Use

The following protocols have been approved by Caroline County Fire Rescue EMS Physician as the Prehospital Patient Care Protocols for Caroline County. These treatments were developed through input and guidance from ALS and BLS providers in the county. 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 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. There is still the 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 department 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. 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 accessible by every ambulance unit in the Caroline County, either physically or digitally.

Each protocol will be periodically reviewed and updated, as needed. Any protocol changes will result in relevant training on the updates or changes being issued to all Caroline County Fire Rescue providers.

Changes to department protocols are classified into the following 3 categories:

- 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 Caroline County Fire Rescue EMS Physician.
- Class II - Minor Change - Changes to general procedure that does not change scope of practice or add medication. Medication dosage changes within current therapeutic ranges. May include language for clarification, but not change of practice.
- Class III - Major Change - Changes to scope of practice for any level, changes to medication or therapeutic ranges, changes to equipment or procedures.

Once changes have been made, notification to Caroline County Fire Rescue providers will be made.

2.0 Definition of Patient

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.

3.0 Abandoned Infant

3.1 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 within the first 30 days of the child's life to (i) a hospital that provides 24-hour emergency services, (ii) an attended emergency medical services agency that employs emergency medical personnel, or (iii) a newborn safety device located at and operated by such hospital or emergency medical services agency. 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.

4.0 Air Medical Utilization

4.1 Overview

Air Medical Services (AMS) are a valuable resource for Caroline County. 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 and Continuous Quality Improvement processes.

4.2 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 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
- 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 EMS system. In this case a specialty unit with rescue capabilities (i.e., hoisting equipment or FLIR) may be the most appropriate resource.

Providers 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, providers 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 JUDGMENT 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.

4.3 Guidelines for Helicopter Utilization for Scene Response

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

5.0 Code Gray

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. 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.

6.0 Death (DOA) Management

6.1 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.

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.

6.2 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)
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.

7.0 Documentation and Confidentiality

7.1 Indications

Under existing Virginia law, Caroline County Fire Rescue is required to "participate in the prehospital patient care reporting procedures by making available...the minimum data set on forms." Caroline County Fire Rescue, prehospital providers, and the Commonwealth of Virginia are required to keep patient information confidential.

7.2 Management

Caroline County Fire Rescue has procedures 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 includes 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 department personnel. This report should be completed on the current written/electronic Prehospital Patient Care Report (ePCR) in use by Caroline County Fire Rescue. For medical-legal purposes, if the provider initiates the patient-provider relationship, regardless of whether care is provided for the patient or if there is reason to believe that the patient has an injury, illness or medical complaint, 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. Caroline County Fire Rescue EMS Physician, shall approve all written standing orders. The prehospital provider shall make a record of all medications administered to a patient in their patient care report. 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 Caroline County Fire Rescue EMS Physician's signature and post the call to Caroline County EMS reporting system.
5. Caroline County Fire Rescue has an incident report form for quality assurance purposes, and to document any additional information relevant to the treatment and transport of patients.
6. Caroline County Fire-Rescue's medications are managed by the Department's Pharmacy program per:
    a. SOP 201.03 Medication Access, Inventory and Control
    b. Department Medication Procedure Manual
    c. Virginia Board of Pharmacy, U.S .Drug Enforcement Agency and Federal Drug Administration regulations and guidelines

8.0 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: https://www.vdh.virginia.gov/emergency-medical-services/other-ems-programs-and-links/durable-do-not-resuscitate-program/.

8.1 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. DNR's must be in English. It is NOT necessary that the original EMS-DNR order be present and legible copies may be accepted. Digital copies may be accepted. Out of state DNR's 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. The only jewelry allowed is manufactured by one company and MUST be purchased through the Office of EMS. Examples of Virginia accepted jewelry include:

3. Tattoos are not valid as they cannot be reversed.
4. 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.
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.
7. If resuscitative efforts have begun, once a valid DNR is presented to the crew, they may stop without the need to call med control.
8. All providers are strongly encouraged to review the Virginia DNR, as there are some limitations, such as intubation and no CPR.
9. Caroline County Fire Rescue does not observe or honor any living will, advanced directive, or any "a-la-cart" style DNR.
10. The patient is the ONLY individual who can override a DNR and it must be done verbally to EMS. 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.
11. 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. NPs and PAs can sign DNRs in addition to Physicians. Examples of these forms include:

Durable Do Not Resuscitate Order

Virginia Department of Health

Patient's Full Legal Name _____ **Date** _____

Physician's Order

I, the undersigned, state that I have a bona fide physician/patient relationship with the patient named above. I have certified in the patient's medical record that he/she or a person authorized to consent on the patient's behalf has directed that life-prolonging procedures be withheld or withdrawn in the event of cardiac or respiratory arrest.

I further certify (must check 1 or 2):

☐ 1. The patient is CAPABLE of making an informed decision about providing, withholding, or withdrawing a specific medical treatment or course of medical treatment. (Signature of patient is required)

☐ 2. The patient is INCAPABLE of making an informed decision about providing, withholding, or withdrawing a specific medical treatment or course of medical treatment because he/she is unable to understand the nature, extent or probable consequences of the proposed medical decision, or to make a rational evaluation of the risks and benefits of alternatives to that decision.

If you checked 2 above, check A, B, or C below:

☐ A. While capable of making an informed decision, the patient has executed a written advanced directive which directs that life-prolonging procedures be withheld or withdrawn.

☐ B. While capable of making an informed decision, the patient has executed a written advanced directive which appoints a "Person Authorized to Consent on the Patient's Behalf" with authority to direct that life-prolonging procedures be withheld or withdrawn. (Signature of "Person Authorized to Consent on the Patient's Behalf is required.)

☐ C. The patient has not executed a written advanced directive (living will or durable power of attorney for healthcare). (Signature of "Person Authorized to Consent on the Patient's Behalf is required)

I hereby direct any and all qualified health care personnel, commencing on the effective date noted above, to withhold cardiopulmonary resuscitation (cardiac compression, endotracheal intubation and other advanced airway management, artificial ventilation, defibrillation, and related procedures) from the patient in the event of the patient's cardiac or respiratory arrest. I further direct such personnel to provide the patient other medical interventions, such as intravenous fluids, oxygen, or other therapies deemed necessary to provide comfort care or alleviate pain.

_____	_____	_____
Physician's Printed Name	Physician's Signature	Emergency Phone Number
_____	_____	
Patient's Signature	Signature of Person Authorized to Consent on the Patient's Behalf	

Copy 2 – To be kept in patient's permanent medical record

HIPAA permits disclosure to health care professionals and authorized decision makers for treatment

Virginia Physician Orders for Scope of Treatment (POST)

This is a Physician Order Sheet based on the patient's current medical condition and wishes. Any section not completed creates no presumption about the patient's preferences for treatment.

Name Last / First / M.I.

Address

City / State / Zip

Date of Birth (mm/dd/yyyy) | Last 4 Digits of SSN ☐☐☐☐

A ✓one only

CARDIOPULMONARY RESUSCITATION (CPR): Person has no pulse and is not breathing.

☐ Attempt Resuscitation ☐ Do Not Attempt Resuscitation (DDNR/DNR/No CPR)

If "Do Not Attempt Resuscitation" is checked, this is a DDNR order. See Page 2 for instructions for use.

If a previous Durable Do Not Resuscitate form or POST form indicating Do Not Attempt Resuscitation was signed by the patient, only the patient can consent to reversing such a Durable DNR Order.

When not in cardiopulmonary arrest, follow orders in B & C

B ✓one only

If "Attempt Resuscitation" is checked in Section A, Virginia EMS protocol includes intubation when needed.

MEDICAL INTERVENTIONS: Patient has pulse and / or is breathing.

☐ **Comfort Measures:** Treat with dignity and respect. Keep warm and dry. Use medication by any route, positioning, wound care and other measures to relieve pain and suffering. Use oxygen, suction and manual treatment of airway obstruction as needed for comfort. Transfer to hospital *only* if comfort needs cannot be met in current location. Also see "Other Orders" if indicated below.

☐ **Limited Additional Interventions:** Includes comfort measures described above. Do not use intubation or mechanical ventilation. May consider less invasive airway support (e.g., CPAP or BiPAP). Use additional medical treatment, antibiotics, and cardiac monitoring as indicated. Hospital transfer if indicated. Avoid intensive care unit if possible. Also see "Other Orders" if indicated below.

☐ **Full Interventions:** In addition to Comfort Measures above, use intubation, mechanical ventilation, cardioversion as indicated. Transfer to hospital if indicated. Include intensive care unit. Also see "Other Orders" if indicated below.

Other Orders: _____

C ✓one only

ARTIFICIALLY ADMINISTERED NUTRITION: Always offer food and fluids by mouth if feasible.

☐ **NO** feeding tube (Not consistent with patient's goals given current medical condition)

☐ Feeding tube for a defined trial period (specific goal to be determined in consultation with treating physician)

☐ Feeding tube long-term if indicated

Other Orders: _____

D

Must be signed by a physician, nurse practitioner or physician assistant

PROVIDER SIGNATURE: My signature below indicates that I have discussed the decisions documented herein with the patient or the person legally authorized to consent on the patient's behalf and have considered the patient's goals for treatment to the best of my knowledge.

DISCUSSED WITH (Required):

☐Patient ☐Agent named on Advance Directive ☐Other person legally authorized ☐Court appointed guardian

SIGNATURE (REQUIRED): _____ **DATE (REQUIRED):** _____

PROVIDER NAME (REQUIRED): _____ **PHONE:** _____

Signature of Patient or Authorized Person (Required)

Signature: _____ **Date:** _____

If the patient signs and Do Not Attempt Resuscitation is checked in Section A, only the patient can revoke consent for the Do Not Resuscitate Order.

Print Name: _____

If patient lacks capacity, describe authority to consent on the patient's behalf: _____

If the patient has no Advance Directive, the following persons may consent for the patient in this order: Guardian, Spouse, Adult Children, Parents, Adult Siblings, Other Relative in descending order of blood relationship (Code of Virginia §54.1-2986)

FORM SHALL ACCOMPANY PATIENT WHEN TRANSFERRED OR DISCHARGED

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patient label

9.0 Extraordinary Care Not Covered by this Protocol

9.1 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

9.2 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 13.0.

Anytime this authority is exercised by a EMS provider a CQI review will automatically occur.

10.0 HEAR Usage & On-Line Medical control

10.1 Indications

To contact appropriate medical control/ HEAR radio at hospitals.

10.2 Management

The presence of multiple facilities on Caroline County Fire Rescue's transport list 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.

10.3 Hospital Report

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.

11.0 Impaired Field Providers

11.1 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.

11.2 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.

11.3 Actions

The provider may be asked by Caroline County Fire Rescue or regulatory agencies 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.

12.0 Inability to Carry Out a Physician Order

12.1 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.

12.2 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
- Submit the concern with the EMS Compliance officer for the department

13.0 Infection Control

13.1 Exposure to Blood and Bodily Fluid

General Guidelines:

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. Immediately, notify Duty Infection Control Officer (DICO) as soon as possible of any possible exposure; and of any emergency, non-emergency, and follow-up care. The Duty Infection Control Officer will take a summary of the events that took place and determine whether or not a *possible* exposure has happened and of any further actions to be taken, if need be. Follow any directions given by the Duty Infection Control Officer promptly.

Each hospital and hospital system has its own policies and procedures regarding EMS exposures. They are no longer standardized between systems. The Duty Infection Control Officer will be able to navigate them and ensure you receive the proper treatment. Their immediate notification is crucial to this process working as seamlessly as possible.

For more details and directions, please refer to the CCFR Infection Control Plan; located on Target Solutions in the File Center.

14.0 Patient and Scene Management

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 and Caroline County Fire Rescue EMS Physician.
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 the
2. Emergency Medical Technician (EMT) whose authority is superseded by the
3. Advanced Emergency Medical Technician (AEMT) whose authority is superseded by the
4. Emergency Medical Technician - Intermediate (EMT-I) whose authority is superseded by the
5. Emergency Medical Technician - Paramedic (EMT-P) whose authority is superseded by the Physician

The 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 Caroline County Fire Rescue EMS Physician. They also must have specific authorization to perform/administer this skill/medication from their EMS Physician. 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, 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.

15.0 Patient Refusal

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 acquaintance

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, 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.

16.0 Quality Improvement

16.1 Indications

Caroline County Fire-Rescue's CQI 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.

