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Introduction and Foundations of Practice

Introduction

This document describes the methods by which the Wake EMS System will continue to provide the highest quality pre-hospital patient care available. We have incorporated evidence-based guidelines with historically proven practices to produce this document. While it is impossible to address every possible variation of disease or traumatic injury, these policies, protocols, and procedures do provide a foundation for treating the vast majority of patients we encounter. Certainly, our education, experience, and clinical judgment will assist us as we provide the highest quality patient care available. Additionally, on-line medical control is available for those patient presentations that do not fall within the scope of the document.

Foundations of Practice

Definition of a Patient

A patient is an individual requesting or potentially needing medical evaluation or treatment. The patient-provider relationship is established via telephone, radio, or personal contact. It is the provider’s responsibility to ensure all potential patients, regardless of the size of the incident, are offered the opportunity for evaluation, treatment, and/or transport. The guidelines for documenting patient encounters are discussed in the Documentation of the Patient Care Report Procedure.

Rights of a Patient

Once we have begun collecting information regarding a patient encounter, it is important for us to take every precaution to protect patient confidentiality. While we certainly have HIPPA issues to consider, we also have ethical obligations to protect a patient’s confidential information. This applies not only to the sharing of written information but also requires us to monitor our speech so as not to inadvertently share patient information in conversation.

Patients with capacity retain the right to accept or refuse medical care, even if the consequences of the refusal of care may potentially be harmful for the patient. In the event a patient attempts to refuse medical care, it is important to recall that we should:

1. Be courteous
2. Offer transport without some (or all) of the recommended treatment(s) if that is what the patient will allow (document discussion that lead to the elected course of treatment, obtain refusal documentation including patient signature).
3. Clearly advise the patient of the possible complications of their decision.
4. Advise the patient to call back if they subsequently desire treatment and transport
5. Accurately document all components of the patient encounter.

There are three situations regarding consent that deserve special consideration:

1) Minors:
   a) In general, patients under the age of 18 may not consent to medical treatment or transport. The following groups may consent for the treatment of a minor:
      i) Mother or Father
      ii) A Legal Guardian
      iii) An individual standing in loco parentis. A person stands in loco parentis when he or she takes on the responsibilities of a parent of the child (e.g., a stepparent may stand in loco parentis).
      iv) The leader of a group of children in possession of written permission from the parent authorizing emergency medical treatment (e.g., a school field trip, a child at school where the parent is not present).
   b) In the following circumstances, no consent is required prior to initiating treatment:
      i) The parent, guardian, or person standing in loco parentis cannot be reached and the minor needs to receive medical treatment
      ii) The identity of the child is unknown and a delay in giving treatment would endanger the life of the child
      iii) The effort to contact the child’s parents, guardian, or a person standing in loco parentis would result in a delay that would seriously worsen the condition of the child
   c) In North Carolina, under the following circumstances, a minor may consent to treatment without the knowledge of the parent:
      i) Pregnancy
      ii) Treatment for sexually transmitted diseases
      iii) Alcohol or drug abuse
      iv) Emotional disturbance

2) Life-threatening situations without ability to communicate
   a) A patient of any age who is unable to communicate because of an injury, accident, illness, or unconsciousness – AND- is suffering from what reasonably appears to be a life-threatening injury or illness. This patient is treated on the principle of implied consent
   b) The principle of implied consent presumes that if the individual with the illness or injury were conscious and able to communicate, he or she would consent to emergency treatment
   c) In these situations, patients may be transported without their consent. Law enforcement, physical restraint, and/or chemical restraint may be required

3) Potentially life-threatening situations
   a) Patients in this category generally fall into one of two groups: the alert patient who has a concerning presentation and refuses treatment and/or transport (e.g., the patient with chest pain and EKG changes) or the patient who may be intoxicated but does not have what reasonably appears to be a life-threatening injury (e.g., the patient who has consumed alcohol with a small laceration). In these situations, the following steps should be taken:
      i) Determine orientation to person, place, and time. Document results.
      ii) Determine what factor(s) is/are influencing the patient to refuse medical care. Resolve the ones in your power (e.g., patient does not want an IV – offer transport without an IV).
iii) Attempt communication with spouse/significant other/other family members if available.
iv) If patient continues to refuse, consider making contact with and Advanced Practice Paramedic, Office of Medical Affairs representative, or on-line medical control as described in the “Atypical Protocol Utilization and Online Medical Direction” policy.
v) If patient continues to refuse, clearly explain risks of refusal and have the patient repeat these concerns back to you. Document your results in the patient care report.
vi) In a courteous manner, assure the patient they can call back for treatment and transport at any time.

**Automatic Notification of the Medical Director**

As we work together to provide the highest quality patient care, any incident which potentially has an adverse or negative impact on the patient or the System must be immediately reported to the medical director or, in his absence, his designee as soon as possible after the completion of the call. Such notification should be made via phone or via Raleigh-Wake Communications Center. Events that require this notification include:

- Cardiac and/or respiratory arrest occurring after administration of midazolam (Versed), morphine, or fentanyl.
- Cardiac arrest occurring after administration of an antiarrhythmic agent in a previously stable patient.
- Any attempt (successful or unsuccessful) at needle and/or surgical airways
- Incorrect medication administration with patient complication (excessive amount, wrong dose, etc.)
- Any cardiac and/or respiratory arrest or patient injury related to the use of physical restraints
- System provider operating outside of scope of practice. The scope or practice is defined not only by the State Certification but by the provider’s level of approved practice within the System
- Unrecognized misplaced advanced airway device or other complication related to advanced airway management

**Guidelines for the Use of Protocols**

You will notice the medical protocols are divided into essentially three sections. The upper sections include **history, signs and symptoms, and differential**. The information in these boxed areas is meant as a guide to assist in obtaining pertinent patient information and to remind each of us to consider multiple potential causes for a patient complaint. From this, you should choose those elements which are pertinent to the particular patient you have encountered. It is not expected that every historical element or sign/symptom be recorded for every patient; it is expected that those elements pertinent to your patient will be included in the patient evaluation.

The center section describes the essentials of patient care which are presented in flow chart style. The Protocol Committee, the System Peer Review Committee, and the North Carolina College of Emergency Physicians have extensively reviewed the included elements. These represent the proven practices which are the foundation of the care we provide. Virtually every patient should receive the care suggested in this section, usually in the order described. Certainly exceptions will exist; the rationale for any deviation from the recommended course should be clearly explained in the patient care report. It is anticipated that such exceptions will be rare, and Providers are strongly encouraged to contact the medical director or on-line medical control prior to any deviations (so long as the patient’s condition is stable).

You will note that some of the text in this section is in orange. Any patient care element that is part of the quality assurance report is presented in orange so that we all will know what is being measured. In this way, all Providers in the System are aware of audit criteria and can plan their practice accordingly.

Finally, the pearls section at the bottom of the protocols provides suggestions for patient care based on experience and common medical knowledge. As with the first section, not every patient will require every element
under the pearls section. It is anticipated this section will be used as practical guide for the implementation of the **essentials of patient care** section.

In summary, these protocols describe the proven practices that are the foundation of our care. The additional information coupled with your experience and education will allow us to provide pre-hospital patient care that is second-to-none.

Finally, the manner in which we carry ourselves is often as important as the care we provide. For many of our less critically ill or injured patients, the human interaction has more of a healing effect than any of our proven practices. Perhaps our colleague Dr. Ed Racht, the long-time Medical Director for Austin/Travis County in Texas, states this best:

> Being a professional has nothing to do with pay or rank or level of certification you hold. It is the goal that every member of our Practice, from basic provider to Medical Director, constantly strives to remain a comprehensive, clinically sophisticated, and compassionate EMS System.

Our System operates a unique practice of medicine, and I’m proud of our practice. Thank you for continuing to provide prompt, compassionate, clinically excellent care.

Sincerely,

J. Brent Myers, MD MPH  
Director  
Wake County EMS System
TO: All EMS Providers in the Wake EMS System

FROM: Brent Myers

RE: New Protocols with Clarifications

DATE: March 1, 2010

As we continue to provide prompt, compassionate, clinically excellent care, we are adopting a new protocol set. This protocol set is based largely on the North Carolina College of Emergency Physicians statewide protocol side, over which we had significant input. As with any protocol set that covers multiple jurisdictions, there are some elements of this set that will not apply to our system due to equipment, training, etc. The following components of the protocol set need clarification for our System:

1) In all protocols, the instructions with the red outline that state “Notify destination or contact medical control” is satisfied in our system by contacting the receiving hospital at the appropriate time. We have no restriction to contract medical control prior to administering any treatments in subsequent boxes. Obviously, if you need to contact medical control at any time for patients with unusual presentations, high risk refusals, or other unusual circumstances, please continue so to do.

2) In all protocols where there is reference to end-tidal CO2, respiratory rates, and O2 saturations, the following applies:
   a. If the patient is in extremis and there is difficulty in obtaining a pulse oximetry reading due to poor/no perfusion, cool extremities, etc, an end tidal CO2 value greater than 20 with a good waveform is a satisfactory substitute for the SpO2. As soon as possible, an SpO2 value should be obtained, but it is understood that certain patient conditions preclude such a reading.
   b. The respiratory rate should be guiding the EtCO2 only when it is too low for the patient. In other words, for a patient with pulse and blood pressure with assisted ventilations, the EtCO2 should be greater than 35. If it is not, one consideration is the possibility of hyperventilation. In the prehospital setting, there is no reason to take a respiratory rate above 12 to address an EtCO2 except as directed in the Head Injury protocol for pending herniation.

3) On the intravenous access protocol, it is appropriate to continue attempts to obtain access in the patient who is unstable or potentially unstable past 3 attempts without contacting medical control.

4) The EMT-B description for “blind insertion airway device” applies to EMT-Bs who are assigned to transport ambulances and have completed the Office of Professional Development in-service on their use. This does not apply to first response EMT-Bs.

5) On the allergic reaction protocol, the Epinephrine Auto-Injector and/or Epinephrine IM need only be given to those with anaphylaxis or unstable vital signs. It is appropriate to note the
absence of anaphylaxis in the patient care report and move past these medications to other allergic reaction medications.

6) On the hypertension protocol, utilization of nitroglycerin for elevated blood pressure with headache only is not allowed in our system.

7) We do not carry D10, so D25 will be substituted at every location where D10 appears.

Thank you for your continued commitment to the citizens of and visitors to Wake County.
Indications:

A helicopter may be utilized when **ALL** of the following criteria are present:

1. **Patient meets criteria for trauma center evaluation.**
2. The patient is entrapped and extrication is expected to last greater than 20 minutes.
3. The ground transport time is greater than 15 minutes.
4. The patient is not in traumatic cardiac arrest.

A helicopter may also be utilized when any of the following is present:

- A situation approved by the medical director or medical control physician – or –
- Mass Casualty Incident (MCI).
- The patient meets burn center criteria.

Procedure:

1. The highest certified technician on the crew (usually the EMT-P or EMT-I) will determine that a helicopter may be needed for the patient. An on-scene Fire Department Officer may request a helicopter to expedite its arrival.

2. That technician will request that the 911 center contact a helicopter service for a scene transport. The 911 center will determine which air ambulance is nearest and utilize this resource.

3. A safe landing zone should be established.

4. If the helicopter does not arrive prior to the extrication of the patient, the patient should be immediately placed in the ambulance and transport begun to the nearest trauma center.

5. **Under NO circumstances will transport of a patient be delayed to use a helicopter.**
Policy:

Child abuse is the physical and mental injury, sexual abuse, negligent treatment, or maltreatment of a child under the age of 18 by a person who is responsible for the child’s welfare. The recognition of abuse and the proper reporting is a critical step to improving the safety of children and preventing child abuse.

Purpose:

Assessment of a child abuse case based upon the following principles:

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

Procedure:

1. With all children, assess for and document psychological characteristics of abuse, including excessively passivity, compliant or fearful behavior, excessive aggression, violent tendencies, excessive crying, fussy behavior, hyperactivity, or other behavioral disorders

2. With all children, assess for and document physical signs of abuse, including and especially any injuries that are inconsistent with the reported mechanism of injury.

3. With all children, assess for and document 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 Department of Social Services worked on on call by contacting the 911 center. While law enforcement may also be notified, North Carolina law requires the EMS provider to report the suspicion of abuse to DSS. EMS should not accuse or challenge the suspected abuser. This is a legal requirement to report, not an accusation. In the event of a child fatality, law enforcement must also be notified.
Policy:
Medical technology, changes in the healthcare industry, and increased home health capabilities have created a special population of patients that interface with the EMS system. It is important for EMS to understand and provide quality care to children with special health care needs.

Purpose:
The purpose of this policy is to:

- Provide quality patient care and EMS services to children with special health care needs.
- Understand the need to communicate with the parents and caregivers regarding healthcare needs and devices that EMS may not have experience with.
- Promote, request, and use the “Kidbase” form that catalogs the health care problems, needs, and issues of each child with a special healthcare need.

Procedure:
Caregivers who call 911 to report an emergency involving a child with special health care needs may report that the emergency involves a “Kidbase child” (if they are familiar with the NC Kidbase program) or may state that the situation involves a special needs child.

Responding EMS personnel should ask the caregiver of a special needs child for a copy of the “Kidbase Form”, which is the North Carolina terminology for the Emergency Information Form (EIF).

EMS personnel may choose to contact the child’s primary care physician for assistance with specific conditions or devices or for advice regarding appropriate treatment and/or transport of the child in the specific situation.

Transportation of the child, if necessary, will be made to the hospital appropriate for the specific condition of the child. In some cases this may involve bypassing the closest facility for a more distant yet more medically appropriate destination.
Standards Policy
Criteria for Death / Withholding Resuscitation

Policy:

CPR and ALS treatment are to be withheld only if the patient is obviously dead per criteria below or a valid North Carolina *MOST and/or Do Not Resuscitate* form (see separate policy) is present.

Indications:

- One or more of the following is present:
- Rigormortis and/or dependent lividity.
- Decapitation.
- Incineration.
- If arrest is traumatic in origin, go to Trauma Arrest protocol.

Procedure:

Do not resuscitate any patient who meets the above criteria. If resuscitation efforts are in progress, consider discontinuing the resuscitation efforts (Paramedic Only).

Notify law enforcement of the patient’s death (or a patient’s physician if patient is in a medical facility with continual physician or nursing care during its hours of operation; e.g. hospital, nursing home, physician’s office).

Note:

- If you are unsure whether the patient meets the above criteria, resuscitate.
Policy:

EMS will handle the disposition of deceased subjects in a uniform, professional, and timely manner.

Purpose:

The purpose of this policy is to:

- Organize and provide for a timely disposition of any deceased subject
- Maintain respect for the deceased and family
- Allow EMS to return to service in a timely manner.

Procedure:

1. Follow the Wake County Deceased Persons Protocol
Standards Policy

Discontinuation of Prehospital Resuscitation

Policy:

Unsuccessful cardiopulmonary resuscitation (CPR) and other advanced life support (ALS) interventions may be discontinued prior to transport or arrival at the hospital when this procedure is followed.

Purpose:

The purpose of this policy is to:

- Allow for discontinuation of prehospital resuscitation after the delivery of adequate and appropriate ALS therapy.

Procedure:

1. Discontinuation of CPR and ALS intervention may be implemented prior to contact with Medical Control if ALL of the following criteria have been met:
   - Patient must be 18 years of age or older, or family of a minor is agreeable after consultation with the APP or District Chief
   - Adequate CPR has been administered
   - Airway has been successfully managed with verification of device placement. Acceptable management techniques include orotracheal intubation, nasotracheal intubation, Blind Insertion Airway Device (BIAD) placement, or cricothyrotomy
   - IV or IO access has been achieved
   - Rhythm appropriate medications and defibrillation have been administered according to protocol
   - Persistent asystole or agonal rhythm is present and no reversible causes are identified after a minimum of 25 minutes of resuscitation
   - Failure to establish sustained palpable pulses or persistent/recurring ventricular fibrillation/tachycardia or any continued neurological activity such as eye opening or motor responses
   - All EMS paramedic personnel involved in the patient’s care agree that discontinuation of the resuscitation is appropriate

2. If all of the above criteria are not met and discontinuation of prehospital resuscitation is desired, contact Medical Control.

3. The Deceased Subjects Policy should be followed.

Document all patient care and interactions with the patient’s family, personal physician, medical examiner, law enforcement, and medical control in the EMS patient care report (PCR).
Standards Policy

Disposition (Patient Instructions)

- This policy applies to all credential levels
- Mentally capable patients maintain the right to refuse care and/or transport. If unsure, contact Medical Control. Medical control may not order a patient who is capable to be transported but may be able to talk with the patient directly and convince them to seek appropriate treatment.
- All patients refusing service will be:
  - Informed of the availability of service and offered treatment and transport in a non-confrontational, polite manner,
  - Advised to call 911 for emergency service if desired, and
  - Advised that they accept full responsibility for their actions
  - Advised to wait on the arrival of a paramedic prior to refusal so that an ALS assessment may be performed and appropriate refusal documentation completed.
- Patients are considered to be capable of refusing care if they do not endorse suicidal or homicidal ideation, are oriented to person, place and time (or to their baseline mental status in a nursing home but otherwise able to communicate), and can express understanding of the risks of refusal.
- The use of alcohol or other drugs should not be used solely as a criterion for rendering a person incapable of making a medical decision. Rather, the circumstances of the event should be taken into account. For example, the patient who has used alcohol or other drugs with a potential for head trauma and altered mental status will require transport based on implied consent whereas the substance-using patient in their home with no evidence of trauma who meets the criteria listed above may be capable of making a medical decision.
- Patients treated for hypoglycemia under the altered mental status protocol or the well persons protocol that meet criteria for non-transport do not require a refusal form.

- Documentation:
  - In the report narrative, describe the patient encounter, vital signs, and advice given. Use the “Refusal of Care” procedure in the call reporting system to document that the patient is alert and oriented to person, place, and time, and that the patient understands instructions given to him or her.
  - If possible, have the patient sign the AMA form, have a third party witness the signature, and give a copy to the patient. If not possible, document the reason why this was not accomplished (patient refused to wait on paramedic resource, patient refused to sign, etc.)
  - Complete the “Refusal of Service” Procedure in the electronic call report

- At no time will EMS personnel mention cost of transport, status of system/unit availability, or any other non-clinical subject in an attempt to influence a patient’s decision to accept or decline treatment and/or transport.
Standards Policy

DNR, MOST, Advanced Directives

Policy:
Any patient presenting to any component of the EMS system with a completed North Carolina Do Not Resuscitate (DNR) form (yellow form) shall have the form honored and CPR and ALS therapy withheld in the event of cardiac arrest. The Medical Orders for Scope of Treatment (MOST) form shall be honored as directed below.

Purpose:
• To honor the terminal wishes of the patient.
• To prevent the initiation of unwanted resuscitation.

Procedure:
1. When confronted with a cardiac arrest patient, the following conditions must be present in order to honor the DNR request and withhold CPR and ALS therapy:
   • Original North Carolina DNR form (yellow form - not a copy) – or – DNR box is checked in section A of the MOST form (pink form – not a copy). (NOTE: If in a medical facility, see the “Deceased Persons” procedure for additional guidance regarding other methods of documenting DNR status)
   • Form signed by physician, physician’s assistant, or nurse practitioner

2. A DNR request may be overridden by the request of:
   • The patient
   • The guardian of the patient
   • An on-scene physician

3. When confronted with a seriously ill patient who is not in cardiac arrest, the MOST form (when present) shall be utilized as follows:
   Section B:
   • Full Scope of Treatment box is checked: Use all appropriate measures included in System Protocols to stabilize/resuscitate the patient
   • Limited Scope of Treatment box is checked: The maximum airway intervention is non-rebreather mask and airway suctioning. All appropriate IV medications may be utilized. No electrical therapies are to be provided.
   • Comfort Measures is checked: The maximum airway intervention is non-rebreather mask and airway suctioning. IV pain medications may be administered. Medical control may be contacted reference

3. If family members or others persons are present and ask that resuscitative efforts be withheld in the absence of an advanced directive, determine their relationship to the patient and the patient’s history. If the patient has an obvious life-limiting illness (terminal cancer, advanced neurological disease, etc.), resuscitative efforts may be withheld. If there is no obvious life-limiting illness, begin resuscitation based on appropriate protocol(s) and contact medical control for further guidance.

4. Living wills or other documents indicating the patients desire to withhold CPR or other medical care may be honored only in consultation with the patient’s family.
Standards Policy
EMS Documentation and Data Quality

Policy:

The complete EMS documentation associated with an EMS events service delivery and patient care shall be electronically recorded into a Patient Care Report (PCR) within 24 hours of the completion of the EMS event with an average EMS Data Score of 5 or less.

Definition:

The EMS documentation of a Patient Care Report (PCR) is based on the appropriate and complete documentation of the EMS data elements as required and defined within the North Carolina College of Emergency Physician's EMS Standards (www.NCCEP.org). Since each EMS event and/or patient scenario is unique, only the data elements relevant to that EMS event and/or patient scenario should be completed.

The EMS Data Score is calculated on each EMS PCR as it is electronically processed into the North Carolina PreHospital Medical Information System (PreMIS). Data Quality Scores are provided within PreMIS and EMS Toolkit Reports. The best possible score is a 0 (zero) and with each data quality error a point is added to the data quality score.

A complete Patient Care Report (PCR) must contain the following information (as it relates to each EMS event and/or patient):

- Service delivery and Crew information regarding the EMS Agency's response
- Dispatch information regarding the dispatch complaint, and EMD card number
- Patient care provided prior to EMS arrival
- Patient Assessment as required by each specific complaint based protocol
- Past medical history, medications, allergies, and DNR/MOST status
- Trauma and Cardiac Arrest information if relevant to the EMS event or patient
- All times related to the event
- All procedures and their associated time
- All medications administered with their associated time
- Disposition and/or transport information
- Communication with medical control
- Appropriate Signatures (written and/or electronic)

Purpose:

The purpose of this policy is to:

- Promote timely and complete EMS documentation.
- Promote quality documentation that can be used to evaluate and improve EMS service delivery, personnel performance, and patient care to the county’s citizens.
- Promote quality documentation that will decrease EMS legal and risk management liability.
- Provide a means for continuous evaluation to assure policy compliance.
Policy:

Every patient encounter by EMS will be documented. Vital signs are a key component in the evaluation of any patient and a complete set of vital signs is to be documented for any patient who receives some assessment component.

Purpose:

To insure:

- Evaluation of every patient’s volume and cardiovascular status
- Documentation of a complete set of vital signs

Procedure:

1. An initial complete set of vital signs includes:
   - Pulse rate
   - Systolic AND diastolic blood pressure
   - Respiratory rate
   - Pain / severity (when appropriate to patient complaint)
   - GCS for Injured Patients

2. When no ALS treatment is provided, palpated blood pressures are acceptable for REPEAT vital signs.

3. Based on patient condition and complaint, vital signs may also include:
   - Pulse Oximetry
   - Temperature
   - End Tidal CO2 (If Invasive Airway Procedure)
   - Breath Sounds
   - Level of Response

4. If the patient refuses this evaluation, an assessment of capacity and a patient disposition form must also be completed.

5. When any components of vital signs were obtained using the cardiac monitor, the data should be exported electronically to the patient care report. Where values are inconsistent with manually obtained values, values may be appropriately edited to reflect the manually obtained values.

6. Document situations that preclude the evaluation of a complete set of vital signs.

7. Record the time vital signs were obtained.

8. Any abnormal vital sign should be repeated and monitored closely.

Policy 10
This policy has been altered from the original 2009 NCCEP Policy by the Wake County EMS System Medical Director 2010
Standards Policy
Domestic Violence (Partner and/or Elder Abuse) Recognition and Reporting

Policy:

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.

Elder abuse is the physical and/or mental injury, sexual abuse, negligent treatment, or maltreatment of a senior citizen by another person. Abuse may be at the hand of a 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 senior citizens.

Purpose:

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.

Procedure:

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 the receiving hospital (if transported). If an elder or disabled adult is involved, also contact the Department of Social Services (DSS) or equivalent in the county. After office hours, the adult social services worker on call can be contacted by the 911 communications center.
5. EMS personnel should attempt in private to provide the patient with the phone number of the local domestic violence program, or the National Hotline, 1-800-799-SAFE.
Policy:

All EMS Units transporting a patient to a medical facility shall transfer the care of the patient and complete all required operational tasks to be back in service for the next potential EMS event within 30 minutes of arrival to the medical facility, 90% of the time.

Definition:

The EMS Back in Service Time is defined as the time interval beginning with the time the transporting EMS Unit arrives at the medical facility destination and ending with the time the EMS Unit checks back in service and available for the next EMS event.

Purpose:

The purpose of this policy is to:

- Assure that the care of each EMS patient transported to a medical facility is transferred to the medical facility staff in a timely manner.
- Assure that the EMS unit is cleaned, disinfected, restocked, and available for the next EMS event in a timely manner.
- Assure that the EMS patient care report (PCR) is completed and left with the receiving medical facility (This requirement may be waived under emergency or low system resource conditions when approved by the facility at the request of a System chief officer. Where this occurs it should be documented in the subsequent patient care report).
- Provide quality EMS service and patient care to the county’s citizens.
- Provide a means for continuous evaluation to assure policy compliance.

Procedure:

The following procedures shall be implemented to assure policy compliance:

1. The EMS Unit’s priority upon arrival at the medical facility will be to transfer the care of the patient to medical facility staff as soon as possible.

2. EMS personnel will provide a verbal patient report on to the receiving medical facility staff.

3. The EMS Unit will be cleaned, disinfected, and restocked (if necessary) during the EMS Back in Service Time interval.

4. Any EMS Back in Service Time delay resulting in a prolonged EMS Back in Service Time will be documented in Patient Care Report (PCR) as an “EMS Turn-Around Delay” as required and defined in the North Carolina College of Emergency Physicians (NCCEP) EMS Dataset Standards Document.

5. All EMS Turn-Around Delays will be reviewed regularly within the EMS System Peer Review Committee.
Standards Policy

EMS Dispatch Center Time

Policy:

The EMS Dispatch Center Time will be less than 90 seconds, 90% of the time, for all events identified and classified as an emergent or hot (with lights and siren) response.

Definition:

The EMS Dispatch Center Time is defined as the time interval beginning with the time the initial 911 phone call rings at the 911 Communications Center requesting emergency medical services and ending with the dispatch time of the EMS Unit responding to the event.

Purpose:

The purpose of this policy is to:

- Provide the safest and most appropriate level of response to all EMS events within the EMS System.
- Provide a timely and reliable response for all EMS events within the EMS System.
- Provide quality EMS service and patient care to the county’s citizens.

Procedure:

- Any EMS Dispatch Center Time delays resulting in a prolonged EMS Dispatch Center Time for emergent hot (with lights and sirens) events will be documented in Patient Care Report (PCR) as an “EMS Dispatch Delay” as required and defined in the North Carolina College of Emergency Physicians (NCCEP) EMS Dataset Standards Document.
- EMS Dispatch Delays will be reviewed regularly within the EMS System Peer Review Committee.
Policy:

The EMS Wheels Rolling (Turn-out) Time will be less than 90 seconds, 90% of the time, for all events identified and classified as an emergent or hot (with lights and siren) response.

Definition:

The EMS Wheels Rolling (Turn-out) Time is defined as the time interval beginning with the time the EMS Dispatch Center notifies an EMS Unit to respond to a specific EMS event and ending with the time the EMS Unit is moving en route to the scene of the event.

Purpose:

The purpose of this policy is to:

- Provide a timely and reliable response for all EMS events within the EMS System.
- Provide quality EMS service and patient care to the county’s citizens.
- Provide a means for continuous evaluation to assure policy compliance.

Procedure:

The following procedures shall be implemented to assure policy compliance:

- The EMS Unit Wheels Rolling (Turn-out) time will be less than 90 seconds from time of dispatch, 90% of the time. If a unit fails to check en route within :59 (mm:ss), the next available EMS unit will be dispatched.
- The EMS Unit Wheels Rolling (Turn-out) time will be less than 90 seconds from time of dispatch, 90% of the time. If a unit fails to check en route within 1:30 (mm:ss), the next available EMS unit will be dispatched.
- Any EMS Wheels Rolling (Turn-out) Time delay resulting in a prolonged EMS Response Time for emergent hot (with lights and sirens) events will be documented in Patient Care Report (PCR) as an “EMS Response Delay” as required and defined in the North Carolina College of Emergency Physicians (NCCEP) EMS Dataset Standards Document.
- All EMS Response Delays will be reviewed regularly within the EMS System Peer Review Committee.
Policy:

The North Carolina Infant Homicide Prevention Act provides a mechanism for unwanted infants to be taken under temporary custody by a law enforcement officer, social services worker, healthcare provider, or EMS personnel if an infant is presented by the parent within 7 days of birth. Emergency Medical Services will accept and protect infants who are presented to EMS in this manner, until custody of the child can be released to the Department of Social Services.

“A law enforcement officer, a department of social services worker, a health care provider as defined in G.S. 90-21.11 at a hospital or local or district health department, or an emergency medical technician at a fire station shall, without a court order, take into temporary custody an infant under 7 days of age that is voluntarily delivered to the individual by the infant's parent who does not express an intent to return for the infant. An individual who takes an infant into temporary custody under this subsection shall perform any act necessary to protect the physical health and well-being of the infant and shall immediately notify the department of social services. Any individual who takes an infant into temporary custody under this subsection may inquire as to the parents' identities and as to any relevant medical history, but the parent is not required to provide this information.”

Purpose:

To provide:

- Protection to infants that are placed into the custody of EMS under this law
- Protection to EMS systems and personnel when confronted with this issue

Procedure:

1. Initiate the Pediatric Assessment Procedure.
2. Initiate Newly Born Protocol as appropriate.
3. Initiate other treatment protocols as appropriate.
4. Keep infant warm.
5. Call local Department of Social Services or the county equivalent as soon as infant is stabilized.
6. Transport infant to medical facility as per local protocol.
7. Assure infant is secured in appropriate child restraint device for transport.
8. Document protocols, procedures, and agency notifications in the PCR.
Policy:

Anyone requesting EMS services will receive a professional evaluation, treatment, and transportation (if needed) in a systematic, orderly fashion regardless of the patient’s problem or condition.

Purpose:

- To ensure the provision of appropriate medical care for every patient regardless of the patient’s problem or condition.

Procedure:

1. Treatment and medical direction for all patient encounters, which can be triaged into an EMS patient care protocol, is to be initiated by protocol.

2. When confronted with an emergency or situation that does not fit into an existing EMS patient care protocol, the patient should be treated by the Universal Patient Care Protocol and a Medical Control Physician should be contacted for further instructions.
Standards Policy

Physician on Scene

Policy:

The medical direction of prehospital care at the scene of an emergency is the responsibility of those most appropriately trained in providing such care. All care should be provided within the rules and regulations of the state of North Carolina.

Purpose:

- To identify a chain of command to allow field personnel to adequately care for the patient
- To assure the patient receives the maximum benefit from prehospital care
- To minimize the liability of the EMS system as well as the on-scene physician

Procedure:

1. When a non medical-control physician offers assistance to EMS or the patient is being attended by a physician with whom they do not have an ongoing patient relationship, EMS personnel must provide the On-Scene Physician Form to the physician. All requisite documentation must be verified and the physician must be approved by on-line medical control.

2. When the patient is being attended by a physician with whom they have an ongoing patient relationship, EMS personnel may follow orders given by the physician if the orders conform to current EMS guidelines, agrees to the requirements presented on the “On-Scene Physician” form, and if the physician signs the PCR. Notify medical control at the earliest opportunity.

3. EMS personnel may accept orders from the patient’s physician over the phone with the approval of medical control. The paramedic should obtain the specific order and the physician’s phone number for relay to medical control so that medical control can discuss any concerns with the physician directly.

4. Orders received from the authorized physician may be followed, even if they conflict with the existing local protocols, provided the orders encompass skills and/or medications approved by both the Wake County EMS System Medical Director and the State Medical Board.
Policy:

The state poison center may be utilized by the 911 centers and the responding EMS services to obtain assistance with the prehospital triage and treatment of patients who have a potential or actual poisoning.

Purpose:

The purpose of this policy is to:

- Improve the care of patients with poisonings, envenomations, and environmental/biochemical terrorism exposures in the prehospital setting.
- Provide for the most timely and appropriate level of care to the patient, including the decision to transport or treat on the scene.
- Integrate the State Poison Center into the prehospital response for hazardous materials and biochemical terrorism responses.

Procedure:

1. The 911 call center will identify and if EMD capable, complete key questions for the Overdose/Poisoning, Animal Bites/Attacks, or Carbon Monoxide/Inhalation/HazMat emergency medical dispatch complaints and dispatch the appropriate EMS services and/or directly contact the State Poison Center for consultation.

2. If no immediate life threat or need for transport is identified, EMS personnel may conference the patient/caller with the Poison Center Specialist at the State Poison Center at 800-222-1222. If possible, dispatch personnel should remain on the line during conference evaluation.

3. The Poison Center Specialist at the State Poison Center will evaluate the exposure and make recommendations regarding the need for on-site treatment and/or hospital transport in a timely manner. If dispatch personnel are not on-line, the Specialist will recontact the 911 center and communicate these recommendations.

4. If the patient is determined to need EMS transport, the poison center Specialist will contact the receiving hospital and provide information regarding the poisoning, including treatment recommendations. EMS may contact medical control for further instructions or to discuss transport options.

5. If the patient is determined not to require EMS transport, personnel will give the phone number of the patient/caller to the Poison Center Specialist. The Specialist will initiate a minimum of one follow-up call to the patient/caller to determine the status of patient.

6. Minimal information that should be obtained from the patient for the state poison center includes:
   - Name and age of patient
   - Substance(s) involved
   - Time of exposure
   - Any treatment given
   - Signs and symptoms

7. Minimal information which should be provided to the state poison center for mass poisonings, including biochemical terrorism and HazMat, includes:
   - Substance(s) involved
   - Time of exposure
   - Signs and symptoms
   - Any treatment given

Policy 18

This policy has been altered from the original 2009 NCCEP Policy by the Wake County EMS System Medical Director 2010.
Standards Policy

Safe Transport of Pediatric Patients

Policy:

Without special considerations children are at risk of injury when transported by EMS. EMS must provide appropriate stabilization and protection to pediatric patients during EMS transport.

Purpose:

To provide:

- Provide a safe method of transporting pediatric patients within an ambulance.
- Protect the EMS system and personnel from potential harm and liability associated with the transportation of pediatric patients.

Procedure:

1. Drive cautiously at safe speeds observing traffic laws.
2. Tightly secure all monitoring devices and other equipment.
3. Insure that all pediatric patient less than 40 lbs are restrained with an approved child restraint device secured as per manufacturer’s instructions.
4. Insure that all EMS personnel use the available restraint systems during the transport.
5. Transport adults and children who are not patients, properly restrained, in an alternate passenger vehicle, whenever possible.
6. Do not allow parents, caregivers, or other passengers to be unrestrained during transport.
7. Do not attempt to hold or allow the parents or caregivers to hold the patient during transport.
8. For patients with medical conditions that may be aggravated by stress, make every attempt to optimize safety when comforting the child.
9. Do not transport the pediatric patient who is assessed as meeting trauma center criterion a child seat that was involved in the collision that produced the child’s injury.
Standards Policy
Transport

**Purpose:**
To establish a uniform protocol for the transportation of the sick and injured.

**Procedure:**
All sick or injured persons requesting transport shall be transported without delay to an appropriate local hospital of the patient’s preference. The only exceptions to this rule are found below.

This includes ALL WAKE COUNTY HOSPITAL EMERGENCY DEPARTMENTS, hospitals in contiguous counties and UNC Hospitals in Chapel Hill. The ability to pay, the rights of insurance claims or rejection of such claims WILL NOT BE A FACTOR. If the unit availability/status of the System is a concern, contact your supervisor prior to patient-requested out-of-county transport.

All sick or injured persons requesting transport who do not express a preference for a hospital will be transported without delay to the closest appropriate local hospital.

Patients whose condition is covered by a formal destination protocol (Pediatric, Post-Resuscitation, STEMI, Stroke, Trauma, etc.) shall be transported in accordance with those specialty algorithms. All other patients should be transported per the policy.

In unusual circumstances, transport in other vehicles may be appropriate when directed under the authority of the Medical Director or Medical Director’s designee.

Policy 20
This policy has been altered from the original 2009 NCCEP Policy by the Wake County EMS System Medical Director 2010
In Wake County’s EMS System, a practitioner’s right to practice medicine is based on extension of the Medical Director’s license to practice medicine. For the purposes of this procedure, a “practitioner” is any individual practicing in the Wake EMS System at the level of Medical Responder or higher level of certification. If, in the opinion of the Medical Director, an action (or failure to act) on the part of a practitioner is of such a nature that the action or failure to act is inconsistent with, or a violation of, these procedures, or the practice standard generally accepted in the medical community, the actions described below shall occur, pursuant to the provisions of 10 NCAC 03D .2803:

1. The practitioner will be notified in writing of the issues/concerns that merit attention by the Medical Director. Notwithstanding this written-notice provision, the provisions of 2 and 3, below, and based on the severity and nature of the act (or failure to act), the Medical Director or his designee may suspend a practitioner’s right to practice upon receipt of information sufficient in the judgment of the Medical or his designee Director to support immediate suspension in the interests of patient safety. If the Medical Director or his designee invokes an immediate suspension, this shall be followed by written notice within three (3) working days of such immediate suspension.

2. A written explanation by the individual explaining the incident shall be presented to the Medical Director within three (3) working days of receipt of the Medical Director's issues/concerns. If no written explanation of the incident is sent to the Medical Director by that deadline, the Medical Director may base his decision upon such information that is available to him/her as of that deadline.

3. The Medical Director or the individual may request a second meeting to further discuss the issues/concerns. If this option is exercised, the meeting shall occur within five (5) working days of receipt of the request.

4. After reviewing all materials, the Medical Director will issue a disposition of the matter. The Medical Director may exercise one or more of the following options:
   a. No action taken / matter resolved
   b. Remediation training
   c. Warning
   d. Require to precept at the approved level again
   e. Temporary suspension of all practice privileges or suspension of specific practice privileges
   f. Revocation of practice privileges

   Such suspension and/or revocation of practice privileges will extend to all jurisdictions where the practitioner’s right to practice relies on the extension of the Wake EMS System Medical Director’s license to practice medicine.

5. After the individual is notified in writing of the Medical Director's decision, he/she may appeal to the Patient Safety Subcommittee of the Peer Review Committee (hereinafter, “Patient Safety Subcommittee”). This appeal request must be presented within five (5) working days of the decision of the Medical Director to the Medical Director or his/her designee for referral to the Patient Safety Subcommittee.
6. The Patient Safety Subcommittee will meet as soon as is practical after the receipt of the written request for appeal. If the practitioner’s ability to practice has been suspended for greater than 7 days or revoked, this meeting will be held with all deliberate speed and effort will be made to convene the meeting within 10 days. The committee shall consist of the following representatives:
   a. One Physician Member who is not the Medical Director;
   b. In cases involving paramedics, two paramedics each primarily and currently employed by Wake EMS and two paramedics each primarily and currently employed by a different Wake County EMS System agency.
   c. In cases involving practitioners other than paramedics, two paramedics each primarily and currently employed by Wake EMS and two practitioners of standing equivalent to that of the individual filing the appeal.