16.2 Management

Caroline County Fire-Rescue's CQI Committee will provide a positive feedback system through provider input, hospital input, informal methods, and recognition events. Further, the CQI Committee will make recommendations to Caroline County Fire Rescue's protocol committee.

17.0 Abuse & Neglect

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.

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

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. Notify the receiving facility that you are transporting a "Code SANE" 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 the waiting room.

The current SANE capable facilities are:

- Mary Washington Hospital
- Memorial Regional Medical Center
- MWH Harrison Crossing Emergency Department
- MWH Lee's Hill Emergency Department
- Richmond Community Hospital
- St. Mary's Hospital
- Virginia Commonwealth University

18.0 Transporting Patients: Patient Destination – Hospital of Choice

18.1 Indications

Caroline County has a long-standing reputation of transporting stable patients to the hospital of their choice within our operational area. This policy is not unlike the majority of EMS services within the greater central Virginia area (that are serviced by multiple hospitals).

Caroline SOP 201.04 Patient Destination – Hospital of Choice outlines the guidelines on patient transport.

All 911 calls, or calls handled by state/municipal/volunteer services, shall only take patients to the ED. Caroline County Fire Rescue does not permit personnel to perform direct admit transports.

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.

18.3 Hospital Diversion

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 requested to divert to other hospital facilities.

Patients who are considered triage level "RED" shall always be transported to the closest appropriate facility regardless of that facility's diversion status. Examples of this include, but are not limited to: airway obstruction, uncontrollable airway, uncontrollable bleeding, patients who are severely ill, or CPR in progress. EMS providers shall use their best clinical judgement to ensure appropriate definitive care is reached.

Hospitals may also go on a special diversion for equipment failure or maintenance (i.e., CT scanner is down or Cath Lab closure). Under these special circumstances it is important that providers understand the diversion status to ensure definitive care is reached. The best source for diversion status of hospitals is the Virginia Healthcare Alerting & Status System (VHASS).

This will provide the most consistent and up-to-date diversion status for our area's acute care facilities. When a diversion status has been updated, notifications should then be made to all providers to ensure proper transport decisions are made with the patient's best interests in mind. The VHASS (Virginia Hospital Alerting and Status System) Diversion Categories are listed below:

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.

19.0 Treatment of Minors

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.

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 17.0 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.

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CAROLINE COUNTY PREHOSPITAL PATIENT CARE PROTOCOLS

MEDICAL

Section II

CAROLINE COUNTY PREHOSPITAL 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	<u>Initial Procedures May Include:</u> 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	<u>Initial Procedures May Include:</u> Provide IV access
I	<u>Initial Procedures May Include:</u> Perform 4/12 lead interpretation

<u>Notes</u>:
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

Protocol Created 3/30/26

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	<u>Initial Procedures May Include:</u> Evaluate for and treat any causes of cardiac arrest or any other special circumstances in Special Circumstances Resuscitation Protocol
	If no shock is advised: administer 1 mg of Epinephrine 1:10,000 every 3-5 minutes (0.01 mg/kg for pediatrics). If shock is advised: administer the same dose, but only after the second defibrillation has occurred.
I	<u>Initial Procedures May Include:</u> 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 **Epinephrine:** 1:10,000 1 mg every 3-5 minutes; Pediatric Dose: 0.01 mg/kg, max dose 1 mg **Lidocaine:** 1-1.5 mg/kg loading dose (max dose 100 mg), 1-4 mg/min or 30-50 mcg/kg/min maintenance dose	
<u>Notes:</u> 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

Protocol Created 3/30/26

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

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

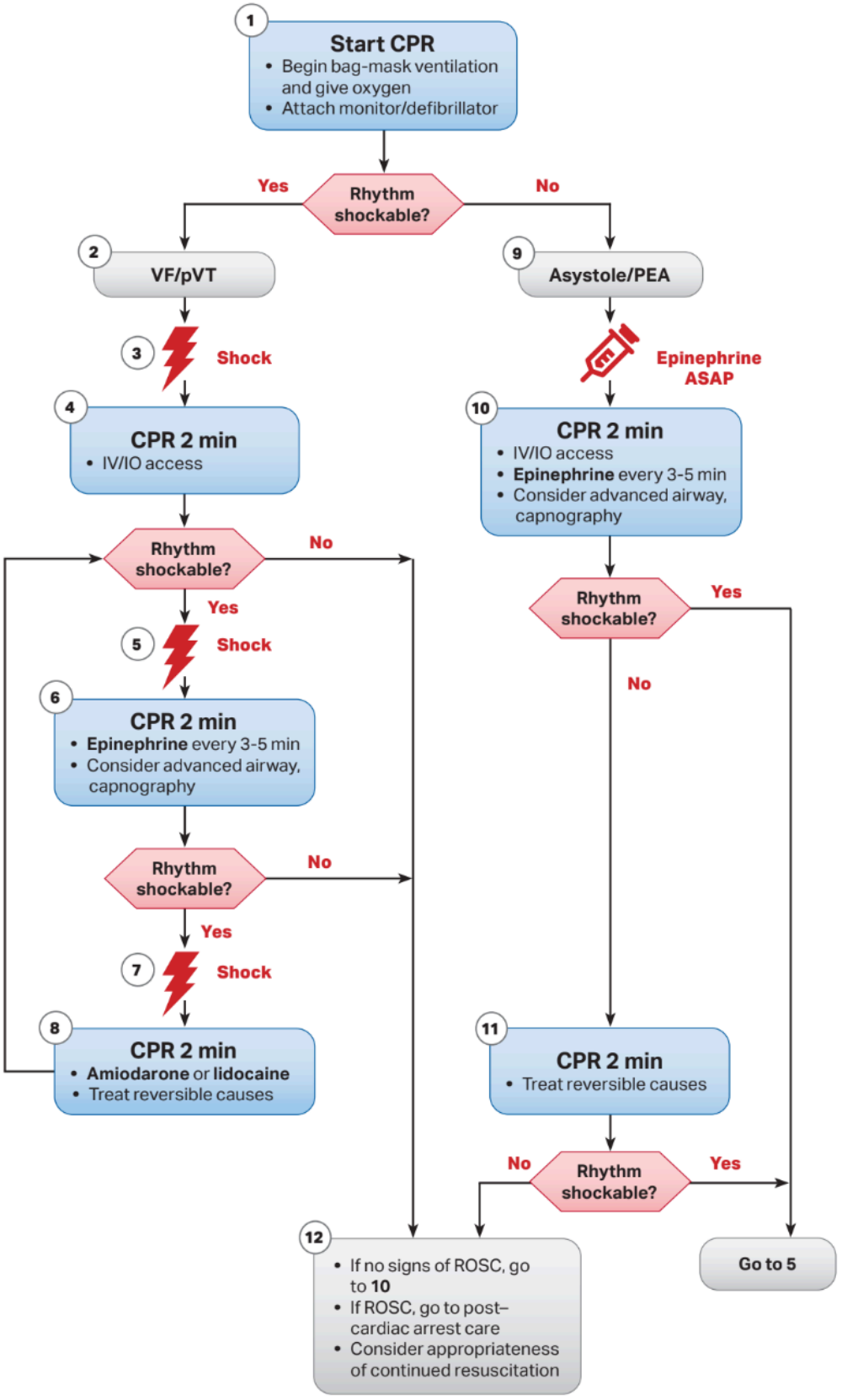
Medication Summary:
Calcium (Calcium Chloride): 1 g *(pediatric dose 20 mg/kg, max dose 1 g*)
Magnesium Sulfate: 1-2 g (*pediatric dose 25-50 mg/kg, max dose 2 g*)
Sodium Bicarbonate: 50-100 mEq (*pediatric dose 1-2 mEq/kg to max dose 100 mEq*)

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

Protocol Created 3/30/26

CAROLINE COUNTY PREHOSPITAL PATIENT CARE PROTOCOLS

Cardiac - Adult Cardiac Arrest



High-Quality CPR

- Push hard (at least 2 inches [5 cm]).
- Push 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, use 30:2 compression-ventilation ratio.
- If advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions.
- Continuous waveform capnography
  - If $ETCO_2$ 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

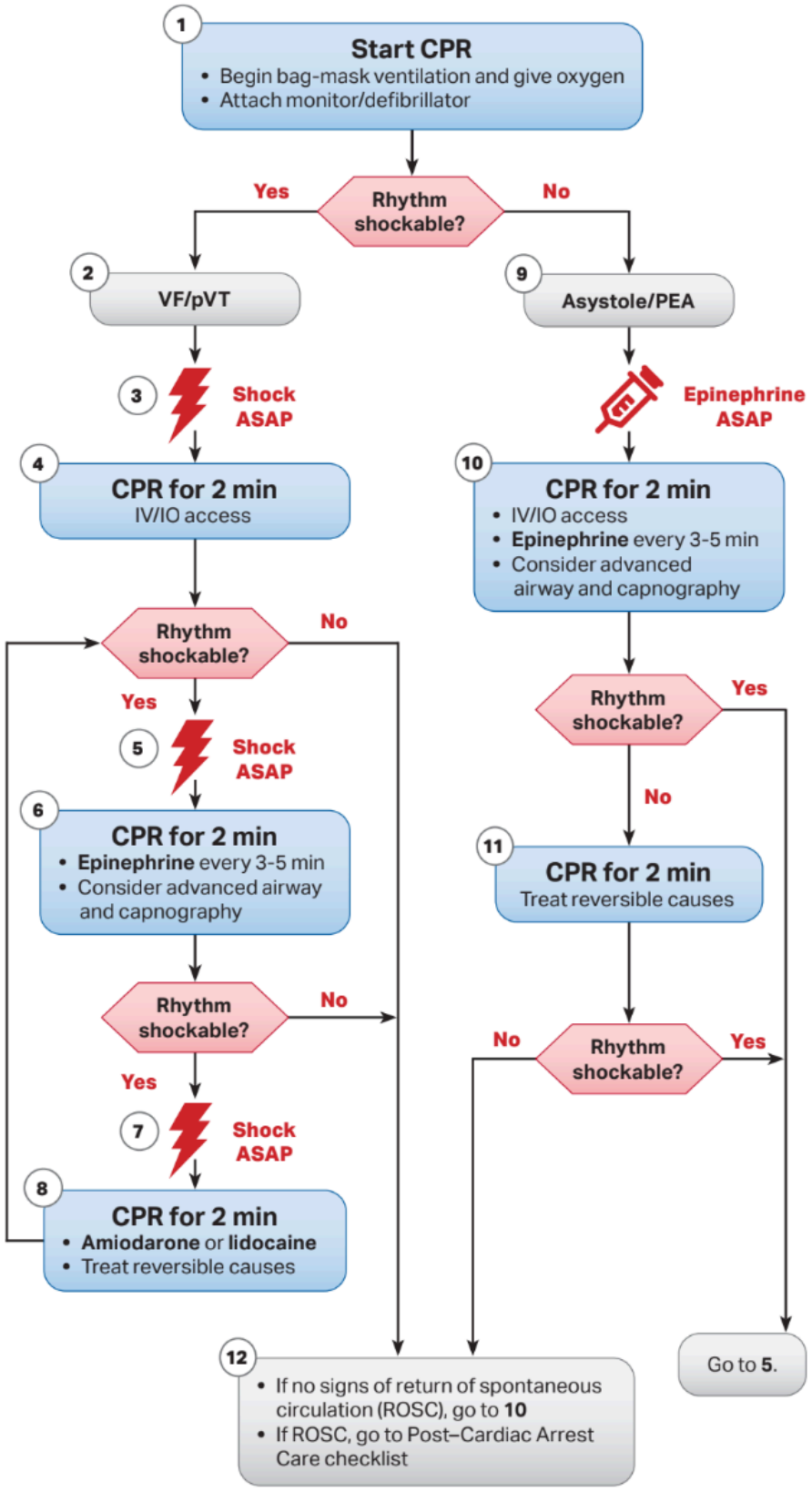
- ET intubation or supraglottic advanced airway
- Continuous waveform capnography or capnometry to confirm and monitor ET tube placement

Reversible Causes

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

CAROLINE COUNTY PREHOSPITAL PATIENT CARE PROTOCOLS

Cardiac - Pediatric Cardiac Arrest



High Quality CPR

- Push hard (≥ 1/3 chest depth)
- Push fast: 100-120/min
- Allow full chest recoil
- Minimize interruptions in compressions
- Change compressor every 2 min, sooner if fatigued
- If no advanced airway, compression-ventilation ratio
  - 15:2 - 2 rescuers (pre-puberty)
  - 30:2 - 2 rescuers (post-puberty onset)
  - 30:2 - 1 rescuer (any age)
- If advanced airway, provide continuous compressions and give a breath every 2-3 seconds
- Monitor $ETCO_2$ and, when available, invasive diastolic BP

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 mg/mL concentration). Max dose 1 mg.
- **Amiodarone IV/IO dose:** 5 mg/kg bolus (max 300 mg). May repeat up to 3 doses (max 150 mg subsequent doses).
  or
  Lidocaine IV/IO dose: 1 mg/kg

Advanced Airway

- Endotracheal intubation or supraglottic airway
- $ETCO_2$ to confirm and monitor ET tube placement

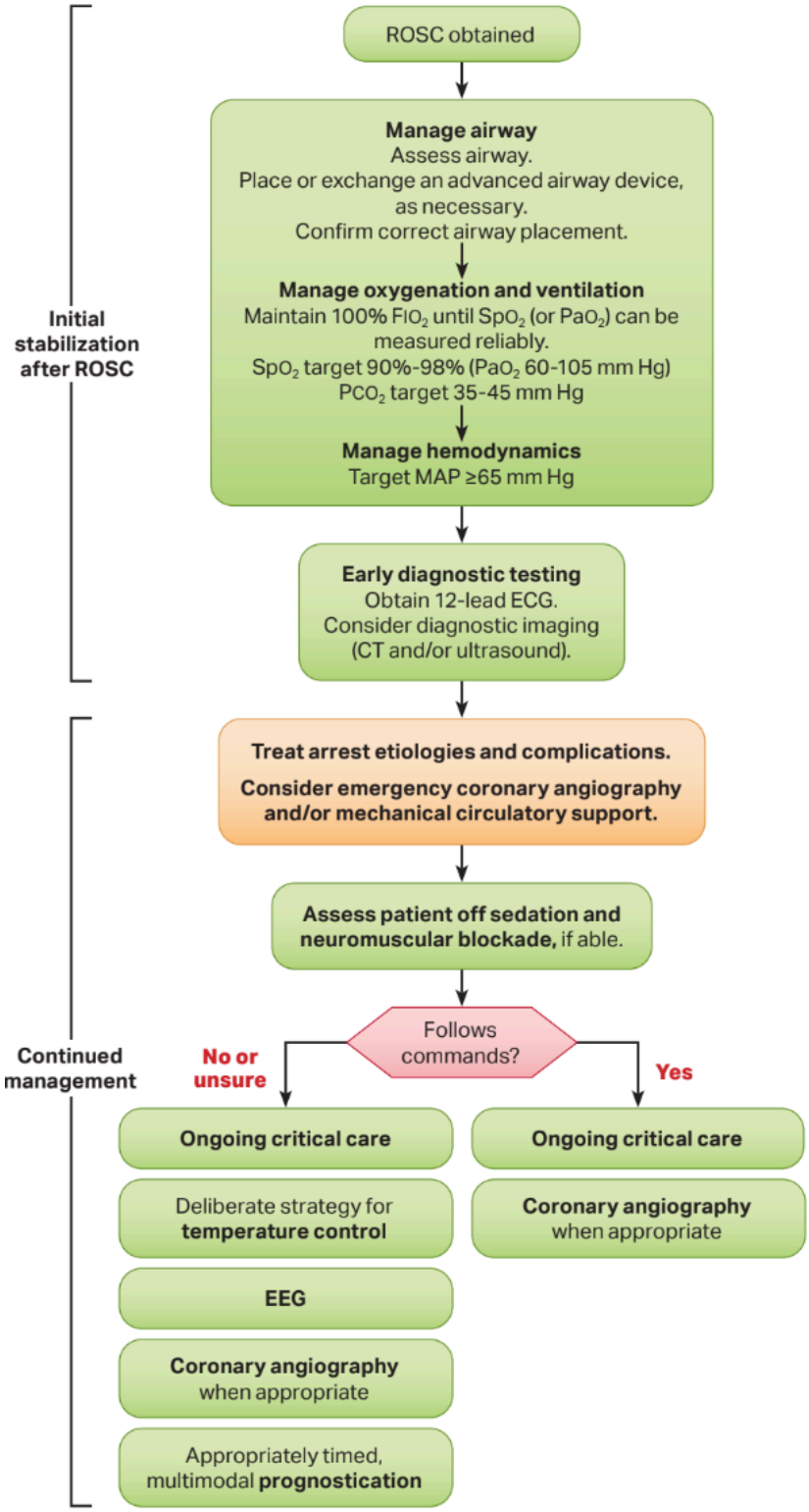
Reversible Causes

- **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

CAROLINE COUNTY PREHOSPITAL PATIENT CARE PROTOCOLS

Cardiac - Adult Post Cardiac Arrest Care

Adult Post–Cardiac Arrest Care Algorithm



Initial Stabilization After ROSC

Resuscitation is ongoing during the post-ROSC phase, and many of these activities can occur concurrently.

Manage airway: Assess and consider placement or exchange of an advanced airway device (usually endotracheal tube or supraglottic device). Confirm correct placement of an advanced airway. This generally includes the use of waveform capnography or capnometry.

Manage oxygenation and ventilation: Titrate FIO_2 for SpO_2 90%-98% (or PaO_2 60-105 mm Hg). Adjust minute ventilation to target PCO_2 35-45 mm Hg in the absence of severe acidemia.

Manage hemodynamics: Initiate or adjust vasopressors and/or fluid resuscitation as necessary for goal MAP ≥65 mm Hg.

Early diagnostic testing: Obtain 12-lead ECG to assess for ischemia or arrhythmia. Consider CT head, chest, abdomen, and/or pelvis to determine cause of arrest or assess for injuries sustained during resuscitation. Point-of-care ultrasound or echocardiography may be reasonable to identify clinically significant diagnoses requiring intervention.

Continued Management

Treat arrest etiologies and complications.

Consider emergency cardiac intervention:

- Persistent ST-segment elevation present
- Cardiogenic shock
- Recurrent or refractory ventricular arrhythmias
- Severe myocardial ischemia

Temperature control: If patient is not following commands off sedation and neuromuscular blockade or is unable to assess, initiate a deliberate strategy of temperature control with goal 32 °C-37.5 °C as soon as possible.

Evaluate for seizure: Evaluate for clinical seizure and obtain EEG to evaluate for seizure in patients not following commands.

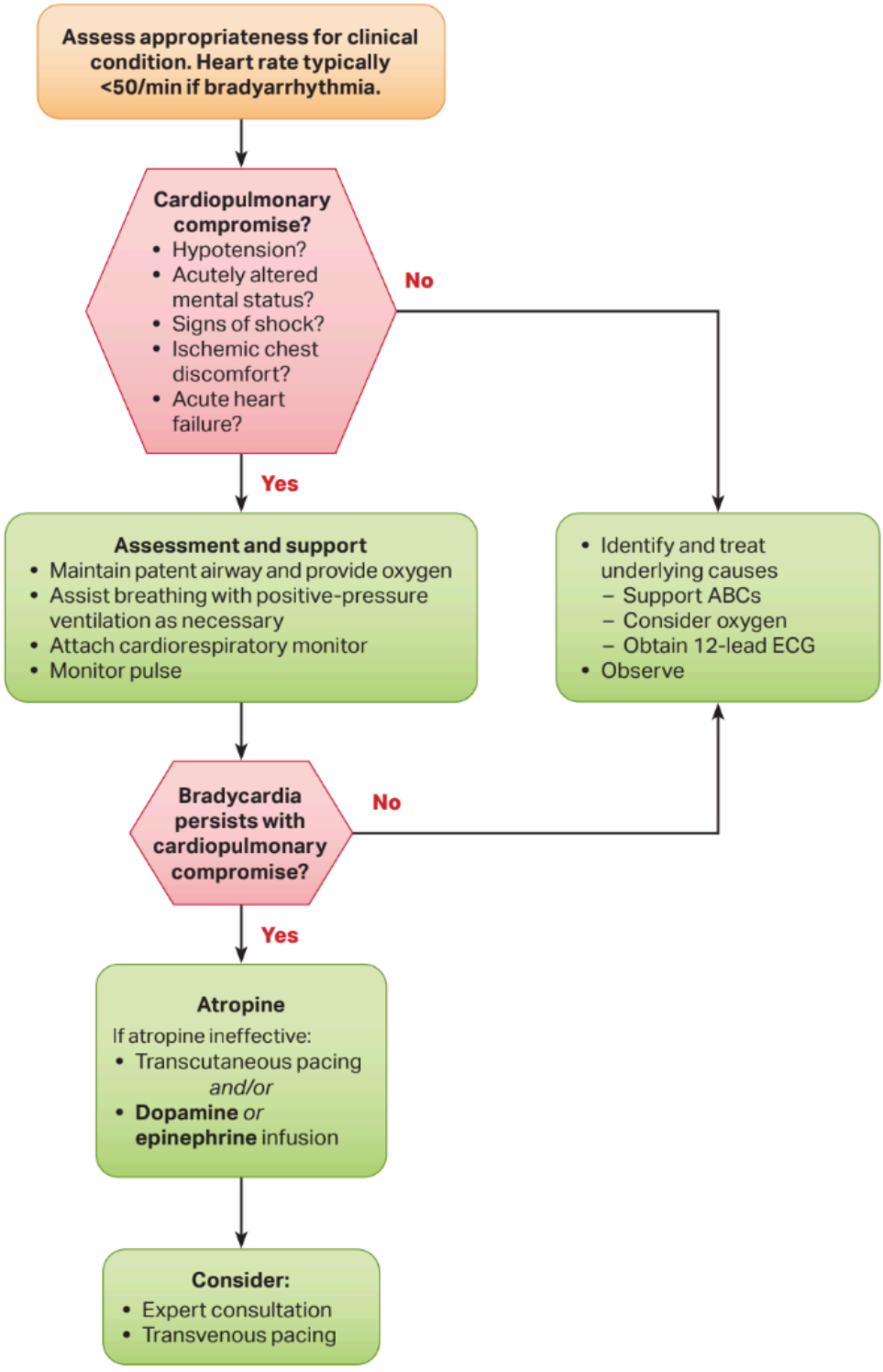
Prognostication: Multimodal approach with delayed impressions (≥72 hours from ROSC or achieving normothermia).

Ongoing critical care includes the following:

- Target PaO_2 60-105 mm Hg, PCO_2 35-45 mm Hg (unless severe acidemia); avoid hypoglycemia (glucose <70 mg/dL) and hyperglycemia (glucose >180 mg/dL); target MAP ≥65 mm Hg.
- Consider antibiotics.