7. One member of the Patient Safety Subcommittee shall be designated by the Patient Safety Subcommittee as the presiding officer for purposes of hearing an appeal. The Patient Safety Subcommittee may hear witnesses (the participation of which is the responsibility of the party calling the witness) and consider documentary and other evidence. The practitioner exercising the appeal may be accompanied by any individual(s) of their choice. Patient Safety Subcommittee meetings are not adversarial, however, so the only individual who may address the Subcommittee is the practitioner. The decision of the Patient Safety Subcommittee shall be in the form of written findings of fact and imposition of action(s) consistent with those findings of fact.
Standards Policy
Emergency Medical Dispatch

Purpose:
The purpose of this policy is to:
- Provide quality patient care and EMS service to the citizens of Wake County.
- Develop a uniform level of response for the EMS System.
- Provide a means for continuous quality improvement feedback.
- Provide for the safest and most appropriate level of response to the patient(s).

Policy:
1. Persons calling for emergency assistance will never be required to speak with more than two persons to request emergency medical assistance.

2. Each EMS unit shall remain in the response zone assigned by CAD. To avoid dispatch errors, movement outside of this area must be directed by or reported to the communications center.

3. Emergency Medical Units will be dispatched by EMD’s in accordance to the standards developed by the Medical Director and the Emergency Medical Dispatch Protocols.

4. Emergency Medical Units will initially respond emergency (“hot”) to all requests. As more information becomes available, from the telecommunications center or on scene medical responders, the mode of response may downgraded to non-emergency (“cold”). A non-emergency response is appropriate for alpha and omega level responses as soon as this can be established.

Procedures:
Emergency Medical Units dispatched for cold response, will not upgrade to a hot response unless:

1. Public Safety personnel on-scene request a hot (10-39) response.
2. Telecommunicators determine that the patient’s condition has changed, and requests you to upgrade to a hot (10-39) response.

An ambulance may divert from a cold/non-emergency call to a higher priority call and then:

1. The diverting ambulance must notify the telecommunicator of their diversion to the higher priority call.
2. The diverting ambulance ensures that an ambulance is dispatched to the original call.

An ambulance may divert from one emergency call to another emergency call if:

1. The other call is clearly of higher priority (e.g., Echo vs. Charlie) – or --
2. The EMS unit comes upon what appears to be a higher priority call (e.g., enroute to a Charlie call and comes upon an MVC with high potential for trauma alert/one patients)

An ambulance may by-pass what appears to be a lower priority situation and continue to the originally assigned call. The communications center should be notified so that another EMS resource may be assigned to the lower priority situation.
Indications:

The failure of equipment integral to patient care or mechanical failure of a transport vehicle. Each agency shall provide a daily check sheet in order to test biomedical equipment and vehicles to minimize the risk of such failures.

Procedure:

1. As soon as the failure is recognized, contact the appropriate emergency communications center, advise them of the failure, and have the nearest, appropriate EMS resource dispatched. This may be a supervisor, an ambulance, or some other resource, depending upon patient need.
2. Based on the condition of the patient, advise the communications center to send the resource either emergency traffic or non-emergency traffic.
3. Closely monitor and treat the patient to the best of your ability with the remaining functional equipment.
4. Except in unusual circumstances, the original attending provider should continue to provide for the patient until arrival at the hospital, regardless of which unit is actually transporting the patient.
5. While it is appropriate to notify supervisory personnel of the failure at the conclusion of patient care activities, care and transport should not be delayed while awaiting the arrival of a supervisor (unless the supervisor is responding as the nearest unit based on #1 above).
6. All equipment associated with the failure shall be gathered and secured for inspection. This includes all cables, electrodes, tubing, masks, or any other equipment associated with the failure. This equipment shall not be utilized in patient care activity until written clearance to do so is provided by the Office of Medical Affairs. Accessories such as those mentioned above should be left attached to the failed equipment in the manner that they were attached at the time failure was noted.
7. As noted in the patient safety policy, a Wake EMS System Clinical Unusual Event Report shall be completed and forwarded to the Office of Medical Affairs as soon as practical after the failure. In all cases, this form shall be completed prior to the end of the tour of duty of the personnel involved.
All Levels of Certification

Purpose: To establish a protocol to be utilized in instances when capacity has been exceeded and there is assurance that all reasonable options to safely accommodate patients have been explored.

Policy: When a facility cannot safely provide appropriate care to ambulance patients, the hospital will redirect, to the extent possible, patients to other area hospitals. The following status conditions are established in agreement with all hospitals in Wake County and the Wake County EMS System. A patient who refuses diversion recommendations shall complete the diversion refusal form after risk and benefits of refusal have been explained. In all cases, a hospital shall re-evaluate their diversion status every 2 hours and attempt to cease diverting patients if possible. If 3 hospitals are on diversion, all hospitals will be re-opened for a period of 2 hours.

Procedure:

GREEN Business as usual, normal transport procedures are in effect. All ambulance personnel should assume each hospital is in this condition until notified otherwise.

YELLOW A YELLOW diversion may be initiated by a hospital when the emergency department is unable to adequately care for an additional critical patient. Examples of critical patients include but are not limited to patients with: hemodynamic instability, respiratory distress, active chest pain, IV medication administration, altered mental status, or any patient in which ALS Protocols are being used. Under a YELLOW diversion, only BLS patients will continue to be transported to the hospital by EMS. Exceptions include cardiac/respiratory arrests to the closest hospital, OB patients in active labor to the hospital of their choice and patients who meet trauma criteria to WakeMed.

RED Total diversion may be initiated by the emergency department when the department cannot accept any patients except cardiac/respiratory arrests to the closest hospital, OB patients in active labor to the hospital of their choice, and patients who meet trauma criteria to WakeMed.

BLACK The emergency department may initiate BLACK diversion when the department is unable to accept any patients. This condition assumes an internal disaster status within the facility and may not be used as a result of volume in the emergency department.
Standards Policy

Interfacility Transfers

Indication:

Transporting a patient from a medical facility to another medical facility that requires Advanced Life Support care during transport and the facility does not send a registered nurse to attend the patient.

Procedure:

1. The transporting paramedic may maintain any infusion approved by the North Carolina Medical Board for interfacility transport by an EMT-Paramedic provided:
   a. The technician is familiar with the medication being infused.
   b. The medication is being regulated by an IV pump while enroute to the new medical facility.
   c. The patient has stable vital signs prior to departure from the facility.

2. The transporting paramedic should ensure that all appropriate documentation accompanies the patient.

3. While in transit to the new facility, all appropriate standing orders shall remain in place.

4. If the patient deteriorates, the transferring facility should be notified via radio or cellular phone.

5. If additional ALS orders are needed, the receiving facility should be contacted to issue those orders if the receiving hospital is inside of Wake County. If the receiving facility is outside of Wake County, the transferring facility should be contacted for ALS orders.
Policy:

- A Paramedic resource will be dispatched on every request for EMS service.
- For the purposes of this policy, “Paramedic” refers to a Wake County EMS System credentialed Paramedic with no current restrictions on their clinical practice.
- At least one Paramedic will be on-board the ambulance during transport of all patients unless natural disaster or other exceptions as mentioned above.
- The provider with the highest level of certification on scene shall conduct a detailed physical assessment and subjective interview with the patient to determine their chief complaint and level of distress. If this technician determines that the patient is stable and all patient care needs can be managed by the lower level provider, patient care can be transferred to a technician of lower certification for care while in en-route to the hospital. All personnel are encouraged to participate in patient care while on-scene, regardless of who “attends” with the patient while enroute to the hospital. The determination of who attends should be based upon the patient’s immediate treatment needs and any reasonably anticipated treatment needs while enroute to the hospital.
- The paramedic performing the paramedic assessment must document the findings of that assessment. Other documentation may be completed by the transporting provider. As with all documentation, both all providers are responsible for the content of the report.

The following patients cannot be transferred to a lower level of certification:

- Postictal seizure patients due to the possibility of a re-occurrence of a seizure.
- Patients who have been medicated on the scene may only be transferred to a technician of lower certification whose formulary includes the medications that were administered, except that a patient who has received pain medication as the only medication outside of the receiving technician’s formulary may be transferred to a technician of lower certification.
- Any patient suffering from chest pain of suspected cardiac origin, cardiac arrhythmias, moderate-to-severe respiratory distress, multiple trauma, or imminent childbirth.
- Any patient for which ALL EMS providers on scene do not agree can be safely transported without a Paramedic in attendance in the patient care compartment.
Purpose:

The purpose of this policy is to:
  • Provide world-class patient care and EMS service to the citizens of Wake County.
  • Give direction for providers who encounter complicated, unusual, and atypical patient encounters.
  • Establish an orderly method by which clinical issues can be rapidly addressed.
  • This policy does not affect administrative issues related to employee/employer relationships (sick outs, injuries, narcotic replacements, etc.)

Policy:

1. Clinical encounters requiring use of this protocol may be divided into two types:
   a. those whose clinical situation is covered by existing protocol but who are presenting an operational/administrative challenge (e.g., patient refusals, non-intubated post-ROSC patients) and require non-medical control guidance or
   b. those whose clinical situation is not covered by existing protocol (e.g., modification of drug dosage, termination of resuscitation not covered in current policy) and thus require medical control orders via on-line medical direction (OLM).

2. Patients (b) requiring OLM shall contact medical control via as described in steps 4 and 5 below. The provider requesting OLM must be at the scene with the patient.

3. The first call for operational/administrative issues related to an individual patient or patients will be placed to the Advanced Practice Paramedic (APP) on duty for the region. If possible, the call should be placed directly to the “Medic xx” cell phone. If this is not practical, the APP may be contacted on Dispatch 1 and then move to the appropriate “Admin” talk group.

4. If the request is for OLM or if there are no APPs immediately available for administrative/operational issues, the next call will be placed to a member of the Office of Medical Affairs (MD-1, MD-2, MD-20 (NOTE: MD-20 for administrative/operational calls only)).

5. If neither APP nor members of OMA are available, request OLM from a physician at the most appropriate receiving hospital via radio. Please note that only physicians at receiving hospitals can provide medical direction; other staff, including nurses, may not provide online medical direction.

6. In the electronic call report, the name of the individual (and unit number if applicable) providing OLM/APU will be documented in the narrative section. The APP will add a note confirming the advice provided as stated in the “APP Documentation” Policy.

7. Additionally, the APP for the region can take any calls from the Foundations of Practice document where immediate notification of the Medical Director is required.
Standards Policy

Documentation of the Patient Care Report

Policy:

- For every patient contact, the following must be documented at a minimum:
  1. A clear history of the present illness with chief complaint, onset time, associated complaints, pertinent negatives, mechanism of injury, etc. This should be included in the subjective portion of the ECR. The section should be sufficient to refresh the clinical situation after it has faded from memory.
  2. An appropriate physical assessment that may include pupil assessment, breath sounds, motor function, abdominal exam, chest exam, head exam, extremity exam, etc. When appropriate, this information should be included in the procedures section of the ECR.
  3. At least two complete sets of vital signs for transported patients and one complete set for non-transported patients (pulse, respirations, and an auscultated blood pressure). These vital signs should be repeated and documented after drug administration, prior to patient transfer, and as needed during transport of an ALS Patient. Children age < 6 do not need a BP documented.
  4. Only approved medical abbreviations per the appendix may be used.
  5. The CAD to ECR interface embedded within the ECR system should be used to populate all ECR data fields it supplies. When 911 center times were improperly recorded, these may be properly edited.
  6. When the cardiac monitor is applied to the patient, it is expected that data will be transferred to the ECR from the device. If transferred, automated vital sign values do not correlate with manually obtained values, it is appropriate to substitute the manually obtained results.
  7. For drug administrations, you must document the dosage, route, administration time, and response.
  8. A complete list of treatments in chronological order. Response to treatments should also be listed.
  9. For patients with extremity injury, neurovascular status must be noted before and after immobilization.
  10. For patients with spinal immobilization, document motor function before/after spinal immobilization.
  11. For IV administration, the catheter size, site, number of attempts, type of fluid, and flow rate.
  12. A lead II strip should be attached for all patients placed on the cardiac monitor. Any 12-leads should also be included. Any significant rhythm changes should be documented. For cardiac arrests, the initial strip, ending strip, pre and post defibrillation, pacing attempts, etc. should be attached.
  13. Any requested orders, whether approved or denied, should be documented clearly.
  14. Any waste of Narcotics should include the quantity wasted, where wasted, and name of the person who witnessed the waste. Hospital personnel should be utilized (if available).
  15. All crew members are responsible for and should review the content of the ECR for accuracy.
  16. Once the call is completed, patient care information may not be modified for any reason. Corrections or additions should be in the form of an addendum.
  17. For all patients who receive EMS medications or procedures (beyond KVO IV), the ECR shall be completed prior to leaving the hospital. Exceptions must be approved by the receiving facility and the specific individual approving the exception must be documented in the ECR. Completing the record includes marking the record “complete” in the ECR system and uploading the record to the server.
  18. When possible, all ECRs should be completed prior to leaving the hospital. All ECRs should be available to the receiving facility within 4 hours. If the ECR cannot be completed and a copy left with a receiving caregiver before departing the hospital, the narrative section of the call report should explain the delay and indicate the means used to deliver the report and confirm that it was received.
  19. A printed copy of the ECR (including appropriate cardiac monitor tracings, original DNR or MOST forms and, when applicable, documentation of refusal to accept an appropriate assessment, treatment, or hospital destination from EMS) shall be provided to the receiving hospital.
  20. ECRs should be sent to the server before leaving the hospital, or upon completion of non-transports.

Policy 28

This policy has been altered from the original 2009 NCCEP Policy by the Wake County EMS System Medical Director 2010
Standards Policy
Documentation with Multiple Providers

Purpose:

The purpose of this policy is to:
- Provide world class patient care and EMS service to the citizens of Wake County.
- Provide a consistent method for documenting patient care encounters that include multiple providers, particularly when an Advanced Practice Paramedic is involved.

Policy:

1. All providers involved in the patient care activity are responsible for ensuring accurate patient care documentation. The lead provider (listed as “primary attendant”) on the ECR is ultimately responsible and should read the entire report once all documentation is complete.

2. In the situation where all providers are present during the documentation, the care team may coordinate and a single provider document the patient care encounter with review by all care providers.

3. In the situation where all providers are not present during the final documentation (e.g., an APP provided some patient care on-scene but did not accompany the crew to the hospital, an APP provided on-line medical direction, etc.), the following shall be accomplished:
   a. The APP will begin the patient care report—record patient name, date of birth, and the name of the primary provider.
   b. The APP will document their portion of the patient care encounter as rapidly as possible and upload this information so that it will be available to the primary provider.
   c. In the case of a transported patient, the primary provider shall wait to begin any documentation until they have accessed the network, appropriately identified the patient care record, and then selected the record to begin documentation.
   d. In the case of a non-transported, the APP and primary provider will coordinate the appropriate order of documentation.
   e. If there is any dispute over documentation, the first attempt to reconcile will be accomplished via conversation between the APP and the primary provider. Corrections will be placed in an addendum. If the dispute cannot be resolved in this manner, the district chief shall be contacted for mediation.
Standards Procedure (Skill)

12 Lead ECG

Clinical Indications:
- Suspected cardiac patient
- Suspected tricyclic overdose
- Electrical injuries
- Syncope

Procedure:
1. Assess patient and monitor cardiac status.
2. Administer oxygen as patient condition warrants.
3. If patient is unstable, definitive treatment is the priority. If patient is stable or stabilized after treatment, perform a 12 Lead ECG. In general, 12-lead should be obtained in the first 10 minutes of the patient encounter, unless unstable.
4. Prepare ECG monitor and connect patient cable with electrodes.
5. Enter the required patient information (patient name, etc.) into the 12 lead ECG device.
6. Expose chest and prep as necessary. Modesty of the patient should be respected.
7. Apply chest leads and extremity leads using the following landmarks:
   - RA - Right arm
   - LA - Left arm
   - RL - Right leg
   - LL - Left leg
   - V1 - 4th intercostal space at right sternal border
   - V2 - 4th intercostal space at left sternal border
   - V3 - Directly between V2 and V4
   - V4 - 5th intercostal space at midclavicular line
   - V5 - Level with V4 at left anterior axillary line
   - V6 - Level with V5 at left midaxillary line
8. Instruct patient to remain still.
9. Press the appropriate button to acquire the 12 Lead ECG.
10. If 12-lead indicates STEMI or consultation is required, transmit the 12-lead to the appropriate receiving hospital.
11. For patients with cardiac complaint, keep all leads connected at all times practical to allow automatic ST-segment monitoring to proceed.
12. Contact the receiving hospital to notify them that a 12 Lead ECG has been sent.
13. Monitor the patient while continuing with the treatment protocol.
14. Download data as per guidelines and attach a copy of the 12 lead to the ACR.
15. Document the procedure, time, and results on/with the patient care report (PCR)

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.

Procedure 1

This procedure has been altered from the original 2009 NCCEP Procedure by the Wake County EMS Medical Director 2010
Standards Procedure (Skill)
Carboxy/Methemoglobin Monitoring

Clinical Indications:
- Persons with suspected or known exposure to carbon monoxide or substances likely to produce methemoglobin.

Procedure:
- Apply probe to patient’s middle finger or any other digit as recommended by the device manufacturer. If near strobe lights, cover the finger to avoid interference and/or move away from lights if possible. Where the manufacturer provides a light shield it should be used.
- Allow machine to register percent circulating carboxyhemoglobin or methemoglobin values.
- Record levels in patient care report or on the scene rehabilitation form.
- Verify pulse rate on machine with actual pulse of the patient.
- Monitor critical patients continuously until arrival at the hospital. If recording a one-time reading, monitor patients for a few minutes as oxygen saturation can vary.
- Document percent of carboxyhemoglobin or methemoglobin values every time vital signs are recorded during therapy for exposed patients.
- Use the pulse oximetry feature of the device as an added tool for patient evaluation. Treat the patient, not the data provided by the device. Utilize the relevant protocol for guidance.
- The pulse oximeter reading should never be used to withhold oxygen from a patient in respiratory distress or when it is the standard of care to apply oxygen despite good pulse oximetry readings, such as chest pain.
- Factors which may reduce the reliability of the reading include:
  1. Poor peripheral circulation (blood volume, hypotension, hypothermia)
  2. Excessive external lighting, particularly strobe/flashing lights
  3. Excessive pulse oximeter sensor motion
  4. Fingernail polish (may be removed with acetone pad)
  5. Irregular heart rhythms (atrial fibrillation, SVT, etc.)
  6. Jaundice
  7. Placement of BP cuff on same extremity as pulse ox probe.

Certification Requirements:
- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Standards Procedure (Skill)

Airway: King LTS-D EMS

Clinical Indications:
- Cardiac arrest where initial BLS airway management has been completed per protocol or sufficient personnel are present to perform without interruption in other cardiac arrest care.
- Non-cardiac arrest patient without a gag reflex for whom at least one failed intubation attempt has occurred OR the King can be placed more rapidly or with less interruption to care.
- Appropriate intubation is impossible due to patient access or difficult airway anatomy.

Absolute Contraindications:
- Deforming facial trauma

Relative Clinical Contraindications:
- Pulmonary Fibrosis
- Morbid Obesity

Warning:
This airway may not prevent aspiration of stomach contents.

Procedure:
1. Prepare, position and oxygenate the patient with 100% Oxygen.
2. Choose King LTS-D size per package recommendations.
3. Check the cuffs for proper inflation and deflation.
4. Place a lubricated 18 fr nasogastric tube in the gastric lumen of the King beneath the BVM connector, advancing it to ¼” past the distal opening.
5. Apply chin lift and introduce device to corner of mouth.
6. Advance tip between tongue and soft palate rotating tube to midline.
7. Without excessive force, advance tube until base of connector aligns with teeth or gums.
8. If a paramedic is present, they should advance the NG tube at this time, otherwise this should be deferred until arrival of Paramedic. In either case, confirmation of placement should ultimately occur per the nasogastric tube procedure.
9. Infl ate the cuff per the manufacturer’s recommendations until a seal is obtained.
10. Connect the LTS-D to an ambu bag, ventilate, and slowly withdraw tube until ventilation becomes easy and free flowing (normal tidal volume with minimal airway pressure).
11. Employ capnography and utilize the Impedance Threshold Device Procedure if appropriate.
12. If necessary, adjust cuff inflation pressure to maximize seal.
13. Re-verify King LTS-D placement after every move and upon arrival in the ED.
15. Complete the Airway Audit form at the conclusion of the patient care encounter and submit it within 48 hours to the Office of Medical Affairs. Record ETCO₂ readings at scene, enroute to the hospital, and at the hospital as indicated by the form.

Certification Requirements:
- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake EMS System.
Standards Procedure (Skill)

Impedance Threshold Device

Clinical Indications:

• The ITD should be utilized to assist with control of ventilatory rate and improve cardiac preload for patients who are receiving CPR.
• It may be utilized with an endotracheal tube, BIAD, or with a BVM.

Contraindications:

• The ITD should not be utilized for patients who have spontaneous respirations. It should be removed from the endotracheal tube/BVM once spontaneous respirations have returned.

Procedure:

1. Ensure airway is adequate per airway/failed airway protocol.
2. If available, place an elbow O2 device in the top of the ITD.
3. Place the ITD between the bag and the EtCO2 detector (for intubated/BIAD patients) or between the bag and mask (for patients ventilated with the BVM). The elbow O2 device should be between the ITD and the bag.
4. Flip the red switch to the “on” position so that the respiratory timing lights flash.
5. Provide a rapid breath after each flash of the LED timing lights.
6. Perform chest compression per the CPR procedure.
7. Once there is return of spontaneous circulation and the EtCO2 climbs above 40, remove the ITD. Place the device near the patient head so that it may replaced if the patient rearrests, and can be used to guide ventilations once removed. The ITD should also be removed if the patient has spontaneous respirations.
8. Carefully monitor the placement of the endotracheal tube after movement of the patient, placement of the ITD, and/or removal of the ITD.

Certification Requirements:

• Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake EMS System.
Standards Procedure (Skill)

Airway: CPAP

Clinical Indications for Continuous Positive Airway Pressure (CPAP) Use:

- CPAP is indicated in patients for whom inadequate ventilation is suspected. This could be as a result of pulmonary edema, pneumonia, COPD, asthma, etc. In asthmatic patients, continuous monitoring is required to reduce the risk of respiratory depression or arrest.

Procedure:

1. Ensure adequate oxygen supply to ventilation device.
2. Explain the procedure to the patient.
3. Consider placement of a nasopharyngeal airway.
4. Place the delivery mask over the mouth and nose. Oxygen should be flowing through the device at this point.
5. Secure the mask with provided straps starting with the lower straps until minimal air leak occurs.
6. If the Positive End Expiratory Pressure (PEEP) is adjustable on the CPAP device adjust the PEEP beginning at 0 cmH₂O of pressure and slowly titrate to achieve a positive pressure as follows:
   - 5 – 10 cmH₂O for Pulmonary Edema, Near Drowning, possible aspiration or pneumonia
   - 3 – 5 cm H₂O for COPD
7. Evaluate the response of the patient assessing breath sounds, oxygen saturation, and general appearance.
8. Titrate oxygen levels to the patient’s response. Many patients respond to low FIO2 (30-50%).
9. Encourage the patient to allow forced ventilation to occur. Observe closely for signs of complications. The patient must be breathing for optimal use of the CPAP device.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Standards Procedure (Skill)

Airway: Surgical (Rusch QuickTrach)

Clinical Indications:

• Surgical Airway as Indicated by the Failed Airway Protocol

Procedure:

1. Pre-oxygenate patient when possible
2. Assemble all available additional personnel
3. Locate cricothyroid membrane at the inferior portion of the thyroid cartilage (with head in neutral position, membrane is approximately 3 finger widths above the sternal notch).
4. Have assistant hold skin taunt over membrane and locate the midline.
5. Prep area with betadine if possible.
6. Hold the needle bevel up at a 90 degree angle, aimed inferiorly as you approach the skin.
7. Puncture the skin with the needle and continue with firm, steady pressure while aspirating for air with the syringe.
8. As soon as air is aspirated freely, stop advancing the needle/airway assembly.
9. Modify the angle to 60 degrees from the head and advance to level of the stopper.
10. Remove the stopper while holding the needle/airway assembly firmly in place. Do not advance the needle further. (NOTE: if the patient is obese and no air can be aspirated with the stopper in place, you may remove the stopper and continue advancing until air is aspirated. Be aware that without the stopper, risk of perforating the posterior aspect of the trachea is greatly increased.)
11. Hold the needle and syringe firmly and slide only the plastic cannula along the needle into the trachea until the flange rests on the neck. Carefully remove the needle and syringe.
12. Secure the cannula with the neck strap.
13. Apply the EtCO2 detector, then the connecting tube to the EtCO2 detector and connect the other end to the BVM.
14. Confirm placement with the use of breath sounds, pulse ox, and EtCO2.
15. Ensure 100% FiO2 to BVM via supplemental O2.

Certification Requirements:

• Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake EMS System.
Standards Procedure (Skill)

Airway: Endotracheal Tube Introducer (Bougie)

Clinical Indications:
- Patients meet clinical indications for oral intubation (appropriate to use with any attempt)
- Initial intubation attempt(s) unsuccessful
- Predicted difficult intubation

Contraindications:
- Three attempts at orotracheal intubation (utilize failed airway protocol)
- Introducer larger than ETT internal diameter

Procedure:
1. Prepare, position and oxygenate the patient with 100% oxygen;
2. Select proper ET tube without stylet, test cuff and prepare suction;
3. Lubricate the distal end and cuff of the endotracheal tube (ETT) and the distal 1/2 of the Endotracheal Tube Introducer (Bougie) (note: Failure to lubricate the Bougie and the ETT may result in being unable to pass the ETT);
4. Using laryngoscopic techniques, visualize the vocal cords if possible using Sellick’s/BURP as needed;
5. Introduce the Bougie with curved tip anteriorly and visualize the tip passing the vocal cords or above the arytenoids if the cords cannot be visualized;
6. Once inserted, gently advance the Bougie until you meet resistance or “hold-up” (if you do not meet resistance you have a probable esophageal intubation and insertion should be re-attempted or the failed airway protocol implemented as indicated);
7. Withdraw the Bougie ONLY to a depth sufficient to allow loading of the ETT while maintaining proximal control of the Bougie;
8. Gently advance the Bougie and loaded ET tube until you have hold-up again, thereby assuring tracheal placement and minimizing the risk of accidental displacement of the Bougie;
9. While maintaining a firm grasp on the proximal Bougie, introduce the ET tube over the Bougie passing the tube to its appropriate depth;
10. If you are unable to advance the ETT into the trachea and the Bougie and ETT are adequately lubricated, withdraw the ETT slightly and rotate the ETT 90 degrees COUNTER clockwise to turn the bevel of the ETT posteriorly. If this technique fails to facilitate passing of the ETT you may attempt direct laryngoscopy while advancing the ETT (this will require an assistant to maintain the position of the Bougie and, if so desired, advance the ETT);
11. Once the ETT is correctly placed, hold the ET tube securely and remove the Bougie;
12. Confirm tracheal placement according to the intubation protocol, inflate the cuff with 3 to 10 cc of air, auscultate for equal breath sounds and reposition accordingly;
13. When final position is determined secure the ET tube, reassess breath sounds, apply end tidal CO2 monitor, and record and monitor readings to assure continued tracheal intubation.

Certification Requirements:
- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System. Assessment should include direct observation at least once per certification cycle.
Clinical Indications:

- Sudden onset of respiratory distress often with coughing, wheezing, gagging, or stridor due to a foreign-body obstruction of the upper airway.
- Respiratory arrest where ventilation cannot be accomplished after repositioning of airway

Procedure:

1. Assess the degree of foreign body obstruction
   - Do not interfere with a mild obstruction allowing the patient to clear their airway by coughing.
   - In severe foreign-body obstructions, the patient may not be able to make a sound. The victim my clutch his/her neck in the universal choking sign.
2. For an infant, deliver 5 back blows (slaps) followed by 5 chest thrusts repeatedly until the object is expelled or the victim becomes unresponsive.
3. For a child, perform a subdiaphragmatic abdominal thrust (Heimlich Maneuver) until the object is expelled or the victim becomes unresponsive.
4. For adults, a combination of maneuvers may be required.
   - First, subdiaphragmatic abdominal thrusts (Heimlich Maneuver) should be used in rapid sequence until the obstruction is relieved.
   - If abdominal thrusts are ineffective, chest thrusts should be used. Chest thrusts should be used primarily in morbidly obese patients and in the patients who are in the late stages of pregnancy
5. If the victim becomes unresponsive, begin CPR immediately but look in the mouth before administering any ventilations. If a foreign-body is visible, remove it.
6. Do not perform blind finger sweeps in the mouth and posterior pharynx. This may push the object farther into the airway.
7. In unresponsive patients, EMT-Intermediate and EMT-Paramedic level professionals should visualize the posterior pharynx with a laryngoscope to potentially identify and remove the foreign-body using Magil forceps.
8. Document the methods used and result of these procedures in the patient care report (PCR).

Certification Requirements:

Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
EMS responds to structural fire and technical rescue incidents to address three distinct needs in the “Cold” and “Warm” zones:

1. Treatment of the ill or injured responder
2. Provision of care for victims of the incident
3. Provision of responder rehabilitative/preventive medical assistance during extended incidents

An EMS ambulance shall be dispatched to these scenes to serve as an evaluating (rehab) unit for the fire or rescue agency managing the scene. These responses include, but are not limited to incidents where responders will be:

- Working on the scene for more than an hour.
- In the presence of weather that will exceed 90 degrees F or be below 10 degrees F.
- Expected to use 2 twenty-minute or one 45-minute air bottle before the scene is under control, or are using supplied air respirators for any duration.

The initial response shall be one ALS Ambulance as directed by Emergency Medical Dispatch priority. It is acceptable for the responding EMS Resource(s) to monitor the radio traffic of the first-in Fire/Rescue Resource and cancel and/or downgrade response as appropriate. If the scene is known or suspected to have incident victims, additional transport ambulance resources should be requested in numbers sufficient to address victim needs and prevent unnecessary delays in addressing rehabilitative/preventive medical needs of responders.

An EMS District Chief is automatically dispatched to declared working fires. For more complex or extended incidents, give consideration to requesting a second District Chief and the Major Operations Support Unit (MOSU). A Medical Director may be requested to respond and assist with rehab assessment if needed.

If any firefighter or other victim requires transport to the hospital, an additional ALS ambulance will be dispatched to assume the rehab duties at the fire scene. Personnel on the scene will determine the level of response for the second ambulance (e.g., lights and siren vs. no lights and siren).

Transport of an injured firefighter or other victim will not be delayed while waiting for a second ambulance to arrive. If there is an urgent need for ALS personnel on the scene, the second ambulance should be dispatched with lights and siren and the injured party transported without delay. In most all circumstances, the EMS Supervisor and/or the Medical Director will be present to render aid while awaiting the second ambulance.

Where specialized care for patients or responders is potentially needed in the “hot zone” of technical rescue incidents, request specialized USAR/HazMat paramedics.

(continued next page)
Standards Procedure (Skill)
Fire and Technical Rescue Scene Response (continued)

Routine Working Fires/Technical Rescue Incidents

For a routine working fire or technical rescue incident, an EMS District Chief will be dispatched. The following actions are expected of the first arriving transport unit to these events:

1. Park close to the incident to allow for rapid removal and transportation of injured persons. In choosing a location, do no impair the ability of apparatus to depart or access the scene or fire hydrants. Work to establish clear means of egress even as other units respond.

2. Initial actions:
   a. If a victim is known, and has been removed from the hazard zone, initiate care for the victim and request appropriate supplemental resources to respond.
   b. If a victim has been removed to a “warm zone,” don full turnout gear, initiate care for the victim, and request appropriate supplemental resources to respond.
   c. If no victim is known or suspected, and the EMS District Chief is not yet on scene all EMS technicians shall don full turnout gear, load the stretcher with medical equipment (to include cardiac monitor, oxygen, ALS medications, suction, immobilization equipment and burn sheets) and report with equipment to the incident command post.
   d. As directed by the incident commander or arriving EMS District Chief, prepare the medical rehab area and screen responders as directed in the incident rehabilitation protocol.

As a matter of practice, at least one crew of EMS responders will remain in turnout gear, conspicuous and in proximity of the command post to provide a rapid medical intervention team whenever fire suppression or technical rescue activities are ongoing. If additional EMS personnel are assigned to a rehab function, they should also remain conspicuous, and in proximity of the rehab area through the duration of the event. It is recognized that a large number of fire service injuries and deaths occur during post-incident activities including salvage, overhaul, and take up. It is expected that EMS technicians will continue to be conspicuous and provide incident support through all phases of response unless directed otherwise by through the incident management system.

Major Working Fires

Upon declaration of a major working fire insure additional resources to total three ALS ambulances, two EMS District Chiefs, and the EMS Major Operations Support Unit (MOSU). In addition to the actions identified for the “routine” working incidents above, the following actions are expected:

1. First arriving District Chief reports to the command post as medical branch director (if necessary, take verbal report from previous medical branch director). Dons the MEDICAL vest.
2. Take actions to secure a good parking location for the MOSU.
3. REHAB- at least 2 ALS ambulances and the MOSU. Second arriving District Chief or a Senior Paramedic will assume the Rehab Unit Supervisor role, and will don the REHAB vest.
4. Work to assure clear ingress and egress for responding ambulances.
5. Assure on-going supply of ice, water, and flavorings.
6. Advise the IC with regards to ongoing hydration, nutrition needs, etc.
7. Consider the need for portable toilets early (contact Emergency Management). These requests are often not processed as quickly as the kidneys process fluids.
8. Assign a scribe to MEDICAL when possible.
9. Send an EMS Chief Officer to the RWECC for system status control and consideration of out-of-county mutual aid as necessary.
10. Notify EMS command staff.
Standards Procedure (Skill)
Airway: Intubation Confirmation-Esophageal Bulb

Clinical Indications:

- To assist in determining and documenting the correct placement of an Endotracheal or Nasotracheal tube.

It is strongly recommended that continuous Capnography be used in place of or in addition to the use of an Esophageal Bulb device.

Procedure:

1. Complete intubation as per Airway-Intubation Oral or Airway-Intubation Nasal procedures.
2. Place the bulb device over the proximal end of the ETT or NTT. Squeeze the bulb to remove air prior to securing the bulb on the tube.
3. Once secured on the tube, release the bulb.
4. If the bulb expands evenly and easily, this indicates probable tracheal intubation. Assessment of the patient’s breath sounds bilaterally should also be performed.
5. If the bulb does not expand easily, this indicates possible esophageal intubation and the need to reassess the airway.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Standards Procedure (Skill)
Advanced Practice Paramedic Wellness Check

Indications:
When patient safety needs to be ensured for patients who are evaluated by advanced practice paramedics for presumed non-urgent situations. This includes patients who are referred by other EMS providers, those identified by query of patient records, and those referred by external entities.

Contraindications:
Any patient for whom an emergency medical condition exists that would normally be treated under standard Wake EMS System protocols, policies, and procedures.

Procedure:

1) Ensure scene safety and at all times make RESCOM aware of your location. When possible, remain available for dispatch to high acuity calls.
2) Politely introduce yourself to the patient and family.
3) Determine the nature of the visit and record in electronic database (diabetes, CHF, falls prevention, pediatric asthma, high-risk refusal follow-up, or other).
4) For all patients, determine the name of the primary care physician. If one does not exist, utilize APP reference materials and communicate the available primary care physicians.
5) Assist all patients with medication compliance. If pill minders or refills are needed, note this in the electronic database. It is appropriate to communicate these needs with the primary care physician when possible. APPs may not pick up or in other ways transport prescription medications without specific authorization from medical control.
6) If the patient is diabetic, ensure daily blood glucose logs are being maintained. Asymptomatic patients with more than 2 consecutive blood glucose measurements above 300 should make contact with their primary care physician within 24 hours. A phone follow-up by the APP to ensure glucose is not rising is appropriate. If the blood glucose is rising by more than 50 mg/dL and/or any reading is above 500, transport to the emergency department shall be recommended.
7) If the patient has CHF, ensure the patient has a scale is performing weight checks. Asymptomatic patients with unexplained weight gain of more than 4 pounds should be referred to their primary care physician within 24 hours.
8) For patients with concern over falls prevention, ensure there are no loose rugs, handrails are present on all steps, and restroom facilities have available hand rails and slip resistant surfaces in showers/bath tubs. If these items are needed, note this in the electronic patient care report.
9) For pediatric asthma patients, assure medications are available. If smoking in the home or potential pet allergens is identified, discuss this with the patient’s family and include this in your electronic patient care report.

Certification Requirements:
Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake EMS System.
Clinical Indications:
- A spontaneously breathing patient in need of intubation (inadequate respiratory effort, evidence of hypoxia or carbon dioxide retention, or need for airway protection).
- Rigidity or clenched teeth prohibiting other airway procedures.

Contraindications:
- Non-breathing or near apneic patient.
- Known or likely fracture/instability of mid-face secondary to trauma.
- Relative contraindications:
  - Blood clotting abnormalities.
  - Nasal Polyps.
  - Upper neck hematomas or infections.