CAROLINE COUNTY PREHOSPITAL PATIENT CARE PROTOCOLS

Cardiac - Adult Bradycardia with a Pulse



Doses/Details

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

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

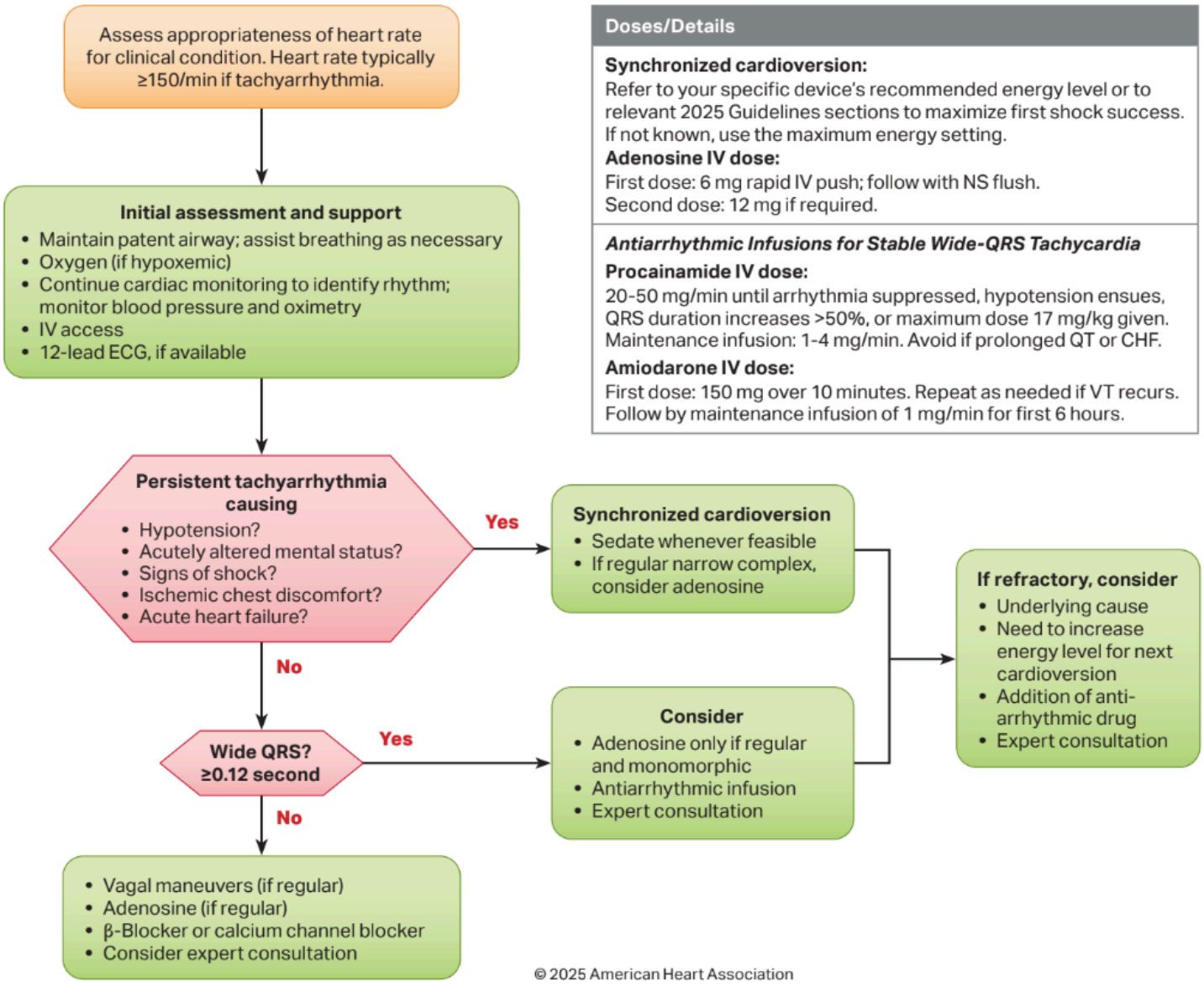
Epinephrine IV infusion:
2-10 mcg per minute infusion.
Titrate to patient response.

Possible Causes

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

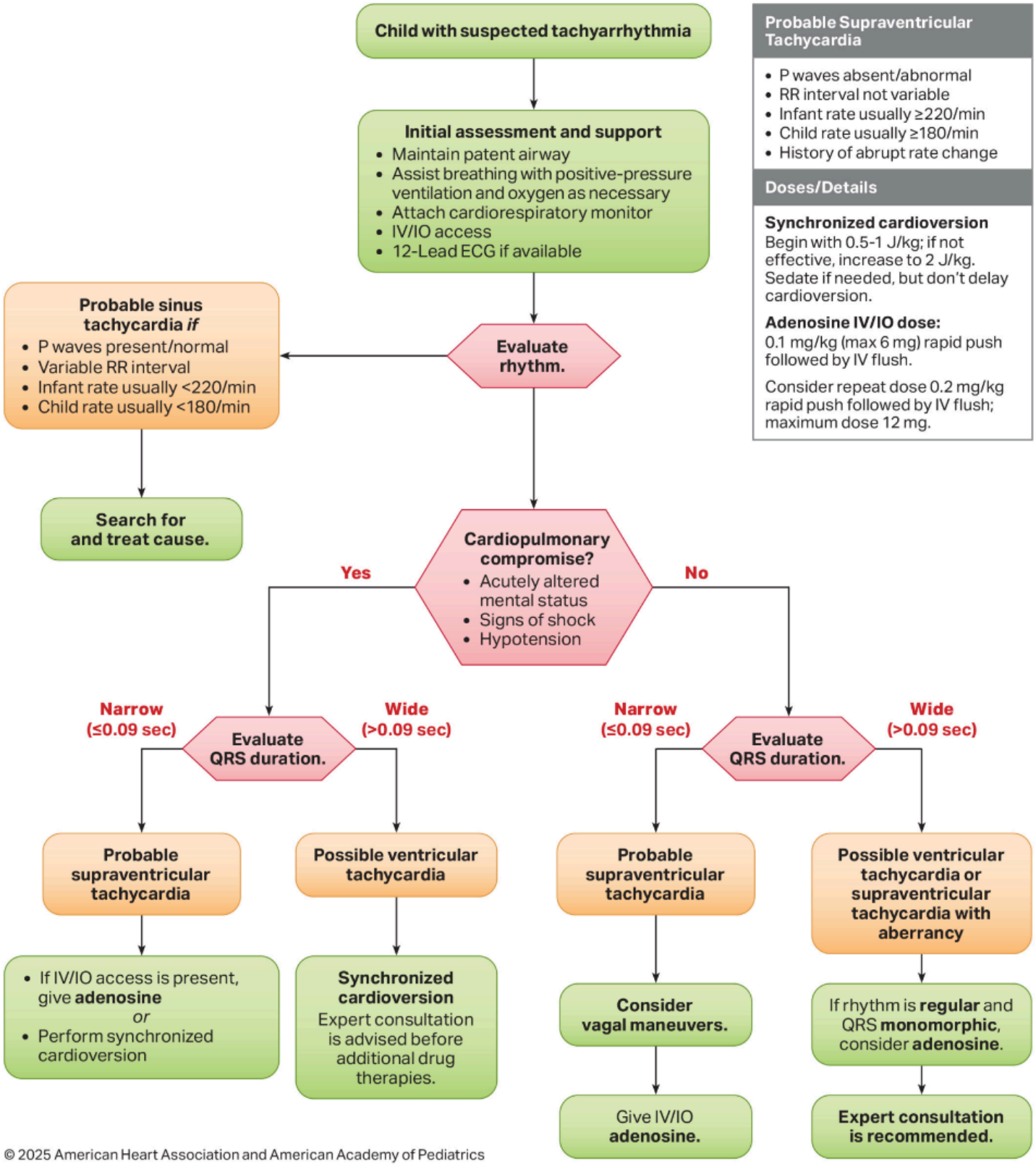
CAROLINE COUNTY PREHOSPITAL PATIENT CARE PROTOCOLS

Cardiac - Tachyarrhythmia with a Pulse



CAROLINE COUNTY PREHOSPITAL PATIENT CARE PROTOCOLS

Cardiac - Pediatric Tachyarrhythmia with a Pulse



Cardiac – Stable Atrial Fibrillation or Atrial Flutter	
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 Metoprolol 5 mg q 5 minutes SIVP, to a max total dose of 15 mg to achieve desired heart rate < 120 bpm.
Medication Summary: **Lopressor (Metoprolol):** 5 mg, repeat every five minutes; max total dose 15 mg	
Notes: Unstable criteria: altered mental status, hypotension, ischemic chest pain, signs of shock, and acute heart failure. *Protocol Created 3/30/26*	

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.

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 contaminants 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

Protocol Created 3/30/26

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*
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:	

CAROLINE COUNTY PREHOSPITAL PATIENT CARE PROTOCOLS

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

Protocol Created 3/30/26

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. Patients 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.

Scope of Practice Formulary

Protocol Created 3/30/26

General – Indwelling Medical Device/Equipment	
Criteria: Patients with ventricular assist devices and other implanted medical equipment	
EMR	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 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: https://iccac.global/documents/serve-document/public/documents/public/EMS_Guide_2024_2025_10_28_2024_small.pdf and see the reference section for a color-coded guide to various devices that are on the market

LVAD EMS Field Guide
Protocol Created 3/30/26

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

Protocol Created 3/30/26

Medical - Heat Emergencies	
Criteria: Any patient with a heat related emergency with core temperature greater than 100.4	
B	**Temperature 100.4-104F:** Remove clothing, use passive cooling **Temperature >104F:** Remove clothing, use active cooling measures (iced sheets, topical application of chilled water, ice packs at neck/groin/armpits, etc.)
A	**Temperature 100.4-103.9F:** Bolus 1 L Normal Saline. **Temperature >104F:** Bolus chilled Normal Saline, not to exceed 1 L

Notes:

1. If patient has altered mental status, see 'Medical - Altered Mental Status protocol' and transport emergently regardless of temperature.
2. Only cool patient to 102°F

Protocol Created 3/30/26

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 25 mg*). If the reaction has systemic involvement or is severe, administer **Methylprednisolone** 125 mg IV/IM (*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 IV/IM; (*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 Standard Medication Infusions in Reference Section for further.

Protocol Created 3/30/26

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 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 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 doselimiting device *Protocol Created 3/30/26*	

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 within 10 minutes of patient contact. 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 Aspirin to chew** If the patient is currently having pain, SBP > 100, has not taken three (3) or more tablets, administer up to three doses of 0.4 mg of SL **Nitroglycerin** tablets/spray q 5 minutes **OR** 1 inch of **Nitro Paste** TD (patient's or BLS drug box supplied).
A	Establish IV; administer 20 cc/kg bolus of Normal Saline if the patient is hypotensive (SBP < 90 mmHg or MAP < 60)
I	Additional **Nitroglycerin** tablet doses may be given with SBP > 90 mmHg as long as IV/IO access is in place. 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 be considered caused by life-threatening conditions until proven otherwise. If transport to cardiac catheterization facility is > 45 minutes consider alternative 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 Standard Medication Infusions in Reference Section for further.

Protocol Created 3/30/26

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 12 years or older 2. Uncontrolled epistaxis can lead to hemorrhagic shock *Protocol Created 3/30/26*	

Medical - Hypotension / Shock Non-Trauma	
Criteria: Patients that are symptomatic and have systolic blood pressure of < 90 mmHg	
B	Administer 4mg ODT **Ondansetron** to treat and prevent vomiting
A	Administer 20 cc/kg bolus of **Normal Saline**. Titrate IV fluid to achieve a systolic BP > 90 mm Hg up to 2 L. If sepsis is suspected (see note below), administer 30 cc/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 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 IV
3. All patients with unstable VS should be monitored by EKG and pulse oximetry. Whenever possible also evaluate capnography
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 Standard Medication Infusions in Reference Section for further.
5. Avoid creating hypertension
6. General sepsis criteria and findings:
    a. Patient >18 years old and not pregnant
    b. Suspected or confirmed infection
    c. 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
    d. Hypoperfusion manifested by any of the following: systolic BP less than 90, MAP < 60, altered mental status, $EtCO_2$ < 20 cmH_2O, known lactate level > 4 mmol/L or WBC count > 12,000 or < 4,000

Protocol Created 3/30/26

Medical - Nausea / Vomiting	
Criteria: Patients with nausea and/or vomiting	
B	Administer 4mg ODT **Ondansetron** to treat and prevent vomiting
A	Establish IV access based on patient presentation. Administer 20 cc/kg bolus of Normal Saline. Titrate IV fluid to achieve a systolic BP > 90 mmHg up to 2 Liters. Administer 4 mg IV **Ondansetron** (*pediatric dose is 2 mg*) to treat or provide prophylaxis against nausea. May repeat x1 after 5 min if needed.
Medication Summary: **Ondansetron (Zofran):** 4 mg ODT ; 4 mg IV (*Pediatric dose – 2 mg*) *Protocol Created 3/30/26*	

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 BLS kit If Bt
A	Administer 20 cc/kg bolus of Normal Saline. Titrate IV fluid, up to 2 L, to achieve a systolic BP > 90 mmHg or MAP > 60 If the suspected overdose/poisoning is an opioid AND there is significant respiratory depression, administer **Naloxone** beginning at 0.5 mg, IV/IM/IO/IN/Neb every 2-5 min titrating repeat doses for effective respiratory function. Pediatric dose for **Naloxone** is 0.1 mg/kg to maximum dose of 2 mg, titrated for effective respiratory function Contact poison control (1-800-222-1222) for assistance when with other substances
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:

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 BLS kit, medication box, or other approved pharmacy source per department policy and procedures

Protocol Created 3/30/26

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 cmH_2O PEEP**
A	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
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 Consider 0.5 mg/kg IV **Furosemide** if patient does not take Lasix already. If patient is prescribed Lasix, consider 1.0 mg/kg (max single dose of 40mg)

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:

- Avoid Nitroglycerin with any patient that has used Viagra, Cialis, Levitra, or herbal equivalents within the past 24 hours
- BLS should consider ALS assistance
- **To mix the Epinephrine push pressor** - mix 1 ml 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 Standard Medication Infusions in Reference Section for further.