Procedure:
1. Prepare, position and oxygenate the patient with 100% Oxygen.
2. Choose proper ET tube about 1 mm less than for oral intubation.
3. Instill nasal spray into appropriate nostril.
4. Lubricate ET tube generously with water-soluble lubricant such as Lidocaine Jelly.
5. Pass the tube in the largest nostril with the beveled edge against the nasal septum and perpendicular to the facial plate.
6. Use forward, lateral back and forth rotating motion to advance the tube. **Never force the tube.**
7. Continue to advance the tube noting air movement through it; use the BAAM whistle to assist.
8. Apply firm cricoid pressure, advance the tube quickly past the vocal cords during inspiration.
9. Inflate the cuff with 5 to 10 cc of air.
10. Auscultate for absence of sounds over epigastrium and presence of equal bilateral breath sounds. If present unilaterally/unequal, adjust tube position and consider whether this may be patient’s baseline. If unsure of placement, remove tube and ventilate with bag-valve mask.
11. **Apply end tidal carbon dioxide monitor. After 3 ventilations, ETCO₂ must be >10. If less than 10 check for adequate circulation and check equipment. Remove the ET tube if pCO₂ remains <10 in the absence of a physiologic explanation. Record initial, ongoing, and final ETCO₂ values on the Airway Audit Form.**
12. **If ETCO₂ equipment failure occurs, use bulb detector and other means for confirmation.**
13. Secure the tube to the patient’s face.
14. Reassess airway, breath sounds, and ETCO₂ after transfer to the stretcher and during transport. These tubes are easily dislodged and require close monitoring and frequent reassessment.
15. **Complete and submit current Airway Audit Form within 48 hours per instructions.**

Certification Requirements:
- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake EMS System.
Clinical Indications:

- Inability to adequately ventilate a patient with a Bag Valve Mask or longer EMS transport distances require a more advanced airway.
- An unconscious patient without a gag reflex who is apneic or is demonstrating inadequate respiratory effort.
- Risk to benefit ratio of oral tracheal intubation to BIAD insertion weighs in favor of oral intubation

Procedure:

1. Prepare, position and oxygenate the patient with 100% Oxygen.
2. If patient is in cardiac arrest, monitor pre-intubation ETCO₂ for post-intubation comparison.
3. Select proper ET tube (and stylette or ETTI if using), have suction ready.
4. Using laryngoscope, visualize vocal cords. (Use Sellick maneuver/BURP to assist you).
5. Limit each intubation attempt to 30 seconds with BVM between attempts.
6. Visualize tube passing through vocal cords then inflate the cuff with 3-to10 cc of air
7. Auscultate for absence of sounds over epigastrium and presence of bilaterally equal breath sounds. If present unilaterally or unequal, adjust tube position or consider whether this may be patient’s baseline. If unsure of placement, remove tube and ventilate patient with bag-valve mask.
8. Apply end tidal carbon dioxide monitor. After 3 ventilations, ETCO₂ should be >10 or comparable to pre-intubation values. If <10 check for adequate circulation, check equipment, and check ventilatory rate. Remove the ET tube and ventilate by bag valve mask if ETCO₂ still <10 and no obvious physiologic explanation.
9. Record initial, ongoing, and final ETCO₂ values on the Airway Audit Form.
10. If ETCO₂ monitor fails, use bulb detector and other means to confirm.
11. Secure the tube to the patient’s face.
12. Consider using LMA if ET intubation efforts are unsuccessful.
13. Document ETT size, time, result (success), and placement location by the centimeter marks either at the patient’s teeth or lips on/with the patient care report (PCR). Document all devices used to confirm initial tube placement. Also document positive or negative breath sounds before and after each movement of the patient.
14. Consider placing an NG or OG tube to clear stomach contents after the airway is secured with an ET tube.
15. Complete and submit current Airway Audit Form within 48 hours per instructions.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake EMS System.
**Standards Procedure (Skill)**

**Airway – Nebulizer Inhalation Therapy**

**Clinical Indications:**

- Patients experiencing bronchospasm.
- As defined in Special Operations Protocols

**Procedure:**

1. Gather the necessary equipment.
2. Assemble the nebulizer kit.
3. Instill the premixed drug (such as Albuterol or other approved drug) into the reservoir well of the nebulizer.
4. Connect the nebulizer device to oxygen at 6 liters per minute or adequate flow to produce a steady, visible mist. When necessary, this may be used in conjunction with CPAP at low positive pressures (less than or equal to 5 cmH20 where measurable), or with BVM ventilations.
5. For the spontaneously breathing patient, instruct them to inhale normally through the mouthpiece of the nebulizer or through the appropriate mask to which it is attached.
6. The treatment should last until the solution is depleted. Tapping the reservoir well near the end of the treatment will assist in utilizing all of the solution.
7. Monitor the patient for medication effects. This should include the patient’s assessment of his/her response to the treatment and reassessment of vital signs, ECG, and breath sounds.
8. Assess and document peak flows before and after nebulizer treatments.

**Certification Requirements:**

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Standards Procedure (Skill)
Double Sequential External Defibrillation

Clinical Indications:

- Any patient who has persisted in ventricular fibrillation/tachycardia, without even transient interruption of fibrillation, despite at least 5 external countershocks.
- At least one of the five shocks was delivered using different pads applied so as to produce a different current vector than the first set and all other indicated treatment modalities have been implemented.
- An approved enhanced care provider has verified the persistence of the arrhythmia immediately post-shock

Procedure:
1. Ensure quality of CPR is not compromised during prolonged efforts.
2. Prepare the sites for attachment of an additional set of external defibrillation pads by drying the sites and minimizing interference of hair or other obstacles to good pad adhesion.
3. Apply a new set of external defibrillation pads adjacent to, but not touching the pad set currently in use.
4. Assure that controls for the second cardiac monitor are accessible to the code commander
5. The approved enhanced care provider will verify that the resuscitation checklist has been fully executed
6. On rhythm check, the enhanced care provider will confirm the rhythm.
   a. If a shockable rhythm is detected, CPR will resume immediately. The enhanced care provider will verify that both cardiac monitors/defibrillators are attached to the patient, that all pads are well adhered, and direct the simultaneous charging of both attached cardiac monitors. When both monitors are charged to maximum energy and all persons are clear, the code commander will push both shock buttons as synchronously as possible. A brief rhythm/pulse check will occur and CPR will resume as appropriate.
   b. If a non-shockable rhythm is present care will resume according to the appropriate protocol.

Certification Requirements:

Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System. Assessment should include direct observation at least once per certification cycle.
Clinical Indications:

- Obstruction of the airway (secondary to secretions, blood, or any other substance) in a patient currently being assisted by an airway adjunct such as a naso-tracheal tube, endotracheal tube, Combitube, tracheostomy tube, or a cricothyrotomy tube.

Procedure:

1. Ensure suction device is in proper working order.
2. Preoxygenate the patient as is possible.
3. Attach suction catheter to suction device, keeping sterile plastic covering over catheter.
4. Using the suprasternal notch and the end of the airway into the catheter will be placed as guides, measure the depth desired for the catheter (judgment must be used regarding the depth of suctioning with cricothyrotomy and tracheostomy tubes).
5. If applicable, remove ventilation devices from the airway.
6. With the thumb port of the catheter uncovered, insert the catheter through the airway device.
7. Once the desired depth (measured in #4 above) has been reached, occlude the thumb port and remove the suction catheter slowly.
8. A small amount of Normal Saline (10 ml) may be used if needed to loosen secretions for suctioning.
9. Reattach ventilation device (e.g., bag-valve mask) and ventilate the patient
10. Document time and result in the patient care report (PCR).

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Clinical Indications:

- Obstruction of the airway (secondary to secretions, blood, or any other substance) in a patient who cannot maintain or keep the airway clear.

Procedure:

1. Ensure suction device is in proper working order with suction tip in place.
2. Preoxygenate the patient as is possible.
3. Explain the procedure to the patient if they are coherent.
4. Examine the oropharynx and remove any potential foreign bodies or material which may occlude the airway if dislodged by the suction device.
5. If applicable, remove ventilation devices from the airway.
6. Use the suction device to remove any secretions, blood, or other substance.
7. The alert patient may assist with this procedure.
8. Reattach ventilation device (e.g., bag-valve mask) and ventilate or assist the patient.
9. Record the time and result of the suctioning in the patient care report (PCR).

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Standards Procedure (Skill)

Airway: Tracheostomy Tube Change

Clinical Indications:

- Presence of Tracheostomy site.
- Urgent or emergent indication to change the tube, such as obstruction that will not clear with suction, dislodgement, or inability to oxygenate/ventilate the patient without other obvious explanation.

Procedure:

1. Have all airway equipment prepared for standard airway management, including equipment for orotracheal intubation and failed airway.
2. Have airway device (endotracheal tube or tracheostomy tube) of the same size as the tracheostomy tube currently in place as well as 0.5 size smaller available (e.g., if the patient has a #6.0 Shilley, then have a 6.0 and a 5.5 tube).
3. Lubricate the replacement tube(s) and check the cuff.
4. Remove the tracheostomy tube from mechanical ventilation devices and use a bag-valve apparatus to pre-oxygenate the patient as much as possible.
5. Once all equipment is in place, remove devices securing the tracheostomy tube, including sutures and/or supporting bandages.
6. If applicable, deflate the cuff on the tube. If unable to aspirate air with a syringe, cut the balloon off to allow the cuff to lose pressure.
7. Remove the tracheostomy tube.
8. Insert the replacement tube. Confirm placement via standard measures except for esophageal detection (which is ineffective for surgical airways).
9. If there is any difficulty placing the tube, re-attempt procedure with the smaller tube.
10. If difficulty is still encountered, use standard airway procedures such as oral bag-valve mask or endotracheal intubation (as per protocol). More difficulty with tube changing can be anticipated for tracheostomy sites that are immature – i.e., less than two weeks old. Great caution should be exercised in attempts to change immature tracheotomy sites.
11. Document procedure, confirmation, patient response, and any complications in the PCR

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System. Assessment for this skill should include direct observation at least once per certification cycle.
Purpose:

The purpose of this policy is to:
- Provide world class patient care and EMS service to the citizens of Wake County.
- Give direction for providers who encounter patients with mental health and substance abuse crisis that may be better served by a receiving facility other than an emergency department.
- Establish an orderly method by which clinical issues can be rapidly addressed.

Procedure:

1. If a patient presents with primary substance abuse and/or mental health crisis (e.g., suicidal ideation without actual attempt), they should be evaluated on both the “Behavioral” and the “Well Person” protocols. If the patient is non-combative (and thus does not require medication from the Behavioral protocol) and successfully passes the Well Person screen, an Advanced Practice Paramedic (APP) on duty may be contacted; otherwise, the patient should be transported as per the usual and customary procedures.

2. After contact with the APP, the originally responding EMS crew will maintain appropriate clinical contact and monitoring of the patient until the APP arrives. If response of the APP is delayed, the EMS crew and APP will communicate via phone or radio and determine the most appropriate treatment plan and destination for the patient.

3. Until an appropriate destination for the patient has been determined, the patient will not be left unattended by EMS personnel.

4. Once the screening exam by the APP is complete, the patient may be referred to Wake County Human Services Crisis Assessment and/or Alcohol Treatment Center via appropriate transportation. At no point will patients be transported in an NCOEMS permitted vehicle to a destination other than a receiving emergency department.

5. If the patient’s condition is determined not to be appropriate for transport to a destination other than an emergency department, or the patient refuses the recommended alternative destination, transportation to a receiving hospital emergency department by a Wake County EMS System ambulance shall be offered.

6. Where transportation to a non-emergency department destination is deemed to be appropriate and the patient accepts that destination, the APP will be responsible for primary documentation of the patient encounter in accordance with the “documentation with multiple providers” policy.
Standards Procedure (Skill)
Assessment: Adult

Clinical Indications:

Any patient requesting a medical evaluation that is too large to be measured with a Broselow-Luten Resuscitation Tape.

Procedure:

1. Scene size-up, including universal precautions, scene safety, environmental hazards assessment, need for additional resources, by-stander safety, and patient/caregiver interaction.
2. Initial assessment includes a general impression as well as the status of a patient’s airway, breathing, and circulation.
3. Assess mental status (e.g., AVPU) and disability (e.g., GCS).
4. Control major hemorrhage and assess overall priority of patient.
5. Perform a focused history and physical based on patient’s chief complaint making efforts to protect patient privacy and modesty.
6. Assess need for critical interventions. If none are anticipated, downgrade or cancel additional responding units as appropriate.
7. Complete critical interventions and perform a complete secondary exam to include a baseline set of vital signs as directed by protocol.
8. Maintain an on-going assessment throughout transport; to include patient response/possible complications of interventions, need for additional interventions, and assessment of evolving patient complaints/conditions.
9. Document all findings and information associated with the assessment, performed procedures, and any administration of medications on the PCR.

Certification Requirements:

Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Standards Procedure (Skill)
Pain Assessment and Documentation

Clinical Indications:
- Any patient

Definitions:
- Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage.
- Pain is subjective (whatever the patient says it is).

Procedure:
1. Initial and ongoing assessment of pain intensity and character is accomplished through the patient's self report.
2. Pain should be assessed and documented in the PCR during initial assessment, before starting pain control treatment, with each set of vitals after a pharmaceutical pain management intervention, and until resolved or the last vital set for non-drug therapies.
3. Three pain scales are available: the 0 – 10, the Wong - Baker "faces", and the FLACC.
   - **0 – 10 Scale**: the most familiar scale used by EMS for rating pain with patients. It is primarily for adults and is based on the patient being able to express their perception of the pain as related to numbers. Avoid coaching the patient; simply ask them to rate their pain on a scale from 0 to 10, where 0 is no pain at all and 10 is the worst pain ever.
   - **Wong – Baker “FACES” scale**: this scale is primarily for use with pediatrics but may also be used with geriatrics or any patient with a language barrier. The faces correspond to numeric values from 0-10. This scale can be documented with the numeric value.

   - **FLACC scale**: this scale has been validated for measuring pain in children with mild to severe cognitive impairment and in pre-verbal children (including infants).

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<tr>
<th>CATEGORIES</th>
<th>SCORING</th>
</tr>
</thead>
<tbody>
<tr>
<td>FACE</td>
<td>0: No particular expression or smile</td>
</tr>
<tr>
<td>LEGS</td>
<td>Normal position or relaxed.</td>
</tr>
<tr>
<td>ACTIVITY</td>
<td>Lying quietly, normal position moves easily.</td>
</tr>
<tr>
<td>CRY</td>
<td>No cry, (awake or asleep)</td>
</tr>
<tr>
<td>CONSOLABILITY</td>
<td>Content, relaxed.</td>
</tr>
</tbody>
</table>

Certification Requirements:
- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.


Procedure 23
This procedure has been altered from the original 2009 NCCEP Procedure by the Wake County EMS Medical Director 2010
Standards Procedure (Skill)

Assessment: Pediatric

Clinical Indications:

- Any child that can be measured with the Broselow-Luten Resuscitation Tape.

Procedure:

1. Scene size-up, including universal precautions, scene safety, environmental hazards assessment, need for additional resources, bystander safety, and patient/caregiver interaction. Take reasonable steps to protect patient privacy and modesty.
2. Assess patient using the pediatric triangle of ABCs:
   - Airway and appearance: speech/cry, muscle tone, inter-activeness, look/gaze, movement of extremities
   - Work of breathing: absent or abnormal airway sounds, use of accessory muscles, nasal flaring, body positioning
   - Circulation to skin: pallor, mottling, cyanosis
3. Establish spinal immobilization if suspicion of spinal injury
4. Establish responsiveness appropriate for age (AVPU, GCS, etc.)
5. Color code using Broselow-Luten tape
6. Assess disability (pulse, motor function, sensory function, papillary reaction)
7. Perform a focused history and physical exam. Recall that pediatric patients easily experience hypothermia and thus should not be left uncovered any longer than necessary to perform an exam. Concurrently, remember that pediatric patients unable to verbalize their own complaint should be fully exposed for assessment.
8. Record vital signs (BP > 3 years of age, cap refill < 3 years of age)
9. Include Immunizations, Allergies, Medications, Past Medical History, last meal, and events leading up to injury or illness where appropriate.
10. Treat chief complaint as per protocol

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.

Procedure 24

This procedure has been altered from the original 2009 NCCEP Procedure by the Wake County EMS Medical Director 2010
Standards Procedure (Skill)

Blood Glucose Analysis

Clinical Indications:

- Patients with suspected hypoglycemia (diabetic emergencies, change in mental status, bizarre behavior, etc.)

Procedure:

1. Gather and prepare equipment.
2. Blood samples for performing glucose analysis should be obtained through a finger-stick. Venous blood samples may produce artificially high blood glucose values and should be avoided due to this and the increased risk of needlestick.
3. Place correct amount of blood on reagent strip or site on glucometer per the manufacturer’s instructions.
4. Time the analysis as instructed by the manufacturer.
5. Document the glucometer reading and treat the patient as indicated by the analysis and protocol.
6. Repeat glucose analysis as indicated for reassessment after treatment and as per protocol.
7. Perform Quality Assurance on glucometers at least once every 7 days, if any clinically suspicious readings are noted, and/or as recommended by the manufacturer and document in the log.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Clinical Indications:

- Capnography shall be used as soon as possible in conjunction with any airway management adjunct, including endotracheal, nasotracheal, cricothyrotomy, Blind Insertion Airway Devices (BIAD) or BVM.
- Capnography should also be used on all patients treated with CPAP, Magnesium, and/or epinephrine for respiratory distress.

Procedure:

1. Attach capnography sensor to the BIAD, endotracheal tube, or oxygen delivery device.
2. Note CO₂ level and waveform changes. These will be documented on each respiratory failure, cardiac arrest, or respiratory distress patient.
3. The capnometer shall remain in place with the airway and be monitored throughout the prehospital care and transport.
4. Any loss of CO₂ detection or waveform indicates an airway problem and should be documented.
5. The capnogram should be monitored as procedures are performed to verify or correct the airway problem.
6. Document the procedure and results on/with the Patient Care Report (PCR) and the Airway Evaluation Form.
7. In all patients with a pulse, an ETCO₂ >20 is anticipated. In the post-resuscitation patient, no effort should be made to lower ETCO₂ by modification of the ventilatory rate. Further, in post-resuscitation patients without evidence of ongoing, severe bronchospasm, ventilatory rate should never be < 6 breaths per minute.
8. In the pulseless patient, and ETCO₂ waveform with a ETCO₂ value >10 may be utilized to confirm the adequacy of an airway to include BVM and advanced devices when SpO₂ will not register.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Clinical Indications:

- Patients with symptomatic bradycardia (less than 60 per minute) with signs and symptoms of inadequate cerebral or cardiac perfusion such as:
  - Chest Pain
  - Hypotension
  - Pulmonary Edema
  - Altered Mental Status, Confusion, etc.
  - Ventricular Ectopy
- Asystole, pacing must be done early to be effective.
- PEA, where the underlying rhythm is bradycardic and reversible causes have been treated.

Procedure:

1. Attach standard four-lead monitor.
2. Apply defibrillation/pacing pads to chest and back:
   - One pad to left mid chest next to sternum
   - One pad to mid left posterior chest next to spine.
3. Rotate selector switch to pacing option.
4. Adjust heart rate to 70 BPM for an adult and 100 BPM for a child.
5. Note pacer spikes on EKG screen.
6. Slowly increase output until capture of electrical rhythm on the monitor.
7. If unable to capture while at maximum current output, stop pacing immediately.
8. If capture observed on monitor, check for corresponding pulse and assess vital signs.
9. Consider the use of sedation or analgesia if patient is uncomfortable.
10. Document the dysrhythmia and the response to external pacing with ECG strips in the PCR.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System. Assessment should include direct observation at least once per certification cycle.
Standards Procedure (Skill)
Cardiopulmonary Resuscitation (CPR)

Clinical Indications:
- Basic life support for the patient in cardiac arrest

Procedure:
1. Assess the patient's level of responsiveness (shake and shout)
2. If no response, open the patient's airway with the head-tilt, chin-lift and look, listen, and feel for respiratory effort. If the patient may have sustained C-spine trauma, use the modified jaw thrust while maintaining immobilization of the C-spine. For infants, positioning the head in the sniffing position is the most effective method for opening the airway.
3. If patient is an adult, go to step 4. If no respiratory effort in a pediatric patient, give two ventilations. If air moves successfully, go to step 4. If air movement fails, proceed to the Airway Obstruction Procedure.
4. Check for pulse (carotid for adults and older children, brachial for infants) for at least 10 seconds. If no pulse, begin chest compressions based on chart below:

<table>
<thead>
<tr>
<th>Age</th>
<th>Location</th>
<th>Depth</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant</td>
<td>Over sternum, between nipples (inter-mammary line), 2-3 fingers</td>
<td>0.5 to 1 inch (1/3 the anterior-posterior chest dimension)</td>
<td>At least 100/minute</td>
</tr>
<tr>
<td>Child</td>
<td>Over sternum, just cephalad from xyphoid process, heel of one hand</td>
<td>1 to 1.5 inches (1/3 the anterior-posterior chest dimension)</td>
<td>80 to 100/minute (3 compressions Every 2 seconds)</td>
</tr>
<tr>
<td>Adult</td>
<td>Over sternum, just cephalad from xyphoid process, hands with interlocked fingers</td>
<td>1.5 to 2 inches (1/3 the anterior-posterior chest dimension)</td>
<td>80 to 100/minute (3 compressions Every 2 seconds)</td>
</tr>
</tbody>
</table>

5. Go to Cardiac Arrest Procedure. Begin ventilations in the adult as directed in the Cardiac Arrest Procedure. In this procedure and all cardiac arrest protocols, 5 cycles of compressions means 2 minutes of uninterrupted chest compressions.
6. Provide no more than 12 breaths per minute with the BVM. Use EtCO2 to guide your ventilations as directed in the Cardiac Arrest Protocol.
7. Chest compressions should be provided in an uninterrupted manner. Only brief interruptions are allowed for rhythm analysis and defibrillation.

Certification Requirements:
- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Clinical Indications:

- Unstable patient with a tachydysrhythmia (rapid atrial fibrillation, supraventricular tachycardia, ventricular tachycardia)
- Patient is not pulseless (the pulseless patient requires unsynchronized cardioversion, i.e., defibrillation)

Procedure:

1. Ensure the patient is attached properly to a monitor/defibrillator capable of synchronized cardioversion.
2. Have all equipment prepared for unsynchronized cardioversion/defibrillation if the patient fails synchronized cardioversion and the condition worsens.
3. Consider the use of pain or sedating medications.
4. Set energy selection to the appropriate setting.
5. Set monitor/defibrillator to synchronized cardioversion mode.
6. Make certain all personnel are clear of patient.
7. Press and hold the shock button to cardiovert. Stay clear of the patient until you are certain the energy has been delivered. NOTE: It may take the monitor/defibrillator several cardiac cycles to “synchronize”, so there may be a delay between activating the cardioversion and the actual delivery of energy.
8. Note patient response and perform immediate unsynchronized cardioversion/defibrillation if the patient’s rhythm has deteriorated into pulseless ventricular tachycardia/ventricular fibrillation, following the procedure for Defibrillation-Manual.
9. If the patient’s condition is unchanged, repeat steps 2 to 8 above, using escalating energy settings.
10. Repeat until maximum setting or until efforts succeed. Consider discussion with medical control if cardioversion is unsuccessful after 2 attempts.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System. Assessment should include direct observation at least once per certification cycle, or other mechanisms as deemed appropriate by the Wake County EMS System.
Clinical Indications:

- Peri-arrest patients with hypotension (SBP <90), clinical signs of shock, and at least one of the following signs:
  - Jugular vein distention.
  - Tracheal deviation away from the side of the injury (often a late sign).
  - Absent or decreased breath sounds on the affected side.
  - Hyper-resonance to percussion on the affected side.
  - Increased resistance when ventilating a patient.
- Patients in traumatic arrest with chest or abdominal trauma for whom resuscitation is indicated. These patients may require bilateral chest decompression even in the absence of the signs above.

Contraindications:

- Bilateral decompression without positive pressure ventilations is contraindicated.

Procedure:

1. Don personal protective equipment (gloves, eye protection, etc.).
2. Administer high flow oxygen.
3. Identify and prep the site:
   - Locate the second intercostals space in the mid-clavicular line on the same side as the pneumothorax.
   - As a last resort, lateral placement may be used at the fourth ICS mid-axillary line.
   - Prepare the site with providone-iodine or chorhexidine ointment or solution.
4. Insert the catheter (12 or 14 gauge for adults) into the skin over the third rib and direct it just over the top of the rib (superior border) into the interspace.
5. Advance the catheter through the parietal pleura until a “pop” is felt and air or blood exits under pressure through the catheter, then advance catheter only to chest wall.
6. Remove the needle, leaving the plastic catheter in place.
7. Secure the catheter hub to the chest wall with dressings and tape.
8. Consider placing a finger cut from an exam glove over the catheter hub. Cut a small hole in the end of the finger to make a flutter valve. Secure the glove finger with tape or a rubber band. (Note – don’t waste much time preparing the flutter valve; if necessary control the air flow through the catheter hub with your gloved thumb.)

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System. Assessment should include direct observation once per certification cycle.
Clinical Indications:

- Imminent delivery with crowning

Procedure:

1. Delivery should be controlled so as to allow a slow, controlled delivery of the infant. This will prevent injury to the mother and infant.
2. Consider additional resources as there will be two potential patients.
3. Support the infant’s head as needed.
4. If the umbilical cord is surrounding the neck, slip it over the head. If unable to free the cord from the neck, double clamp the cord and cut between the clamps.
5. Suction the airway with a bulb syringe.
6. Grasping the head with hands over the ears, gently pull down to allow delivery of the anterior shoulder.
7. Gently pull up on the head to allow delivery of the posterior shoulder.
8. Slowly deliver the remainder of the infant.
9. Clamp the cord 2 inches from the abdomen with 2 clamps and cut the cord between the clamps.
10. Record APGAR scores at 1 and 5 minutes.
12. The placenta will deliver spontaneously, usually within 5 minutes of the infant. Do not force the placenta to deliver.
13. Massaging the uterus may facilitate delivery of the placenta and decrease bleeding by facilitating uterine contractions. Uncontrolled bleeding is addressed in the childbirth protocol.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Standards Procedure (Skill)
CNS Catheter: Epidural Catheter Maintenance

Clinical Indications:

- Presence of an epidural catheter in a patient requiring transport

Procedure:

1. Prior to transport, ensure catheter is secure and that transport personnel are familiar with medication(s) being delivered and devices used to control medication administration.
2. No adjustments in catheter position are to be attempted.
3. No adjustments in medication dosage or administration are to be attempted without direct approval from on-line medical control.
4. Report any complications immediately to on-line medical control.
5. Document the time and dose of any medication administration or rate adjustment in the patient care report (PCR).

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Clinical Indications:

- Transport of a patient with an intra-ventricular catheter in place

Procedure:

1. Prior to transport, ensure the catheter is secure.
2. Prior to transport, determine from the referring hospital/physician the desired patient position (e.g., supine, head of bed elevated 30 degrees, etc.).
3. Prior to transport, determine the height at which the drain is to be maintained, given the patient position desired from #2 above (if applicable).
4. Do not manipulate or move the drain.
5. If the patient or height of the drain is altered, immediately correct based on the pre-determined configuration in step 2 and 3 above.
6. Report any problems immediately to on-line medical control.
7. Document the time and any adjustments or problems in the patient care report (PCR).

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Clinical Indications:

- Any patient who may have been exposed to significant hazardous materials, including chemical, biological, or radiological weapons.

Procedure:

1. In coordination with HazMAT and other Emergency Management personnel, establish hot, warm and cold zones of operation.
2. Ensure that personnel assigned to operate within each zone have proper personal protective equipment.
3. In coordination with other public safety personnel, assure each patient from the hot zone undergoes appropriate initial decontamination. This is specific to each incident; such decontamination may include:
   - Removal of patients from Hot Zone
   - Simple removal of clothing
   - Irrigation of eyes
   - Passage through high-volume water bath (e.g., between two fire apparatus) for patients contaminated with liquids or certain solids. Patients exposed to gases, vapors, and powders often will not require this step as it may unnecessarily delay and/or increase dermal absorption of the agent(s).
4. Initial triage of patients should occur after step #3. Immediate life threats should be addressed prior to technical decontamination.
5. Assist patients with technical decontamination (unless contraindicated based on #3 above). This may include removal of all clothing and gentle cleansing with soap and water. All body areas should be thoroughly cleansed, although overly harsh scrubbing which could break the skin should be avoided.
6. Place triage identification on each patient. Match triage information with each patient’s personal belongings which were removed during technical decontamination. Preserve these personnel affects for law enforcement.
7. Monitor all patients for environmental illness.
8. Transport patients per Wake County protocol.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Standards Procedure (Skill)

Defibrillation: Automated

Clinical Indications:

- Patients in cardiac arrest (pulseless, non-breathing).
- Age < 8 years, use Pediatric Pads if available.

Contraindication:

- Pediatric patients who are so small that the pads cannot be placed without touching one another.

Procedure:

1. If multiple rescuers available, one rescuer should provide uninterrupted chest compressions while the AED is being prepared for use.
2. Apply defibrillator pads per manufacturer recommendations. Use alternate placement when implanted devices (pacemakers, AICDs) occupy preferred pad positions.
3. Remove any medication patches on the chest and wipe off any residue.
4. If necessary, connect defibrillator leads: white to the anterior chest pad and the red to the posterior pad.
5. Activate AED for analysis of rhythm.
6. **Stop CPR and clear the patient** for rhythm analysis. Keep interruption in CPR as brief as possible.
7. Defibrillate if appropriate by depressing the “shock” button. **Assertively state “CLEAR” and visualize that no one, including yourself, is in contact with the patient prior to defibrillation.** The sequence of defibrillation charges is preprogrammed for monophasic defibrillators. Biphasic defibrillators will determine the correct joules accordingly.
8. Begin CPR (chest compressions and ventilations) immediately after the delivery of the defibrillation.
9. After 2 minutes of CPR, analyze rhythm and defibrillate if indicated. Repeat this step every 2 minutes.
10. If “no shock advised” appears, perform CPR for two minutes and then reanalyze.
11. Transport and continue treatment as indicated.
12. **Keep interruption of CPR compressions as brief as possible. Adequate CPR is a key to successful resuscitation.**
13. If pulse returns please use the Post Resuscitation Protocol

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System. Assessment should include direct observation at least once per certification cycle.
Clinical Indications:

- Cardiac arrest with ventricular fibrillation or pulseless ventricular tachycardia

Procedure:

1. Ensure that Chest Compressions are adequate and interrupted only when absolutely necessary.
2. Clinically confirm the diagnosis of cardiac arrest and identify the need for defibrillation.
3. Apply hands-free therapy pads per manufacturer’s instructions.
4. Set the appropriate energy level per protocol.
5. Charge the defibrillator to the selected energy level. **Continue chest compressions while the defibrillator is charging.**
6. **Hold Compressions, assertively state, “CLEAR” and visualize that no one, including yourself, is in contact with the patient.**
7. Deliver the countershock by depressing the **shock button** for hands free operation.
8. Immediately resume chest compressions and ventilations for 2 minutes. After 2 minutes of CPR, analyze rhythm and check for pulse only if appropriate for rhythm.
9. Repeat the procedure every two minutes as indicated by patient response and EKG rhythm.
10. Keep interruption of CPR compressions as brief as possible. Adequate CPR is a key to successful resuscitation.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System. Assessment should include direct observation at least once per certification cycle.
Clinical Indications:

- Gastric decompression in patients with advanced airways placed or anticipated.

Procedure:

1. Estimate insertion length by superimposing the tube over the body from the nose to the stomach.
2. Flex the neck if not contraindicated to facilitate esophageal passage.
3. Liberally lubricate the distal end of the tube and pass through the patient’s nostril along the floor of the nasal passage. Do not orient the tip upward into the turbinates. This increases the difficulty of the insertion and may cause bleeding. Alternatively, the tube may be passed through the gastric lumen of the King LTS-D EMS airway for patients in whom this device is being utilized.
4. In the setting of an unconscious, intubated patient or a patient with facial trauma, oral insertion of the tube may be considered or preferred and may be facilitated with laryngoscopy.
5. Continue to advance the tube gently until the appropriate distance is reached.
6. Confirm placement by injecting 20 cc of air and auscultate for the swish or bubbling of the air over the stomach. Additionally, aspirate gastric contents to confirm proper placement.
7. Secure the tube.
8. Decompress the stomach of air and food either by connecting the tube to suction or manually aspirating with the large catheter tip syringe.
9. Document the procedure, time, and result (success) on/with the patient care report (PCR).

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Clinical Indications:

- When medication administration is necessary and the medication must be given via the SQ (not auto-injector) or IM route or as an alternative route in selected medications.

Procedure:

1. Receive and confirm medication order or perform according to standing orders.
2. Prepare equipment and medication expelling air from the syringe.
3. Explain the procedure to the patient and reconfirm patient allergies.
4. The most common site for subcutaneous injection is the arm.
   - Injection volume should not exceed 1 cc.
5. The possible injection sites for intramuscular injections include the arm, buttock and thigh.
   - Injection volume should not exceed 1 cc for the arm
   - Injection volume should not exceed 2 cc in the thigh or buttock.
6. The thigh should be used for injections in pediatric patients and injection volume should not exceed 1 cc.
7. Expose the selected area and cleanse the injection site with alcohol.
8. Insert the needle into the skin with a smooth, steady motion
   - SQ: 45-degree angle
   - IM: 90-degree angle
   - skin pinched
   - skin flattened
9. Aspirate for blood
10. Inject the medication.
11. Withdraw the needle quickly, activate needlestick prevention systems, and dispose of properly without recapping.
12. Apply pressure to the site.
13. Monitor the patient for the desired therapeutic effects as well as any possible side effects.
14. Document the medication, dose, route, and time on/with the patient care report (PCR).

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Standards Procedure (Skill)
Orthostatic Blood Pressure Measurement

Clinical Indications:

- Patient situations with suspected blood, fluid loss, or dehydration with no indication for spinal immobilization.
- Patients ≥ 8 years of age, or patients larger than the Broselow-Luten tape

Procedure:

1. Gather and prepare standard sphygmomanometer and stethoscope.
2. With the patient supine, obtain pulse and blood pressure.
3. Have the patient sit upright.
4. After 30 seconds, obtain blood pressure and pulse.
5. If the systolic blood pressure falls more than 30 mmHg or the pulse rises more than 20 bpm, the patient is considered to be orthostatic.
6. If a patient experiences dizziness upon sitting or is obviously dehydrated based on history or physical exam, formal orthostatic examination should be omitted and fluid resuscitation initiated.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Standards Procedure (Skill)

Pulse Oximetry

Clinical Indications:

- Patients with suspected hypoxemia.

Procedure:

1. Apply probe to patient’s finger or any other site as recommended by the device manufacturer.
2. Allow machine to register saturation level.
3. Record time and initial saturation percent on room air if possible on/with the patient care report (PCR).
4. Verify pulse rate on machine with actual pulse of the patient.
5. Monitor critical patients continuously until arrival at the hospital. If recording a one-time reading, monitor patients for a few minutes as oxygen saturation can vary.
6. Document percent of oxygen saturation every time vital signs are recorded and in response to therapy to correct hypoxemia.
7. In general, normal saturation is 97-99%. Below 94%, suspect a respiratory compromise.
8. Use the pulse oximetry as an added tool for patient evaluation. Treat the patient, not the data provided by the device.
9. The pulse oximeter reading should never be used to withhold oxygen from a patient in respiratory distress or when it is the standard of care to apply oxygen despite good pulse oximetry readings, such as chest pain.
10. Factors which may reduce the reliability of the pulse oximetry reading include:
    - Poor peripheral circulation (blood volume, hypotension, hypothermia)
    - Excessive pulse oximeter sensor motion
    - Fingernail polish (may be removed with acetone pad)
    - Carbon monoxide bound to hemoglobin
    - Irregular heart rhythms (atrial fibrillation, SVT, etc.)
    - Jaundice
    - Placement of BP cuff on same extremity as pulse ox probe.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Standards Procedure (Skill)

Reperfusion Checklist

Clinical Indications:
Rapid evaluation of a patient with suspected acute stroke to:
- Determine eligibility and potential benefit from fibrinolysis.
- Rapid identification of patients who are not eligible for fibrinolysis and will require interventional therapy.

Procedure:
Follow the appropriate protocol for the patient’s complaint to assess and identify an acute condition which could potentially benefit from fibrinolysis. If a positive finding is noted on the Cincinnati Prehospital Stroke Screen then:

1. Complete the Reperfusion Check Sheet to identify any potential contraindications to fibrinolysis. (See Appendix)
   - Systolic Blood Pressure greater than 180 mm Hg
   - Diastolic Blood Pressure greater than 110 mm Hg
   - History of structural Central Nervous System disease (tumors, masses, hemorrhage, etc.)
   - Significant closed head or facial trauma within the previous 3 months
   - Recent (within 6 weeks) major trauma, surgery (including laser eye surgery), gastrointestinal bleeding, or severe genital-urinary bleeding
   - Bleeding or clotting problem or on blood thinners
   - Currently Pregnant
   - Serious systemic disease such as advanced/terminal cancer or severe liver or kidney failure.

2. If any contraindication is noted using the check list and an acute Stroke is suspected by exam, refer to the stroke destination plan for guidance

3. Record all findings in the Patient Care Report (PCR).

Certification Requirements:
Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Standards Procedure (Skill)

Restraints: Physical/Chemical

Clinical Indications:

- Any patient who may harm himself, herself, or others may be gently restrained to prevent injury to the patient or crew. This restraint must be in a humane manner and used only as a last resort. Other means to prevent injury to the patient or crew must be attempted first. These efforts could include reality orientation, distraction techniques, or other less restrictive therapeutic means. Physical or chemical restraint should be a last resort technique.

Procedure:

1. Attempt less restrictive means of managing the patient.
2. Request law enforcement assistance.
3. Ensure that there are sufficient personnel available to physically restrain the patient safely.
4. Restrain the patient in a lateral or supine position. No devices such as backboards, splints, or other devices will be on top of the patient. The patient will never be restrained in the prone position.
5. The patient must be under constant observation by the EMS crew at all times. This includes direct visualization of the patient as well as cardiac and pulse oximetry monitoring.
6. The extremities that are restrained will have a circulation check at least every 15 minutes. The first of these checks should occur as soon after placement of the restraints as possible. This MUST be documented on the PCR.
7. Documentation on/with the patient care report (PCR) should include the reason for the use of restraints, the type of restraints used, and the time restraints were placed. Use of the Restraint Checklist is highly recommended.
8. If the above actions are unsuccessful, or if the patient is resisting the restraints, consider administering medications per protocol. (Chemical restraint may be considered earlier.)
9. If a patient is restrained by law enforcement personnel with handcuffs or other devices EMS personnel can not remove, a law enforcement officer must accompany the patient to the hospital in the transporting EMS vehicle.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Standards Procedure (Skill)

**Spinal Immobilization**

**Clinical Indications:**

- Need for spinal immobilization as determined by protocol

**Procedure:**

1. Gather a backboard, straps, C-collar appropriate for patient’s size, tape, and head rolls or similar device to secure the head.

2. Explain the procedure to the patient

3. Place the patient in an appropriately sized C-collar while maintaining in-line stabilization of the C-spine. This stabilization, to be provided by a second rescuer, should not involve traction or tension but rather simply maintaining the head in a neutral, midline position while the first rescuer applied the collar. This may be performed by any credentialed responder if indicated by protocol.

4. Once the collar is secure, the second rescuer should still maintain their position to ensure stabilization (the collar is helpful but will not do the job by itself.)

5. If a fire first responder, only when patient meets CDC trauma criteria or for extrication purposes, place patient on long spine board. For all, if the patient is supine or prone, consider the log roll technique. For the patient in a vehicle or otherwise unable to be placed prone or supine, place them on a backboard by the safest method available that maximizes maintenance of in-line spinal stability.

6. Stabilize the patient with straps and head rolls/tape or other similar device. Once the head is secured to the backboard, the second rescuer may release manual in-line stabilization.

7. **NOTE:** Some patients, due to size or age, will not be able to be immobilized through in-line stabilization with standard backboards and C-collars. Never force a patient into a non-neutral position to immobilize them. Such situations may require a second rescuer to maintain manual stabilization throughout the transport to the hospital.