Protocol Created 3/30/26

CAROLINE COUNTY PREHOSPITAL PATIENT CARE PROTOCOLS

Medical - Respiratory Distress / Asthma / COPD / Croup / Reactive Airway	
Criteria: Includes any patient who is having difficulty breathing or disordered breathing related to an acute or chronic process	
B	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 together. 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
	Consider CPAP for distress NOT related to allergic reaction
A	Administer **Methylprednisolone** 125 mg IV or IM 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*) **For croup, administer 3 ml Epinephrine 1:10,000 diluted with 3 cc NS by nebulizer (*pediatric dose the same*)**
P	For Asthma: if no response to Albuterol consider **Magnesium Sulfate** 50 mg/kg in 250 mL NS bag over 10-20 minutes via IV (*pediatric dose 50 mg/kg – max dose 2 g*). Can repeat 30 mg/kg in 250 mL NS bag once after 10 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 IV/IM, *pediatric: 2 mg/kg, max of 125 mg*

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

Protocol Created 3/30/26

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 (capnography recommended), provide Oxygen, monitor and protect airway

Protocol Created 3/30/26

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

Protocol Created 3/30/26

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CAROLINE COUNTY PREHOSPITAL PATIENT CARE PROTOCOLS

TRAUMA

Section III

Virginia Guideline for the Field Triage of Injured Patients

RED CRITERIA

High Risk for Serious Injury

Injury Patterns	Mental Status & Vital Signs
• Penetrating injuries to head, neck, torso, and proximal extremities • Skull deformity, suspected skull fracture • Suspected spinal injury with new motor or sensory loss • Chest wall instability, deformity, or suspected flail chest • Suspected pelvic fracture • Suspected fracture of two or more proximal long bones • Crushed, degloved, mangled, or pulseless extremity • Amputation proximal to wrist or ankle • Active bleeding requiring a tourniquet or wound packing with continuous pressure	**All Patients** • Unable to follow commands (motor GCS < 6) • RR < 10 or > 29 breaths/min • Respiratory distress or need for respiratory support • Room-air pulse oximetry < 90% **Age 0–9 years** • SBP < 70mm Hg + (2 x age in years) OR tachycardia with signs of poor perfusion **Age 10–64 years** • SBP < 90 mmHg or • HR > SBP **Age ≥ 65 years** • SBP < 110 mmHg or • HR > SBP

**Patients meeting any one of the above RED criteria should be transported to a Level I or Level II trauma center available within the geographic constraints of the regional trauma system. Patients that meet ABA Burn Criteria should be transported to a designated Burn Center.*

**Pediatric patients that meet RED Criteria should be transported to a Pediatric Trauma Center available within the geographic constraints of the regional trauma system. If Pediatric Trauma center is not within geographical constraints, transport to the highest-level trauma center, preferably a level 1 or 2*

YELLOW CRITERIA

Moderate Risk for Serious Injury

Mechanism of Injury	EMS Judgment
• High-Risk Auto Crash – Partial or complete ejection – Significant intrusion (including roof) • >12 inches occupant site OR • >18 inches any site OR • Need for extrication for entrapped patient – Death in passenger compartment – Child (age 0–9 years) unrestrained or in unsecured child safety seat • Rider separated from transport vehicle with significant impact (eg., motorcycle, ATV, horse, etc.) • Pedestrian/bicycle rider thrown, run over, or with significant impact • Fall from height > 10 feet (all ages)	Consider risk factors, including: • Low-level falls in young children (age ≤ 5 years) or older adults (age ≥ 65 years) with significant head impact • Anticoagulant use • Suspicion of child abuse • Special, high-resource healthcare needs • Pregnancy > 20 weeks • Burns in conjunction with trauma • Children should be triaged preferentially to pediatric capable centers *If concerned, take to a trauma center

Patients meeting any one of the YELLOW CRITERIA WHO DO NOT MEET RED CRITERIA should be preferentially transported to a trauma center, as available within the geographic constraints of the regional trauma system (need not be the highest-level trauma center)

BURN CRITERIA

ABA Burn Center Referral Criteria	
• Partial thickness burns, greater than 10% TBSA • Burns to the face, hands, feet, genitalia, perineum, or major joints • Third degree burns in any age group • Electrical burns, including lightning injury • Chemical burns • Inhalation injury	• Burn injury in patients with preexisting medical conditions • Burn injuries involving children in hospitals without qualified personnel or equipment to care for children • Burn injuries in patients that will require special social, emotional, or rehabilitative intervention • Burn injuries with concomitant trauma injuries (i.e. fractures)

**Patients that meet ABA Burn Criteria should be transported to a designated Burn Center available within the geographic constraints of the regional trauma system. If burn center is not within geographical constraints, transport to the highest-level trauma center, preferably a level 1 or 2*

Guidelines for Burn Patient Referral

(Advice on Transfer and Consultation)

American Burn Association

Burn Severity Determination

SUPERFICIAL

- Dry, red, easily blanching, sometimes painful
- Example: Sunburn
- NOT counted in calculations of total burn surface area (TBSA)

SUPERFICIAL PARTIAL THICKNESS

- Moist, red, blanching, blisters, very painful
- Counted in calculations of total burn surface area (TBSA)

DEEP PARTIAL THICKNESS

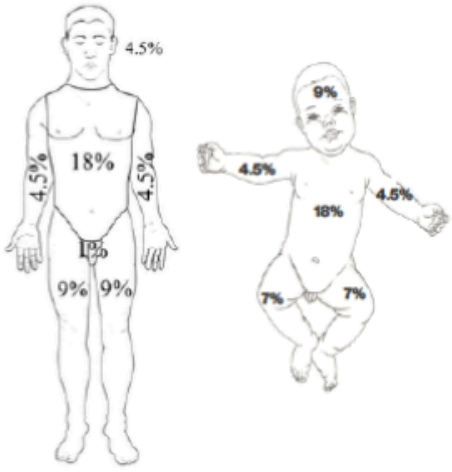
- Drier, more pale, less blanching, less pain
- Counted in calculations of total burn surface area (TBSA)

FULL THICKNESS

- Dry, leathery texture, variable color (white, brown, black), loss of pin prick sensation
- Counted in calculations of total burn surface area (TBSA)

Percentage Total Body Surface Area (TBSA)

"RULE OF NINES"



"PALMAR METHOD"

Patient's entire palmar surface is approximately 1%

For more information visit **ameriburn.org/burnreferral**

CAROLINE COUNTY PREHOSPITAL PATIENT CARE PROTOCOLS

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** 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 in a patient of any age, consider placing endotracheal tube during CPR. Do NOT stop compressions or stop resuscitation to place endotracheal tube**
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 *Protocol Created 3/30/26*	

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 12 years of age and older 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
Medication Summary: **Tranexamic Acid (Cyklokapron):** 2 g over slow IV/IO push	
Notes: 1. Providers are encouraged to follow current TECC guidelines for the management of injuries 2. TECC Guidelines are linked here: https://www.c-tecc.org/images/F_TECC_ALS_BLS_Guidelines_2025_FINAL.pdf	

TECC Guidelines

Protocol Created 3/30/26

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 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 if 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 (*pediatric dose same as adult*)

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 affect 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.

Protocol Created 3/30/26

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 **DAN Neurological Assessment**
A	If hypotensive, establish peripheral IV/IO and administer Normal Saline.
I	Assess for possible over pressurization injury. Decompress chest if tension pneumothorax is suspected.

Notes

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. DAN Emergency Assistance Number: 1-(919)-684-9111 (24-hour number). 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 (pins and needles), vision abnormalities, convulsions or personality changes

Protocol Created 3/30/26

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 backboard 20 degrees. **Avoid hyperventilation**
	Ventilate patients at a rate to achieve ETCO2 at 40 mmHg
A	Administer 20 cc/kg Normal Saline (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, is unconscious, and patient is not able to maintain a secure airway, consider intubation**

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 Standard Medication Infusions in Reference Section for further.
5. * Herniation = blown or unequal pupils, GCS 3, and/or posturing

Protocol Created 3/30/26

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): 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

Protocol Created 3/30/26

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

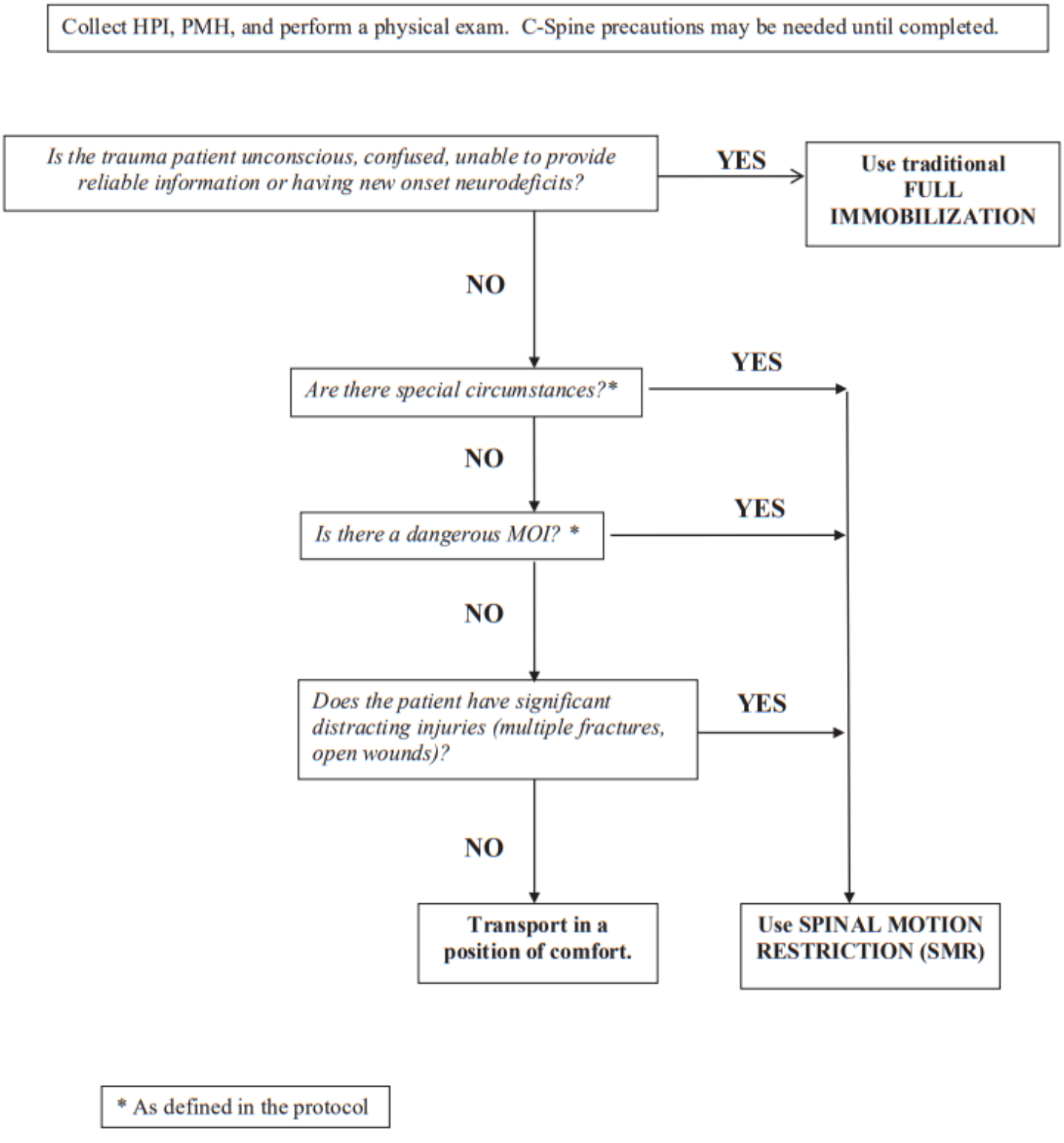
B

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.