**Certification Requirements:**

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Standards Procedure (Skill)

Splinting

Clinical Indications:

- Immobilization of an extremity for transport, either due to suspected fracture, sprain, or injury.
- Immobilization of an extremity for transport to secure medically necessary devices such as intravenous catheters

Procedure:

1. Assess and document pulses, sensation, and motor function prior to placement of the splint. If no pulses are present and a fracture is suspected, consider reduction of the fracture prior to placement of the splint.
2. Remove all clothing from the extremity.
3. Select a site to secure the splint both proximal and distal to the area of suspected injury, or the area where the medical device will be placed.
4. Do not secure the splint directly over the injury or device.
5. Place the splint and secure with Velcro, straps, or bandage material (e.g., kling, kerlex, cloth bandage, etc.) depending on the splint manufacturer and design.
6. Document pulses, sensation, and motor function after placement of the splint. If there has been a deterioration in any of these 3 parameters, remove the splint and reassess.
7. If a femur fracture is suspected and there is no evidence of pelvic fracture or instability, the following procedure may be followed for placement of a femoral traction splint:
   - Assess neurovascular function as in #1 above.
   - Place the ankle device over the ankle.
   - Place the proximal end of the traction splint on the posterior side of the affected extremity, being careful to avoid placing too much pressure on genitalia or open wounds. Make certain the splint extends proximal to the suspected fracture. If the splint will not extend in such a manner, reassess possible involvement of the pelvis.
   - Extend the distal end of the splint at least 6 inches beyond the foot.
   - Attach the ankle device to the traction crank.
   - Twist until moderate resistance is met.
   - Reassess alignment, pulses, sensation, and motor function. If there has been deterioration in any of these 3 parameters, release traction and reassess.
8. Document the time, type of splint, and the pre and post assessment of pulse, sensation, and motor function in the patient care report (PCR).

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.

This procedure has been altered from the original 2009 NCCEP Procedure by the Wake County EMS Medical Director 2010
Standards Procedure (Skill)

Stroke Screen: Cincinnati Prehospital

Clinical Indications:

- Suspected Stroke Patient

Procedure:

1. Assess and treat suspected stroke patients as per protocol.
2. The Cincinnati Stroke Screen should be completed for all suspected stroke patients.
3. Establish the “Time Last Normal” for the patient. This will be the presumed time of onset.
4. Perform the screen through physical exam:
   - Look for facial droop by asking the patient to smile
   - Assess for decreased hand grip strength on one side
   - Have patient, while sitting upright or standing, extend both arms parallel to floor, close eyes, and turn their palms upward. Assess for unilateral drift of an arm.
5. One of these exam components must be positive to answer “yes” on the screening form.
6. Evaluate blood glucose level results
6. If the “Time Last Normal” is less than 24 hours, blood glucose is between 60 and 400, and at least one of the physical exam elements is positive, follow the Wake County EMS System Suspected Stroke Protocol and Destination Plan, alerting the receiving hospital of a possible stroke patient as early as possible.
6. All sections of the Cincinnati screen must be completed.
7. The completed Stroke Screening procedure/form should be attached or documented in the PCR.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Standards Procedure (Skill)

Temperature Measurement

Clinical Indications:

- Monitoring body temperature in a patient with suspected infection, hypothermia, hyperthermia, or to assist in evaluating resuscitation efforts.

Procedure:

1. If clinically appropriate, allow the patient to reach equilibrium with the surrounding environment.
2. To obtain a tympanic temperature, ensure the patient has no significant head trauma and place the thermometer into the external ear making sure not to force the probe into the ear canal. To obtain an oral temperature, ensure the patient has no oral trauma and place the device under the tongue.
3. Leave the device in place until there is indication an accurate temperature has been recorded (per the “beep” or other indicator specific to the device).
4. ***Paramedic Only***: To obtain an esophageal temperature, measure the esophageal probe as per the Nasogastric Tube Insertion procedure. Advance the temperature probe as directed by that procedure.
5. Obtain and evaluate temperature as directed by the esophageal thermometer's manufacturer’s guidelines.
6. Record time, temperature, method (tympanic or oral), and scale (C° or F°) in Patient Care Report (PCR).

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Urinary Catheterization

Clinical Indications:

- Monitoring a patient’s fluid status and/or response to therapy during entrapment and/or transport.
- Collection of urine for laboratory analysis.

Procedure:

1. Explain the procedure to the patient. Maximize patient privacy. Have a second crewmember or other chaperone as feasible if performing the procedure on a member of the opposite sex.
2. If there is any question of traumatic injury in the Genitourinary (GU) region, do not perform this procedure.
3. Open the catheter kit. Test the balloon at the catheter tip. Connect the catheter to the urine collection system. Maintain the sterility of contents.
4. Use sterile gloves from the kit. Use one hand to come in contact with the patient and the other to use items from the kit. Recall that once your hand touches the patient, it is no longer sterile and cannot be used to obtain items from the kit.
5. Using the Betadine swabs from the kit, thoroughly cleanse the area surrounding the urethra. For males, this will require retracting the foreskin for uncircumcised males and cleansing of the glans for all males. For females, this will require retraction of the labia majora and cleansing of the area around the urethra.
6. Once the patient has been prepped with Betadine, place sterile sheet(s).
7. Lubricate the tip of the catheter.
8. Gently guide the catheter through the external opening of the urethra. Advance the catheter slowly until there is return of urine. Do not force the catheter through resistance. If resistance is encountered, withdraw the catheter slightly and gently re-direct the catheter.
9. Once urine is returned, gently inflate the balloon and secure the urine collection device.
10. Record procedure and amount of urine returned in the Patient Care Report (PCR).

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Standards Procedure (Skill)

Venous Access: Blood Draw

Clinical Indications:

- Collection of a person's blood for law enforcement, in response to a law enforcement request for a person that is not a patient. Persons who are patients for transport may have blood drawn at the receiving hospital.

Procedure:

1. Confirm that this request is not for an injured or ill person, only for blood draw, then proceed without lights and sirens. This may be treated as an Omega response under the EMD policy.
2. Utilize universal precautions as per OSHA.
3. Select vein and prep as usual.
4. Select appropriate blood-drawing devices.
5. Draw provided tubes of blood for lab testing.
6. Assure that the blood samples are labeled with the correct information (a minimum of the patient's name, along with the date and time the sample was collected) or as otherwise directed by law enforcement.
7. Deliver the blood tubes to the law enforcement officer.
8. Where the person does not meet the definition of a patient, it is not necessary to complete a clinical evaluation and record.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the local EMS System.
Standards Procedure (Skill)
Venous Access: Existing Catheters

Clinical Indications:

- Inability to obtain adequate peripheral venous or intraosseous access.
- Access of an existing venous catheter for medication or fluid administration.
- Central venous access in a patient in cardiac arrest.

Procedure:

1. If patient is not in cardiac arrest, consult Medical Control.
2. If in cardiac arrest or on Medical Control orders, clean the catheter port with alcohol wipe.
3. Using sterile technique, withdraw 5-10 cc of blood and discard syringe in sharps container.
4. Using 5 cc of normal saline, access the port with sterile technique and gently attempt to flush the saline.
5. If there is no resistance, no evidence of infiltration (e.g., no subcutaneous collection of fluid), and no pain experienced by the patient, then proceed to step 5. If there is resistance, evidence of infiltration, pain experienced by the patient, or any concern that the catheter may be clotted or dislodged, do not use the catheter.
6. Begin administration of medications or IV fluids slowly and observe for any signs of infiltration. If difficulties are encountered, stop the infusion and reassess.
7. Record procedure, any complications, and fluids/medications administered in the Patient Care Report (PCR).

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Clinical Indications:

- External jugular vein cannulation is indicated in a critically ill patient ≥ 8 years of age who requires intravenous access for fluid or medication administration and in whom an extremity vein or intraosseous access is not obtainable.
- External jugular cannulation can be attempted initially in life threatening events where no obvious peripheral site is noted and intraosseous access is contraindicated or undesirable.

Procedure:

1. Place the patient in a supine head down position. This helps distend the vein and prevents air embolism.
2. Turn the patient’s head toward the opposite side if no risk of cervical injury exists.
3. Prep the site as per peripheral IV site.
4. Align the catheter with the vein and aim toward the same side shoulder.
5. "Tourniqueting" the vein lightly with one finger above the clavicle, puncture the vein midway between the angle of the jaw and the clavicle and cannulate the vein in the usual method.
6. Attach the IV and secure the catheter avoiding circumferential dressing or taping.
7. Document the procedure, time, and result (success) on/with the patient care report (PCR).

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Clinical Indications:
- Any patient where intravenous access is indicated (significant trauma or mechanism, emergent or potentially emergent medical condition).

Procedure:
1. Saline locks may be used as an alternative to an IV tubing and IV fluid in every protocol at the discretion of the ALS professional.
2. Paramedics can use intraosseous access where threat to life exists as provided for in the Venous Access-Intraosseous procedure.
3. Use the largest catheter bore necessary based upon patient condition and vein size.
4. Fluid and setup choice is preferably:
   - Normal Saline with a macro drip (10 gtt/cc) for trauma or hypovolemia.
   - Normal Saline with a macro drip (10 gtt/cc) for medical conditions, and
   - Normal Saline with a micro drip (60 gtt/cc) for medication infusions.
5. Inspect the IV solution for expiration date, cloudiness, discoloration, leaks, or the presence of particles.
6. Connect IV tubing to the solution in a sterile manner. Fill the drip chamber half full and then flush the tubing bleeding all air bubbles from the line.
7. Place a tourniquet around the patient's extremity to restrict venous flow only.
8. Select a vein and an appropriate gauge catheter for the vein and the patient's condition.
9. Prep the skin with an antiseptic solution.
10. Insert the needle with the bevel up into the skin in a steady, deliberate motion until the bloody flashback is visualized in the catheter.
11. Advance the catheter into the vein. Never reinsert the needle through the catheter. Dispose of the needle into the proper container without recapping.
12. Remove the tourniquet and connect the IV tubing or saline lock.
13. Open the IV to assure free flow of the fluid and then adjust the flow rate as per protocol or as clinically indicated.
   - **Rates are preferably:**
     - Adult: KVO: 60 cc/hr (1 gtt/ 6 sec for a macro drip set)
     - Pediatric: KVO: 30 cc/hr (1 gtt/ 12 sec for a macro drip set)
   - **If shock is present:**
     - Adult: 500 cc fluid boluses repeated as long as lungs are dry and BP < 90. Consider a second IV line.
     - Pediatric: 20 cc/kg boluses repeated PRN for poor perfusion.
14. Cover the site with a sterile dressing and secure the IV and tubing.
15. Label the IV with date and time, catheter gauge, and name/ID of the person starting the IV.
16. Document the procedure, time and result (success) on/with the patient care report (PCR).

Certification Requirements:
- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Standards Procedure (Skill)

Venous Access: Intraosseous

Clinical Indications:
- As the initial means of circulatory access in cardiac arrest
- Patients where rapid, regular IV access is unavailable with any of the following:
  1. Multisystem trauma with severe hypovolemia.
  2. Severe dehydration with vascular collapse and/or loss of consciousness.

Contraindications:
- Fracture proximal to proposed intraosseous site.
- History of Osteogenesis Imperfecta
- Current or prior infection at proposed intraosseous site.
- Previous intraosseous insertion or joint replacement at the selected site.

Procedure:
1. Don personal protective equipment (gloves, eye protection, etc.).
2. In the cardiac arrest patient, seek the most cephalic insertion site available.
3. **Humeral Head**: Place the patient palm on the umbilicus and elbow on the ground or stretcher. Use your thumb to identify humeral shaft, slide thumb towards humeral head with firm pressure. Locate tubercle by prominent bulge. Use the opposite hand to pinch inferior and anterior humerus ensuring that you are midline on the humerus.
4. **Proximal Tibia**: Identify anteromedial aspect of the proximal tibia (bony prominence below the knee cap). The insertion location will be 1-2 cm (2 finger widths) below this.
5. **Distal Tibia**: If patient >12 years of age, identify the anteriormedial aspect of the distal tibia (2 cm proximal to the medial malleolus).
6. Prep the site with providone-iodine or a chlorhexidine solution.
7. For manual pediatric devices, hold the intraosseous needle at a 60 to 90 degree angle, aimed away from the nearby joint and epiphyseal plate, twist the needle handle with a rotating grinding motion applying controlled downward force until a “pop” or “give” is felt indicating loss of resistance. Do not advance the needle any further.
8. For the EZ-IO intraosseous device, hold the intraosseous needle at a 60 to 90 degree angle, aimed away from the nearby joint and epiphyseal plate, power the driver until a “pop” or “give” is felt indicating loss of resistance. Do not advance the needle any further.
9. Remove the stylette and place in an approved sharps container.
10. Attach a syringe filled with at least 5 cc NS; aspirate bone marrow for manual devices only, to verify placement; then inject at least 5 cc of NS to clear the lumen of the needle.
11. Attach the IV line and adjust flow rate. A pressure bag may enhance flows.
12. Stabilize and secure the needle with dressings and tape.
13. You may administer 10 to 20 mg (1 to 2 cc) of 2% Lidocaine in adult patients who experience infusion-related pain. This may be repeated prn to a maximum of 60 mg (6 cc).
14. Following administration of any other IO medications, flush the IO line with 10 cc of IV fluid.
15. Document the procedure, time, and result (success) on/with the patient care report (PCR).

Certification Requirements:
- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System. Assessment should include direct observation at least once per certification cycle.
Standards Procedure (Skill)
Wound Care-General

Clinical Indications:

- Protection and care for open wounds prior to and during transport.

Procedure:

1. Use personal protective equipment, including gloves, gown, and mask as indicated.
2. If active bleeding, elevate the affected area if possible and hold direct pressure. Do not rely on “compression” bandage to control bleeding. Direct pressure is much more effective.
3. Once bleeding is controlled, irrigate contaminated wounds with saline as appropriate (this may have to be avoided if bleeding was difficult to control). Consider analgesia per protocol prior to irrigation.
4. Cover wounds with sterile gauze/dressings. Check distal pulses, sensation, and motor function to ensure the bandage is not too tight.
5. Monitor wounds and/or dressings throughout transport for bleeding.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Standards Procedure (Skill)

Wound Care-Hemostatic Agent

Clinical Indications:

- Serious hemorrhage that can not be controlled by other means.

Contraindications:

- Wounds involving open thoracic or abdominal cavities.

Procedure:

1. Apply approved non-heat-generating hemostatic agent per manufacturer’s instructions.
2. Supplement with direct pressure and standard hemorrhage control techniques.
3. Apply dressing.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Clinical Indications:

- Patient with uncomplicated conducted electrical weapon (Taser®) probes embedded subcutaneously in non-sensitive areas of skin.
- Taser probes are barbed metal projectiles that may embed themselves up to 13 mm into the skin.

Contraindications:

- Patients with conducted electrical weapon (Taser®) probe penetration in vulnerable areas of body as mentioned below should be transported for further evaluation and probe removal.
- Probes embedded in skin above level of clavicles, female breasts, or genitalia.
- Suspicion that probe might be embedded in bone, blood vessel, or other sensitive structure.

Procedure:

- Ensure wires are disconnected from weapon.
- Stabilize skin around probe using non-dominant hand.
- Grasp probe by metal body using dominant hand.
- Remove probe in single quick motion.
- Wipe wound with antiseptic wipe and apply dressing.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Standards Procedure (Skill)

Wound Care-Tourniquet

Clinical Indications:
- Life threatening extremity hemorrhage that cannot be controlled by other means.
- Serious or life threatening extremity hemorrhage and tactical considerations prevent the use of standard hemorrhage control techniques.

Contraindications:
- Non-extremity hemorrhage
- Proximal extremity location where tourniquet application is not practical

Procedure:
1. Place tourniquet proximal to wound
2. Tighten per manufacturer instructions until hemorrhage stops and/or distal pulses in affected extremity disappear.
3. Secure tourniquet per manufacturer instructions
4. Note time of tourniquet application and communicate this to receiving care providers
5. Dress wounds per standard wound care protocol
6. If delayed or prolonged transport and tourniquet application time 5 hours contact medical control

Certification Requirements:
- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake County EMS System.
Standards Procedure (Skill)

**Spinal Examination**

### Clinical Indications:
- Suspicion of spinal/neurological injury
- Provider decision to utilize the Spinal immobilization Clearance protocol

***This procedure details the spinal examination process and must be used in conjunction with the Spinal Immobilization Clearance protocol. It is not intended as a replacement for that protocol.***

### Procedure:
- Explain to the patient the actions that you are going to take. Ask the patient to immediately report any pain, and to answer questions with a “yes” or “no” rather than shaking the head.
- With the patient’s spine supported to limit movement, begin palpation at the base of the skull at the midline of the spine.
- Palpate the vertebrae individually from the base of the skull to the bottom of the sacrum.
- On palpation of each vertebral body, look for evidence of pain and ask the patient if they are experiencing pain. If evidence of pain along the spinal column is encountered, the patient should be immobilized.
- If the capable patient is found to be pain free, ask the patient to turn their head first to one side (so that the chin is pointing toward the shoulder on the same side as the head is rotating) then, if pain free, to the other. If there is evidence of pain the patient should be immobilized.
- With the head rotated back to its normal position, ask the patient to flex and extend their neck. If there is evidence of pain the patient should be immobilized.

### Certification Requirements:
- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Wake EMS System.
**Airway, Adult**

**Supplemental Oxygen**
- Adequate

**Long Transport or Need to Protect Airway**

**Assess ABC’s**
- Respiratory Rate
- Effort
- Adequacy
**Pulse Oximetry**
- Inadequate

**Basic Maneuvers First**
- Open airway
- Nasal or oral airway
- Bag-valve mask (BVM)

**Unsuccessful**

**Continuous capnography (EtCO2) is strongly recommended for the monitoring of all patients with a BIAD or endotracheal tube.**

**Ventilatory rate should be 6-10 per minute to maintain an EtCO2 of 35-45. Avoid hyperventilation.**

**It is strongly encouraged to complete an Airway Evaluation Form with any BIAD or intubation procedure.**

**Do not assume hyperventilation is psychogenic - use oxygen, not a paper bag.**

**Sellick’s and or BURP maneuver should be used to assist with difficult intubations.**

**Hyperventilation in deteriorating head trauma should only be done to maintain an EtCO2 of 30-35.**

**Gastric tube placement should be considered in all intubated patients if available.**

**It is important to secure the endotracheal tube well and consider c-collar to better maintain ETT placement.**

---

**Legend**
- MR
- B EMT B
- I EMT - I I
- P EMT - P P
- M Medical Control M

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**Pears**
- This protocol is only for use in patients with an Age > 12 or patients longer than the Broselow-Luten Tape.
- Capnometry (Color) or capnography is mandatory with all methods of intubation. Document results.
- Continuous capnography (EtCO2) is strongly recommended for the monitoring of all patients with a BIAD or endotracheal tube.
- If an effective airway is being maintained by BVM with continuous pulse oximetry values of > 90, it is acceptable to continue with basic airway measures instead of using a BIAD or intubation.
- For the purposes of this protocol a secure airway is when the patient is receiving appropriate oxygenation and ventilation.
- An Intubation Attempt is defined as passing the laryngoscope blade or endotracheal tube past the teeth or inserted into the nasal passage.
- Ventilatory rate should be 6-10 per minute to maintain an EtCO2 of 35-45. Avoid hyperventilation.
- It is strongly recommended to complete an Airway Evaluation Form with any BIAD or intubation procedure.
- Paramedics should consider using a BIAD if oral-tracheal intubation is unsuccessful.
- Maintain C-spine immobilization for patients with suspected spinal injury.
- Do not assume hyperventilation is psychogenic - use oxygen, not a paper bag.
- Sellick’s and or BURP maneuver should be used to assist with difficult intubations.
- Hyperventilation in deteriorating head trauma should only be done to maintain an EtCO2 of 30-35.
- Gastric tube placement should be considered in all intubated patients if available.
- It is important to secure the endotracheal tube well and consider c-collar to better maintain ETT placement.
If first intubation attempt fails, make an adjustment and then consider:

- Different laryngoscope blade
- Gum Elastic Bougie
- Different ETT size
- Change cricoid pressure
- Apply BURP maneuver (Push trachea Back [posterior], Up, and to patient’s Right)
- Change head positioning

Continuous pulse oximetry should be utilized in all patients with an inadequate respiratory function.
Continuous EtCO2 should be applied to all patients with respiratory failure or to all patients with advanced airways.

Notify Medical Control AS EARLY AS POSSIBLE about the patient’s difficult / failed airway.

---

**Legend**

- MR
- B EMT
- I EMT-I
- P EMT-P
- M Medical Control

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**Protocol 2**

Any local EMS System changes to this document must follow the NC OEMS Protocol Change Policy and be approved by OEMS 2009
For this protocol, pediatric is defined as less than 12 years of age or any patient which can be measured within the Broselow-Luten tape.

Capnometry (color) or capnography is mandatory with all methods of intubation. Document results.

Continuous capnography (EtCO2) is strongly recommended with BIAD or endotracheal tube use.

If an effective airway is being maintained by BVM with continuous pulse oximetry values of > 94, it is acceptable to continue with basic airway measures instead of using a BIAD or intubation.

For the purposes of this protocol a secure airway is when the patient is receiving appropriate oxygenation and ventilation.

Ventilatory rate should be 30 for Neonates, 25 for Toddlers, 20 for School Age, and for Adolescents the normal Adult rate of 12 per minute. Maintain a EtCO2 between 30 and 35 and avoid hyperventilation.

It is strongly encouraged to complete an Airway Evaluation Form with any BIAD or intubation procedure.

Paramedics should consider using a BIAD if oral-tracheal intubation is unsuccessful.

Maintain C-spine immobilization for patients with suspected spinal injury.

Do not assume hyperventilation is psychogenic - use oxygen, not a paper bag.

Sellick’s and or BURP maneuver should be used to assist with difficult intubations.

Hyperventilation in deteriorating head trauma should only be done to maintain a pCO2 of 30-35.

Gastric tube placement should be considered in all intubated patients.

It is important to secure the endotracheal tube well and consider c-collar to better maintain ETT placement.
Pearls

- If first intubation attempt fails, make an adjustment and then try again:
  - Different laryngoscope blade
  - Gum Elastic Bougie
  - Different ETT size
  - Change cricoid pressure
  - Apply BURP maneuver (Push trachea Back [posterior], Up, and to patient’s Right)
  - Change head positioning
- **Ventilatory rate should be 30 for Neonates, 25 for Toddlers, 20 for School Age, and for Adolescents the normal Adult rate of 12 per minute. Maintain a EtCO2 between 30 and 35 and avoid hyperventilation.**
- Continuous pulse oximetry should be utilized in all patients with an inadequate respiratory function.
- Continuous EtCO2 should be applied to all patients with respiratory failure or to all patients with advanced airways.
- Notify **Medical Control AS EARLY AS POSSIBLE** about the patient’s difficult / failed airway.

---

**Protocol 5**

Any local EMS System changes to this document must follow the NC OEMS Protocol Change Policy and be approved by OEMS 2009
Back Pain

History
- Age
- Past medical history
- Past surgical history
- Medications
- Onset of pain / injury
- Previous back injury
- Traumatic mechanism
- Location of pain
- Fever
- Improvement or worsening with activity

Signs and Symptoms
- Pain (paraspinal, spinous process)
- Swelling
- Pain with range of motion
- Extremity weakness
- Extremity numbness
- Shooting pain into an extremity
- Bowel / bladder dysfunction

Differential
- Muscle spasm / strain
- Herniated disc with nerve compression
- Sciatica
- Spine fracture
- Kidney stone
- Pyelonephritis
- Aneurysm
- Pneumonia
- Spinal Epidural Abscess
- Metastatic Cancer

Universal Patient Care Protocol

Spinal Immobilization Protocol

Signs of shock?

Injury or traumatic mechanism

Orthostatic Blood Pressure

Positive

IV Protocol
Normal Saline Bolus

Negative

Pain Control Protocol

Notify Destination or Contact MC

Legend

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Pearls
- **Recommended Exam:** Mental Status, HEENT, Neck, Chest, Lungs, Abdomen, Back, Extremities, Neuro
- Abdominal aneurysms are a concern in patients over the age of 50
- Kidney stones typically present with an acute onset of flank pain which radiates around to the groin area.
- Patients with midline pain over the spinous processes should be spinally immobilized.
- Any bowel or bladder incontinence is a significant finding which requires immediate medical evaluation.
- In patients with history of IV drug abuse a spinal epidural abscess should be considered.
**Behavioral**

### General Protocols

- **History**
  - Situational crisis
  - Psychiatric illness/medications
  - Injury to self or threats to others
  - Medic alert tag
  - Substance abuse / overdose
  - Diabetes

- **Signs and Symptoms**
  - Anxiety, agitation, confusion
  - Affect change, hallucinations
  - Delusional thoughts, bizarre behavior
  - Combative violent
  - Expression of suicidal / homicidal thoughts

- **Differential**
  - See Altered Mental Status differential
  - Alcohol intoxication
  - Toxin / Substance abuse
  - Medication effect / overdose
  - Withdraw syndromes
  - Depression
  - Bipolar (manic-depressive)
  - Schizophrenia
  - Anxiety disorders

### Scene Safety

- **Universal Patient Care Protocol**
  - Remove patient from stressful environment
  - Use verbal calming techniques because communication is very important (reassurance, calm, establish rapport)
  - GCS on all patients

- **Go to Appropriate Protocol**
  - Altered Mental Status Protocol
  - Overdose/Toxic Ingestion Protocol
  - Head Trauma Protocol

- **Check Glucose if there is any suspicion of hypoglycemia**

- **If Patient Refuses Care**
  - Contact Medical Control

- **Restraint Procedure**
  - Consider
    - Midazolam, Lorazepam, or Diazepam
    - or if available
    - Haloperidol or Ziprasidone

### Pearls

- **Recommended Exam:** Mental Status, Skin, Heart, Lungs, Neuro
- Your safety first!!
- Consider Haldol or Ziprasidone for patients with history of psychosis or a benzodiazepine for patients with presumed substance abuse.
- Be sure to consider all possible medical/trauma causes for behavior (hypoglycemia, overdose, substance abuse, hypoxia, head injury, etc.)
- Do not irritate the patient with a prolonged exam.
- Do not overlook the possibility of associated domestic violence or child abuse.
- If patient is suspected of agitated delirium suffers cardiac arrest, consider a fluid bolus and sodium bicarbonate early.
- All patients who receive either physical or chemical restraint must be continuously observed by ALS personnel on scene or immediately upon their arrival.
- Any patient who is handcuffed or restrained by Law Enforcement and transported by EMS must be accompanied by law enforcement in the ambulance.
- Do not position or transport any restrained patient in such a way that could impact the patients respiratory or circulatory status.
Temperature Measurement

Temperature greater than 100.4°F (38°C) if available

Ibuprofen (if age > 6 months)
or
Acetaminophen (if age > 3 months)

Associated Symptoms (Helpful to localize source)
- myalgias, cough, chest pain, headache, dysuria, abdominal pain, mental status changes, rash

Pearls
- Recommended Exam: Mental Status, Skin, HEENT, Neck, Heart, Lungs, Abdomen, Back, Extremities, Neuro
- Febrile seizures are more likely in children with a history of febrile seizures and with a rapid elevation in temperature.
- Patients with a history of Liver failure should not receive acetaminophen.
- Droplet precautions include standard PPE plus a standard surgical mask for providers who accompany patients in the back of the ambulance and a surgical mask or NRB O2 mask for the patient. This level of precaution should be utilized when influenza, meningitis, mumps, streptococcal pharyngitis, and other illnesses spread via large particle droplets are suspected. A patient with a potentially infectious rash should be treated with droplet precautions.
- Airborne precautions include standard PPE plus utilization of a gown, change of gloves after every patient contact, and strict handwashing precautions. This level of precaution is utilized when multi-drug resistant organisms (e.g. MRSA), scabies, or zoster (shingles), or other illnesses spread by contact are suspected.
- All-hazards precautions include standard PPE plus airborne precautions plus contact precautions. This level of precaution is utilized during the initial phases of an outbreak when the etiology of the infection is unknown or when the causative agent is found to be highly contagious (e.g. SARS).
- Rehydration with fluids increased the patients ability to sweat and improves heat loss.
- All patients should have drug allergies documented prior to administering pain medications.
- Allergies to NSAID's (non-steroidal anti-inflammatory medications) are a contraindication to Ibuprofen.
- NSAID's should not be used in the setting of environmental heat emergencies.
- Do not give aspirin to a child.
General Protocols

IV Access

Assess need for IV
Emergent or potentially emergent medical or trauma condition

Peripheral IV
External Jugular IV (≥ 8 yo) for life-threatening event
Intraosseous IV (ped or adult device) for life-threatening event

Successful

Monitor med-lock
Monitor infusion

Unsuccessful X 3 attempts with any method

Contact Medical Control

Peripheral IV
External Jugular IV (≥ 8 yo) for life-threatening event
Intraosseous (ped or adult device) for life-threatening event

Pearls
- In the setting of cardiac arrest, any preexisting dialysis shunt or external central venous catheter may be used.
- Intraosseous with the appropriate adult or pediatric device.
- External jugular (≥ 8 years of age).
- Any prehospital fluids or medications approved for IV use, may be given through an intraosseous IV.
- All IV rates should be at KVO (minimal rate to keep vein open) unless administering fluid bolus.
- Use microdrips for all patients 6 years old or less.
- External jugular lines can be attempted initially in life-threatening events where no obvious peripheral site is noted.
- In patients who are hemodynamically unstable or in extremis, contact medical control prior to accessing dialysis shunts or external central venous catheters.
- Any venous catheter which has already been accessed prior to EMS arrival may be used.
- Upper extremity IV sites are preferable to lower extremity sites.
- Lower extremity IV sites are discouraged in patients with vascular disease or diabetes.
- In post-mastectomy patients, avoid IV, blood draw, injection, or blood pressure in arm on affected side.

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Universal Patient Care Protocol

In the setting of cardiac arrest, any preexisting dialysis shunt or external central venous catheter may be used.
Intraosseous with the appropriate adult or pediatric device.
External jugular (≥ 8 years of age).
Any prehospital fluids or medications approved for IV use, may be given through an intraosseous IV.
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Use microdrips for all patients 6 years old or less.
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Any venous catheter which has already been accessed prior to EMS arrival may be used.
Upper extremity IV sites are preferable to lower extremity sites.
Lower extremity IV sites are discouraged in patients with vascular disease or diabetes.
In post-mastectomy patients, avoid IV, blood draw, injection, or blood pressure in arm on affected side.

Any local EMS System changes to this document must follow the NC OEMS Protocol Change Policy and be approved by OEMS 2009
# Pain Control: Adult

## History
- Age
- Location
- Duration
- Severity (1 - 10)
- If child use Wong-Baker faces scale
- Past medical history
- Medications
- Drug allergies

## Signs and Symptoms
- Severity (pain scale)
- Quality (sharp, dull, etc.)
- Radiation
- Relation to movement, respiration
- Increased with palpation of area

## Differential
- Per the specific protocol
- Musculoskeletal
- Visceral (abdominal)
- Cardiac
- Pleural / Respiratory
- Neurogenic
- Renal (colic)

## Universal Patient Care Protocol

### Patient care according to Protocol based on Specific Complaint

- **Pain Severity > 6 out of 10 or Indication for IV / IM Medication**
  - **Yes**
    - B: Pulse oximetry
    - I: IV protocol if IV medication
    - P: If available consider Ketorolac
    - P: If available consider Nitrous Oxide
    - P: Morphine or, Fentanyl or, Dilaudid
  - **No**
    - B: Must reassess patient at least every 15 minutes after sedative medication

### Consider if Available
- B: Ibuprofen or Acetaminophen
- P: Nitrous Oxide

## Pearls
- **Recommended Exam:** Mental Status, Area of Pain, Neuro
- Pain severity (0-10) is a vital sign to be recorded pre and post IV or IM medication delivery and at disposition.
- Vital signs should be obtained pre, 15 minutes post, and at disposition with all pain medications.
- Patients with presumed kidney stone should first receive Toradol. A narcotic may then be considered.
- Contraindications to the use of a narcotic include hypotension, head injury, respiratory distress or severe COPD.
- Ketorolac (Toradol) and Ibuprofen should not be used in patients with known renal disease or renal transplant, in patients who have known drug allergies to NSAID’s (non-steroidal anti-inflammatory medications), with active bleeding, or in patients who may need surgical intervention such as open fractures or fracture deformities.
- All patients should have drug allergies documented prior to administering pain medications.
- All patients who receive IM or IV medications must be observed 15 minutes for drug reaction.
- Ibuprofen or Ketorolac should not be given for headaches or abdominal pain, history of gastritis, stomach ulcers, fracture, or if patient will require sedation
- Do not administer any PO medications for patients who may need surgical intervention such as open fractures or fracture deformities, headaches, or abdominal pain.
- Do not administer Acetaminophen to patients with a history of liver disease.
- See drug list for other contraindications for Narcotics, Acetaminophen, Nitrous Oxide, Ketorolac, and Ibuprofen.
Pain Control: Pediatric

History
- Age
- Location
- Duration
- Severity (1 - 10)
- If child use Wong-Baker faces scale
- Past medical history
- Medications
- Drug allergies

Signs and Symptoms
- Severity (pain scale)
- Quality (sharp, dull, etc.)
- Radiation
- Relation to movement, respiration
- Increased with palpation of area

Differential
- Per the specific protocol
- Musculoskeletal
- Visceral (abdominal)
- Cardiac
- Pleural / Respiratory
- Neurogenic
- Renal (colic)

Pearls
- **Recommended Exam:** Mental Status, Area of Pain, Neuro
- Pain severity (0-10) is a vital sign to be recorded pre and post IV or IM medication delivery and at disposition.
- For children use Wong-Baker faces scale or the FLACC score (see Assessment Pain Procedure)
- Vital signs should be obtained pre, 15 minutes post, and at disposition with all pain medications.
- **Contraindications to Narcotic use** include hypotension, head injury, or respiratory distress.
- All patients should have drug allergies documented and avoid medications with a history of an allergy or reaction.
- All patients who receive IM or IV medications must be observed 15 minutes for drug reaction.
- **Ibuprofen** should not be given if there is abdominal pain, history of gastritis, stomach ulcers, fracture, or if patient will require sedation.
- Do not administer any PO medications for patients who may need surgical intervention such as open fractures or fracture deformities.
- See drug list for other contraindications for Narcotics, Nitrous Oxide, Acetaminophen, and Ibuprofen.

Universal Patient Care Protocol

Patient care according to **Protocol** based on **Specific Complaint**

**Pain Severity > 6 out of 10 or Indication for IV / IM Medication**

If no contraindication to sedation:
- Morphine
- Fentanyl
- Dilaudid

Must reassess patient at least every 15 minutes after sedative medication

Consider if Available
- **Ibuprofen** (Age > 6 months)
- **Acetaminophen** (Age > 3 Months)
- or **Nitrous Oxide** (Age greater 5 years)

Isolated Extremity Traumatic Pain

**Legend**
- MR
- EMT
- EMT- I
- EMT- P
- Medical Control

Any local EMS System changes to this document must follow the NC OEMS Protocol Change Policy and be approved by OEMS 2009
General Protocols

Spinal Immobilization Clearance

---

**Pearls**

- **Recommended Exam:** Mental Status, Skin, Neck, Heart, Lungs, Abdomen, Back, Extremities, Neuro
- **Consider immobilization in any patient with arthritis, cancer, or other underlying spinal or bone disease.**
- Significant mechanism includes high-energy events such as ejection, high falls, and abrupt deceleration crashes and may indicate the need for spinal immobilization in the absence of symptoms.
- Range of motion should NOT be assessed if patient has midline spinal tenderness. Patient's range of motion should not be assisted. The patient should touch their chin to their chest, extend their neck (look up), and turn their head from side to side (shoulder to shoulder) without spinal process pain.
- The acronym "NSAIDS" should be used to remember the steps in this protocol.
- "N" = Neurologic exam. Look for focal deficits such as tingling, reduced strength, on numbness in an extremity.
- "S" = Significant mechanism or extremes of age.
- "A" = Alertness. Is patient oriented to person, place, time, and situation? Any change to alertness with this incident?
- "I" = Intoxication. Is there any indication that the person is intoxicated (impaired decision making ability)?
- "D" = Distracting injury. Is there any other injury which is capable of producing significant pain in this patient?
- "S" = Spinal exam. Look for point tenderness in any spinal process or spinal process tenderness with range of motion.
- **The decision to NOT implement spinal immobilization in a patient is the responsibility of the paramedic.**
- In very old and very young patients, a normal exam may not be sufficient to rule out spinal injury.

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**Legend**

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**Medical Control**

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Protocol 12

Any local EMS System changes to this document must follow the NC OEMS Protocol Change Policy and be approved by OEMS 2009
Universal Patient Care Protocol

Scene safety

Bring all necessary equipment to patient’s side
Demonstrate Professionalism and Courtesy

PPE (Consider Airborne or Droplet if indicated)

Initial assessment

Pediatric Assessment Procedure
Adult Assessment Procedure
Consider Spinal Immobilization
(The Broselow-Luten tape defines the pediatric patient)

Airway Protocol (Adult or Pediatric)

Vital signs
(Temperature if appropriate)

B Pulse oximetry
Consider Glucose Measurement
Consider Supplemental Oxygen
Consider 12 Lead ECG
Consider Cardiac Monitor
Go to Appropriate Protocol

Cardiac Arrest Protocol

If available, consider Oral Glucose, 1 to 2 tubes if awake and no risk for aspiration

- 50% Dextrose Adult
- 10% Dextrose Pediatric
Glucagon if no IV access

Patient doesn't fit a protocol?
Contact Medical Control

Legend

MR B EMT B
I EMT-I I
P EMT-P P
M Medical Control M

Pearls

- Recommended Exam: Minimal exam if not noted on the specific protocol is vital signs, mental status with GCS, and location of injury or complaint.
- Any patient contact which does not result in an EMS transport must have a completed disposition form.
- Required vital signs on every patient include blood pressure, pulse, respirations, pain / severity.
- Pulse oximetry and temperature documentation is dependent on the specific complaint.
- A pediatric patient is defined by the Broselow-Luten tape. If the patient does not fit on the tape, they are considered adult.
- Timing of transport should be based on patient’s clinical condition and the transport policy.
- Never hesitate to contact medical control for patient who refuses transport.
- Orthostatic vital sign procedure should be performed in situations where volume status is in question.
Police Custody

History
- Traumatic Injury
- Drug Abuse
- Cardiac History
- History of Asthma
- Psychiatric History

Signs and Symptoms
- External signs of trauma
- Palpitations
- Shortness of breath
- Wheezing
- Altered Mental Status
- Intoxication/Substance Abuse

Differential
- Agitated Delirium Secondary to Psychiatric Illness
- Agitated Delirium Secondary to Substance Abuse
- Traumatic Injury
- Closed Head Injury
- Asthma Exacerbation
- Cardiac Dysrhythmia

General Protocols

Universal Patient Care Protocol

Appropriate Protocol and Transport

Evidence of Traumatic Injury or Medical Illness?

No

Yes

Significant Injury from Entry Point of Taser or from Fall after Taser Use?

No

Yes

Wound Care-Taser Probe Removal Procedure

Cardiac History with Pacemaker, Chest Pain, or Palpitations?

No

Yes

Consider Restraint Procedure and/or Behavioral Protocol

Coordinate disposition with patient, law enforcement personnel, and if necessary Medical Control

Respiratory Distress Protocol and Transport

Yes

No

History of Asthma?

No

Yes

Observe 20 min. Wheezing?

No

Yes

Irrigate face/eyes Remove contaminated clothing

Use of Pepper Spray or Taser?

Taser

Pepper Spray

Wheezing?

No

Yes

Agitated Delirium?

No

Yes

Appropriate Protocol and Transport

Legend

B EMT B
I EMT-I I
P EMT-P P
M Medical Control M

Pearls
- For this protocol to be used, the patient does not have to be under police custody.
- Agitated delirium is characterized by marked restlessness, irritability, and/or high fever. Patients exhibiting these signs are at high risk for sudden death and should be transported to hospital by ALS personnel.
- Patients restrained by law enforcement devices cannot be transported in the ambulance without a law enforcement officer in the patient compartment who is capable of removing the devices.
- If there is any doubt about the cause of a patient’s alteration in mental status, transport the patient to the hospital for evaluation.
- If an asthmatic patient is exposed to pepper spray and released to law enforcement, all parties should be advised to immediately recontact EMS if wheezing/difficulty breathing occurs.
- All patients in police custody retain the right to request transport. This should be coordinated with law enforcement.
- If extremity/chemical/law enforcement restraints are applied, completed Restraint procedure in call reporting system.

Any local EMS System changes to this document must follow the NC OEMS Protocol Change Policy and be approved by OEMS 2009
Medical Director Notification Policy:
- If any events as listed in the Automatic Medical Director Notification section of the Foundations of Practice occur, notify the medical director immediately. If no answer with cell phone, call RWCC Rescom for further assistance.
- If any other adverse clinical outcome, notify the medical director as soon as possible via email and/or cell phone. The probability of utilization of the Disciplinary Procedure is greatly diminished if the provider with a misadventure contacts the medical director directly.
- If an error occurs without adverse patient outcome and/or a "near miss" occurs, complete the Wake County EMS System Clinical Unusual Event Report.
Abdominal Pain

History
- Age
- Past medical / surgical history
- Medications
- Onset
- Palliation / Provocation
- Quality (crampy, constant, sharp, dull, etc.)
- Region / Radiation / Referred
- Severity (1-10)
- Time (duration / repetition)
- Fever
- Last meal eaten
- Last bowel movement / emesis
- Menstrual history (pregnancy)

Signs and Symptoms
- Pain (location / migration)
- Tenderness
- Nausea
- Vomiting
- Diarrhea
- Dysuria
- Constipation
- Vaginal bleeding / discharge
- Pregnancy

Associated symptoms: (Helpful to localize source)
Fever, headache, weakness, malaise, myalgias, cough, headache, mental status changes, rash

Differential
- Pneumonia or Pulmonary embolus
- Liver (hepatitis, CHF)
- Peptic ulcer disease / Gastritis
- Gallbladder
- Myocardial infarction
- Pancreatitis
- Kidney stone
- Abdominal aneurysm
- Appendicitis
- Bladder / Prostate disorder
- Pelvic (PID, Ectopic pregnancy, Ovarian cyst)
- Spleen enlargement
- Diverticulitis
- Bowel obstruction
- Gastroenteritis (infectious)

Pearls
- Recommended Exam: Mental Status, Skin, HEENT, Neck, Heart, Lung, Abdomen, Back, Extremities, Neuro
- Document the mental status and vital signs prior to administration of anti-emetics
- Abdominal pain in women of childbearing age should be treated as an ectopic pregnancy until proven otherwise.
- Antacids should be avoided in patients with renal disease
- The diagnosis of abdominal aneurysm should be considered with abdominal pain in patients over 50.
- Repeat vital signs after each bolus.
- The use of metoclopramide (Reglan) may worsen diarrhea and should be avoided in patients with this symptom.
- Choose the lower dose of promethazine (Phenergan) for patients likely to experience sedative effects (e.g., elderly, debilitated, etc.)
- Appendicitis may present with vague, peri-umbilical pain which migrates to the RLQ over time.

Medical Protocols

Protocol 15
Any local EMS System changes to this document must follow the NC OEMS Protocol Change Policy and be approved by OEMS 2009
Allergic Reaction

History
- Onset and location
- Insect sting or bite
- Food allergy / exposure
- Medication allergy / exposure
- New clothing, soap, detergent
- Past history of reactions
- Past medical history
- Medication history

Signs and Symptoms
- Itching or hives
- Coughing / wheezing or respiratory distress
- Chest or throat constriction
- Difficulty swallowing
- Hypotension or shock
- Edema

Differential
- Urticaria (rash only)
- Anaphylaxis (systemic effect)
- Shock (vascular effect)
- Angioedema (drug induced)
- Aspiration / Airway obstruction
- Vasovagal event
- Asthma or COPD
- CHF

Pearls
- **Recommended Exam:** Mental Status, Skin, Heart, Lungs
- **Contact Medical Control** prior to administering epinephrine in patients who are >50 years of age, have a history of cardiac disease, or if the patient's heart rate is >150. Epinephrine may precipitate cardiac ischemia. These patients should receive a 12 lead ECG.
- **Any patient with respiratory symptoms or extensive reaction** should receive IV or IM diphenhydramine.
- The shorter the onset from symptoms to contact, the more severe the reaction.
**Altered Mental Status**

### History
- Known diabetic, medic alert tag
- Drugs, drug paraphernalia
- Report of illicit drug use or toxic ingestion
- Past medical history
- Medications
- History of trauma
- Change in condition
- Changes in feeding or sleep habits

### Signs/Symptoms
- Decreased mental status or lethargy
- Change in baseline mental status
- Bizarre behavior
- Hypoglycemia (cool, diaphoretic skin)
- Hyperglycemia (warm, dry skin; fruity breath; Kussmal resps; signs of dehydration)
- Irritability

### Differential
- Head trauma
- CNS (stroke, tumor, seizure, infection)
- Cardiac (MI, CHF)
- Hypothermia
- Infection (CNS and other)
- Thyroid (hyper / hypo)
- Shock (septic, metabolic, traumatic)
- Diabetes (hyper / hypoglycemia)
- Toxicologic or Ingestion
- Acidosis / Alkalosis
- Environmental exposure
- Pulmonary (Hypoxia)
- Electrolyte abnormality
- Psychiatric disorder

---

**Universal Patient Care Protocol**

**Consider Spinal Immobilization Protocol**

**IV Protocol**

**Blood glucose**

---

**Legend**

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**Pearls**

- Recommended Exam: Mental Status, HEENT, Skin, Heart, Lungs, Abdomen, Back, Extremities, Neuro. Pay careful attention to the head exam for signs of bruising or other injury.
- Be aware of AMS as presenting sign of an environmental toxin or Haz-Mat exposure and protect personal safety.
- It is safer to assume hypoglycemia than hyperglycemia if doubt exists. Recheck blood glucose after Dextrose or Glucagon.
- Do not let alcohol confuse the clinical picture. Alcoholics frequently develop hypoglycemia and may have unrecognized injuries.
- Low glucose (< 60), normal glucose (60 - 120), high glucose (> 250).
- Consider Restraints if necessary for patient's and/or personnel's protection per the restraint procedure.

---

**Return to baseline?**

- If available, consider Oral Glucose, 1 to 2 tubes if awake and no risk for aspiration
- 50% Dextrose Adult
- 10% Dextrose Pediatric
- Glucagon if no IV access

**Glucose <60**

**Glucose >60**

**Non-transport of Patients Policy**

---

**Consider other causes:**
- Head injury, Overdose / Toxic Ingestion, Stroke, Hypoxia, Hypothermia

**Blood glucose**

---

**Notify Destination or Contact Medical Control**

---

**B**
- **Nalaxone** if Respirations Depressed
- **Consider other causes:** Head injury, Overdose / Toxic Ingestion, Stroke, Hypoxia, Hypothermia

**P**
- **Assess Cardiac Rhythm**

**B**
- **12-Lead ECG**

**I**
- **IV Fluid bolus X 1** if sugar >250 or signs of dehydration

---

**IF** adult present with patient and Blood Sugar > 100 and Patient Eats Meal Now, and Complaint Free Then Transport Need Not Be Recommended
Asystole

**History**
- Past medical history
- Medications
- Events leading to arrest
- End stage renal disease
- Estimated downtime
- Suspected hypothermia
- Suspected overdose
- DNR or MOST form

**Signs and Symptoms**
- Pulseless
- Apneic
- No electrical activity on ECG
- No auscultated heart tones

**Differential**
- Medical or Trauma
- Hypoxia
- Potassium (hypo / hyper)
- Drug overdose
- Acidosis
- Hypothermia
- Device (lead) error
- Death

---

**Universal Patient Care Protocol**

**Cardiac Arrest Procedure**

**Criteria for Death / No Resuscitation**

- Withhold resuscitation
- Yes
- No

**AT ANY TIME**

- Return of Spontaneous Circulation
- Go to Post Resuscitation Protocol

**Criteria for Discontinuation**

- Consider Correctable Causes
- Consider Transcutaneous Pacing early

**Continue Epinephrine and address correctable causes**

**Notify Destination or Contact MC**

---

**Pearls**

- **Recommended Exam: Mental Status**
- Always confirm asystole in more than one lead.
- Successful resuscitation of Asystole requires the identification and correction of a cause. Causes of Asystole include:
  - Acidosis
  - Hypovolemia
  - Hyperkalemia
  - Overdose (Narcotics, Tricyclic Antidepressants, Calcium Channel Blockers, Beta Blockers)

---

**Legend**

- MR
- EMT
- B
- I
- EMT- I
- P
- EMT- P
- M
- Medical Control
Bradycardia

History
- Past medical history
- Medications
  - Beta-Blockers
  - Calcium channel blockers
  - Clonidine
  - Digoxin
  - Pacemaker

Signs and Symptoms
- HR < 60/min with hypotension, acute altered mental status, chest pain, acute CHF, seizures, syncope, or shock secondary to bradycardia
- Chest pain
- Respiratory distress
- Hypotension or Shock
- Altered mental status
- Syncope

Differential
- Acute myocardial infarction
- Hypoxia
- Pacemaker failure
- Hypothermia
- Sinus bradycardia
- Athletes
- Head injury (elevated ICP) or Stroke
- Spinal cord lesion
- Sick sinus syndrome
- AV blocks (1°, 2°, or 3°)
- Overdose

Universal Patient Care Protocol

Continue to Monitor and reassess

HR < 60/min with hypotension, acute altered mental status, chest pain, acute CHF, seizures, syncope, or shock secondary to bradycardia

Yes

12 Lead ECG

No

Atropine - if in setting of myocardial infarction do not give atropine if there is a wide complex rhythm

Fluid Bolus

Consider External Cutaneous Pacing early in the unstable patient (especially in 2nd or 3rd Degree Heart Block)

Notify Destination or Contact MC

- Consider Dopamine if patient still hypotensive
- Consider Glucagon if patient still bradyardic and on beta blockers
- Consider Calcium if patient still bradyardic and on calcium channel blockers

Pears
- **Recommended Exam:** Mental Status, Neck, Heart, Lungs, Neuro
- The use of Lidocaine, Beta Blockers, and Calcium Channel Blockers in heart block can worsen Bradycardia and lead to asystole and death.
- Pharmacological treatment of Bradycardia is based upon the presence or absence of symptoms. If symptomatic treat, if asymptomatic, monitor only.
- In wide complex slow rhythm consider hyperkalemia
- Remember: The use of Atropine for PVCs in the presence of a MI may worsen heart damage.
- Consider treatable causes for Bradycardia (Beta Blocker OD, Calcium Channel Blocker OD, etc.)
- Be sure to aggressively oxygenate the patient and support respiratory effort.
Cardiac Arrest

History:
- Events leading to arrest
- Estimated downtime
- Past medical history
- Medications
- Existence of terminal illness
- Signs of lividity, rigor mortis
- DNR, MOST, or Living Will

Signs and Symptoms:
- Unresponsive
- Apneic
- Pulseless

Differential:
- Medical vs Trauma
- V. fib vs Pulseless V. tach
- Asystole
- Pulseless electrical activity (PEA)

Pearls
- Recommended Exam: Mental Status
- Success is based on proper planning and execution. Procedures require space and patient access. Make room to work.
- Reassess airway frequently and with every patient move.
- Maternal Arrest - Treat mother per appropriate protocol with immediate notification to Medical Control and rapid transport.
- Adequate compressions with timely defibrillation are the keys to success

Universal Patient Care Protocol

Criteria for Death / No Resuscitation

Begin Continuous CPR Compressions

ALS Available?

Yes

No

Automated Defibrillation Procedure

Assess Rhythm

Go to appropriate protocol:
- Ventricular Fibrillation
- Pulseless Ventricular Tachycardia
- Pulseless Electrical Activity
- Asystole
- Pediatric Pulseless Arrest

Airway Protocol

Interrupt Compressions Only as per AED Procedure. Ventilate no more than 12 breaths per minute (1 breath every 5 seconds)

Legend
- MR
- B
- EMT
- I
- EMT-I
- P
- EMT-P
- M
- Medical Control

AT ANY TIME

Return of Spontaneous Circulation

Go to Post Resuscitation Protocol

Any local EMS System changes to this document must follow the NC OEMS Protocol Change Policy and be approved by OEMS 2009
Deceased Persons

History:
- Person encountered by EMS who meets criteria for obvious death
- Patient with DNR in place who is pulseless and apneic
- Patient with other proved advanced directive requiring no CPR be administered who is pulseless and apneic
- Patient for whom resuscitative efforts are ceased on scene

Key Information:
- Name of primary care physician
- Known medical conditions
- Last time known to be alive

Differential:
- Attended Death (a patient with a primary care physician who apparently died of natural causes (aka “natural death))
- Unattended Death (a patient without a primary care physician who apparently dies of natural causes (aka “natural death))
- Suspicious Death (Law enforcement)

Pearls:
- The body of a deceased person may be released to the funeral home if the death is attended (the patient has a primary care physician) and law enforcement confirms the death is non-suspicious. It is preferred (but not mandatory) to communicate directly with the primary care physician prior to releasing the body. All reasonable attempt should be made to contact the primary prior to releasing the body.
- All out-of-hospital traumatic deaths, whether recent or remote, must be referred to the medical examiner.
- If there is no primary care physician, the State Office of the Chief Medical Examiner must be contacted.
- A patient has a primary care physician if there are in-date prescriptions from the physician, the family knows the name of the physician and can verify the patient still is seen by that physician, or other methods as approved by medical control.

Legend

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</table>

Continue with Resuscitation Per Appropriate Protocol
Coordinate with Law Enforcement

Patient Meets Criteria for Discontinuation?

Law Enforcement and/or EMS
Recognize Suspicious or Traumatic Death?

Yes

Attended Death? (Patient has primary care physician who can be identified).
Attempt to contact primary care physician.

Contact made with primary care physician and/or on-call physician?

No

Yes

Confirm name of primary care physician from family. Give information to law enforcement.

Describe case and obtain name of physician to sign death certificate. Give information to law enforcement

Release of the body is appropriate. Medical devices may be removed.
**Chest Pain: Cardiac and STEMI**

### History
- Age
- Medications
- **Viagra, Levitra, Cialis**
- Past medical history (MI, Angina, Diabetes, post menopausal)
- Allergies (Aspirin, Morphine, Lidocaine)
- Recent physical exertion
- Palliation / Provocation
- Quality (crampy, constant, sharp, dull, etc.)
- Region / Radiation / Referred
- Severity (1-10)
- Time (onset / duration / repetition)

### Signs and Symptoms
- CP (pain, pressure, aching, vice-like tightness)
- Location (substernal, epigastric, arm, jaw, neck, shoulder)
- Radiation of pain
- Pale, diaphoresis
- Shortness of breath
- Nausea, vomiting, dizziness
- **Time of Onset**

### Differential
- Trauma vs. Medical
- Angina vs. Myocardial infarction
- Pericarditis
- Pulmonary embolism
- Asthma / COPD
- Pneumothorax
- Aortic dissection or aneurysm
- GE reflux or Hiatal hernia
- Esophageal spasm
- Chest wall injury or pain
- Pleural pain
- Overdose (Cocaine) or Methamphetamine

### Universal Patient Care Protocol

<table>
<thead>
<tr>
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<th>Rhythm Assessment</th>
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<td>B</td>
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<td>I</td>
<td>IV Protocol</td>
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<tr>
<td>B</td>
<td>Aspirin (Unless allergy)</td>
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<td>B</td>
<td>Nitroglycerin SL</td>
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<td>I</td>
<td>Consider Nitroglycerin Paste</td>
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<td>B</td>
<td>Continued Pain</td>
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<td>Morphine</td>
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<td>Dilaudid</td>
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<td>Nausea and Vomiting Consider</td>
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<td>Ondansetron</td>
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<td>Metoclopramide</td>
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<td>P</td>
<td>Use Protocols as Needed</td>
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<td>P</td>
<td>Hypotension Protocol</td>
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<td>P</td>
<td>Dysrhythmia Protocols</td>
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### Positive Acute MI
(STEMI = 1 mm ST Segment Elevation in 2 Contiguous Leads)

- **Notify Destination or Contact MC**

### Transport based on EMS System STEMI Plan with Early Notification
- Keep Scene Time to < 15 Minutes
- If Transporting to a Non-PCI Center
- **Reperfusion Checklist**
- Consider NS Bolus for Inferior MI
- Consider 2nd IV en route

### Pearls
- **Recommended Exam**: Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro
- **Items in Red Text** are the key performance indicators for the EMS Acute Cardiac (STEMI) Care Toolkit
- Avoid Nitroglycerin in any patient who has used Viagra or Levitra in the past 24 hours or Cialis in the past 36 hours due to potential severe hypotension.
- Patients with STEMI (ST-Elevation Myocardial Infarction) or positive Reperfusion Checklist should be transported to the appropriate destination based on the EMS System STEMI Plan
- If patient has taken nitroglycerin without relief, consider potency of the medication.
- Monitor for hypotension after administration of nitroglycerin and narcotics (Morphine, Fentanyl, or Dilaudid).
- Nitroglycerin and Narcotics (Morphine, Fentanyl, or Dilaudid) may be repeated per dosing guidelines in Drug List.
- Diabetics and geriatric patients often have atypical pain, or only generalized complaints.
- Document the time of the 12-Lead ECG in the PCR as a Procedure along with the interpretation (EMT-P)

**Medical Protocols**

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**Protocol 21**

*Any local EMS System changes to this document must follow the NC OEMS Protocol Change Policy and be approved by OEMS*
Dental Problems

History
- Age
- Past medical history
- Medications
- Onset of pain / injury
- Trauma with "knocked out" tooth
- Location of tooth
- Whole vs. partial tooth injury

Signs and Symptoms
- Bleeding
- Pain
- Fever
- Swelling
- Tooth missing or fractured

Differential
- Decay
- Infection
- Fracture
- Avulsion
- Abscess
- Facial cellulitis
- Impacted tooth (wisdom)
- TMJ syndrome
- Myocardial infarction

Pearls
- **Recommended Exam:** Mental Status, HEENT, Neck, Chest, Lungs, Neuro
- Significant soft tissue swelling to the face or oral cavity can represent a cellulitis or abscess.
- Scene and transport times should be minimized in complete tooth avulsions. Reimplantation is possible within 4 hours if the tooth is properly cared for.
- All tooth disorders typically need antibiotic coverage in addition to pain control
- Occasionally cardiac chest pain can radiate to the jaw
- All pain associated with teeth should be associated with a tooth which is tender to tapping or touch (or sensitivity to cold or hot).
Epistaxis

**History**
- Age
- Past medical history
- Medications (HTN, anticoagulants, Aspirin, NSAIDS)
- Previous episodes of epistaxis
- Trauma
- Duration of bleeding
- Quantity of bleeding

**Signs and Symptoms**
- Bleeding from nasal passage
- Pain
- Nausea
- Vomiting

**Differential**
- Trauma
- Infection (viral URI or Sinusitis)
- Allergic rhinitis
- Lesions (polyps, ulcers)
- Hypertension

**Pearls**
- **Recommended Exam:** Mental Status, HEENT, Heart, Lungs, Neuro
- Avoid Afrin in patients who have a blood pressure of greater than 110 diastolic or known coronary artery disease.
- It is very difficult to quantify the amount of blood loss with epistaxis.
- Bleeding may also be occurring posteriorly. Evaluate for posterior blood loss by examining the posterior pharynx.
- Anticoagulants include aspirin, coumadin, non-steroidal anti-inflammatory medications (ibuprofen), and many over the counter headache relief powders.
**Hypertension**

**History**
- Documented hypertension
- Related diseases: diabetes, CVA
- Renal failure, cardiac
- Medications (compliance ?)
- Erectile dysfunction medication
- Pregnancy

**Signs and Symptoms**
**One of these**
- Systolic BP 200 or greater
- Diastolic BP 110 or greater

**AND at least one of these**
- Headache
- Nosebleed
- Blurred vision
- Dizziness

**Differential**
- Hypertensive encephalopathy
- Primary CNS Injury (Cushing’s response = bradycardia with hypertension)
- Myocardial infarction
- Aortic dissection (aneurysm)
- Pre-ecampsia / Eclampsia

---

**Legend**

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**Universal Patient Care Protocol**

Check BP in both arms

If Respiratory Distress Consider
**Pulmonary Edema Protocol**

Consider
**Chest Pain Protocol**

- Cardiac Monitor
- 12-lead ECG

**Headache or mental status changes?**

**No**

**Yes**

**IV Protocol**

- Nitroglycerin
  (If on cardiac monitor)

**Notify Destination or Contact Medical Control**

---

**Pearls**
- **Recommended Exam:** Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro
- Avoid Nitroglycerin in any patient who has used Viagra or Levitra in the past 24 hours or Cialis in the past 36 hours due to potential severe hypotension.
- Never treat elevated blood pressure based on one set of vital signs.
- Nitroglycerin may be given to lower blood pressure in patients who have an elevated diastolic BP of ≥ 110 and are symptomatic with chest pain, respiratory distress, syncope, headache or mental status changes.
- Symptomatic hypertension is typically revealed through end organ damage to the cardiac, CNS or renal systems.
- All symptomatic patients with hypertension should be transported with their head elevated.
Hypotension can be defined as a systolic blood pressure of less than 90. Consider performing orthostatic vital signs on patients in nontrauma situations if suspected blood or fluid loss. Consider all possible causes of shock and treat per appropriate protocol. For non-cardiac, non-trauma hypotension, Dopamine should only be started after 2 liters of NS have been given.
Overdose Toxic Ingestion

**History**
- Ingestion or suspected ingestion of a potentially toxic substance
- Substance ingested, route, quantity
- Time of ingestion
- Reason (suicidal, accidental, criminal)
- Available medications in home
- Past medical history, medications

**Signs and Symptoms**
- Mental status changes
- Hypotension / hypertension
- Decreased respiratory rate
- Tachycardia, dysrhythmias
- Seizures

**Differential**
- Tricyclic antidepressants (TCAs)
- Acetaminophen (tylenol)
- Aspirin
- Depressants
- Stimulants
- Anticholinergic
- Cardiac medications
- Solvents, Alcohols, Cleaning agents
- Insecticides (organophosphates)

### Legend
- **MR**
- **B**
- **I**
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- **M**

### Universal Patient Care Protocol
- **Cardiac Monitor**
- **12 Lead ECG**
- **IV Protocol**
- **Consider Charcoal if patient alert**
- **Tricyclic Ingestion?**
  - **Sodium Bicarbonate** if Tachycardia or QRS Widening
  - **Consider Chest Pain Protocol**

### Respiratory depression
- **Naloxone**
- **Notify Destination or Contact Medical Control**

### Organophosphates Carbamates
- **If Available**
  - **Nerve Agent Antidote Kits**
    - No Max Dose
  - **Atropine Pralidoxime (2PAM)**
- **Notify Destination or Contact Medical Control**

### Other
- **Hypotension, Seizures, Ventricular dysrhythmias, or Mental status changes**
- **Notify Destination or Contact Medical Control**

### Pearls
- **Recommended Exam:** Mental Status, Skin, HEENT, Heart, Lungs, Abdomen, Extremities, Neuro
- Do not rely on patient history of ingestion, especially in suicide attempts. Make sure patient is still not carrying other medications or has any weapons.
- Bring bottles, contents, emesis to ED.
- **Tricyclic:** 4 major areas of toxicity: seizures, dysrhythmias, hypotension, decreased mental status or coma; rapid progression from alert mental status to death.
- **Acetaminophen:** initially normal or nausea/vomiting. If not detected and treated, causes irreversible liver failure
- **Aspirin:** Early signs consist of abdominal pain and vomiting. Tachypnea and altered mental status may occur later. Renal dysfunction, liver failure, and or cerebral edema among other things can take place later.
- **Depressants:** decreased HR, decreased BP, decreased temperature, decreased respirations, non-specific pupils
- **Stimulants:** increased HR, increased BP, increased temperature, dilated pupils, seizures
- **Anticholinergic:** increased HR, increased temperature, dilated pupils, mental status changes
- **Cardiac Medications:** dysrhythmias and mental status changes
- **Solvents:** nausea, coughing, vomiting, and mental status changes
- **Insecticides:** increased or decreased HR, increased secretions, nausea, vomiting, diarrhea, pinpoint pupils
- Consider restraints if necessary for patient's and/or personnel's protection per the Restraint Procedure.
- **Nerve Agent Antidote kits** contain 2 mg of Atropine and 600 mg of pralidoxime in an autoinjector for self administration or patient care. These kits may be available as part of the domestic preparedness for Weapons of Mass Destruction.
- Consider contacting the North Carolina Poison Control Center for guidance.
Post Resuscitation

**History**
- Respiratory arrest
- Cardiac arrest

**Signs/Symptoms**
- Return of pulse

**Differential**
- Continue to address specific differentials associated with the original dysrhythmia

---

### Pearls
- **Recommended Exam:** Mental Status, Neck, Skin, Lungs, Heart, Abdomen, Extremities, Neuro
- Hyperventilation is a significant cause of hypotension and recurrence of cardiac arrest in the post resuscitation phase and must be avoided at all costs.
- Most patients immediately post resuscitation will require ventilatory assistance.
- The condition of post-resuscitation patients fluctuates rapidly and continuously, and they require close monitoring. Appropriate post-resuscitation management may best be planned in consultation with medical control.
- Common causes of post-resuscitation hypotension include hyperventilation, hypovolemia, pneumothorax, and medication reaction to ALS drugs.
- Titrated Dopamine to maintain MAP >90. Ensure adequate fluid resuscitation is ongoing.
Induced Hypothermia

**History**
- Non-traumatic cardiac arrests (drownings and hangings/asphyxiation are permissible in this protocol)

**Signs and Symptoms**
- Cardiac Arrest
- Return of Spontaneous Circulation post-cardiac arrest

**Differential**
Continue to address specific differentials associated with the original dysrhythmia

---

**Protocol 27.5**
This protocol is unique to the Wake County EMS System

---

**Pearls:**
- Criteria for Induced Hypothermia
- ROSC not related to blunt/penetrating trauma or hemorrhage
- Temperature after ROSC greater than 34 C degrees
- Advanced airway in place with no purposeful response to pain
- If no advanced airway can be obtained, cooling may only be initiated on order from online medical control
- Take care to protect patient modesty. Undergarments may remain in place during cooling
- Do not delay transport to cool
- Frequently monitor airway, especially after each patient move
- Patients may develop metabolic alkalosis with cooling. Do not hyperventilate.
# Pulmonary Edema

## History
- Congestive heart failure
- Past medical history
- Medications (digoxin, lasix)
- **Viagra, Levitra, Cialis**
- Cardiac history --past myocardial infarction

## Signs/Symptoms
- Respiratory distress, bilateral rales
- Apprehension, orthopnea
- Jugular vein distention
- Pink, frothy sputum
- Peripheral edema, diaphoresis
- Hypotension, shock
- Chest pain

## Differential
- Myocardial infarction
- Congestive heart failure
- Asthma
- Anaphylaxis
- Aspiration
- COPD
- Pleural effusion
- Pneumonia
- Pulmonary embolus
- Pericardial tamponade
- Toxic Exposure

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## Universal Patient Care Protocol

**Obtain and Record**
- Pulse Oximetry
- and EtCO2 if available

1. **B** [Nitroglycerin] If BP >110 systolic
2. **I** May use Nitroglycerin Paste if available
3. **I** IV Procedure
4. **B** [12-Lead ECG Procedure]
5. **I** CPAP if Available

**Notify Destination or Contact Medical Control**

**Consider**
- **B** Vasotec (Enaliprilat) if BP >110 systolic
  - If available, consider
- **P** Diazepam, Ativan or Midazolam if needed to better tolerate CPAP
- **P** Morphine, Fentanyl, or Dilauidid

## Pearls
- **Recommended Exam:** Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro
- **Items in Red Text** are key performance measures used to evaluate protocol compliance and care
- **Avoid Nitroglycerin** in any patient who has used Viagra or Levitra in the past 24 hours or Cialis in the past 36 hours due to potential severe hypotension.
- Furosemide and Narcotics have **NOT** been shown to improve the outcomes of EMS patients with pulmonary edema. Even though this historically has been a mainstay of EMS treatment, it is no longer recommended.
- If patient has taken nitroglycerin without relief, consider potency of the medication.
- **Contraindications to narcotics** include severe COPD and respiratory distress. Monitor the patient closely.
- Consider myocardial infarction in all these patients. Diabetics and geriatric patients often have atypical pain, or only generalized complaints.
- **Carefully monitor the level of consciousness, BP, and respiratory status** with the above interventions.
- If Nitropaste is used, do not continue to use Nitroglycerin SL
- Allow the patient to be in their position of comfort to maximize their breathing effort.
- Document CPAP application using the CPAP procedure in the PCR. Document 12 Lead ECG using the 12 Lead ECG procedure.

---

**Protocol 28**

This protocol has been altered from the original 2009 NCCEP Protocol by the Wake County EMS System Medical Director 2010

2010
### Pulseless Electrical Activity (PEA)

#### History
- Past medical history
- Medications
- Events leading to arrest
- End stage renal disease
- Estimated downtime
- Suspected hypothermia
- Suspected overdose
  - Tricyclics
  - Digitalis
  - Beta blockers
  - Calcium channel blockers
- DNR, MOST, of Living Will

#### Signs and Symptoms
- Pulseless
- Apneic
- Electrical activity on ECG
- No heart tones on auscultation

#### Differential
- Hypovolemia (Trauma, AAA, other)
- Cardiac tamponade
- Hypothermia
- Drug overdose (Tricyclics, Digitalis, Beta blockers, Calcium channel blockers)
- Massive myocardial infarction
- Hypoxia
- Tension pneumothorax
- Pulmonary embolus
- Acidosis
- Hyperkalemia

### Cardiac Arrest Protocol

**AT ANY TIME**

- **Go to Post Resuscitation Protocol**

**Return of Spontaneous Circulation**

- **Normal Saline Bolus**
- **Dextrose 50%**
- **Naloxone**
- **Glucagon** (suspected Beta Blocker Overdose)
- **Calcium** (hyperkalemia)
- **Bicarbonate** (tricyclic overdose, hyperkalemia, renal failure)
- **Dopamine**
- **Chest decompression**

**Criteria for Discontinuation**

- **Yes** Stop resuscitation
- **No**

**Consider early in all PEA pts:**

- **Epinephrine**
- **Vasopressin**
- **Atropine if rate <60**

**Legend**

- **MR**
- **B**
- **I**
- **P**
- **M**

**Medical Protocols**

- **Notify Destination or Contact Medical Control**
- **Consider Epinephrine Drip**

### Pearls
- **Recommended Exam:** Mental Status
- Consider each possible cause listed in the differential: Survival is based on identifying and correcting the cause!
- Discussion with Medical Control can be a valuable tool in developing a differential diagnosis and identifying possible treatment options.
Consider Midazolam if needed to better tolerate CPAP

Consider Epinephrine Auto-Injector, IM, or IV

Pulsed oximetry should be monitored continuously if initial saturation is < or = 96%, or there is a decline in patients status despite normal pulse oximetry readings.

Contact Medical Control prior to administering epinephrine in patients who are >50 years of age, have a history of cardiac disease, or if the patient's heart rate is >150. Epinephrine may precipitate cardiac ischemia. A 12-lead ECG should be performed on these patients.

A silent chest in respiratory distress is a pre-respiratory arrest sign.

ETCO2 should be used when Respiratory Distress is significant and does not respond to initial Beta-Agonist dose.
**Seizure**

### History
- Reported / witnessed seizure activity
- Previous seizure history
- Medical alert tag information
- Seizure medications
- History of trauma
- History of diabetes
- History of pregnancy

### Signs and Symptoms
- Decreased mental status
- Sleepiness
- Incontinence
- Observed seizure activity
- Evidence of trauma
- Unconscious

### Differential
- CNS (Head) trauma
- Tumor
- Metabolic, Hepatic, or Renal failure
- Hypoxia
- Electrolyte abnormality (Na, Ca, Mg)
- Drugs, Medications, Non-compliance
- Infection / Fever
- Alcohol withdrawal
- Eclampsia
- Stroke
- Hyperthermia
- Hypoglycemia

---

**Pearls**
- **Recommended Exam:** Mental Status, HEENT, Heart, Lungs, Extremities, Neuro
- **Items in Red Text** are key performance measures used to evaluate protocol compliance and care
- Status epilepticus is defined as two or more successive seizures without a period of consciousness or recovery. This is a true emergency requiring rapid airway control, treatment, and transport.
- **Grand mal seizures (generalized)** are associated with loss of consciousness, incontinence, and tongue trauma.
- **Focal seizures (petit mal)** effect only a part of the body and are not usually associated with a loss of consciousness.
- **Jacksonian seizures** are seizures which start as a focal seizure and become generalized.
- Be prepared for airway problems and continued seizures.
- Assess possibility of occult trauma and substance abuse.
- Be prepared to assist ventilations especially if diazepam or midazolam is used.
- For any seizure in a pregnant patient, follow the OB Emergencies Protocol.
- Diazepam (Valium) is not effective when administered IM. It should be given IV or Rectally. Midazolam is well absorbed when administered IM.
**Supraventricular Tachycardia**

### History
- Medications
  - (Aminophylline, Diet pills, Thyroid supplements, Decongestants, Digoxin)
- Diet (caffeine, chocolate)
- Drugs (nicotine, cocaine)
- Past medical history
- History of palpitations / heart racing
- Syncope / near syncope

### Signs and Symptoms
- HR > 150/Min
- QRS < .12 Sec (if QRS > .12 sec, go to V-Tach Protocol)
- If history of WPW, go to V-Tach Protocol
- Dizziness, CP, SOB
- Potential presenting rhythm
  - Atrial/Sinus tachycardia
  - Atrial fibrillation / flutter
  - Multifocal atrial tachycardia

### Differential
- Heart disease (WPW, Valvular)
- Sick sinus syndrome
- Myocardial infarction
- Electrolyte imbalance
- Exertion, Pain, Emotional stress
- Fever
- Hypoxia
- Hypovolemia or Anemia
- Drug effect / Overdose (see HX)
- Hyperthyroidism
- Pulmonary embolus

### Pearls
- **Recommended Exam:** Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro
- If patient has history or 12 Lead ECG reveals Wolfe Parkinson White (WPW), DO NOT administer a Calcium Channel Blocker (e.g., Diltiazem) or Beta Blockers.
- Adenosine may not be effective in identifiable atrial flutter/fibrillation, yet is not harmful.
- Monitor for hypotension after administration of Calcium Channel Blocker or Beta Blockers.
- Monitor for respiratory depression and hypotension associated with Midazolam.
- Continuous pulse oximetry is required for all SVT Patients.
- Document all rhythm changes with monitor strips and obtain monitor strips with each therapeutic intervention.