Protocol Created 3/30/26


Collect HPI, PMH, and perform a physical exam. C-Spine precautions may be needed until completed.
Is the trauma patient unconscious, confused, unable to provide reliable information or having new onset neurodeficits?
YES
Use traditional FULL IMMOBILIZATION
NO
Are there special circumstances?*
YES
NO
Is there a dangerous MOI? *
YES
NO
Does the patient have significant distracting injuries (multiple fractures, open wounds)?
YES
NO
Transport in a position of comfort.
Use SPINAL MOTION RESTRICTION (SMR)
* As defined in the protocol

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CAROLINE COUNTY PREHOSPITAL PATIENT CARE PROTOCOLS

CLINICAL PROCEDURES

Section IV

Scope of Practice Table

Skill or Procedure	EMR	EMT	AEMT	EMTI-I	EMT-P
Airway – Blind Insertion Airway Device (BIAD)	X	AS	S	S	S
Airway – BVM, Adult & Pediatric	S	S	S	S	S
Airway - CPAP/BiPAP – Adult	X	AS	AS	AS	AS
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	AS
Airway – ETCO2	X	AS	S	S	S
Airway – Mechanical Ventilator – Monitor existing home/chronic ventilator	X	OMD-R	OMD-R	S	S
Airway – Oropharyngeal or Nasopharyngeal	S	S	S	S	S
Airway – Position (Chin-Lift; Jaw Thrust)	S	S	S	S	S
Airway – Needle me	X	X	X	X	OMD-R
Airway – Surgical Cricothyroidotomy	X	X	X	X	OMD-R
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
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	AS	AS
IV – Access PICC	X	X	X	OMD-R	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
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	OMD-R	S	S	S

Medication Administration – IM	X	OMD-R	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
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
Suction Endotracheal	X	S	S	S	S
Suction Meconium Aspiration with ET	X	X	X	X	AS
Therapeutic Hypothermia	X	X	X	X	X

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
AS – Approved Skill per OEMS Scope of Practice table. This requires a provider to receive specific authorization to perform this skill/procedure through training and skills sign off. A signed copy of the CCFR OMD approval of the skill/procedure must be on file prior to performing it. 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
OMD-R – Organization Medical Director-Restricted is a skill that is a standing order per OEMS Scope of Practice, but is restricted to specific providers within Caroline County that have specific authorization from current CCFR OMD on file prior to performing them. These items are identified with a red background in the protocols.
X – NOT PERMITTED

CAROLINE COUNTY PREHOSPITAL PATIENT CARE PROTOCOLS

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	AS
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 - Autoinjector	X	S	S	S	S
Epinephrine - IM	X	S	AS	S	S
Epinephrine - IV/IO	X	X	AS	S	S
Epinephrine - Nebulized	X	X	AS	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	AS
Ketorolac (Toradol)	X	X	S	S	S
Lidocaine (Xylocaine)	X	X	S	S	S
Metoprolol (Lopressor)	X	X	X	S	S
Magnesium Sulfate (Magnesium) - Torsades or Respiratory	X	X	X	S	S
Magnesium Sulfate (Magnesium) - Eclamptic Seizures	X	X	X	O	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

Sodium Bicarbonate	X	X	X	S	S
Tranexamic Acid	X	X	S	S	S

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

OMD-R – Organization Medical Director-Restricted is a skill that is a standing order per OEMS Scope of Practice, but is restricted to specific providers within Caroline County that have specific authorization from current CCFR OMD on file prior to performing them. These items are identified with a red background in the protocols.

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X – NOT PERMITTED

12-lead Electrocardiogram

Criteria:

1. All patients that are complaining of chest pain / tightness (exception for trauma with no suspicion of myocardial contusion)
2. Any patient who has a non-traumatic complaint or finding related to the upper body (examples include: syncope, dizziness, CHF/pulmonary edema, cyanosis, poisoning, hyper/hypotension, pacemaker/defibrillator malfunction, epigastric pain, weakness, feelings of anxiety or impending doom, overdose, back/neck/arm pain without trauma, shortness of breath, stroke/neuro symptoms, altered mental status with no obvious cause, nausea/vomiting, palpitations, unexplained diaphoresis, general
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.

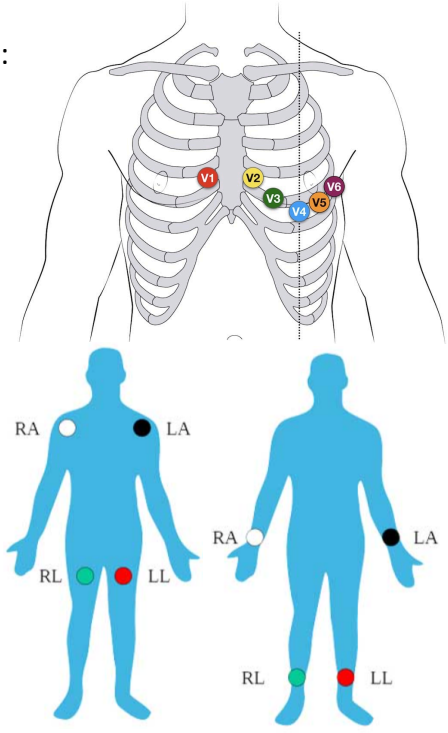
B

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
- V6 - 5th intercostal space, midaxillary line of left chest
- V3 - midway between V2 and V4
- V5 - midway between V4 and V6

Once the EKG is obtained, print a copy and read the text information printed on the strip. See Medical - Chest Pain 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 be 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).

Protocol Created 3/30/26

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.
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 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.

Protocol Created 3/30/26

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

A	Once IO is established, flush the line with 20-40 mg of 2% **Lidocaine** for adults, (*0.5 mg/kg for pediatric patients*) if the patient is responsive to pain.
I	**The following criteria/steps apply to ALL types of devices that are listed for access** **a) if possible, confirm with patient that device is in good condition and able to be used** **b) open necessary supplies and maintain aseptic field; don mask and gloves** **c) ensure the patient's face is turned away from the site/access** **d) after administration of medications and IV fluids, flush with 20 cc of saline** **e) document procedure and rationale in patient care report** **f) 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 noncoring 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.

Protocol Created 3/30/26

Mark I Kit	
Criteria: Patients that are symptomatic after exposure to organophosphorus pesticides or nerve agents	
A	Obtain and administer the **Mark I** auto-injector kit (Atropine 2 mg and 2-PAM Cl 600 mg IM) every five minutes while symptoms persist. Max of three doses.
I	**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 under <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. *Protocol Created 3/30/26*	

CAROLINE COUNTY PREHOSPITAL PATIENT CARE PROTOCOLS

Needle Chest Decompression	
Criteria: 1. Patients with blunt or penetrating trauma to the chest or who have diminished or absent breath sounds with TWO of the following: poor ventilation, jugular vein distention, tracheal deviation, or signs/symptoms of shock (hypotension, respiratory distress, etc). 2. Indicated for large pneumothorax and/or hemopneumothorax in patients with respiratory distress or patients with clinical signs of tension pneumothorax. 3. Patients in cardiac arrest with signs of chest/abdominal trauma. 4. Patients with large pneumothorax viewed by US.	
I	Assess breathing and chest rise; if signs or symptoms of TENSION PNEUMOTHORAX, perform lateral (4th/5th ICS) needle thoracostomy. Repeat as necessary
Notes: 1. Patients who are not hypotensive or in respiratory distress are NOT generally considered to have an injury which requires NCD. *Protocol Created 3/30/26*	

CPAP	
Criteria: Patients that are awake but in respiratory distress related to pulmonary edema, asthma, or COPD	
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**

Notes:

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

Protocol Created 3/30/26

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CAROLINE COUNTY PREHOSPITAL PATIENT CARE PROTOCOLS

REFERENCE

Section V

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.

Trauma Centers within CCFR region			
Trauma Level	**Hospital**	**Address**	**Specialties**
Level I	Chippenham Medical Center	7101 Jahnke Rd Richmond, VA 23225	Level I Trauma, Burns
	VCU Children's Hospital	1001 E Marshall St Richmond, VA 23298	Level I Trauma, Burns, Peds
	VCU Medical Center	1230 E Marshall St Richmond, VA 23298	Level I Trauma, Burns
Level II	Henrico Doctor's Hospital - Forest	1602 Skipwith Rd Richmond, VA 23229	Level II Trauma
	Mary Washington Hospital	1001 Sam Perry Blvd Fredericksburg, VA 22401	Level II Trauma

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.

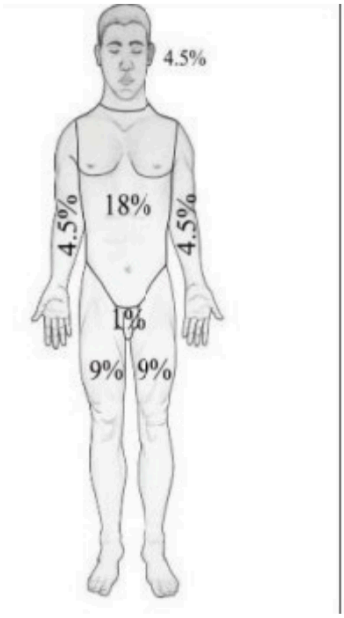
Level III

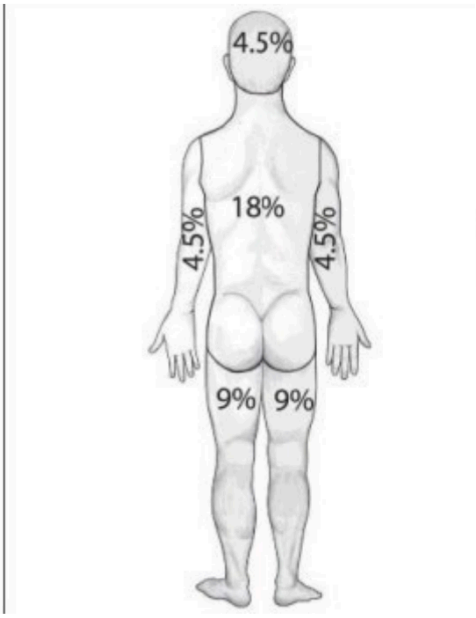
Level III trauma centers, through an organized trauma response, can provide prompt assessment, resuscitation, stabilization, emergency operations and also arrange for the transfer of the patient to a facility that can provide definitive trauma care. Level III centers should also take on responsibility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

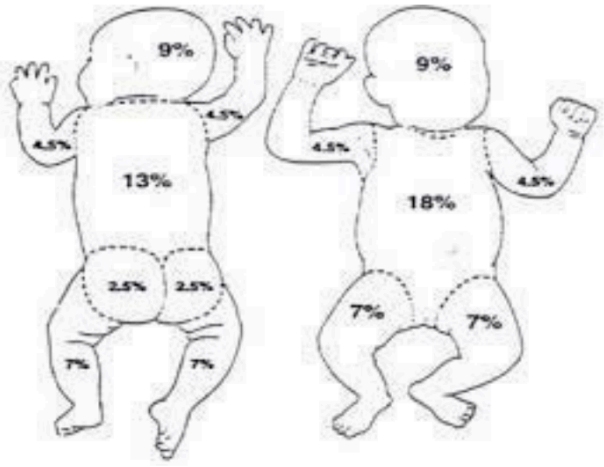
Burn Criteria

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







Designated Stroke Centers

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

Stroke Certification Level	Hospital Name	City
Comprehensive Stroke Center	Bon Secours St. Mary's Hospital	Richmond
	VCU Medical Center	Richmond
Thrombectomy-Capable Facility	Mary Washington Hospital	Fredericksburg
	HCA Henrico Doctor's - Forest	Richmond
Primary Stroke Center	Bon Secours Memorial Regional Medical Center	Mechanicsville
	Bon Secours Richmond Community Hospital	Richmond
	Central Virginia VA Healthcare System (McGuire)	Richmond
	HCA CJW Medical Center - Chippenham	Richmond
	HCA Henrico Doctor's Hospital - Parham	Richmond
	HCA Henrico Doctor's Hospital - Retreat	Richmond
	HCA Spotsylvania Regional Hospital	Fredericksburg
Acute Stroke Ready Facility	HCA Emergency Room - Fredericksburg	Fredericksburg
	VCU Tappahannock Hospital	Tappahannock

Pre-Alert Procedures

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.

Pre-Alert Guidelines at First Medical Contact			
AMI	**Stroke**	**Serious Trauma**	**Sepsis**
12 lead 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 measure 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
12 lead EKG interpretation (device or provider)	Results of BEFAST/VAN stroke test	GCS + vital signs (if available)	Lactate level & temperature (if available), and BP
Name of patient and other pertinent information[6]	Name of patient and other pertinent information[6]	N/A	N/A
The standard follow-on HEAR report is given en route.			