### Legend
- MR
- B EMT B
- I EMT-I I
- P EMT-P P
- M Medical Control M

### Universal Patient Care Protocol

- **Stable**
  - B 12 Lead ECG
  - May attempt Valsalva's or other vagal maneuver initially and after each drug administration if indicated.
  - P Adenosine
  - Consider Diltiazem or Beta-Blocker
  - M Notify Destination or Contact Medical Control

- **Pre-arrest (No palpable BP, Altered mental status)**
  - P Adenosine
  - Consider Sedation
    - Midazolam or Lorazepam or Diazepam
    - Synchronized Cardioversion
    - May Repeat as needed
  - If rhythm changes
    - Go to Appropriate Protocol
  - P Consider Diltiazem or Beta-Blocker
  - M Notify Destination or Contact Medical Control

### Protocol 32
Any local EMS System changes to this document must follow the NC OEMS Protocol Change Policy and be approved by OEMS 2009
**Atrial Fibrillation**

**History:**
- Medications
  - Aminophylline, Diet pills, Thyroid supplements, Decongestants, Digoxin
  - Diet (caffeine, chocolate)
  - Drugs (nicotine, cocaine)
- Past medical history
- History of palpitations / heart racing

**Signs and Symptoms:**
- HR > 130/Min
- QRS < .12 Sec
- Dizziness, CP, SOB
- Potential presenting rhythm
  - Sinus tachycardia
  - Atrial fibrillation / flutter
  - Multifocal atrial tachycardia

**Differential:**
- Heart disease (WPW, Valvular)
- Sick sinus syndrome
- Myocardial infarction
- Electrolyte imbalance
- Exertion, Pain, Emotional stress
- Fever
- Hypoxia
- Hypovolemia or Anemia
- Drug effect / Overdose (see HX)
- Hyperthyroidism
- Pulmonary embolus

**Pearls:**
- Exam: Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro
- Adenosine may not be effective in identifiable atrial flutter/fibrillation, yet is not harmful.
- Monitor for hypotension after administration of Cardizem.
- Monitor for respiratory depression and hypotension associated with Versed.
- Continuous pulse oximetry is required for all Atrial Fibrillation Patients.
- Document all rhythm changes with monitor strips and obtain monitor strips with each therapeutic intervention.
Suspected Stroke

History
- Previous CVA, TIA’s
- Previous cardiac / vascular surgery
- Associated diseases: diabetes, hypertension, CAD
- Atrial fibrillation
- Medications (blood thinners)
- History of trauma

Signs and Symptoms
- Altered mental status
- Weakness / Paralysis
- Blindness or other sensory loss
- Aphasia / Dysarthria
- Syncope
- Vertigo / Dizziness
- Vomiting
- Headache
- Seizures
- Respiratory pattern change
- Hypertension / hypotension

Differential
- See Altered Mental Status
- TIA (Transient ischemic attack)
- Seizure
- Hypoglycemia
- Stroke
  - Thromboticor Embolic (~85%)
  - Hemorrhagic (~15%)
- Tumor
- Trauma

Pearls
- Recommended Exam: Mental Status, HEENT, Heart, Lungs, Abdomen, Extremities, Neuro
- Items in Red Text are key performance measures used in the EMS Acute Stroke Care Toolkit
- The Reperfusion Checklist should be completed for any suspected stroke patient. With a duration of symptoms of less than 5 hours, scene times should be limited to 10 minutes, early destination notification/activation should be provided and transport times should be minimized based on the EMS System Stroke Plan.
- Onset of symptoms is defined as the last witnessed time the patient was symptom free (i.e. awakening with stroke symptoms would be defined as an onset time of the previous night when patient was symptom free)
- The differential listed on the Altered Mental Status Protocol should also be considered.
- Elevated blood pressure is commonly present with stroke. Consider treatment if diastolic is > 110 mmHg.
- Be alert for airway problems (swallowing difficulty, vomiting/aspiration).
- Hypoglycemia can present as a localized neurologic deficit, especially in the elderly.
- Document the Stroke Screen results in the PCR.
- Document the 12 Lead ECG as a procedure in the PCR.
**Syncope**

**History**
- Cardiac history, stroke, seizure
- Occult blood loss (GI, ectopic)
- Females: LMP, vaginal bleeding
- Fluid loss: nausea, vomiting, diarrhea
- Past medical history
- Medications

**Signs and Symptoms**
- Loss of consciousness with recovery
- Lightheadedness, dizziness
- Palpitations, slow or rapid pulse
- Pulse irregularity
- Decreased blood pressure

**Differential**
- Vasovagal
- Orthostatic hypotension
- Cardiac syncope
- Micturation / Defecation syncope
- Psychiatric
- Stroke
- Hypoglycemia
- Seizure
- Shock (see Shock Protocol)
- Toxicologic (Alcohol)
- Medication effect (hypertension)

---

**Pearls**
- **Recommended Exam:** Mental Status, Skin, HEENT, Heart, Lungs, Abdomen, Back, Extremities, Neuro
- Assess for signs and symptoms of trauma if associated or questionable fall with syncope.
- Consider dysrhythmias, GI bleed, ectopic pregnancy, and seizure as possible causes of syncope.
- These patients should be transported.
- More than 25% of geriatric syncope is cardiac dysrhythmia based.
# Ventricular Fibrillation

## Pulseless Vent. Tachycardia

### History
- Estimated down time
- Past medical history
- Medications
- Events leading to arrest
- Renal failure / dialysis
- DNR or living will

### Signs and Symptoms
- Unresponsive, apneic, pulseless
- Ventricular fibrillation or ventricular tachycardia on ECG

### Differential
- Asystole
- Artifact / Device failure
- Cardiac
- Endocrine / Metabolic
- Drugs
- Pulmonary

### Pearls
- **Recommended Exam: Mental Status**
- If no IV, drugs that can be given down ET tube should have dose doubled and then flushed with 5 ml of Normal Saline. IV/IO is the preferred route when available.
- Reassess and document endotracheal tube placement and EICO2 frequently, after every move, and at transfer of care.
- Calcium and sodium bicarbonate if hyperkalemia is suspected (renal failure, dialysis).
- **Treatment priorities are:** uninterrupted chest compressions, defibrillation, then IV access and airway control.
- Polymorphic V-Tach (Torsades de Pointes) may benefit from administration of magnesium sulfate if available.
- Do not stop CPR to check for placement of ET tube or to give medicines.
- If arrest not witnessed by EMS then 5 cycles of CPR prior to 1st defibrillation.
- Effective CPR and prompt defibrillation are the keys to successful resuscitation.
- If BVM is ventilating the patient successfully, intubation should be deferred until rhythm change or 4 or 5 defibrillation sequences have been completed.

## Cardiac Arrest Protocol

1. **Defibrillate X 1**
   - If monophasic shock at 360 J
   - Manual Biphasic typically 120 to 200 J
   - After defibrillation resume CPR without pulse check

2. **Apply non-rebreather with 1 or more OPA or NPA as soon as other care activities will not be interrupted**

3. **IO Procedure**
   - **Epinephrine** 1 mg IV/IO repeat every 3-5 minutes
   - **Vasopressin** 40 U IV/IO
   - After 5 cycles of CPR check rhythm and pulse

4. **Repeat Defibrillation**
   - After defibrillation resume CPR without pulse check
   - **Amiodarone** 1st dose is 300 mg and may be repeated once at 150 mg.
   - **Sodium Bicarbonate**
   - Establish a secondary circulatory access point
   - After 5 cycles of CPR check rhythm and pulse

5. **Repeat Defibrillation**
   - After defibrillation resume CPR without pulse check
   - **Magnesium Sulfate**
   - Consider Epinephrine drip

6. **Repeat Defibrillation**
   - After defibrillation resume CPR without pulse check
   - **Sodium Bicarbonate**

7. **Repeat Defibrillation**
   - Pause 5 secs max to check rhythm/pulse, resume CPR

8. **Persistent V-fib/V-Tach Protocol**

## EMT- I

- B
- EMT
- I

## EMT- P

- P
- EMT- P

## Legend

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<td>Medical Control</td>
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</table>
Persistent Ventricular Fibrillation/ Pulseless Vent. Tachycardia

History
- Verified execution of resuscitation checklist

Signs and Symptoms
- Unresponsive, pulseless
- Persisted in ventricular fibrillation/tachycardia or returned to this rhythm post-ROSC/other rhythm change

Differential
- Asystole
- Artifact/Device failure
- Cardiac
- Endocrine/Metabolic
- Drugs
- Pulmonary

AT ANY TIME
Rhythm Changes to Nonshockable Rhythm
Go to appropriate protocol

AT ANY TIME
Return of Spontaneous Circulation
Go to Post Resuscitation protocol

V-fib/V-tach Protocol Complete and V-Fib/V-tach is Still Present?

NO

Did V-fib break at all?

No

Appropriate Protocol

Did V-fib Break At All?

No

Apply new defib pads at new site

After 5 cycles of CPR check rhythm and pulse

Repeat Defibrillation
Pause 5 secs max to check rhythm/pulse, resume CPR

Max Dose Procainamide reached?

No

Procainamide q 2 mins to max

After 5 cycles of CPR check rhythm and pulse

Repeat Defibrillation
After defibrillation resume CPR without pulse check

Contact MC

Yes

Double sequential external defibrillation
Pause 5 secs max to check rhythm/pulse, resume CPR

Max Dose Metoprolol reached?

No

Metoprolol q 2 mins to max

After 5 cycles of CPR check rhythm and pulse

Repeat Defibrillation
After defibrillation resume CPR without pulse check

Contact MC

Yes

PAUSE 5 secs max to check rhythm/pulse, resume CPR

Max Dose Procainamide reached?

No

Procainamide q 2 mins to max

After 5 cycles of CPR check rhythm and pulse

Repeat Defibrillation
After defibrillation resume CPR without pulse check

Contact MC

Yes

PAUSE 5 secs max to check rhythm/pulse, resume CPR

Max Dose Metoprolol reached?

No

Metoprolol q 2 mins to max

After 5 cycles of CPR check rhythm and pulse

Repeat Defibrillation
After defibrillation resume CPR without pulse check

Contact MC

Yes

PAUSE 5 secs max to check rhythm/pulse, resume CPR

Legend

MR

B

I

P

E

Enhanced

Medical Control

Prolonged cardiac arrests may lead to tired providers and decreased compression quality. Ensure compressor rotation, summon additional resources as needed, and ensure provider rest and rehab during and post-event.

Pearls
- Recurrent ventricular fibrillation/tachycardia is successfully broken by standard defibrillation techniques, but subsequently returns. It should not be evaluated for double sequential external defibrillation. It is managed by ongoing treatment of correctable causes and use of anti-arrhythmic medication therapies.
- Refractory ventricular fibrillation/tachycardia is an arrhythmia not responsive to standard external defibrillation techniques. It is is initially managed by treating correctable causes and antiarrhythmic medications. If these methods fail to produce a response, shock refractory rhythms may be evaluated by an approved enhanced care provider.
- Prior to double sequential external shocks providers should verify that defibrillation pads are well-adhered to the patient and that they do not touch.
- Refer to the double sequential external defibrillation procedure for instructions regarding documentation and equipment maintenance
- Prolonged cardiac arrests may lead to tired providers and decreased compression quality. Ensure compressor rotation, summon additional resources as needed, and ensure provider rest and rehab during and post-event.

Protocol 35B
This protocol is unique to the Wake County EMS System

2010
### Ventricular Tachycardia

#### History
- Past medical history / medications, diet, drugs.
- Syncope / near syncope
- CHF
- Palpitations
- Pacemaker
- Allergies: lidocaine / novacaine

#### Signs and Symptoms
- Ventricular tachycardia on ECG (Runs or sustained)
- Conscious, rapid pulse
- Chest pain, shortness of breath
- Dizziness
- Rate usually 150 - 180 bpm for sustained V-Tach
- QRS > .12 Sec

#### Differential
- Artifact / Device failure
- Cardiac
- Endocrine / Metabolic
- Drugs
- Pulmonary

#### Universal Patient Care Protocol

- **Appropriate protocol**
  - No
  - Palpable pulse?
  - Wide, regular rhythm with QRS >0.12 s
  - Yes

#### Pre-arrest (No palpable BP, Altered mental status)

- **B** 12 Lead ECG
- **B** Amiodarone, Lidocaine, or Procainamide (consider in this order if available)

#### If Unsuccessful

- **B** Rapid Transport with Early Destination Notification

#### Becomes Unstable?

- **B** Notify Destination or Contact Medical Control

#### Repeat Dose or Chose Another Drug

- **P** Amiodarone, Lidocaine, or Procainamide

#### Notify Destination or Contact Medical Control

#### Pearls
- **Recommended Exam:** Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro
- For witnessed / monitored ventricular tachycardia, try having patient cough.
- Polymorphic V-Tach (Torsades de Pointes) may benefit from the administration of magnesium sulfate if available.
- If presumed hyperkalemia (end-state renal disease, dialysis, etc.), administer Sodium Bicarbonate.
- Procainamide (if available) is no longer second line agent although it should not be given if there is history of CHF.

---

**Legend**

- MR
- B EMT B
- I EMT- I I
- P EMT- P P
- M Medical Control M

**Protocol 36**

Any local EMS System changes to this document must follow the NC OEMS Protocol Change Policy and be approved by OEMS

2009
Vomiting and Diarrhea

**History**
- Age
- Time of last meal
- Last bowel movement/emesis
- Improvement or worsening with food or activity
- Duration of problem
- Other sick contacts
- Past medical history
- Past surgical history
- Medications
- Menstrual history (pregnancy)
- Travel history
- Bloody emesis/diarrhea

**Signs and Symptoms**
- Pain
- Character of pain (constant, intermittent, sharp, dull, etc.)
- Distention
- Constipation
- Diarrhea
- Anorexia
- Radiation

**Associated symptoms:** (Helpful to localize source)
- Fever, headache, blurred vision, weakness, malaise, myalgias, cough, headache, dysuria, mental status changes, rash

**Differential**
- CNS (increased pressure, headache, stroke, CNS lesions, trauma or hemorrhage, vestibular)
- Myocardial infarction
- Drugs (NSAID’s, antibiotics, narcotics, chemotherapy)
- GI or Renal disorders
- Diabetic ketoacidosis
- Gynecologic disease (ovarian cyst, PID)
- Infections (pneumonia, influenza)
- Electrolyte abnormalities
- Food or toxin induced
- Medication or Substance abuse
- Pregnancy
- Psychological

---

**Universal Patient Care Protocol**

**Orthostatic Blood Pressure**
- Negative
  - Blood Glucose
    - <60
      - D50 in Adults
      - D10 in Pediatrics
      - Glucagon if no IV
    - >60
- Positive
  - IV Protocol
    - Blood Glucose
    - Normal Saline Bolus

**Vomiting?**
- Yes
  - If Available
    - Ondansetron (age > 1 yr)
    - Promethazine (age > 12 yrs)
    - Metoclopromide (age > 12 yrs)
  - If not nauseated, encourage PO intake
- No
  - Notify Destination or Contact Medical Control

**Legend**
- MR
- B
- EMT
- I
- EMT-I
- P
- EMT-P
- M
- Medical Control

**Pearls**
- **Recommended Exam:** Mental Status, Skin, HEENT, Neck, Heart, Lungs, Abdomen, Back, Extremities, Neuro
- The use of metoclopromide (Reglan) may worsen diarrhea and should be avoided in patients with this symptom.
- Choose the lower dose of promethazine (Phenergan) for patients likely to experience sedative effects (e.g., elderly, dibilitated, etc.)
- Document the mental status and vital signs prior to administration of Promethazine (Phenergan).
- Beware of vomiting only in children. Pyloric stenosis, bowel obstruction, and CNS processes (bleeding, tumors, or increased CSF pressures) all often present with vomiting.
Childbirth / Labor

History
- Due date
- Time contractions started / how often
- Rupture of membranes
- Time / amount of any vaginal bleeding
- Sensation of fetal activity
- Past medical and delivery history
- Medications
- Gravida/Para Status
- High Risk pregnancy

Signs and Symptoms
- Spasmodic pain
- Vaginal discharge or bleeding
- Crowning or urge to push
- Meconium

Differential
- Abnormal presentation
- Buttock
- Foot
- Hand
- Prolapsed cord
- Placenta previa
- Abruptio placenta

Pearls
- Recommended Exam (of Mother): Mental Status, Heart, Lungs, Abdomen, Neuro
- Document all times (delivery, contraction frequency, and length).
- If maternal seizures occur, refer to the Obstetrical Emergencies Protocol.
- After delivery, massaging the uterus (lower abdomen) will promote uterine contraction and help to control post-partum bleeding.
- Some perineal bleeding is normal with any childbirth. Large quantities of blood or free bleeding are abnormal.
- Record APGAR at 1 minute and 5 minutes after birth.

Universal Patient Care Protocol
- Left lateral position
- Hypertension ?
- Abnormal vaginal bleeding ?
- Inspect perineum
  (No digital vaginal exam)

Obstetrical Emergencies Protocol
- Yes
- No crowning
- Crowning
  >36 weeks gestation
- Priority symptoms:
  Crowning
  <36 weeks gestation
  Abnormal presentation
  Severe vaginal bleeding
  Multiple gestation

Monitor and reassess
Document frequency
and duration
of contractions

I IV Protocol
Childbirth Procedure
If prolapsed cord,
push up on head
Newly Born Protocol
Contact Medical Control

Legend
MR
B EMT B
I EMT-I I
P EMT-P P
M Medical Control M

Protocol 38
Any local EMS System changes to this document must follow the NC OEMS Protocol Change Policy and be approved by OEMS 2009
Newly Born

History
- Due date and gestational age
- Multiple gestation (twins etc.)
- Meconium
- Delivery difficulties
- Congenital disease
- Medications (maternal)
- Maternal risk factors
  - substance abuse
  - smoking

Signs and Symptoms
- Respiratory distress
- Peripheral cyanosis or mottling
  - (normal)
- Central cyanosis (abnormal)
- Altered level of responsiveness
- Bradycardia

Differential
- Airway failure
- Secretions
- Respiratory drive
- Infection
- Maternal medication effect
- Hypovolemia
- Hypoglycemia
- Congenital heart disease
- Hypothermia

Universal Patient Care Protocol
(for mother)

- Thick Meconium in amniotic fluid?

  No → Dry infant and keep warm.
  Bulb syringe suction mouth / nose

  Yes → Stimulate infant and note APGAR Score

  Respiration present?

    No → Heart rate
    - HR < 100
    - Reassess and give report to receiving hospital

    Yes → Reassess heart rate
    - HR > 100
    - BVM 30 seconds at 40-60 Breaths/minute with 100% Oxygen

    - HR 60-100

  HR < 60

  HR > 100

Peds Airway Protocol / CPR

- Appropriate Protocol
  - Pediatric Bradycardia
  - Pediatric Pulseless Arrest

  - D10, Naloxone and NS bolus

Legend
- MR
- B EMT
- I EMT- I
- P EMT- P
- M Medical Control

Pearls
- Recommended Exam: Mental Status, Skin, HEENT, Neck, Chest, Heart, Abdomen, Extremities, Neuro
- CPR in infants is 120 compressions/minute with a 3:1 compression to ventilation ratio
- It is extremely important to keep infant warm
- Maternal sedation or narcotics will sedate infant (Naloxone effective but may precipitate seizures).
- Consider hypoglycemia in infant.
- Document 1 and 5 minute Apgars in PCR
- D10 = D50 diluted (1 ml of D50 with 4 ml of Normal Saline)
Obstetrical Emergency

History
- Past medical history
- Hypertension meds
- Prenatal care
- Prior pregnancies / births
- Gravida / Para

Signs and Symptoms
- Vaginal bleeding
- Abdominal pain
- Seizures
- Hypertension
- Severe headache
- Visual changes
- Edema of hands and face

Differential
- Pre-eclampsia / Eclampsia
- Placenta previa
- Placenta abruptio
- Spontaneous abortion

Universal Patient Care Protocol

- IV Protocol

Vaginal bleeding / Abdominal pain?

Known pregnancy / Missed period?

- Yes
  - Left lateral recumbant position
  - Hypertension?
    - Yes
      - History of Seizure or seizure-like activity?
    - No
      - Blood Glucose Measurement
        - I D50, Glucagon if Glucose <60
        - P Magnesium Sulfate (if available)
        - P Active Seizure Activity?
          - Midazolam (Nasal/IM/IV)
          - Lorazepam (IM/IV)
          - Diazepam (IV)

- No

Known pregnancy / Missed period?

- Yes
  - Orthostatic BP
    - Yes
      - Normal Saline Bolus
    - No

- No
  - Abdominal Pain Protocol

Complaint of Labor?

- Yes
  - Left lateral recumbant position

- No
  - Childbirth Protocol

Transport to Hospital

- Notify Destination or Contact Medical Control

Legend

- MR
- B EMT
- I EMT-I
- P EMT-P
- M Medical Control

Pearls
- Recommended Exam: Mental Status, Abdomen, Heart, Lungs, Neuro
- Severe headache, vision changes, or RUQ pain may indicate preeclampsia.
- In the setting of pregnancy, hypertension is defined as a BP greater than 140 systolic or greater than 90 diastolic, or a relative increase of 30 systolic and 20 diastolic from the patient's normal (pre-pregnancy) blood pressure.
- Maintain patient in a left lateral position to minimize risk of supine hypotensive syndrome.
- Ask patient to quantify bleeding - number of pads used per hour.
- Any pregnant patient involved in a MVC should be seen immediately by a physician for evaluation and fetal monitoring.
- Magnesium may cause hypotension and decreased respiratory drive. Use with caution.
Pediatric Bradycardia

**History**
- Past medical history
- Foreign body exposure
- Respiratory distress or arrest
- Apnea
- Possible toxic or poison exposure
- Congenital disease
- Medication (maternal or infant)

**Signs and Symptoms**
- Decreased heart rate
- Delayed capillary refill or cyanosis
- Mottled, cool skin
- Hypotension or arrest
- Altered level of consciousness

**Differential**
- Respiratory failure
- Foreign body
- Secretions
- Infection (croup, epiglotitis)
- Hypovolemia (dehydration)
- Congenital heart disease
- Trauma
- Tension pneumothorax
- Hypothermia
- Toxin or medication
- Hypoglycemia
- Acidosis

---

**Universal Patient Care Protocol**

**Pediatric Airway Protocol**

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<th>Poor perfusion</th>
<th>Decreased blood pressure</th>
<th>Respiratory insufficiency</th>
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<tr>
<td>Monitor and Reassess</td>
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<th>Heart rate in infant &lt; 60 ?</th>
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<td>CPR</td>
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| Epinephrine 1:10,000         |
| (if on Cardiac Monitor)     |

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<th>Reassess</th>
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<th>Notify Destination or Contact MC</th>
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<th>Consider External Cardiac Pacing</th>
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- Consider **Glucagon** for suspected Beta-Blocker Toxicity
- Consider **Calcium** for Calcium Channel Blocker Toxicity

---

**Pearls**
- **Recommended Exam:** Mental Status, HEENT, Skin, Heart, Lungs, Abdomen, Back, Extremities, Neuro
- **Use Broselow-Luten Tape for Drug Dosages.**
- Infant = < 1 year of age
- The majority of pediatric arrests are due to airway problems.
- Most maternal medications pass through breast milk to the infant.
- Hypoglycemia, severe dehydration and narcotic effects may produce bradycardia.
- Pediatric patients requiring external transcutaneous pacing require the use of pads appropriate for pediatric patients per the manufacturers guidelines.
- Minimum Atropine dose is 0.1 mg IV.
Pediatric Head Trauma

**History**
- Time of injury
- Mechanism (blunt vs. penetrating)
- Loss of consciousness
- Bleeding
- Past medical history
- Medications
- Evidence for multi-trauma

**Signs and Symptoms**
- Pain, swelling, bleeding
- Altered mental status
- Unconscious
- Respiratory distress / failure
- Vomiting
- Major traumatic mechanism of injury
- Seizure

**Differential**
- Skull fracture
- Brain injury (Concussion, Contusion, Hemorrhage or Laceration)
- Epidural hematoma
- Subdural hematoma
- Subarachnoid hemorrhage
- Spinal injury
- Abuse

**Legend**
- MR
- B
- EMT
- I
- P
- EMT- I
- EMT- P
- M
- Medical Control

**Universal Care Protocol**
- Isolated head trauma?
- Spinal Immobilization Protocol
- IV Protocol
- Obtain and Record GCS
- GCS < 8
  - Can patient cough or speak?
    - Yes
      - Basic Airway Maneuvers with BVM
      - Maintain Pulse Ox > 90%
    - No
  - Seizure?
    - Yes
      - Monitor and reassess
    - No
      - Blood Glucose
        - < 60
          - D10
          - Glucagon (if no IV)
          - Consider Naloxone
        - > 60
  - Repeat every 5 minutes

**Pearls**
- **Recommended Exam:** Mental Status, HEENT, Heart, Lungs, Abdomen, Extremities, Back, Neuro
- If GCS < 12 consider air / rapid transport and if GCS < 8 intubation should be anticipated.
- Hyperventilate the patient only if evidence of herniation (blown pupil, decorticate / decerebrate posturing, bradycardia, decreasing GCS). If hyperventilation is needed (35/minute for infants <1 year and 25/minute for children >1 year)
- Increased intracranial pressure (ICP) may cause hypertension and bradycardia (Cushing's Response).
- Hypotension usually indicates injury or shock unrelated to the head injury.
- The most important item to monitor and document is a change in the level of consciousness.
- Concussions are periods of confusion or LOC associated with trauma which may have resolved by the time EMS arrives. Any prolonged confusion or mental status abnormality which does not return to normal within 15 minutes or any documented loss of consciousness should be evaluated by a physician ASAP.
**Pediatric Hypotension**

**History**
- Blood loss
- Fluid loss
  - Vomiting
  - Diarrhea
  - Fever
- Infection

**Signs and Symptoms**
- Restlessness, confusion, weakness
- Dizziness
- Increased HR, rapid pulse
- Decreased BP
- Pale, cool, clammy skin
- Delayed capillary refill

**Differential**
- Trauma
- Infection
- Dehydration
- Vomiting
- Diarrhea
- Fever
- Congenital heart disease
- Medication or Toxin
- Allergic reaction

---

**Universal Patient Care Protocol**

Use age appropriate BP levels

**Pediatric Multiple Trauma Protocol**

---

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</table>

**Pearls**
- **Recommended Exam:** Mental Status, Skin, HEENT, Heart, Lung, Abdomen, Extremities, Back, Neuro
- Consider all possible causes of shock and treat per appropriate protocol.
- Decreasing heart rate and hypotension occur late in children and are signs of imminent cardiac arrest.
- Most maternal medications pass through breast milk to the infant. Examples: Narcotics, Benzodiazepines.
- Consider possible allergic reaction or early anaphylaxis.
- If patients has a history cardiac disease, (prematurity) chronic lung disease, or renal disease limit Normal Saline bolus to 10 ml/kg
**Pretidiatric Multiple Trauma**

**History**
- Time and mechanism of injury
- Height of any fall
- Damage to structure or vehicle
- Location in structure or vehicle
- Others injured or dead
- Speed and details of MVC
- Restraints / Protective equipment
  - Car seat
  - Helmet
  - Pads
- Ejection
- Past medical history
- Medications

**Signs and Symptoms**
- Pain, swelling
- Deformity, lesions, bleeding
- Altered mental status
- Unconscious
- Hypotension or shock
- Arrest

**Differential (Life Threatening)**
- Chest
  - Tension pneumothorax
  - Flail chest
  - Pericardial tamponade
  - Open chest wound
  - Hemothorax
- Intra-abdominal bleeding
- Pelvis / Femur fracture
- Spine fracture / Cord injury
- Head injury (see Head Trauma)
- Extremity fracture / dislocation
- HEENT (Airway obstruction)
- Hypothermia

---

**Universal Patient Care Protocol**

**Pediatric Assessment Procedure** focusing on initial ABC and level of responsiveness

**Spinal Immobilization Protocol**

**Pediatric Airway Protocol** if appropriate

**Vital Signs including GCS**

---

**Rapid Transport** to appropriate destination using **EMS System Trauma Plan**
- Limit Scene Time to 10 minutes
- Provide Early Notification

**IV Protocol**
- Normal Saline Bolus
- May repeat for hypotension

**Splint Suspected Fractures**
- Control External Hemorrhage

**Continually Reassess**

**P**

**Tension Pneumothorax?**
- Chest Decompression
- Consider
  - Pediatric Head Injury Protocol

**Universal Patient Care Protocol**

**Legend**

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**Medical Control**

**Transport** to appropriate destination using **EMS System Trauma Plan**
- **Notify Destination or Contact Medical Control**

**Pearls**
- **Recommended Exam:** Mental Status, Skin, HEENT, Heart, Lung, Abdomen, Extremities, Back, Neuro
- Items in Red Text are key performance measures used in the EMS Acute Trauma Care Toolkit
- **Transport Destination is chosen based on the EMS System Trauma Plan with EMS pre-arrival notification.**
- Mechanism is the most reliable indicator of serious injury. Examine all restraints / protective equipment for damage.
- In prolonged extrications or serious trauma consider air transportation for transport times and the ability to give blood.
- Do not overlook the possibility for child abuse.
- Scene times should not be delayed for procedures. These should be performed en route when possible.
- **Bag valve mask is an acceptable method of managing the airway if pulse oximetry can be maintained above 90%.**

---

**Protocol 44**

Any local EMS System changes to this document must follow the NC OEMS Protocol Change Policy and be approved by OEMS 2009
Pediatric Pulseless Arrest

History
- Time of arrest
- Medical history
- Medications
- Possibility of foreign body
- Hypothermia

Signs and Symptoms
- Unresponsive
- Cardiac arrest

Differential
- Respiratory failure
  - Foreign body, Secretions, Infection (croup, epiglotitis)
- Hypovolemia (dehydration)
- Congenital heart disease
- Trauma
- Tension pneumothorax, cardiac tamponade, pulmonary embolism
- Hypothermia
- Toxin or medication
- Electrolyte abnormalities (Glucose, K)
- Acidosis

Universal Patient Care Protocol

![Diagram of Universal Patient Care Protocol]

Ventricular Fibrillation / Tachycardia

- Give 1 shock
  - Manual: 2J/Kg
  - May use AED if >1 year of age (use pediatric AED if available for ages 1-8 years)
  - Immediately start CPR, do not check for pulse

- Airway Protocol
- IV Protocol

- Give 5 cycles of CPR
- Check rhythm, Check pulse
  - Shockable rhythm?

- Give 1 shock 4 J/Kg or use AED as described above
- Resume CPR immediately after shock
  - Epinephrine IV/IO/ET
  - and repeat every 3-5 minutes
  - Continue with 5 cycles of CPR after shock
  - Check rhythm, Check pulse
  - Shockable rhythm?

- Give 1 shock 4 J/Kg or use AED as described above
  - Resume CPR immediately
  - Consider Amiodarone, Procainamide, or Lidocaine
  - Continue with 5 cycles of CPR after shock

At Any Time

- Return of Spontaneous Circulation
- Go to Post Resuscitation Protocol

Legend

- MR
- B
- EMT
- EMT-I
- EMT-P
- Medical Control

Asystole / PEA

- Consider D10
- Continue CPR 5 cycles at a time
- Check rhythm between cycles of CPR
- Only check for pulse between cycles of CPR and if there is a perfusing rhythm

- If at any time rhythm becomes shockable then go to left column of this protocol

- Try to Identify and treat the cause:
  - Hypoxemia
  - Acidosis
  - Volume depletion
  - Tension pneumothorax
  - Hypothermia
  - Hypoglycemia
  - Hypokalemia
  - Hyperkalemia

- Notify Destination or Contact Medical Control

Pearls
- Recommended Exam: Mental Status
- Monophasic and Biphasic waveform defibrillators should use the same energy levels noted above.
- In order to be successful in pediatric arrests, a cause must be identified and corrected.
- Airway is the most important intervention. This should be accomplished immediately. Patient survival is often dependent on airway management success.

Protocol 45

Any local EMS System changes to this document must follow the NC OEMS Protocol Change Policy and be approved by OEMS 2009
Pediatric Respiratory Distress

History
- Time of onset
- Possibility of foreign body
- Medical history
- Medications
- Fever or respiratory infection
- Other sick siblings
- History of trauma

Signs and Symptoms
- Wheezing or stridor
- Respiratory retractions
- Increased heart rate
- Altered level of consciousness
- Anxious appearance

Differential
- Allergic Reaction
- Asthma
- Aspiration
- Foreign body
- Infection
  - Pneumonia
  - Croup
  - Epiglottitis
- Congenital heart disease
- Medication or Toxin
- Trauma

Pearls
- Recommended Exam: Mental Status, HEENT, Skin, Neck, Heart, Lungs, Abdomen, Extremities, Neuro
- Items in Red Text are key performance measures used to evaluate protocol compliance and care
- Pulse oximetry should be monitored continuously if initial saturation is \( \leq 96\% \), or there is a decline in patient status despite normal pulse oximetry readings.
- Do not force a child into a position. They will protect their airway by their body position.
- The most important component of respiratory distress is airway control.
- Bronchiolitis is a viral infection typically affecting infants which results in wheezing which may not respond to beta-agonists. Consider Epinephrine if patient \(< 18\) months and not responding to initial beta-agonist treatment.
- Croup typically affects children \(< 2\) years of age. It is viral, possible fever, gradual onset, no drooling is noted.
- Epiglottitis typically affects children \(> 2\) years of age. It is bacterial, with fever, rapid onset, possible stridor, patient wants to sit up to keep airway open, drooling is common. Airway manipulation may worsen the condition.

Universal Patient Care Protocol

Airway Protocol

Yes
Respiratory/Ventilatory Insufficiency?

No
Position Patient for Comfort

Pulse Oximetry

Beta-Agonist

Albuterol or other Beta-Agonist

IV Protocol

If SAO2 < 92 after first treatment

No Improvement? Repeat Beta-Agonist X 3

Methilprednisolone or Prednisone

Normal Saline Nebulized

If No Improvement

Epinephrine Nebulized

IV Protocol

If SAO2 < 92 after first treatment

If Available

Methilprednisolone or Prednisone

If No improvement

Contact Medical Control

Consider Epinephrine IM, or IV

Repeat Albuterol or Levalbuterol

Consider Epinephrine Auto-Injector
Pediatric Seizure

History
- Fever
- Prior history of seizures
- Seizure medications
- Reported seizure activity
- History of recent head trauma
- Congenital abnormality

Signs and Symptoms
- Observed seizure activity
- Altered mental status
- Hot, dry skin or elevated body temperature

Differential
- Fever
- Infection
- Head trauma
- Medication or Toxin
- Hypoxia or Respiratory failure
- Hypoglycemia
- Metabolic abnormality / acidosis
- Tumor

**Universal Patient Care Protocol**

**Pediatric Airway Protocol**

**Actively Seizing**

Airway Protocol

IV Protocol

M

Midazolam (Nasal/IM/IV/PR)

or Lorazepam (IM/IV/PR)

or Diazepam (IV/PR)

May Repeat X 1 after 5 min

Blood Glucose

If < 60

10% Dextrose

Glucagon if no IV

Still Seizing?

Yes

M

Notify Destination or Contact Medical Control

No

Blood Glucose

Glucose > 60

Evidence of Trauma?

Pediatric Head Injury Protocol

Obtain Temperature

Seizure Recurs

Midazolam (Nasal/IM/IV/PR)

or Lorazepam (IM/IV/PR)

or Diazepam (IV/PR)

May Repeat X 1 after 5 min

Blood Glucose

Glucose < 60

10% Dextrose

Glucagon if no IV

Febrile

Cooling Measures

If Available

Tylenol

(if > 3 months of age)

or Ibuprofen

(if > 6 months of age)

Legend

M

Medical Control

B

EMT

I

EMT-I

P

EMT-P

**Pearls**

- Recommended Exam: Mental Status, HEENT, Heart, Lungs, Extremities, Neuro
- Items in Red Text are key performance measures used to evaluate protocol compliance and care
- Addressing the ABCs and verifying blood glucose is more important than stopping the seizure
- Avoiding hypoxemia is extremely important
- Status Epilepticus is defined as two or more successive seizures without a period of consciousness or recovery. This is a true emergency requiring rapid airway control, treatment, and transport.
- Grand mal seizures (generalized) are associated with loss of consciousness, incontinence, and tongue trauma.
- Focal seizures (petit mal) effect only a part of the body and do not usually result in a loss of consciousness.
- Jacksonian seizures are seizures which start as a focal seizure and become generalized.
- Be prepared to assist ventilations especially if a benzodiazepine is used.
- If evidence or suspicion of trauma, spine should be immobilized.
- In an infant, a seizure may be the only evidence of a closed head injury.
- Rectal Diazepam/Fentanyl/Lorazepam: Draw drug dose up in a 3 ml syringe. Remove needle from syringe and attached syringe to an IV extension tube. Cut of the distal end of the extension tube leaving about 3 or 4 inches of length. Insert tube in rectum and inject drug. Flush extension tube with 3 ml of air and remove.

**Differential**

- Fever
- Infection
- Head trauma
- Medication or Toxin
- Hypoxia or Respiratory failure
- Hypoglycemia
- Metabolic abnormality / acidosis
- Tumor

**Fever**

**Infection**

**Head trauma**

**Medication or Toxin**

**Hypoxia or Respiratory failure**

**Hypoglycemia**

**Metabolic abnormality / acidosis**

**Tumor**

**Protocol 47**

Any local EMS System changes to this document must follow the NC OEMS Protocol Change Policy and be approved by OEMS 2009
**Pediatric Supraventricular Tachycardia**

### History
- Past medical history
- Medications or Toxic Ingestion (Aminophylline, Diet pills, Thyroid supplements, Decongestants, Digoxin)
- Drugs (nicotine, cocaine)
- Congenital Heart Disease
- Respiratory Distress
- Syncope or Near Syncope

### Signs and Symptoms
- Heart Rate: Child > 180/bpm
- Infant > 220/bpm
- Pale or Cyanosis
- Diaphoresis
- Tachypnea
- Vomiting
- Hypotension
- Altered Level of Consciousness
- Pulmonary Congestion
- Syncope

### Differential
- Heart disease (Congenital)
- Hypo / Hyperthermia
- Hypovolemia or Anemia
- Electrolyte imbalance
- Anxiety / Pain / Emotional stress
- Fever / Infection / Sepsis
- Hypoxia
- Hypoglycemia
- Medication / Toxin / Drugs (see HX)
- Pulmonary embolus
- Trauma
- Tension Pneumothorax

### Pearls
- **Recommended Exam:** Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro
- Carefully evaluate the rhythm to distinguish Sinus Tachycardia, Supraventricular Tachycardia, and Ventricular Tachycardia
- Separating the child from the caregiver may worsen the child’s clinical condition.
- Pediatric paddles should be used in children < 10 kg or Broselow-Luten color Purple
- Monitor for respiratory depression and hypotension associated if Diazepam or Midazolam is used.
- Continuous pulse oximetry is required for all SVT Patients if available.
- Document all rhythm changes with monitor strips and obtain monitor strips with each therapeutic intervention.
- As a rule of thumb, the maximum sinus tachycardia rate is 220 – the patient’s age in years.
Bites and Envenomations

**History**
- Type of bite / sting
- Description or bring creature / photo with patient for identification
- Time, location, size of bite / sting
- Previous reaction to bite / sting
- Domestic vs. Wild
- Tetanus and Rabies risk
- Immunocompromised patient

**Signs and Symptoms**
- Rash, skin break, wound
- Pain, soft tissue swelling, redness
- Blood oozing from the bite wound
- Evidence of infection
- Shortness of breath, wheezing
- Allergic reaction, hives, itching
- Hypotension or shock

**Differential**
- Animal bite
- Human bite
- Snake bite (poisonous)
- Spider bite (poisonous)
- Insect sting / bite (bee, wasp, ant, tick)
- Infection risk
- Rabies risk
- Tetanus risk

**Pearls**
- **Recommended Exam:** Mental Status, Skin, Extremities (Location of injury), and a complete Neck, Lung, Heart, Abdomen, Back, and Neuro exam if systemic effects are noted
- Human bites have higher infection rates than animal bites due to normal mouth bacteria.
- Carnivore bites are much more likely to become infected and all have risk of Rabies exposure.
- Cat bites may progress to infection rapidly due to a specific bacteria (Pasteurella multicauda).
- Poisonous snakes in this area are generally of the pit viper family: rattlesnake, copperhead, and water moccasin.
  - Coral snake bites are rare: Very little pain but very toxic. “Red on yellow - kill a fellow, red on black - venom lack.”
  - Amount of envenomation is variable, generally worse with larger snakes and early in spring.
  - If no pain or swelling, envenomation is unlikely.
- Black Widow spider bites tend to be minimally painful, but over a few hours, muscular pain and severe abdominal pain may develop (spider is black with red hourglass on belly).
- Brown Recluse spider bites are minimally painful to painless. Little reaction is noted initially but tissue necrosis at the site of the bite develops over the next few days (brown spider with fiddle shape on back).
- Evidence of infection: swelling, redness, drainage, fever, red streaks proximal to wound.
- Immunocompromised patients are at an increased risk for infection: diabetes, chemotherapy, transplant patients.
- Consider contacting the North Carolina Poison Control Center for guidance (1-800-84-TOXIN).
**Burns: Thermal**

**History**
- Type of exposure (heat, gas, chemical)
- Inhalation injury
- Time of Injury
- Past medical history and Medications
- Other trauma
- Loss of Consciousness
- Tetanus/Immunization status

**Signs and Symptoms**
- Burns, pain, swelling
- Dizziness
- Loss of consciousness
- Hypotension/shock
- Airway compromise/distress
- Singed facial or nasal hair
- Hoarseness / wheezing

**Differential**
- Superficial (1st Degree) red and painful
- Partial Thickness (2nd Degree) blistering
- Full Thickness (3rd Degree) painless/charred or leathery skin
- Thermal
- Chemical
- Electrical
- Radiation

**Universal Patient Care Protocol**

**Critical (Red)**
- >15% TBSA 2nd/3rd Degree Burn
- Burns with Multiple Trauma
- Burns with definitive airway compromise
  - (When reasonable accessible, transport to a Burn Center)

**Serious (Yellow)**
- 5-15% TBSA 2nd/3rd Degree Burn
- Suspected Inhalation injury or requiring intubation for airway stabilization
- Hypotension or GCS < 14
  - (When reasonable accessible, transport to either a Level I Burn Center or a Trauma Center)

**Minor (Green)**
- < 5% TBSA 2nd/3rd Degree Burn
- No inhalation injury, Not Intubated, Normotensive, GCS>14
  - (Transport to the Local Hospital)

**Legend**

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1. The IV solution should be changed to Lactated Ringers if it is available. It is preferred over Normal Saline.
2. Formula example and a rule of thumb is: an 80 kg patient with 50% TBSA will need 1000 cc of fluid per hour.