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

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

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

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

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

[6]Other pertinent information includes terminal illness, hospice, 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 1:1,000 epi in 1L of Normal Saline; 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 Triage And Rapid Treatment) and JumpSTART (for pediatric patients)

- □ Begin where you are
- □ Ask anyone who can walk to move to a designated area
- □ Use surveyor's tape to mark patients
- □ Move quickly from patient to patient
- □ Maintain patient count
- □ Provide only minimal treatment
- □ Keep moving!

Remember…Establish COMMAND, SAFETY, SURVEY, SEND, SET-UP AND START/JumpSTART!

CAROLINE COUNTY PREHOSPITAL PATIENT CARE PROTOCOLS

Regional 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 the R-REMS 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

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

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

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

CAROLINE COUNTY PREHOSPITAL PATIENT CARE PROTOCOLS

Regional Hospital Coordination Center Activation for MCIs

The RHCC will be notified to activate in support of EMS agencies in the R-REMS region for incidents meeting any of the following criteria:

MCI Declared Under Regional Plan

[] An event which involves (10) or more patients that will require transportation to a hospital; and/or where (3) or more hospitals are to receive patients

[] A single HAZMAT event in the R-REMS region involving (3) or more patients that will be decontaminated in the field by EMS before being transported to a hospital

[] A event in the R-REMS region involving a suspected or confirmed Category A biological agent

[] A R-REMS EMS agency has accessed and/or requested a CHEMPACK or MMRS Rx cache

YES

Appropriate Fire/EMS agent on scene will immediately contact the RHCC by radio or phone **1-888-987-7422**

Should EMS contact MCI Hospital initially they should be advised to go direct with the RHCC by hospital staff

Hospital may activate the RHCC if requested as backup to initial EMS direct communications

Provide RHCC Staff the Following Information

[] Total number of patients / casualties (actual or estimate)

[] Location and jurisdiction of incident

[] Type of incident (i.e. explosion, major car accident, chemical fire, etc.)

[] A casualty assessment to include number of Red/Immediate, Yellow/Delayed, and Green/Minor patients

[] The exact support needed from the RHCC

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

RHCC Communicates with Hospitals

[] Incident information immediately conveyed to regional hospitals via MedComm. RHCC Communicates with adjoining regional hospitals systems as needed – depending on location and extent of incident.

[] All NVHA hospitals will be asked to report their immediate casualty capacity information within 10 minutes of activation (i.e. number of red, yellow, green patients they could manage within the next 30 minutes)

[] This information will then be relayed to the appropriate EMS field officer on scene to assist with patient disposition and hospital destination decisions by the RHCC

Incident page established

Hospitals will utilize VHASS/WebEOC for incident and patient tracking to include use of State Triage Tag #s

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CAROLINE COUNTY PREHOSPITAL PATIENT CARE PROTOCOLS

MEDICATION REFERENCE

Section VI

You CANNOT treat from this section. This is for reference ONLY. All treatment must come from individual protocols

1 Adenosine (Adenocard)

MECHANISM OF ACTION:

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

INDICATIONS:

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

CONTRAINDACATIONS:

Second- or third-degree block

PRECAUTIONS:

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

SIDE EFFECTS:

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

DOSAGE:

Adults:

- **6.0 mg rapid IVP**, immediately followed by rapid 20 ml Normal Saline flush
- If no response in 1-2 minutes, **12 mg rapid IVP** and 20 ml NS rapid IVP

Pediatrics:

- **0.1 mg/kg rapid IVP** immediately followed by rapid 20 ml Normal Saline flush, max dose 6 mg
- If no response in 1-2 minutes, **0.2 mg/kg rapid IVP** and Normal Saline rapid IVP, max dose 12 mg

2 Albuterol (Proventil)

MECHANISM OF ACTION:

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

INDICATIONS:

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

CONTRAINDACATIONS:

- Hypersensitivity to drug
- Tachydysrythmias

PRECAUTIONS:

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

SIDE EFFECTS:

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

DOSAGE:

Adults:

Asthma / COPD

- **2.5 mg of Albuterol nebulized**, max dose of 7.5 mg (online medical control needed for > 7.5 mg)

Hyperkalemia / Crush Injury

- **10-20 mg Albuterol nebulized** over 15-20 minutes

Pediatrics:

Asthma / COPD

- If under 2 years old, administer **1.25 mg Albuterol diluted with 2 cc NS nebulized**, max dose of 3.75

3 Amiodarone (Cordarone)

MECHANISM OF ACTION:

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

INDICATIONS:

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

CONTRAINDACATIONS:

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

PRECAUTIONS:

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

SIDE EFFECTS:

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

DOSAGE:

Adults:

Wide-Complex Tachyarrhythmia with a Pulse:

150 mg over 10 minutes IV/IO, repeat as needed if VT recurs. Followed by maintenance infusion of 1 mg/min. Consult Standard Medication Infusions in Reference Section for further.

Ventricular Ectopy After ROSC:

150 mg over 10 minutes IV/IO

4 Aspirin (Acetylsalicylic Acid)

MECHANISM OF ACTION:

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

INDICATIONS:

Chest pain consistent with AMI.

CONTRAINDACATIONS:

- Allergy or hypersensitivity to aspirin
- Active ulcer disease
- Asthma

PRECAUTIONS:

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

SIDE EFFECTS:

Tinnitus, nausea, GI distress, dyspepsia, GI bleeding

DOSAGE:

Cardiac-suspected Chest Pain:

324 mg aspirin PO (Give 324 mg aspirin if patient hasn't taken > 160mg Aspirin in past 4 hours; if patient has had > 160 mg Aspirin in past 4 hours, given enough 81 mg tablets to give patient total dose of 324 mg aspirin, including aspirin they have taken before EMS arrival)

5 Atropine Sulfate (Atropine)

MECHANISM OF ACTION:

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

INDICATIONS:

- Symptomatic bradycardia
- Organophosphate poisoning

CONTRAINDACATIONS:

None in the emergency setting.

PRECAUTIONS:

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

SIDE EFFECTS:

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

DOSAGE:

Adults:

Symptomatic Bradycardia:

- First dose 1 mg Atropine IV/IO, repeat every 3-5 minutes, maximum total dose of 3 mg

Pediatrics:

Symptomatic Bradycardia:

- 0.02 mg/kg Atropine IV/IO, may repeat once, minimum dose 0.1 mg and maximum single dose 0.5 mg

6 Atrovent (Ipratropium Bromide)

MECHANISM OF ACTION:

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

INDICATIONS:

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

CONTRAINDACATIONS:

Hypersensitivity to atropine or its derivatives.

PRECAUTIONS:

None when co-administered with Albuterol

SIDE EFFECTS:

Bronchitis, sinusitis, exacerbation of respiratory symptoms, nervousness, dizziness, headache, palpitations, nausea, vomiting, GI distress, tremor, dry mouth, blurred vision

DOSAGE:

Asthma/COPD:

0.5 mg Atrovent Nebulized

7 Calcium Chloride

MECHANISM OF ACTION:

Calcium Chloride does not lower serum potassium levels but stabilizes cardiac cell membranes, preventing fatal arrhythmias.

INDICATIONS:

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

CONTRAINDACATIONS:

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

PRECAUTIONS:

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

SIDE EFFECTS:

Bradycardia, peripheral vasodilation, local tissue necrosis with IV infiltration, hypotension, metallic taste

DOSAGE:

Adults:

Hyperkalemia:

1 g Calcium Chloride over 5-10 minutes IV/IO

Pediatrics:

Hyperkalemia:

10-20 mg/kg, max dose 1 g over 5-10 minutes IV/IO

8 Dextrose 10% (D10)

MECHANISM OF ACTION:

Increasing circulating blood sugar levels.

INDICATIONS:

Hypoglycemia, Crush Syndrome, Cold Weather Emergencies

CONTRAINDACATIONS:

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

PRECAUTIONS:

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

SIDE EFFECTS:

Tissue necrosis, if infiltration occurs.

DOSAGE:

Adults:

100 cc Dextrose 10% IV/IO

Pediatrics:

5 cc/kg Dextrose 10% IV/IO

Neonates:

2 cc/kg Dextrose 10% IV/IO

9 Diphenhydramine (Benadryl)

MECHANISM OF ACTION:

H^1 selective histamine blocker.

INDICATIONS:

- Allergic reactions
- Uticaria (hives)
- Anaphylaxis
- Extrapyramidal symptoms (EPS) such as tremors and gait abnormalities, and dystonic reactions such as dysphagia, are caused by phenothiazines like chlorpromazine, thioridazine, haloperidol, or perphenazine

CONTRAINDACATIONS:

- Angle-closure glaucoma
- Should not be used in management of 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, double vision, hypertension, headache, drowsiness, dizziness, blurred vision, tremors, palpitations, nausea

DOSAGE:

Adults:

Allergic Reaction / Anaphylaxis:

- 25-50 mg Benadryl IV/IO/IM

Dystonic Reaction / Chemical Restraint:

- 25 mg Benadryl IV/IO/IM

Pediatrics:

Allergic Reaction / Anaphylaxis / Chemical Restraint / Dystonic Reaction:

- 1 mg/kg Benadryl IV/IO/IM, max dose of 25 mg

10 Dopamine (Dobutrex)

MECHANISM OF ACTION:

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

INDICATIONS:

- To increase cardiac output in cardiogenic shock
- Second line therapy in bradycardia
- Second line therapy in hemorrhagic shock

CONTRAINDACATIONS:

- Ensure patient has been treated with blood before using in hypovolemia
- Do not use in the presence of 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 leaks

DOSAGE:

Vasopressor Infusion:

- 5-20 mcg/kg/min Dopamine infusion IV/IO (See Standard Medication Infusions in Reference Section for further)

11 Epinephrine

MECHANISM OF ACTION:

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

INDICATIONS:

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

CONTRAINDACATIONS:

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

PRECAUTIONS:

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

SIDE EFFECTS:

Anxiety, tremors, palpitations, tachycardia, headache

DOSAGE:

Anaphylaxis:

- 0.3 mg 1:1,000 Epinephrine IM (*pediatric dose: 0.01 mg/kg, max dose 0.3 mg*) OR
- 0.3 mg 1:10,000 Epinephrine IV (Used for severe and quickly progressing reaction)

Severe Asthma/COPD Attack:

- 0.3 mg 1:1,000 Epinephrine IM (*pediatric 0.01 mg/kg; max dose 0.3 mg*)

Croup, ARDS, Status Asthmaticus:

- 3 ml 1:10,000 Epinephrine diluted with 3 cc Normal Saline nebulized

Cardiac Arrest

- 1 mg 1:10,000 Epinephrine IV/IO every 3 to 5 minutes (*pediatric dose: 0.01 mg/kg Epinephrine IV/IO every 3 to 5 minutes)*

Push Pressor:

- 5-20 mcg 1:100,000 Epinephrine IV/IO every 3-5 minutes

Vasopressor Infusion:

- 2-10 mcg/min Epinephrine IV/IO (See Standard Medication Infusions in Reference Section for further)

12 Etomidate (Amidate)

MECHANISM OF ACTION:

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

INDICATIONS:

Procedural sedation (pre-medication)

CONTRAINDACATIONS:

- Known hypersensitivity
- Adrenal insufficiency

PRECAUTIONS:

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

DOSAGE:

Procedural Sedation:

- 0.3 mg/kg Etomidate IV/IO

13 Fentanyl Citrate (Sublimaze)

MECHANISM OF ACTION:

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

INDICATIONS:

For relief of moderate to severe pain.

CONTRAINDACATIONS:

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

PRECAUTIONS:

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.

SIDE EFFECTS:

Sedation, drowsiness, mental clouding, lethargy, impairment of mental and physical performance, anxiety, fear, dysphoria, dizziness, psychic dependence, and mood changes. 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. Nausea and vomiting, constipation. Respiratory depression.

DOSAGE:

Pain Control:

- 0.5-1 mcg/kg Fentanyl IV/IO, max single dose of 100 mcg, repeat every 15 minutes as needed

Pain Control for Burns:

- 1-2 mcg/kg Fentanyl IV/IO, max adult dose 300 mcg (*max pediatric dose 100 mcg)*, repeat every 5 minutes as needed

Pain Control for Extended Extrication

- 1-1.5 mcg/kg Fentanyl IV/IO (*max pediatric dose 50 mcg*)

14 Furosemide (Lasix)

MECHANISM OF ACTION:

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

INDICATIONS:

- Congestive heart failure
- Pulmonary edema

CONTRAINDACATIONS:

Patients who are allergic to sulfonamides or thiazides.

PRECAUTIONS:

- Should be limited to life-threatening situations in pregnant patients
- Use with 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

DOSAGE:

Congestive Heart Failure / Pulmonary Edema:

- 0.5 mg/kg Lasix IV/IO if patient does not take Lasix as home med, max single dose 40 mg
- 1.0 mg/kg Lasix IV/IO if patient does take Lasix as home med, max single dose 40 mg

15 Glucagon (GlucaGen)

MECHANISM OF ACTION:

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

INDICATIONS:

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

CONTRAINDACATIONS:

Known hypersensitivity.

PRECAUTIONS:

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

SIDE EFFECTS:

- Nausea
- Hypoglycemia
- Hyperglycemia
- Vomiting

DOSAGE:

Hypoglycemia:

1 mg Glucagon IM/SQ

16 Ketamine HCl (Ketanest)

MECHANISM OF ACTION:

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

INDICATIONS:

- An induction agent to precipitate airway management.
- Chemical Extrication or sedation.
- Pain management

CONTRAINDACATIONS:

- Hypersensitivity
- Severe hypertensive crisis

SIDE EFFECTS:

- May increase the effects of other sedatives, such as benzodiazepines
- Confusion
- Hallucinations
- Hypertension
- Tachycardia

DOSAGE:

Behavioral Restraint

- 2 mg/kg Ketamine IM repeat once in 10 minutes if needed, max dose 200 mg OR
- 1-2 mg/kg Ketamine IV/IO, repeat once in once after 5 minutes if needed, max dose 100 mg

Pain Control

- 0.25-0.5 mg/kg Ketamine IV/IO, repeat once after 10 minutes if needed,

Pain Control for Multisystem Injury

- 1-2 mg/kg Ketamine IV/IO, max pediatric dose of 50 mg OR
- 2-4 mg/kg IM, max pediatric dose of 100 mg IM

Sedation for RSI

- 2 mg/kg IV/IO

17 Ketorolac (Toradol)

MECHANISM OF ACTION:

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

INDICATIONS:

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

CONTRAINDACATIONS:

- Hypersensitivity to the drug
- Allergies to ASA or other NSAIDs
- Bleeding disorders
- Renal failure / dialysis
- Active peptic ulcer disease
- Head trauma or meets trauma triage criteria
- History or suspected current cerebral hemorrhage
- Patient is pregnant

PRECAUTIONS:

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

SIDE EFFECTS:

Anaphylaxis from hypersensitivity, edema, sedation, bleeding disorders, rash, nausea, headache

DOSAGE:

Adults:

Pain Control

- 30 mg Toradol

Pediatrics:

Pain Control

- 0.5 mg/kg Toradol, max dose 30 mg

Geriatric Recommended Dose:

Pain Control

- 15 mg Toradol

18 Lidocaine 2% (Xylocaine)

MECHANISM OF ACTION:

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

INDICATIONS:

- Ventricular fibrillation
- Ventricular ectopy
- Ventricular tachycardia
- Wide complex tachycardia (unknown origin)
- Analgesia for flushing IO

CONTRAINDACATIONS:

- 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:

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

SIDE EFFECTS:

Hypotension, conduction disturbances, bradycardia, tremors, confusion, seizures

DOSAGE:

Adults:

Ventricular Ectopy After ROSC:

- 1-1.5 mg/kg, max dose 100 mg followed by maintenance infusion of 1-4 mg/min or 30-50 mcg/kg/min

IO Local Analgesia:

- 20-40 mg Lidocaine IO

Cardiac Arrest:

- First dose: 1-1.5 mg/kg
- Second dose 0.5-0.75 mg/kg

Pediatrics:

Ventricular Ectopy After ROSC:

- 1-1.5 mg/kg IV/IO, max dose 100 mg followed by maintenance infusion of 1-4 mg/min or 30-50 mcg/kg/min

IO Local Analgesia:

- 0.5 mg/kg Lidocaine IV/IO

Cardiac Arrest:

- 1 mg/kg Lidocaine IV/IO

19 Magnesium Sulfate

MECHANISM OF ACTION:

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

INDICATIONS:

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

CONTRAINDACATIONS:

- AV block or recent myocardial infarction
- Shock
- Dialysis patients and those with renal disease
- Severe hypertension
- Hypocalcemia

PRECAUTIONS:

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

SIDE EFFECTS:

Flushing, bradycardia, decreased deep tendon reflexes, hypothermia, rash, sweating, arrhythmias, drowsiness, hypotension, itching

DOSAGE:

Adults:

Torsades de Pointes:

- 1-2 g Magnesium Sulfate IV/IO

Eclamptic Seizures:

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

Refractory Asthma:

- 50 mg/kg Magnesium Sulfate infusion IV/IO over 10-20 minutes
- Can repeat 30 mg/kg Magnesium Sulfate infusion IV/IO once over 10 minutes, do not exceed 2.5 g total

Pediatrics:

Torsades de Pointes:

- 25-50 mg/kg Magnesium Sulfate IV/IO, max dose 2 g

Refractory Asthma:

- 50 mg/kg Magnesium Sulfate infusion IV/IO over 10-20 minutes, max dose 2g
- Can repeat 30 mg/kg Magnesium Sulfate infusion IV/IO once over 10 minutes, do not exceed 2.5 g total

20 Methylprednisolone (Solu-Medrol)

MECHANISM OF ACTION:

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

INDICATIONS:

- Anaphylaxis
- Respiratory distress from asthma or COPD

CONTRAINDACATIONS:

Known hypersensitivity

PRECAUTIONS:

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

SIDE EFFECTS:

Seizures, vertigo, CHF, hypertension, tachycardia, nausea, vomiting, headache, abdominal distensio, diarrhea, GI hemorrhage, palpitations

DOSAGE:

Adults:

Asthma / COPD

- 125 mg Solu-Medrol IV/IO/IM

Pediatrics:

Asthma / COPD

- 2 mg/kg Solu-Medrol IV/IO/IM, max dose 125 mg

21 Midazolam (Versed)

MECHANISM OF ACTION:

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

INDICATIONS:

- Sedation
- Anxiety
- Seizures
- Skeletal muscle relaxation

CONTRAINDACATIONS:

Acute-angle glaucoma

PRECAUTIONS:

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

SIDE EFFECTS:

- Respiratory depression
- May cause hypotension
- Nausea, vomiting

DOSAGE:

Adult:

Seizures:

- 2-5 mg Versed, repeat after 5 min if needed

Anxiety/Sedation/Chemical Restraint:

- 2-5 mg Versed IV/IO/IM/IN

RSI sedation

- 0.1 mg/kg IV/IO, max single dose of 10 mg

Pediatrics:

Seizures:

- 0.1 mg/kg Versed IV/IO/IM/IN, max of 2 mg

Anxiety/Sedation/Chemical Restraint:

- 0.1 mg/kg Versed IV/IO/IM/IN

RSI sedation

- 0.1 mg/kg IV/IO, max single dose of 10 mg

22 Metoprolol (Lopressor)

MECHANISM OF ACTION:

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

INDICATIONS:

Narrow Complex Tachycardia Arrhythmias

CONTRAINDACATIONS:

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

PRECAUTIONS:

- Age (particularly with the elderly)
- Pregnancy (category C)

SIDE EFFECTS:

- Hypotension
- Shortness of breath
- Nausea
- Worsening of AV block

DOSAGE:

Stable atrial fibrillation or atrial flutter (usually greater than 150 bpm) and a pulse

- 5 mg every 5 minutes, slow IVP, max total dose of 15 mg to achieve heart rate of < 120 bpm

23 Naloxone (Narcan)

MECHANISM OF ACTION:

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

INDICATIONS:

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

CONTRAINDACATIONS:

- Hypersensitivity to drug
- Adequate respiratory effort

PRECAUTIONS:

Abrupt withdrawal effects

SIDE EFFECTS:

- Nausea and vomiting
- Acute pulmonary edema
- Excitation for abrupt reversal of narcotic depression may cause
    - Cardiac arrest
    - Ventricular tachycardia
    - Tonic-clonic seizures
    - Hypertension
    - Hypotension
    - Pulmonary edema
    - Shortness of breath
    - Abdominal pain/cramping
    - Nausea/vomiting
    - Diarrhea

DOSAGE:

Adult:

Opioid Overdose:

- 2 mg IN pre-filled syringe for BLS providers OR
- 0.5 mg IV/IM/IO/IN/Neb every 2-5 minutes

Pediatric:

Opioid Overdose:

- 2 mg IN pre-filled syringe for BLS providers OR
- 0.1 mg/kg up to 2 mg

24 Nitroglycerin (Nitrostat)

MECHANISM OF ACTION:

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

INDICATIONS:

- Chest pain associated with angina or MI
- Pulmonary edema

CONTRAINDACATIONS:

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

PRECAUTIONS:

- Hypotension may develop
- Chronic pain management patients

SIDE EFFECTS:

- Headaches due to cerebral vasodilation
- Hypotension
- Postural syncope

DOSAGE:

Cardiac-suspected chest pain

- 0.4 mg SL Nitroglycerin every 5 minutes with SBP > 100, max 3 doses OR
- 1 inch of Nitro Paste TD
- Additional Nitroglycerin doses may be given by Intermediate/Paramedic with SBP > 90 as long as IV/IO access is in place

Pulmonary Edema / CHF

- 0.4 mg Nitroglycerin SL and 1 inch Nitro paste TD, repeat every 5 minutes as long as respiratory distress persists and SBP remains > 175 mmHg

25 Ondansetron (Zofran)

MECHANISM OF ACTION:

Zofran blocks serotonin receptors in the area postrema of the brainstem, which is responsible for the vomiting reflex. Zofran also blocks serotonin receptors in the vagus nerve terminals of the GI tract, relieving nausea.

INDICATIONS:

- Motion sickness
- Nausea

CONTRAINDACATIONS:

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

SIDE EFFECTS:

Drowsiness, dizziness, hypotension, flushing, musculoskeletal pain, cardiovascular disturbances, headache, constipation

DOSAGE:

Adults:

- 4 mg Zofran PO/IV/IO/IM, repeat once after 5 minutes if needed

Pediatrics:

- 4 mg Zofran PO, repeat once after 5 minutes if needed OR
- 2 mg Zogran IV/IO/IM, repeat once after 5 minutes if needed

26 Pralidoxime (2-PAM, Protopam Chloride)

MECHANISM OF ACTION:

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

INDICATIONS:

Organophosphorus toxicity used as adjunct to systemic atropine administration.

CONTRAINDACATIONS:

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

SIDE EFFECTS:

Dizziness, headache, drowsiness, excitement, tachycardia, blurred vision, double vision, impaired accommodation, laryngospasm, nausea, and muscular weakness or rigidity and hyperventilation

DOSAGE:

Organophosphate poisoning:

600 mg IM every 5 minutes, max 3 doses

27 Sodium Bicarbonate 8.4%

MECHANISM OF ACTION:

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

INDICATIONS:

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

CONTRAINDACATIONS:

- Respiratory alkalosis
- Metabolic alkalosis

PRECAUTIONS:

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

SIDE EFFECTS:

- Alkalosis
- Volume overload

INCOMPATIBILITY:

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

DOSAGE:

Tricyclic Antidepressant Overdose:

- 50-100 mEq Sodium Bicarbonate IV/IO

Hyperkalemia / Crush Injury:

- 100 mEq Sodium Bicarbonate IV/IO

Prolonged Extrication with Crush Injury:

- 100 mEq Sodium Bicarbonate in 1000 cc Normal Saline; infuse at 100-150 cc

28 Tranexamic Acid (TXA)

MECHANISM OF ACTION:

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

INDICATIONS:

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

CONTRAINDACATIONS:

- Injuries greater than 3 hours old
- Patients less than 12 years of age
- Hypersensitivity to the drug

PRECAUTIONS:

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

SIDE EFFECTS:

- Headaches due to cerebral vasodilation
- Hypotension
- Postural syncope

DOSAGE:

Adults (over 11 years old):

Hemorrhagic shock:

- 2 g TXA slow push IV/IO (12 years of age or older)

Epistaxis:

- 200 mg TXA applied to rolled gauze and inserted into effected nostril or via musical atomization device

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