**Pearls**
- Burn patients are Trauma Patients, evaluate for multisystem trauma.
- Assure whatever has caused the burn, is no longer contacting the injury. (Stop the burning process!)
- Recommended Exam: Mental Status, HEENT, Neck, Heart, Lungs, Abdomen, Extremities, Back, and Neuro
- Early intubation is required when the patient experiences significant inhalation injuries.
- Potential CO exposure should be treated with 100% oxygen. (For patients with the primary event is CO inhalation, transport to a hospital equipped with a hyperbaric chamber is indicated [when reasonably accessible].)
- Circumferential burns to extremities are dangerous due to potential vascular compromise secondary to soft tissue swelling.
- Burn patients are prone to hypothermia - never apply ice or cool burns, must maintain normal body temperature.
- Evaluate the possibility of child abuse with children and burn injuries.

**Protocol 50**
Any local EMS System changes to this document must follow the NC OEMS Protocol Change Policy and be approved by OEMS 2009
**Burns: Chemical and Electrical**

**History**
- Type of exposure (heat, gas, chemical)
- Inhalation injury
- Time of injury
- Past medical history and Medications
- Other trauma
- Loss of Consciousness
- Tetanus/Immunization status

**Signs and Symptoms**
- Burns, pain, swelling
- Dizziness
- Loss of consciousness
- Hypotension/shock
- Airway compromise/distress
- Singed facial or nasal hair
- Hoarseness / wheezing

**Differential**
- Superficial (1st Degree) red and painful
- Partial Thickness (2nd Degree) blistering
- Full Thickness (3rd Degree) painless/charred or leathery skin
- Thermal
- Chemical
- Electrical
- Radiation

---

**Pearls Chemical**
- Refer to Decontamination Standard Procedure (Skill) WMD Page
- Certainly 0.9% NaCl Solution or Sterile Water is preferred, however if it is not readily available, do not delay, use tap water for flushing the affected area or other immediate water sources. Flush the area as soon as possible with the cleanest readily available water or saline solution using copious amounts of fluids.

**Pearls Electrical**
- Do not contact the patient until you are certain the source of the electric shock has been disconnected.
- Attempt to locate contact points, (entry wound where the AC source contacted the patient, an exit at the ground point) both sites will generally be full thickness.
- Cardiac monitor, anticipate ventricular or atrial irregularity, to include V-tach, V-fib, heart blocks, etc.
- Attempt to identify the nature of the electrical source (AC vs DC), the amount of voltage and the amperage the patient may have been exposed to during the electrical shock.

---

**Universal Patient Care Protocol**

**Cardiac Monitor**

Eye Involvement? Continuous saline flush in affected eye. Flush are with water or Normal Saline for 10-15 minutes

Remove Rings, Bracelets, and other Constricting Items. Remove clothing or expose area

Identify entry and exit sites, apply sterile dressings

**Pain Control Protocol**

(IV only for Burn Patients)

**IV Protocol**

Normal Saline Bolus

---

**Chemical and Electrical Burn Patients Must be Triage using the Guidelines below and their care must conclude in the Thermal Burn Protocol**

---

**Legend**

- **MR**
- **B**
- **EMT**
- **I**
- **EMT-I**
- **P**
- **EMT-P**
- **M**
- **Medical Control**

---

**Critical (Red)**

- >15% TBSA 2nd/3rd Degree Burn
- Burns with Multiple Trauma
- Burns with definitive airway compromise (When reasonable accessible, transport to a Burn Center)

---

**Serious (Yellow)**

- 5-15% TBSA 2nd/3rd Degree Burn
- Suspected Inhalation injury or requiring intubation for airway stabilization
- Hypotension or GCS < 14
- (When reasonable accessible, transport to either a Level I Burn Center or a Trauma Center)

---

**Minor (Green)**

- < 5% TBSA 2nd/3rd Degree Burn
- No inhalation injury, Not Intubated, Normotensive
- GCS > 14
- (Transport to the Local Hospital)

---

Any local EMS System changes to this document must follow the NC OEMS Protocol Change Policy and be approved by OEMS 2009
Drowning

History
- Submersion in water regardless of depth
- Possible trauma to C-spine
- Possible history of trauma ie: diving board
- Duration of immersion
- Temperature of water or possibility of hypothermia

Signs and Symptoms
- Unresponsive
- Mental status changes
- Decreased or absent vital signs
- Vomiting
- Coughing
- Apnea
- Stridor
- Wheezing
- Rhales

Differential
- Trauma
- Pre-existing medical problem
- Pressure injury (diving)
- Barotrauma
- Decompression sickness
- Post-immersion syndrome

Legend

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Differential
- Trauma
- Pre-existing medical problem
- Pressure injury (diving)
- Barotrauma
- Decompression sickness
- Post-immersion syndrome

Any local EMS System changes to this document must follow the NC OEMS Protocol Change Policy and be approved by OEMS

Pearls
- Recommended Exam: Trauma Survey, Head, Neck, Chest, Abdomen, Pelvis, Back, Extremities, Skin, Neuro
- Have a high index of suspicion for possible spinal injuries
- With cold water no time limit -- resuscitate all. These patients have an increased chance of survival.
- Some patients may develop delayed respiratory distress.
- All victims should be transported for evaluation due to potential for worsening over the next several hours.
- Drowning is a leading cause of death among would-be rescuers.
- Allow appropriately trained and certified rescuers to remove victims from areas of danger.
- With pressure injuries (decompression / barotrauma), consider transport to or availability of a hyperbaric chamber.
**Extremity Trauma**

**History**
- Type of injury
- Mechanism: crush / penetrating / amputation
- Time of injury
- Open vs. closed wound / fracture
- Wound contamination
- Medical history
- Medications

**Signs and Symptoms**
- Pain, swelling
- Deformity
- Altered sensation / motor function
- Diminished pulse / capillary refill
- Decreased extremity temperature

**Differential**
- Abrasion
- Contusion
- Laceration
- Sprain
- Dislocation
- Fracture
- Amputation

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**Universal Patient Care Protocol**

- Wound care
- Control Hemorrhage with Pressure
- Splinting as required

**B**

- If hemorrhage can not be controlled by direct pressure and is life threatening then consider **Tourniquet procedure and/or Hemostatic Agent** if available

**I**

- **IV Protocol** if life or limb threatening event or if pain medication needed

**P**

- **Pain Control Protocol**
  - If amputation Clean amputated part
  - Wrap part in sterile dressing soaked in normal saline and place in air tight container.
  - Place container on ice if available

**M**

- Notify Destination or Contact Medical Control

---

**Pearls**

- **Recommended Exam: Mental Status, Extremity, Neuro**
  - Peripheral neurovascular status is important
  - In amputations, time is critical. Transport and notify medical control immediately, so that the appropriate destination can be determined.
  - Hip dislocations and knee and elbow fracture / dislocations have a high incidence of vascular compromise.
  - Urgently transport any injury with vascular compromise.
  - Blood loss may be concealed or not apparent with extremity injuries.
  - Lacerations must be evaluated for repair within 6 hours from the time of injury.
## Head Trauma

### History
- Time of injury
- Mechanism (blunt vs. penetrating)
- Loss of consciousness
- Bleeding
- Past medical history
- Medications
- Evidence for multi-trauma

### Signs and Symptoms
- Pain, swelling, bleeding
- Altered mental status
- Unconscious
- Respiratory distress / failure
- Vomiting
- Major traumatic mechanism of injury
- Seizure

### Differential
- Skull fracture
- Brain injury (Concussion, Contusion, Hemorrhage or Laceration)
- Epidural hematoma
- Subdural hematoma
- Subarachnoid hemorrhage
- Spinal injury
- Abuse

---

### Universal Care Protocol

#### Adult Multiple Trauma Protocol
- **No**

- **Isolated head trauma?**
  - **Yes**
    - **Spinal Immobilization Protocol**
    - **IV Protocol**

#### Airway Protocol
- **P**
  - If intubation required, consider Lidocaine if available
  - Maintain EtCO2 Between 35 and 45

#### Seizure Protocol
- **I**
  - D50
  - Glucagon (if no IV)
  - Consider Naloxone

---

### Pearls
- **Recommended Exam:** Mental Status, HEENT, Heart, Lungs, Abdomen, Extremities, Back, Neuro
- If GCS < 12 consider air / rapid transport
- In the absence of Capnography, hyperventilate the patient (adult: 20 breaths/min, child: 30, infant: 35) only if ongoing evidence of brain herniation (blown pupil, decorticate or decerebrate posturing, or bradycardia)
- Increased intracranial pressure (ICP) may cause hypertension and bradycardia (Cushing's Response).
- Hypotension usually indicates injury or shock unrelated to the head injury and should be aggressively treated.
- The most important item to monitor and document is a change in the level of consciousness.
- Consider Restraints if necessary for patient's and/or personnel's protection per the Restraint Procedure.
- Limit IV fluids unless patient is hypotensive.
- Concussions are periods of confusion or LOC associated with trauma which may have resolved by the time EMS arrives. Any prolonged confusion or mental status abnormality which does not return to normal within 15 minutes or any documented loss of consciousness should be evaluated by a physician ASAP.
- In areas with short transport times, RSI/Drug-Assisted Intubation is not recommended for patients who are spontaneously breathing and who have oxygen saturations of greater than 90% with supplemental oxygen.

---

### Protocol 54

**Legend**
- MR
- B EMT B
- I EMT- I I
- P EMT- P P
- M Medical Control M

**Spinal Immobilization Protocol**
- **IV Protocol**

**Obtain and Record GCS**
- GCS < 8
  - Can patient cough or speak?
    - **Yes**
      - Basic Airway Maneuvers with BVM
      - Maintain Pulse Ox > 90%
      - Maintain EtCO2 between 35 and 45
    - **No**
  - **GCS > 8**
    - Repeat every 5 minutes

**Maintain EtCO2**
- Between 35 and 45
- No

**Blood Glucose**
- D50
- Glucagon (if no IV)
- Consider Naloxone
- Monitor and reassess

**Notify Destination or Contact MC**
- M
**Hyperthermia**

**History**
- Age
- Exposure to increased temperatures and/or humidity
- Past medical history/medications
- Extreme exertion
- Time and length of exposure
- Poor PO intake
- Fatigue and/or muscle cramping

**Signs and Symptoms**
- Altered mental status or unconsciousness
- Hot, dry or sweaty skin
- Hypotension or shock
- Seizures
- Nausea

**Differential**
- Fever (Infection)
- Dehydration
- Medications
- Hyperthyroidism (Storm)
- Delirium tremens (DT's)
- Heat cramps
- Heat exhaustion
- Heat stroke
- CNS lesions or tumors

---

**Legend**
- MR
- B
- I
- P
- M

**Universal Patient Care Protocol**

**Cardiac monitor**

**12-Lead ECG**

Document patient temperature

Remove from heat source

Remove clothing

Apply room temperature water to skin and increase air flow around patient

**IV Protocol - Bolus (may repeat X 3)**

Monitor and reassess

**Appropriate Protocol**

Based on patient symptoms

**Notify Destination or Contact Medical Control**

---

**Pearls**
- **Recommended Exam:** Mental Status, Skin, HEENT, Heart, Lungs, Neuro
- Extremes of age are more prone to heat emergencies (i.e. young and old).
- Predisposed by use of: tricyclic antidepressants, phenothiazines, anticholinergic medications, and alcohol.
- Cocaine, Amphetamines, and Salicylates may elevate body temperatures.
- Sweating generally disappears as body temperature rises above 104° F (40° C).
- Intense shivering may occur as patient is cooled.
- **Heat Cramps** consists of benign muscle cramping 2° to dehydration and is not associated with an elevated temperature.
- **Heat Exhaustion** consists of dehydration, salt depletion, dizziness, fever, mental status changes, headache, cramping, nausea and vomiting. Vital signs usually consist of tachycardia, hypotension, and an elevated temperature.
- **Heat Stroke** consists of dehydration, tachycardia, hypotension, temperature >104° F (40° C), and an altered mental status.

---

Protocol 55

Any local EMS System changes to this document must follow the NC OEMS Protocol Change Policy and be approved by OEMS 2009
**Hypothermia**

**History**
- Past medical history
- Medications
- Exposure to environment even in normal temperatures
- Exposure to extreme cold
- Extremes of age
- Drug use: Alcohol, barbituates
- Infections / Sepsis
- Length of exposure / Wetness

**Signs and Symptoms**
- Cold, clammy
- Shivering
- Mental status changes
- Extremity pain or sensory abnormality
- Bradycardia
- Hypotension or shock

**Differential**
- Sepsis
- Environmental exposure
- Hypoglycemia
- CNS dysfunction
  - Stroke
  - Head injury
  - Spinal cord injury

---

**Universal Patient Care Protocol**

1. **Yes**
   - **Cardiac Monitor**
   - Temperature < 95° F (35° C)
   - Handle very gently
   - Remove wet clothing
   - Hot Packs and Blankets

2. **Blood Glucose**
   - If Glucose < 60
     - **D50** if Adult
     - **D10** if Pediatric
   - **Glucagon** if No IV

3. **Consider Naloxone**

---

**Appropriate Protocol**

Based on patient symptoms

- **Contact Medical Control**

---

**Pearls**
- **Recommended Exam:** Mental Status, Heart, Lungs, Abdomen, Extremities, Neuro
- **NO PATIENT IS DEAD UNTIL WARM AND DEAD.**
- Defined as core temperature < 35° C (95° F).
- Extremes of age are more susceptible (i.e. young and old).
- With temperature less than 30° C (86° F) ventricular fibrillation is common cause of death. Handling patients gently may prevent this.
- If the temperature is unable to be measured, treat the patient based on the suspected temperature.
- Hypothermia may produce severe bradycardia so take at least 45 second to palpate a pulse.
- Hot packs can be activated and placed in the armpit and groin area if available. Care should be taken not to place the packs directly against the patient's skin.
- Consider withholding CPR if patient has organized rhythm or has other signs of life. Discuss with medical control.
- Intubation can cause ventricular fibrillation so it should be done gently by most experienced person.
- Do not hyperventilate the patient as this can cause ventricular fibrillation.
- If the patient is below 30 degrees C or 86 F then only defibrillate 1 time if defibrillation is required. Normal defibrillation procedure may resume once patient reaches 30 degrees C or 86 F.
- Below 30 degrees C (86 F) antiarrythmics may not work and if given should be given at reduced intervals contact medical control before they are administered.
- Below 30 C or (86 F) pacing should not be done.
Multi-Trauma

History
- Time and mechanism of injury
- Damage to structure or vehicle
- Location in structure or vehicle
- Others injured or dead
- Speed and details of MVC
- Restraints / protective equipment
- Past medical history
- Medications

Signs and Symptoms
- Pain, swelling
- Deformity, lesions, bleeding
- Altered mental status or unconscious
- Hypotension or shock
- Arrest

Differential (Life threatening)
- Chest
  - Tension pneumothorax
  - Flail chest
  - Pericardial tamponade
  - Open chest wound
  - Hemotherax
- Intra-abdominal bleeding
- Pelvis / Femur fracture
- Spine fracture / Cord injury
- Head injury (see Head Trauma)
- Extremity fracture / Dislocation
- HEENT (Airway obstruction)
- Hypothermia

Pearls
- Recommended Exam: Mental Status, Skin, HEENT, Heart, Lung, Abdomen, Extremities, Back, Neuro
- Items in Red Text are key performance measures used in the EMS Acute Trauma Care Toolkit
- Transport Destination is chosen based on the EMS System Trauma Plan with EMS pre-arrival notification.
- Geriatric patients should be evaluated with a high index of suspicion. Often occult injuries are more difficult to recognize and patients can decompensate unexpectedly with little warning.
- Mechanism is the most reliable indicator of serious injury.
- In prolonged extrications or serious trauma, consider air transportation for transport times and the ability to give blood.
- Do not overlook the possibility of associated domestic violence or abuse.
- Scene times should not be delayed for procedures. These should be performed en route when possible. Rapid transport of the unstable trauma patient is the goal.
- Bag valve mask is an acceptable method of managing the airway if pulse oximetry can be maintained above 90%

Protocol 57

Universal Patient Care Protocol

Adult Assessment Procedure focusing on initial ABC and level of responsiveness

Spinal Immobilization Protocol

Airway Protocol if appropriate

Vital Signs including GCS

Abnormal

Normal

Rapid Transport to appropriate destination using EMS System Trauma Plan
Limit Scene Time to 10 minutes
Provide Early Notification

IV Protocol
Normal Saline Bolus
May repeat for hypotension

Splint Suspected Fractures
Consider Pelvic Binding
Control External Hemorrhage

Tension Pneumothorax?
Chest Decompression

Consider
Head Injury Protocol

Complete Assessment

Splint Suspected Fractures
Consider Pelvic Binding
Control External Hemorrhage

Transport to appropriate destination using EMS System Trauma Plan

Continually Reassess

Notify Destination or Contact Medical Control
History
- Exposure to chemical, biologic, radiologic, or nuclear hazard
- Potential exposure to unknown substance/hazard

Signs and Symptoms
- Visual Disturbances
- Headache
- Nausea/Vomiting
- Salivation
- Lacrimation
- Respiratory Distress
- Diaphoresis
- Seizure Activity
- Respiratory Arrest

Differential
- Nerve agent exposure (e.g., VX, Sarin, Soman, etc.)
- Organophosphate exposure (pesticide)
- Vesicant exposure (e.g., Mustard Gas, etc.)
- Respiratory Irritant Exposure (e.g., Hydrogen Sulfide, Ammonia, Chlorine, etc.)

Ensure Scene Safety and Proper PPE

Universal Patient Care Protocol

Obtain history of exposure
Observe for specific toxidromes
Initiate triage and/or decontamination as indicated.

Assess for presence of major or minor symptoms. There must be symptoms before treatment.

Minor Symptoms:
Salivation, Lacrimation, Visual Disturbances

Atropine 2 mg IV/IM q 5 min (0.02-0.05 mg/kg) until symptoms resolve

Pralidoxime 2 grams (15-25 mg/kg for Peds) IV over 30 minutes

Monitor for appearance of major symptoms

Major Symptoms:
Altered Mental Status, Seizures, Respiratory Distress, Respiratory Arrest

Nerve Agent Kit IM X 3 rapidly
(See Pediatric Doses Below)

If Seizures:
Midazolam (IV/IM)
Lorazepam (IV/IM)

Notify Destination or Contact MC

Atropine 2 mg IV/IM q 5 min (0.02-0.05 mg/kg) until symptoms resolve

Pearls
- In the face of a bona fide attack, begin with 1 Nerve Agent Kit for patients less than 7 years of age, 2 Nerve Agent Kits from 8 to 14 years of age, and 3 Nerve Agent Kits for patients 15 years of age and over.
- If Triage/MCI issues exhaust supply of Nerve Agent Kits, use pediatric atropens (if available). Use the 0.5 mg dose if patient is less than 40 pounds (18 kg), 1 mg dose if patient weighs between 40 to 90 pounds (18 to 40 kg), and 2 mg dose for patients greater than 90 pounds (>40 kg).
- Follow local HAZMAT protocols for decontamination and use of personal protective equipment.
- For patients with major symptoms, there is no limit for atropine dosing.
- Carefully evaluate patients to ensure they not from exposure to another agent (e.g., narcotics, vesicants, etc.).
- Each Nerve Agent Kit contains 600 mg of Pralidoxime (2-PAM) and 2 mg of Atropine.
- The main symptom that the atropine addresses is excessive secretions so atropine should be given until salivation improves.
History:
- Patient who has suffered traumatic injury and is now pulseless

Signs and Symptoms:
- Evidence of penetrating trauma
- Evidence of blunt trauma

Differential:
- Medical condition preceding traumatic event as cause of arrest.
- Tension Pneumothorax
- Hypovolemic Shock
  - External hemorrhage
  - Unstable pelvic fracture
  - Displaced long bone fracture(s)
  - Hemothorax
  - Intra-abdominal hemorrhage
  - Retroperitoneal hemorrhage

Pearls:
- Injuries obviously incompatible with life include decapitation, massively deforming head or chest injuries, or other features of a particular patient encounter that would make resuscitation futile. If in doubt, place patient on the monitor.
- Consider using medical cardiac arrest protocols if uncertainty exists regarding medical or traumatic cause of arrest.
- As with all major trauma patients, transport should generally not be delayed for these patients.
- Where the use of spinal immobilization interferes with performance of quality CPR, make reasonable efforts to manually limit patient movement
**Special Response Protocols**

**Pearls:**

- *Using the Jump Start Algorithm, first evaluate all children who did not walk under their own power.*
- All EMS providers are encouraged to use the Triage Algorithm any time there are more than 2-3 patients requiring evaluation, treatment or transport.
Special Response Protocols

History:
- Number of patients
- Cause of Incident
- Chemical, Biological, or Radiological contamination
- Secondary devices

Signs and Symptoms:
- SLUDGE for chemical exposure
- Respiratory distress for narcotic exposure
- Nausea/vomiting for radiation

Differential:
- Blast response
- MPI penetrating trauma
- MPI blunt trauma/MVC

**Pearls:**
In the absence of guidance from RESCOM, utilize the following communications assignments:
1. Contact Medical Branch on MC-Alpha
2. Transport/Hospital destination on MC-Hotel
Task cards and job vests should be utilized by all personnel involved in an MPI.

If blast injury with more than 5 patients, patients with SBP <90 and/or obvious external trauma to 4 or more body surface areas should go to the Level I trauma center. Others may be considered for community hospital transport.

If 800 MHz system failure, then all responding units should utilize VHF channel 155.280 (State Rescue) to regroup.
Multiple patients may be transported in the same EMS unit if needed. When possible, patients of similar acuity should be transported in the same unit to assist with appropriate transport destination.
**Carbon Monoxide Exposure**

**History**
- Known or suspected CO exposure
- Suspected source/duration exposure
- Age
- Known or possible pregnancy
- Reason (accidental, suicidal)
- Measured atmospheric levels
- Past medical history, medications

**Signs and Symptoms:**
- Altered mental status/dizziness
- Headache, Nausea/Vomiting
- Chest Pain/Respiratory distress
- Neurological impairments
- Vision problems/reddened eyes
- Tachycardia/tachypnea
- Arrhythmias, seizures, coma

**Differential**
- Effects of other toxic fire byproduct
- Acute cardiac event
- Acute neurological event
- Flu/GI illness
- Acute intoxication
- Diabetic Ketoacidosis
- Headache of non-toxic origin

---

**Legend**
- MR
- B
- EMT
- I
- EMT-I
- P
- EMT-P
- M
- Medical Control

---

**Universal Patient Care Protocol**

1. Measure COHb % (SpCO)

   **SpCO 0% to 5 %**
   - No further medical evaluation of SpCO required*

   **SpCO > 5 %**
   - SpCO > 15% or SpO2 < 90
     - 100% Oxygen by NRB and transport to ED
     - If cardiac/respiratory/neurological symptoms are also present, go to appropriate protocol
   - SpCO < 15% and SpO2 > 90 %
     - Symptoms of CO and/or Hypoxia?
     - Yes
       - 100% Oxygen by NRB and transport to ED
       - If cardiac/respiratory/neurological symptoms are also present, go to appropriate protocol
     - No
       - No treatment for CO exposure required*

   *Fetal hemoglobin has a greater attraction for CO than maternal hemoglobin. Females who are known to be pregnant or who could be pregnant should be advised that EMS-measured SpCO levels reflect the adult’s level, and that fetal COHb levels may be higher. Recommend Hospital evaluation for any CO exposed pregnant person.

---

**Pearls:**
- The absence (or low detected levels of) of COHb is not a reliable predictor of firefighter or victim exposure to other toxic byproducts of fire
- In obtunded fire victims, consider WMD Cyanide treatment protocol
- The differential list for CO Toxicity is extensive. Attempt to evaluate other correctable causes when possible
- Chronic CO exposure is clinically significant; therefore advice on smoking cessation is important medical instruction
- This protocol is adapted from the FDNY EMS CO Triage and Treatment Algorithm in effect as of October 2007
Pediatric EMS Triage and Destination Plan

Pediatric Patient
* Any patient less than 18 years of age with a life-threatening illness

Life Threatening Illness
* Decreased Mental Status (GCS<14)
* Non-Responsive Respiratory Distress
* Intubation
* Post Cardiac Arrest
* Non-Responsive Hypotension
* Severy Hypothermia or Hyperthermia
* Status Epilepticus
* Potential Dangerous Envenomation
* Life Threatening Ingestion/Chemical Exposure

The Purpose of this plan is to:
* Rapidly identify pediatric patients who call 911 or present to EMS with a life-threatening illness
* Minimize the time from EMS contact to definitive care
* Quickly diagnose patients with pediatric life-threatening illness for EMS treatment and stabilization
* Rapidly identify the best hospital destination based on symptom onset time, vital signs, response to treatment, and predicted transport time
* Early activation/notification to the hospital prior to patient arrival
* Minimize scene time with a “load and go” approach
* Provide quality EMS service and patient care to the EMS community
* Continuously evaluate the EMS System based on North Carolina’s EMS performance measures

LEGEND
- B: EMT-Basic
- I: EMT-Intermediate
- P: Paramedic
- A: APP
- M: Medical Control

Pediatric Trauma?

Unstable Pediatric Life Threatening Illness?

Closest Emergency Department

Pearls and Definitions
* All Pediatric Patients with a life-threatening illness must be triaged and transported using this plan. This plan is in effect 24/7/365
* All Patient Care is based on the EMS Pediatric Protocol
* Pediatric Capable Hospital = a hospital with an emergency and pediatric intensive care capability including but not limited to:
  * Emergency Department staffed 24 hours per day with board certified Emergency Physicians
  * An inpatient Pediatric Intensive Care Unit (with a physician pediatric intensivist)
  * Accepts all EMS patients regardless of bed availability
  * Provides outcome and performance measure feedback to EMS including case review
* Community Hospital = a local hospital within the EMS System’s service area which provides emergency care but does not meet the criteria of a Pediatric Capable Hospital
* Pediatric Specialty Care Transport Program = an air or ground based specialty care transport program that has specific pediatric training and equipment addressing the needs of a pediatric patient that can assume care of a pediatric patient from EMS or a Community Hospital and transport the patient to a Pediatric Capable Hospital.

Wake County EMS System 2009
This protocol has been altered from the original 2009 NCCEP Protocol by the local EMS Medical Director (Draft Version 10/26/2009)
Post Cardiac Arrest EMS Triage and Destination Plan

**Post Cardiac Arrest Patient**
- Resuscitation was attempted by 911 responder
- AND/OR
- CPR performed PTA and pulses restored

**The Purpose of this plan is to:**
- Transport post cardiac arrest and post resuscitation patients to the appropriate receiving facility

**Return of pulses?**
- Yes
  - Traumatic Arrest?
    - No
      - Age < 18
        - Yes
          - Transport to Pediatric Specialty facility
            - WakeMed Raleigh
        - No
          - Transport to closest hypothermia capable hospital
            - Duke Hospital Durham
            - Rex Hospital
            - WakeMed Raleigh
      - No
        - Transport to Trauma Center
          - Duke Hospital Durham
          - UNC
          - WakeMed Raleigh
    - Yes
      - If criteria for discontinuation, cease efforts

**Legends**
- B: EMT-Basic
- I: EMT-Intermediate
- P: Paramedic
- A: APP
- M: Medical Control

**Pearls and Definitions**
- All Post Cardiac Arrest Patients must be triaged and transported using this plan. This plan is in effect 24/7/365
- All Patient Care is based on the EMS appropriate cardiac arrest, or discontinuation of prehospital resuscitation Protocol
- Trauma Center = (specific criteria)
- Appropriate non-hypothermic receiving facility = (specific criteria)
- Hypothermia capable hospital = (specific criteria)
STEMI Patient
(ST Elevation Myocardial Infarction)
* Cardiac symptoms greater than 15 minutes and less than 12 hours
And
* 12 lead ECG criteria of 1mm ST elevation in 2 or more leads
or
* Left Bundle Branch Block NOT KNOWN to be present in the past

The Purpose of this plan is to:
* Rapidly identify STEMI patients who call 911 or present to EMS
* Minimize the time from onset of STEMI symptoms to coronary reperfusion
* Quickly diagnose a STEMI by 12 lead ECG
* Rapidly identify the best hospital destination based on symptom onset time and predicted transport time
* Early activation/notification to the hospital prior to patient arrival
* Minimize scene time to 15 minutes or less (including a 12 lead ECG)
* Provide quality EMS service and patient care to the EMS System’s citizens
* Continuously evaluate the EMS System based on North Carolina’s STEMI EMS performance measures

Active Symptoms of Cardiac Chest Pain, 12 Lead ECG Findings = STEMI

Early STEMI Notification/Activation of closest PCI capable Hospital (unless patient expresses preference) with transmission of 12 lead when possible

- Duke Hospital Durham
- Rex Hospital
- UNC
- Wake Med Raleigh

Pearls and Definitions
* All STEMI Patients must be triaged and transported using this plan. This plan is in effect 24/7/365
* All Patient Care is based on the EMS Chest Pain and STEMI Protocol
* PCI (Percutaneous Coronary Intervention) Capable Hospital = a hospital with an emergency interventional cardiac catheterization laboratory capable of providing the following services to acute STEMI patients
  * 24/7 PCI capability within 30 minutes of notification (interventional cardiologist present at the start of the case)
  * Single Call Activation number for use by EMS
  * Accepts all patients regardless of bed availability
  * Provides outcome and performance measure feedback to EMS including care review
* Non-CPI Hospital = a local hospital within the EMS system’s service area which provides emergency care, including thrombolytic administration, to an acute STEMI patient but does NOT provide PCI services.
STROKE EMS Triage and Destination Plan

STROKE Patient
* A Patient with symptoms of an acute Stroke as identified by the EMS Stroke Screen

Time Of Symptom Onset
* Defined as the last witnessed time the patient was symptom free (i.e. awakening with stroke symptoms would be defined as an onset time of the previous night when patient was symptom free)

The Purpose of this plan is to:
* Rapidly identify acute Stroke patients who call 911 or present to EMS
* Minimize the time from onset of Stroke symptoms to definitive care
* Quickly diagnose a Stroke using validated EMS Stroke Screen
* Complete a reperfusion checklist (unless being transported directly to a Stroke Capable Hospital) to determine thrombolytic eligibility
* Rapidly identify the best hospital destination based on symptom onset time, reperfusion checklist, and predicted transport time
* Early activation/notification to the hospital prior to patient arrival
* Minimize scene time to 10 minutes or less
* Provide quality EMS service and patient care to the EMS Systems citizens
* Continuously evaluate the EMS System based on North Carolina’s Stroke EMS performance measures

Symptoms of Acute Stroke
Positive Stroke Screen <3hrs onset

Yes
Fibrinolytic Check List

No Contraindications
EARLY NOTIFICATION/ACTIVATION and TRANSPORT

Any HOSPITAL in Wake County

No
EARLY NOTIFICATION/ACTIVATION an transport

Duke Health Raleigh or WakeMed Raleigh

No Contraindications

Symptoms between 3-5 hrs onset?

Yes
EARLY NOTIFICATION/ACTIVATION and TRANSPORT

Any Emergency Department in Wake County

No

PEARLS AND DEFINITIONS
* All Stroke Patients must be triaged and transported using this plan. This plan is in effect 24/7/365
* All Patient Care is based on the EMS Suspected Stroke Protocol for documentation of protocol used
* Primary Stroke Center = a hospital that is currently accredited by the Joint Commission as a Primary Stroke Center
* Stroke Capable Hospital = a hospital which provides emergency care with a commitment to Stroke and the following capabilities:
  * CT availability with in-house technician availability 24/7/365
  * Ability to rapidly evaluate an acute stroke patient to identify patients who would benefit from thrombolytic administration
  * Ability and willingness to administer thrombolytic agents to eligible acute Stroke patients
  * Accepts all patients regardless of bed availability
  * Provides outcome and performance measure feedback to EMS including case review
* Community Hospital = a local hospital within the EMS System’s service area which provides emergency care but does not meet the criteria for a Primary Stroke Center or Stroke Capable Hospital
* Specialty Care Transport Program = an air or ground based specialty care transport program which can assume care of an acute Stroke patient from EMS or a Hospital and transport the patient to a Primary Stroke Center.
Trauma or Burn Patient
* Any patient less (regardless of age) with a significant injury or burn

The Purpose of this plan is to:
* Rapidly identify injured or burned patients who call 911 or present to EMS
* Minimize the time from injury to definitive care for critical injuries or burns
* Quickly identify life or limb threatening injuries for EMS treatment and stabilization
* Rapidly identify the best hospital destination based on time of injury, severity of injury, and predicted transport time
* Early activation/notification to the hospital of a critically injured or burned patient prior to patient arrival
* Minimize scene time to 10 minutes or less with a “load and go” approach
* Provide quality EMS service and patient care to the EMS Systems citizens
* Continuously evaluate the EMS System based on North Carolina’s EMS performance measures

**Transport to closest Trauma Center (priority to level 1 or 2)**
Scene notification/activation
- Duke Hospital Durham
- UNC
- WakeMed Raleigh

Any Abnormal Vital Signs?
Yes → Transport to closest Trauma Center (priority to level 1 or 2) Scene notification/activation

Critical Injury by Assessment?
Yes → Burns ONLY, without airway Involvement or any other trauma?
Yes → UNC
No → Isolated Open Fracture?
Yes → HOSPITAL of choice
No → Emergency Department of Choice

Special Considerations?
Yes → Transport to closest Trauma Center (priority to level 1 or 2) Scene notification/activation

Significant mechanism?
Yes → Burns with Airway Involvement = CLOSEST FACILITY
- Duke Hospital Durham
- UNC
- WakeMed Raleigh

Special Considerations?
Yes → Isolated Open Fracture?
Yes → HOSPITAL of choice
No → Emergency Department of Choice

Pearls and Definitions
All Injury and Burn Patients must be triaged and transported using this plan. This plan is in effect 24/7/365

All Patient Care is based on the EMS Trauma Protocols

**Desginated Trauma Center** = a hospital that is currently designated as a Trauma Center by the North Carolina Office of Emergency Medical Services. Trauma Centers are designated as Level 1, 2, or 3 with Level 1 being the highest possible designation.

**Community Hospital** = a local hospital within the EMS System’s service area which provides emergency care but has not been designated as a Trauma Center

**Specialty Care Transport Program** = an air or ground based specialty care transport program which can assume care of an acutely injured patient from EMS or a Community Hospital and transport the patient to a designated Trauma Center.
# Emergency Information Form for Children With Special Needs

## Name:

<table>
<thead>
<tr>
<th>Birth date:</th>
<th>Nickname:</th>
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<table>
<thead>
<tr>
<th>Home Address:</th>
<th>Home/Work Phone:</th>
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<table>
<thead>
<tr>
<th>Parent/Guardian:</th>
<th>Emergency Contact Names &amp; Relationship:</th>
</tr>
</thead>
</table>

| Signature/Consent*: | |
|--------------------| |

<table>
<thead>
<tr>
<th>Primary Language:</th>
<th>Phone Number(s):</th>
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</table>

## Physicians:

### Primary care physician:

<table>
<thead>
<tr>
<th>Emergency Phone:</th>
<th>Fax:</th>
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</table>

### Current Specialty physician:

#### Specialty:

<table>
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<tr>
<th>Emergency Phone:</th>
<th>Fax:</th>
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</table>

### Current Specialty physician:

#### Specialty:

<table>
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<tr>
<th>Emergency Phone:</th>
<th>Fax:</th>
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</table>

## Anticipated Primary ED:

| Pharmacy: | |
|-----------| |

## Anticipated Tertiary Care Center:

<p>| | |</p>
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## Diagnoses/Past Procedures/Physical Exam:

1. 

   Baseline physical findings:

2. 

3. 

   Baseline vital signs:

4. 

   Baseline neurological status:

   Synopsis:

   Baseline neurological status:

---

*Consent for release of this form to health care providers*
### Management Data:

**Allergies: Medications/Foods to be avoided and why:**

1. 
2. 
3. 

**Procedures to be avoided and why:**

1. 
2. 
3.

### Immunizations

<table>
<thead>
<tr>
<th>Dates</th>
<th>DPT</th>
<th>Dates</th>
<th>Hep B</th>
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<thead>
<tr>
<th>Dates</th>
<th>OPV</th>
<th>Dates</th>
<th>Varicella</th>
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<thead>
<tr>
<th>Dates</th>
<th>MMR</th>
<th>Dates</th>
<th>TB status</th>
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<thead>
<tr>
<th>Dates</th>
<th>HIB</th>
<th>Dates</th>
<th>Other</th>
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</table>

**Antibiotic prophylaxis:**

- **Indication:**
  - 
- **Medication and dose:**
  - 

### Common Presenting Problems/Findings With Specific Suggested Managements

<table>
<thead>
<tr>
<th>Problem</th>
<th>Suggested Diagnostic Studies</th>
<th>Treatment Considerations</th>
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**Comments on child, family, or other specific medical issues:**

- 

**Physician/Provider Signature:**

<table>
<thead>
<tr>
<th>Name:</th>
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**Print Name:**

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STOP
DO NOT
Resuscitate

Effective Date: ____________________________
Expiration Date, if any ____________________
☐ Check box if no expiration

DO NOT RESUSCITATE ORDER

Patient’s full name ____________________________

In the event of cardiac and/or pulmonary arrest of the patient, efforts at cardiopulmonary resuscitation of the patient SHOULD NOT be initiated. This order does not affect other medically indicated and comfort care.

I have documented the basis for this order and the consent required by the NC General Statute 90-21.17(b) in the patient’s records.

Signature of Attending Physician/Physician Assistant/Nurse Practitioner ____________________________

Printed Name of Attending Physician ____________________________

Address ____________________________

City, State, Zip ____________________________

Telephone Number (office) ____________________________

Telephone Number (emergency) ____________________________

Do Not Copy   Do Not Alter

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES
Medical Orders for Scope of Treatment (MOST)
This is a Physician Order Sheet based on the person’s medical condition and wishes. Any section not completed indicates full treatment for that section. When the need occurs, first follow these orders, then contact physician.

Section A
Check One Box Only

CARDIOPULMONARY RESUSCITATION (CPR): Person has no pulse and is not breathing.
☐ Attempt Resuscitation (CPR)
☐ Do Not Attempt Resuscitation (DNR/no CPR)

When not in cardiopulmonary arrest, follow orders in B, C, and D.

Section B
Check One Box Only

MEDICAL INTERVENTIONS: Person has pulse and/or is breathing.
☐ Full Scope of Treatment: Use intubation, advanced airway interventions, mechanical ventilation, cardioversion as indicated, medical treatment, IV fluids, etc.; also provide comfort measures. Transfer to hospital if indicated.
☐ Limited Additional Interventions: Use medical treatment, IV fluids and cardiac monitoring as indicated. Do not use intubation or mechanical ventilation; also provide comfort measures. Transfer to hospital if indicated. Avoid intensive care.
☐ Comfort Measures: Keep clean, 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. Do not transfer to hospital unless comfort needs cannot be met in current location.

Other Instructions

Section C
Check One Box Only

ANTIBIOTICS
☐ Antibiotics if life can be prolonged.
☐ Determine use or limitation of antibiotics when infection occurs.
☐ No Antibiotics (use other measures to relieve symptoms).

Other Instructions

Section D
Check One Box Only in Each Column

MEDICALLY ADMINISTERED FLUIDS AND NUTRITION: Offer oral fluids and nutrition if physically feasible.
☐ IV fluids long-term if indicated
☐ IV fluids for a defined trial period
☐ No IV fluids (provide other measures to ensure comfort)
☐ Feeding tube long-term if indicated
☐ Feeding tube for a defined trial period
☐ No feeding tube

Other Instructions

Section E
Check The Appropriate Box

DISCUSSED WITH AND AGREED TO BY:
☐ Patient
☐ Parent or guardian if patient is a minor
☐ Health care agent
☐ Legal guardian of the person
☐ Attorney-in-fact with power to make health care decisions
☐ Spouse
☐ Majority of patient’s reasonably available parents and adult children
☐ Majority of patient’s reasonably available adult siblings
☐ An individual with an established relationship with the patient who is acting in good faith and can reliably convey the wishes of the patient

MD/DO, PA, or NP Name (Print):

MD/DO, PA, or NP Signature (Required):

Phone #:

Signature of Person, Parent of Minor, Guardian, Health Care Agent, Spouse, or Other Personal Representative (Signature is required and must either be on this form or on file)

I agree that adequate information has been provided and significant thought has been given to life-prolonging measures. Treatment preferences have been expressed to the physician (MD/DO), physician assistant, or nurse practitioner. This document reflects those treatment preferences and indicates informed consent. If signed by a patient representative, preferences expressed must reflect patient’s wishes as best understood by that representative. Contact information for personal representative should be provided on the back of this form.

You are not required to sign this form to receive treatment.

Patient or Representative Name (print)

Patient or Representative Signature

Relationship (write “self” if patient)

SEND FORM WITH PATIENT/RESIDENT WHEN TRANSFERRED OR DISCHARGED
HIPAA PERMITS DISCLOSURE OF MOST TO OTHER HEALTH CARE PROFESSIONALS AS NECESSARY

Contact Information

Patient Representative: Relationship: Phone #:
Cell Phone #: Date Prepared:

Health Care Professional Preparing Form: Preparer Title: Preferred Phone #: Date Prepared:

Directions for Completing Form

Completing MOST
- MOST must be reviewed and prepared by a health care professional in consultation with the patient or patient representative.
- MOST is a medical order and must be reviewed and signed by a licensed physician (MD/DO), physician assistant, or nurse practitioner to be valid. Be sure to document the basis for the order in the progress notes of the medical record. Mode of communication (e.g., in person, by telephone, etc.) also should be documented.
- The signature of the patient or their representative is required; however, if the patient’s representative is not reasonably available to sign the original form, a copy of the completed form with the signature of the patient’s representative must be placed in the medical record and “on file” must be written in the appropriate signature field on the front of this form or in the review section below.
- Use of original form is required. Be sure to send the original form with the patient.
- MOST is part of advance care planning, which also may include a living will and health care power of attorney (HCPOA). If there is a HCPOA, living will, or other advance directive, a copy should be attached if available. MOST may suspend any conflicting directions in a patient’s previously executed HCPOA, living will, or other advance directive.
- There is no requirement that a patient have a MOST.

Reviewing MOST

This MOST must be reviewed at least annually or earlier if:
- The patient is admitted and/or discharged from a health care facility;
- There is a substantial change in the patient’s health status; or
- The patient’s treatment preferences change.

If MOST is revised or becomes invalid, draw a line through Sections A – E and write “VOID” in large letters.

Revocation of MOST

This MOST may be revoked by the patient or the patient’s representative.

Review of MOST

<table>
<thead>
<tr>
<th>Review Date</th>
<th>Reviewer and Location of Review</th>
<th>MD/DO, PA, or NP Signature (Required)</th>
<th>Signature of Patient or Representative (Required)</th>
<th>Outcome of Review</th>
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SEND FORM WITH PATIENT/RESIDENT WHEN TRANSFERRED OR DISCHARGED

DO NOT ALTER THIS FORM!
EMS personnel at any level who administer medications must do so within an EMS system that provides medical oversight. Personnel must follow written treatment protocols and must complete appropriate medical education. All EMS System protocols and policies must be reviewed and approved by the Medical Director of the Office of EMS.

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<td>ziprasidone</td>
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1  MR and EMT use of epinephrine is limited to the treatment anaphylaxis and may be administered only by auto injector.

2  EMT use of beta-agonists and nitroglycerine is limited to patients who currently are prescribed the medication. EMTs may administer these medications from EMS supplies. EMT use of beta-agonists may be through any inhaled method of medication administration.

3  EMT administration of diphenhydramine is limited to the oral route.

4  As a component of preparedness for domestic terrorism, EMS personnel, public safety officers, and other first responders recognized by the EMS system, may carry, self-administer, or administer to a patient atropine and/or pralidoxime, based on written protocols and medical direction. All personnel except for EMT-Ps must administer these medications by an auto injector.

5  Administration of oxygen does not require medical direction.

6  Administration of immunizations and TB skin tests are not limited to public health initiatives.

7  EMT administration of naloxone is limited to the intra-nasal route.
North Carolina Medical Board
Approved Skills for Credentialed EMS Personnel

EMS personnel performing these skills must do so within an EMS system. Personnel must follow written treatment protocols and must complete appropriate medical education. All EMS System protocols and policies must be reviewed and approved by the Medical Director of the Office of EMS.

<table>
<thead>
<tr>
<th>Skills</th>
<th>EMD</th>
<th>MR</th>
<th>EMT</th>
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<td>Pre-arrival instructions to callers</td>
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<tr>
<td>Determine and dispatch appropriate EMS system resources</td>
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¹ All EMD skills must be performed in EMS systems with medical oversight and written EMD protocols.
² EMTs using blind insertion airway devices must be functioning in EMS systems with medical direction and written treatment protocols.
³ EMS personnel at any level who administer medications must do so within an EMS system that provides medical oversight. Personnel must follow written treatment protocols and must complete appropriate medical education. All EMS System protocols and policies must be reviewed and approved by the Medical Director of the Office of EMS. The approved medication list is found at the beginning of this document. The administration of oxygen does not require medical direction.
The following is a list of approved medical abbreviations. In general, the use of abbreviations should be limited to this list.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
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<tbody>
<tr>
<td>A&amp;O x 3</td>
<td>alert and oriented to person, place and time</td>
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<tr>
<td>A&amp;O x 4</td>
<td>alert and oriented to person, place, time and event</td>
</tr>
<tr>
<td>A-FIB</td>
<td>atrial fibrillation</td>
</tr>
<tr>
<td>AAA</td>
<td>abdominal aortic aneurysm</td>
</tr>
<tr>
<td>ABC</td>
<td>airway, breathing, circulation</td>
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<tr>
<td>ABD</td>
<td>abdomen (abdominal)</td>
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<td>ACLS</td>
<td>advanced cardiac life support</td>
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<tr>
<td>AKA</td>
<td>above the knee amputation</td>
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<tr>
<td>ALS</td>
<td>advanced life support</td>
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<tr>
<td>AMA</td>
<td>against medical advice</td>
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<td>AMS</td>
<td>altered mental status</td>
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<td>AMT</td>
<td>amount</td>
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<td>APPROX</td>
<td>approximately</td>
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<td>aspirin</td>
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<tr>
<td>ASSOC</td>
<td>associated</td>
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<tr>
<td>BG</td>
<td>blood glucose</td>
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<td>bilateral</td>
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<tr>
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<td>below the knee amputation</td>
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<td>basic life support</td>
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<td>BS</td>
<td>breath sounds</td>
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<td>bag-valve-mask</td>
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<td>C-SECTION</td>
<td>caesarean section</td>
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<td>cervical spine</td>
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<td>C/O</td>
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<td>cancer</td>
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<td>coronary artery bypass graft</td>
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<td>coronary artery disease</td>
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<tr>
<td>CATH</td>
<td>catheter</td>
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<tr>
<td>CC</td>
<td>chief complaint</td>
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<td>CEPH</td>
<td>cephalic</td>
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<tr>
<td>CHF</td>
<td>congestive heart failure</td>
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<tr>
<td>CNS</td>
<td>central nervous system</td>
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<td>COPD</td>
<td>chronic obstructive pulmonary disease</td>
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<td>CP</td>
<td>chest pain</td>
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<tr>
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<tr>
<td>CT</td>
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<tr>
<td>CVA</td>
<td>cerebrovascular accident (stroke)</td>
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<td>Abbreviation</td>
<td>Description</td>
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<td>D5W</td>
<td>5% dextrose in water</td>
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<td>diabetic ketoacidosis</td>
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<tr>
<td>DNR</td>
<td>do not resuscitate</td>
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<td>DOA</td>
<td>dead on arrival</td>
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<td>DT</td>
<td>delirium tremens</td>
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<td>Dx</td>
<td>diagnosis</td>
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<td>electrocardiogram</td>
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<td>electroencephalogram</td>
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<td>ethanol (alcohol)</td>
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<td>endotracheal tube</td>
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<td>EXT</td>
<td>external (extension)</td>
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<tr>
<td>FB</td>
<td>foreign body</td>
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<td>flexion</td>
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<td>fracture</td>
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<td>gram(s)</td>
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<td>head, eyes, ears, nose, throat</td>
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<td>heart rate (hour)</td>
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<td>hypertension</td>
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<td>intracranial pressure</td>
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<td>intensive care unit</td>
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<td>JVD</td>
<td>jugular vein distension</td>
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<td>kg</td>
<td>kilogram</td>
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<td>KVO</td>
<td>keep vein open</td>
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<td>Definition</td>
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<td>L/S-SPINE</td>
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<td>L&amp;D</td>
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<td>lb</td>
<td>pound</td>
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<td>LLQ</td>
<td>left lower quadrant</td>
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<td>LMP</td>
<td>last mestrual period</td>
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<td>LOC</td>
<td>level of consciousness (loss of consciousness)</td>
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<td>medicine</td>
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<td>N/V</td>
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<td>N/V/D</td>
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<td>NEB</td>
<td>nebulizer</td>
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<td>NKDA</td>
<td>no known drug allergies</td>
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<td>NRB</td>
<td>non-rebreather</td>
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<td>NS</td>
<td>normal saline</td>
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<td>NSR</td>
<td>normal sinus rhythm</td>
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<td>PALP</td>
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<td>PAC</td>
<td>premature atrial contraction</td>
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<tr>
<td>PE</td>
<td>pulmonary embolus</td>
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<tr>
<td>PEARL</td>
<td>pupils equal and reactive to light</td>
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<td>PMHx</td>
<td>past medical history</td>
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<td>orally</td>
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<td>PRB</td>
<td>partial rebreather</td>
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<td>right lower quadrant</td>
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<tr>
<td>RUQ</td>
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<td>T</td>
<td>temperature</td>
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<tr>
<td>TIA</td>
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<tr>
<td>TKO</td>
<td>to keep open (refers to IV’s - same as KVO)</td>
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<tr>
<td>Tx</td>
<td>treatment</td>
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<td>UOA</td>
<td>upon our arrival</td>
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<td>URI</td>
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<td>UTI</td>
<td>urinary tract infection</td>
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<td>VF</td>
<td>ventricular fibrillation</td>
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<td>vital signs</td>
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<td>VT</td>
<td>ventricular tachycardia</td>
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<td>WAP</td>
<td>wandering atrial pacemaker</td>
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<tr>
<td>WNL</td>
<td>within normal limits</td>
</tr>
<tr>
<td>YO (YOA)</td>
<td>years old (years of age)</td>
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<td>M or ♂</td>
<td>male</td>
</tr>
<tr>
<td>F or ♀</td>
<td>female</td>
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<td>less than</td>
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<td>equal</td>
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### Approved Medical Abbreviations

<table>
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<tr>
<th>Abbreviation</th>
<th>Meaning</th>
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<tr>
<td>( \uparrow )</td>
<td>upper (increased)</td>
</tr>
<tr>
<td>( \bar{a} )</td>
<td>before</td>
</tr>
<tr>
<td>( \bar{p} )</td>
<td>after</td>
</tr>
<tr>
<td>( \bar{c} )</td>
<td>with</td>
</tr>
<tr>
<td>( s )</td>
<td>without</td>
</tr>
<tr>
<td>( \Delta )</td>
<td>change</td>
</tr>
<tr>
<td>( L )</td>
<td>left</td>
</tr>
<tr>
<td>( R )</td>
<td>right</td>
</tr>
<tr>
<td>( \downarrow )</td>
<td>lower (decreased)</td>
</tr>
<tr>
<td>( 1^\circ )</td>
<td>primary</td>
</tr>
<tr>
<td>( 2^\circ )</td>
<td>secondary</td>
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</table>
Difficult Airway Evaluation

Evaluating for the difficult airway

Between 1 – 3% of patients who require endotracheal intubation have airways that make intubation difficult. Recognizing those patients who may have a difficult airway allows the paramedic to proceed with caution and to keep as many options open as possible. It also allows the paramedic to prepare additional equipment (such as a cricothyrotomy kit) that may not ordinarily be part of a standard airway kit. The pneumonic LEMON is useful in evaluating patients for signs that may be consistent with a difficult airway and should raise the paramedic’s index of suspicion.

Look externally

External indicators of either difficult intubation or difficult ventilation include: presence of a beard or moustache, abnormal facial shape, extreme cachexia, edentulous mouth, facial trauma, obesity, large front teeth or “buck teeth”, high arching palate, receding mandible, short bull neck.

Evaluate 3-3-2 Rule

3 fingers between the patient’s teeth (patient’s mouth should open adequately to permit three fingers to be placed between the upper and lower teeth)
3 fingers between the tip of the jaw and the beginning of the neck (under the chin)
2 fingers between the thyroid notch and the floor of the mandible (top of the neck)

Mallampati

This scoring system is based on the work of Mallampati et al published in the Canadian Anaesthesia Society Journal in 1985. The system takes into account the anatomy of the mouth and the view of various anatomical structures when the patient opens his mouth as wide as possible. This test is performed with the patient in the sitting position, the head held in a neutral position, the mouth wide open, and the tongue protruding to the maximum. Inappropriate scoring may occur if the patient is in the supine position (instead of sitting), if the patient phonates or if the patient arches his or her tongue.

Class I (easy) = visualization of the soft palate, fauces, uvula, anterior and posterior pillars.
Class II = visualization of the soft palate, fauces and uvula.
Class III = visualization of the soft palate and the base of the uvula.
Class IV (difficult) = soft palate is not visible at all.

Obstruction?

Besides the obvious difficulty if the airway is obstructed with a foreign body, the paramedic should also consider other obstructers such as tumor, abscess, epiglottis, or expanding hematoma.

Neck Mobility

Ask the patient to place their chin on their chest and to tilt their head backward as far as possible. Obviously, this will not be possible in the immobilized trauma patient.
### Burns Resources

#### Fluid Formula

**Formula for Fluid Resuscitation of the Burn Patient (Also known as the Parkland Formula)**

\[ \text{Pts Wt} \times \% \text{TBSA} \times 4.0 \text{cc LR infused over 24 hours with half given in the first 8 hours.} \]

(For the equation, the abbreviations are: PW x TBSA x 4.0 cc)

EMS focuses on the care given during the 1st hour or several hours following the event. Thus the formula as adapted for EMS and the first 8 hours is:

\[ \text{PW} \times \text{TBSA} \times 4.0 \text{ cc, divide by 2} \]

to take this to the hourly rate, divide that solution by 8 and the equation becomes:

\[ \text{PW} \times \text{TBSA} \times 4.0 \text{cc / 2 / 8} = \text{total to be infused for each of the first 8 hours.} \]

Another way to state the equation is to use:

\[ \text{PW} \times \text{TBSA} \times 0.25 \text{cc} = \text{total to be infused for each hour of the first 8 hours.} \]

**Example, 80 kg patient with 50 % TBSA x 0.25 cc = 1000 cc/hr.**

Remember:

- Patient's Weight in kg (2.2 lbs = 1.0 kg) example: 220 lbs adult = 100 kg
- % TBSA = Rule of Nine Total Body Surface Area
- Factor for the 1st hr. and each hr. for the 1st 8 hrs. = 0.25

(Reminder, if two IV's are running, divide total amount to be infused each hr. by 2)

#### Burns Resources

<table>
<thead>
<tr>
<th>Wt (kg)</th>
<th>% TBSA</th>
<th>Factor</th>
<th>/Hr for 1st 8 Hrs of Care</th>
<th>60 gtt set, gtt/ min</th>
<th>20 gtt set, gtt/ min</th>
<th>15 gtt set, gtt/ min</th>
<th>10 gtt set, gtt/ min</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>10</td>
<td>0.25</td>
<td>25</td>
<td>25</td>
<td>8.3</td>
<td>6.3</td>
<td>4.2</td>
</tr>
<tr>
<td>10</td>
<td>20</td>
<td>0.25</td>
<td>50</td>
<td>50</td>
<td>16.7</td>
<td>12.5</td>
<td>8.3</td>
</tr>
<tr>
<td>10</td>
<td>30</td>
<td>0.25</td>
<td>75</td>
<td>75</td>
<td>25.0</td>
<td>18.8</td>
<td>12.5</td>
</tr>
<tr>
<td>10</td>
<td>40</td>
<td>0.25</td>
<td>100</td>
<td>100</td>
<td>33.3</td>
<td>25.0</td>
<td>16.7</td>
</tr>
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<td>10</td>
<td>50</td>
<td>0.25</td>
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<td>125</td>
<td>41.7</td>
<td>31.3</td>
<td>20.8</td>
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<tr>
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<td>60</td>
<td>0.25</td>
<td>150</td>
<td>150</td>
<td>50.0</td>
<td>37.5</td>
<td>25.0</td>
</tr>
<tr>
<td>20</td>
<td>20</td>
<td>0.25</td>
<td>200</td>
<td>200</td>
<td>66.7</td>
<td>50.0</td>
<td>33.3</td>
</tr>
<tr>
<td>20</td>
<td>30</td>
<td>0.25</td>
<td>250</td>
<td>250</td>
<td>83.3</td>
<td>62.5</td>
<td>41.7</td>
</tr>
<tr>
<td>20</td>
<td>40</td>
<td>0.25</td>
<td>300</td>
<td>300</td>
<td>100.0</td>
<td>75.0</td>
<td>50.0</td>
</tr>
<tr>
<td>20</td>
<td>50</td>
<td>0.25</td>
<td>375</td>
<td>375</td>
<td>125.0</td>
<td>93.8</td>
<td>62.5</td>
</tr>
<tr>
<td>20</td>
<td>60</td>
<td>0.25</td>
<td>450</td>
<td>450</td>
<td>150.0</td>
<td>112.5</td>
<td>83.3</td>
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<td>0.25</td>
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<td>133.3</td>
<td>100.0</td>
<td>75.0</td>
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<tr>
<td>30</td>
<td>30</td>
<td>0.25</td>
<td>500</td>
<td>500</td>
<td>166.7</td>
<td>125.0</td>
<td>93.8</td>
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<tr>
<td>30</td>
<td>40</td>
<td>0.25</td>
<td>625</td>
<td>625</td>
<td>208.3</td>
<td>156.3</td>
<td>104.2</td>
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<td>30</td>
<td>50</td>
<td>0.25</td>
<td>750</td>
<td>750</td>
<td>250.0</td>
<td>187.5</td>
<td>125.0</td>
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<td>30</td>
<td>60</td>
<td>0.25</td>
<td>900</td>
<td>900</td>
<td>300.0</td>
<td>225.0</td>
<td>150.0</td>
</tr>
</tbody>
</table>

### Burns Resources

- **Critical (Red):** >15% TBSA 2nd/3rd Degree Burn
  - Burns with Multiple Trauma
  - Burns with definitive airway compromise
  - When reasonable accessible, transport to a Burn Center

- **Minor (Green):** < 5% TBSA 2nd/3rd Degree Burn
  - No inhalation injury. Not Intubated, Normotensive
  - (When reasonable accessible, transport to either a Level I Burn Center or a Trauma Center)

- **Serious (Yellow):** 5-15% TBSA 2nd/3rd Degree Burn
  - Suspected Inhalation injury or requiring intubation for airway stabilization
  - Hypotension
  - GCS < 14
  - (When reasonable accessible, transport to a Burn Center or a Trauma Center)

### Burns Resources

**Fluid Formula**

**Formula for Fluid Resuscitation of the Burn Patient (Also known as the Parkland Formula)**

\[ \text{Pts Wt} \times \% \text{TBSA} \times 4.0 \text{cc LR infused over 24 hours with half given in the first 8 hours.} \]

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**Example, 80 kg patient with 50 % TBSA x 0.25 cc = 1000 cc/hr.**

Remember:

- Patient's Weight in kg (2.2 lbs = 1.0 kg) example: 220 lbs adult = 100 kg
- % TBSA = Rule of Nine Total Body Surface Area
- Factor for the 1st hr. and each hr. for the 1st 8 hrs. = 0.25

(Reminder, if two IV's are running, divide total amount to be infused each hr. by 2)
## Amiodarone

### Pediatric Pulseless Arrest

<table>
<thead>
<tr>
<th>Weight (kg)</th>
<th>Dose (5mg/kg)</th>
<th>Volume (cc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>25</td>
<td>0.5</td>
</tr>
<tr>
<td>10</td>
<td>50</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>75</td>
<td>1.5</td>
</tr>
<tr>
<td>20</td>
<td>100</td>
<td>2</td>
</tr>
<tr>
<td>25</td>
<td>125</td>
<td>2.5</td>
</tr>
<tr>
<td>30</td>
<td>150</td>
<td>3</td>
</tr>
<tr>
<td>35</td>
<td>175</td>
<td>3.5</td>
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<tr>
<td>40</td>
<td>200</td>
<td>4</td>
</tr>
<tr>
<td>45</td>
<td>225</td>
<td>4.5</td>
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<tr>
<td>50</td>
<td>250</td>
<td>5</td>
</tr>
<tr>
<td>55</td>
<td>275</td>
<td>5.5</td>
</tr>
<tr>
<td>60 +</td>
<td>300</td>
<td>6</td>
</tr>
</tbody>
</table>

*Amiodarone 50mg/mL ONLY*
# Cardizem (Diltiazem)

## First Dose

<table>
<thead>
<tr>
<th>Weight (kg)</th>
<th>Dose (.25mg/kg)</th>
<th>Volume (cc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>25</td>
<td>6.25</td>
<td>1.25</td>
</tr>
<tr>
<td>30</td>
<td>7.5</td>
<td>1.5</td>
</tr>
<tr>
<td>35</td>
<td>8.75</td>
<td>1.75</td>
</tr>
<tr>
<td>40</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>45</td>
<td>11.25</td>
<td>2.25</td>
</tr>
<tr>
<td>50</td>
<td>12.5</td>
<td>2.5</td>
</tr>
<tr>
<td>55</td>
<td>13.75</td>
<td>2.75</td>
</tr>
<tr>
<td>60</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td>65</td>
<td>16.25</td>
<td>3.25</td>
</tr>
<tr>
<td>70</td>
<td>17.5</td>
<td>3.5</td>
</tr>
<tr>
<td>75</td>
<td>18.75</td>
<td>3.75</td>
</tr>
<tr>
<td>80+</td>
<td>20</td>
<td>4</td>
</tr>
</tbody>
</table>

Cardizem (25mg/5 ml ONLY)
First Dose: 0.25 mg/kg. Give over 2 mins. Max 20 mg per dose

## Second Dose

<table>
<thead>
<tr>
<th>Weight (kg)</th>
<th>Dose (.35mg/kg)</th>
<th>Volume (cc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>7</td>
<td>1.4</td>
</tr>
<tr>
<td>25</td>
<td>8.75</td>
<td>1.75</td>
</tr>
<tr>
<td>30</td>
<td>10.5</td>
<td>2.1</td>
</tr>
<tr>
<td>35</td>
<td>12.25</td>
<td>2.45</td>
</tr>
<tr>
<td>40</td>
<td>14</td>
<td>2.8</td>
</tr>
<tr>
<td>45</td>
<td>15.75</td>
<td>3.15</td>
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<tr>
<td>50</td>
<td>17.5</td>
<td>3.5</td>
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<tr>
<td>55</td>
<td>19.25</td>
<td>3.85</td>
</tr>
<tr>
<td>60+</td>
<td>20</td>
<td>4</td>
</tr>
</tbody>
</table>

Cardizem (25mg/5 ml ONLY)
Second Dose: 0.35 mg/kg. Max 20 mg per dose
Give over 2 mins. MAX 20 mg.

Maximum Dose is 20 mg/dose, even at 0.35 mg/kg. For 60+ kg pt weight, use 20 mg.
## Wake County EMS System

**Standardized Medication Delivery**

### Dopamine (Intropin)

Values below are drips/min on a 60 drip/mL (Micro Drip) set

<table>
<thead>
<tr>
<th>Weight (kg)</th>
<th>5 mcg/kg/min</th>
<th>10 mcg/kg/min</th>
<th>15 mcg/kg/min</th>
<th>20 mcg/kg/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>7</td>
<td>13</td>
<td>19</td>
<td>25</td>
</tr>
<tr>
<td>40</td>
<td>8</td>
<td>15</td>
<td>22</td>
<td>29</td>
</tr>
<tr>
<td>45</td>
<td>8</td>
<td>17</td>
<td>26</td>
<td>35</td>
</tr>
<tr>
<td>50</td>
<td>9</td>
<td>19</td>
<td>29</td>
<td>39</td>
</tr>
<tr>
<td>55</td>
<td>10</td>
<td>21</td>
<td>32</td>
<td>43</td>
</tr>
<tr>
<td>60</td>
<td>11</td>
<td>23</td>
<td>35</td>
<td>47</td>
</tr>
<tr>
<td>65</td>
<td>12</td>
<td>24</td>
<td>36</td>
<td>48</td>
</tr>
<tr>
<td>70</td>
<td>13</td>
<td>26</td>
<td>39</td>
<td>52</td>
</tr>
<tr>
<td>75</td>
<td>14</td>
<td>28</td>
<td>42</td>
<td>56</td>
</tr>
<tr>
<td>80</td>
<td>15</td>
<td>30</td>
<td>45</td>
<td>60</td>
</tr>
<tr>
<td>85</td>
<td>16</td>
<td>32</td>
<td>48</td>
<td>64</td>
</tr>
<tr>
<td>90</td>
<td>17</td>
<td>34</td>
<td>51</td>
<td>68</td>
</tr>
<tr>
<td>95</td>
<td>18</td>
<td>36</td>
<td>54</td>
<td>72</td>
</tr>
<tr>
<td>100</td>
<td>19</td>
<td>38</td>
<td>57</td>
<td>76</td>
</tr>
<tr>
<td>105</td>
<td>20</td>
<td>39</td>
<td>58</td>
<td>77</td>
</tr>
<tr>
<td>110</td>
<td>21</td>
<td>41</td>
<td>61</td>
<td>81</td>
</tr>
</tbody>
</table>

**Approx. Timing on a 60 drip/mL (Micro Drip) set from calculations above**

<table>
<thead>
<tr>
<th>Weight (kg)</th>
<th>5 mcg/kg/min</th>
<th>10 mcg/kg/min</th>
<th>15 mcg/kg/min</th>
<th>20 mcg/kg/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>1 drip/10 secs</td>
<td>1 drip/5 secs</td>
<td>1 drip/3 secs</td>
<td>2 drips/5 secs</td>
</tr>
<tr>
<td>35</td>
<td>1 drip/10 secs</td>
<td>1 drip/5 secs</td>
<td>1 drip/3 secs</td>
<td>2 drips/5 secs</td>
</tr>
<tr>
<td>40</td>
<td>1 drip/8 secs</td>
<td>1 drip/4 secs</td>
<td>2 drips/3 secs</td>
<td>1 drip/2 secs</td>
</tr>
<tr>
<td>45</td>
<td>1 drip/8 secs</td>
<td>1 drip/4 secs</td>
<td>2 drips/3 secs</td>
<td>1 drip/2 secs</td>
</tr>
<tr>
<td>50</td>
<td>1 drip/6 secs</td>
<td>1 drip/3 secs</td>
<td>1 drip/2 secs</td>
<td>2 drips/3 secs</td>
</tr>
<tr>
<td>55</td>
<td>1 drip/6 secs</td>
<td>1 drip/3 secs</td>
<td>1 drip/2 secs</td>
<td>2 drips/3 secs</td>
</tr>
<tr>
<td>60</td>
<td>1 drip/6 secs</td>
<td>1 drip/3 secs</td>
<td>1 drip/2 secs</td>
<td>4 drips/5 secs</td>
</tr>
<tr>
<td>65</td>
<td>1 drip/5 secs</td>
<td>2 drips/5 secs</td>
<td>3 drips/5 secs</td>
<td>4 drips/5 secs</td>
</tr>
<tr>
<td>70</td>
<td>1 drip/5 secs</td>
<td>2 drips/5 secs</td>
<td>3 drips/3 secs</td>
<td>4 drips/5 secs</td>
</tr>
<tr>
<td>75</td>
<td>1 drip/4 secs</td>
<td>1 drip/2 secs</td>
<td>2 drips/3 secs</td>
<td>1 drip/sec</td>
</tr>
<tr>
<td>80</td>
<td>1 drip/4 secs</td>
<td>1 drip/2 secs</td>
<td>3 drips/4 secs</td>
<td>1 drip/sec</td>
</tr>
<tr>
<td>85</td>
<td>1 drip/4 secs</td>
<td>1 drip/2 secs</td>
<td>4 drips/5 secs</td>
<td>1 drip/sec</td>
</tr>
<tr>
<td>90</td>
<td>1 drip/4 secs</td>
<td>1 drip/2 secs</td>
<td>4 drips/5 secs</td>
<td>1 drip/sec</td>
</tr>
<tr>
<td>95</td>
<td>3 drips/10 secs</td>
<td>3 drips/5 secs</td>
<td>1 drip/sec</td>
<td>6 drips/5 secs</td>
</tr>
<tr>
<td>100</td>
<td>1 drip/3 secs</td>
<td>2 drips/3 secs</td>
<td>1 drip/sec</td>
<td>6 drips/5 secs</td>
</tr>
<tr>
<td>105</td>
<td>1 drip/3 secs</td>
<td>2 drips/3 secs</td>
<td>1 drip/sec</td>
<td>4 drips/3 secs</td>
</tr>
<tr>
<td>110</td>
<td>1 drip/3 secs</td>
<td>2 drips/3 secs</td>
<td>1 drip/sec</td>
<td>4 drips/3 secs</td>
</tr>
</tbody>
</table>
Epinephrine Infusion

<table>
<thead>
<tr>
<th>Epinephrine Infusion (10 gtt/mL set); Inject 12 mL of Epi:1:1000 in 250 mL NS</th>
<th>Dose</th>
<th>drips/min (Macro Drip)</th>
<th>Approximate Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mg/3 min</td>
<td>72</td>
<td>6</td>
<td>6 drips/5 secs</td>
</tr>
<tr>
<td>1 mg/5 min</td>
<td>44</td>
<td>2</td>
<td>2 drips/3 secs</td>
</tr>
</tbody>
</table>
# Wake County EMS System

## Standardized Medication Delivery

### Induction of Paralysis

#### ADULT DOSING for Etomidate

**All Patients Requiring Drug-induced Paralysis**

<table>
<thead>
<tr>
<th>Weight (mg)</th>
<th>Near Volume (cc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>10</td>
</tr>
</tbody>
</table>

#### PEDIATRIC DOSING for Etomidate

**For Etomidate 2 mg/mL only**

<table>
<thead>
<tr>
<th>Weight (kg)</th>
<th>Dose (mg)</th>
<th>Near Volume (cc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>1.5</td>
<td>0.75</td>
</tr>
<tr>
<td>10</td>
<td>3.0</td>
<td>1.5</td>
</tr>
<tr>
<td>15</td>
<td>4.5</td>
<td>2.0</td>
</tr>
<tr>
<td>20</td>
<td>6.0</td>
<td>3.0</td>
</tr>
<tr>
<td>25</td>
<td>7.5</td>
<td>3.5</td>
</tr>
<tr>
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<tr>
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<td>15</td>
<td>7.5</td>
</tr>
<tr>
<td>55</td>
<td>16.5</td>
<td>8.0</td>
</tr>
<tr>
<td>60</td>
<td>18</td>
<td>8.5</td>
</tr>
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**For Etomidate 0.3 mg/kg to max 20 mg**

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<th>Weight (kg)</th>
<th>Dose (mg)</th>
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#### Vecuronium

**For Vecuronium 1 mg/ml only.**

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# Versed (Midazolam)

## Pediatric Seizure

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<th>Weight (kg)</th>
<th>Dose (mg)</th>
<th>Volume (cc)</th>
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</table>

For IV or IN route: if patient weight is 21 kg or greater, then 5 mg (4 cc) is maximum dose.

For Versed 1mg/ml only:

0.05 to 0.1 mg/kg IV or 0.2 mg/kg IM or IN to max 5 mg.
# Drug List

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<table>
<thead>
<tr>
<th>Drug</th>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acetaminophen (Tylenol)</strong></td>
<td>• 1000 mg po</td>
<td>• See Color Coded List</td>
</tr>
<tr>
<td>NCCEP Protocol:</td>
<td>• 8-Fever</td>
<td>• 15 mg/kg po</td>
</tr>
<tr>
<td>• 10-Pain Control-Adult</td>
<td>• 11-Pain Control-Pediatric</td>
<td></td>
</tr>
<tr>
<td>• 47-Pediatric Seizure</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Indications/Contraindications:</strong></td>
<td>Indicated for pain and fever control</td>
<td>Avoid in patients with severe liver disease</td>
</tr>
<tr>
<td><strong>Adenosine (Adenocard)</strong></td>
<td>• 12 mg IV push over 1-3 seconds. If no effect after 1-2 minutes,</td>
<td>• 0.1 mg/kg IV (Max 6 mg) push over 1-3 seconds. If no effect after 1-2 minutes,</td>
</tr>
<tr>
<td>NCCEP Protocol:</td>
<td>• Repeat with 12 mg IV push over 1-3 seconds.</td>
<td>• Repeat with 0.2 mg/kg IV (Max 12 mg) push over 1-3 seconds.</td>
</tr>
<tr>
<td>• 32-Supraventricular Tachycardia</td>
<td>• Repeat once if necessary</td>
<td>• Repeat with 0.3 mg/kg IV (Max 12mg) push over 1-3 seconds.</td>
</tr>
<tr>
<td>• 48-Pediatric Supraventricular Tachycardia</td>
<td>(use stopcock and 10 ml Normal Saline flush with each dose)</td>
<td>(use stopcock and 5 ml Normal Saline flush with each dose)</td>
</tr>
<tr>
<td><strong>Indications/Contraindications:</strong></td>
<td>Specifically for treatment or diagnosis of Supraventricular Tachycardia</td>
<td></td>
</tr>
<tr>
<td><strong>Albuterol Beta-Agonist</strong></td>
<td>• 2.5-5.0 mg (3cc) in nebulizer continuously x 3 doses, if no history of cardiac disease and Heart Rate $\leq 150$.</td>
<td>• See Color Coded List</td>
</tr>
<tr>
<td>NCCEP Protocol:</td>
<td>• See Color Coded List</td>
<td></td>
</tr>
<tr>
<td>• 30-Respiratory Distress</td>
<td>• 2.5mg (3cc) in nebulizer continuously x 3 doses, if no history of cardiac disease and Heart Rate $&lt; 200$.</td>
<td></td>
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<tr>
<td>• 46-Pediatric Respiratory Distress</td>
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<tr>
<td>• 52-Drowning</td>
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<tr>
<td><strong>Indications/Contraindications:</strong></td>
<td>Beta-Agonist nebulized treatment for use in respiratory distress with bronchospasm</td>
<td></td>
</tr>
</tbody>
</table>
### Drug List

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<table>
<thead>
<tr>
<th>Drug</th>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Amiodarone</strong></td>
<td>V-fib / pulseless V-tach</td>
<td>V-fib / pulseless V-tach</td>
</tr>
<tr>
<td><strong>(Cordarone)</strong></td>
<td>• 300 mg IV push</td>
<td>• 5 mg/kg IV push over 5 minutes for SVT</td>
</tr>
<tr>
<td><strong>NCCEP Protocol:</strong></td>
<td>• Repeat dose of 150 mg IV push for recurrent episodes</td>
<td>• Use Wake County EMS Standardized Medication Delivery Chart</td>
</tr>
<tr>
<td></td>
<td>V-tach with a pulse</td>
<td>V-tach with a pulse</td>
</tr>
<tr>
<td></td>
<td>• 150 mg in 100cc D5W over 10 min</td>
<td>• 5 mg/kg IV push over 5 minutes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Avoid in Length Tape Color Pink</td>
</tr>
<tr>
<td><strong>Aspirin</strong></td>
<td>81 mg chewable (baby) Aspirin</td>
<td>Ø</td>
</tr>
<tr>
<td><strong>NCCEP Protocol:</strong></td>
<td>Give 4 tablets to equal usual adult dose.</td>
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<tr>
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<tr>
<td><strong>Atropine</strong></td>
<td>Asystole</td>
<td>See Color Coded List</td>
</tr>
<tr>
<td><strong>NCCEP Protocol:</strong></td>
<td>• 1 mg IV. Repeat in 3 - 5 minutes up to 3 mg.</td>
<td>Asystole</td>
</tr>
<tr>
<td></td>
<td>Bradycardia</td>
<td>• 0.02 mg/kg IV, IO (Max 1.0 mg per dose)</td>
</tr>
<tr>
<td></td>
<td>• 0.5 - 1.0 mg IV every 3 – 5 minutes up to 3 mg.</td>
<td>(Min 0.1 mg) per dose</td>
</tr>
<tr>
<td></td>
<td>(If endotracheal -- max 6 mg) Organophosphate</td>
<td>May repeat in 3 - 5 minutes</td>
</tr>
<tr>
<td></td>
<td>1-2 mg IM or IV otherwise as per</td>
<td>Bradycardia</td>
</tr>
<tr>
<td></td>
<td>medical control</td>
<td>As Asystole</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Organophosphate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 0.02 mg/kg IV or IO otherwise as per</td>
</tr>
<tr>
<td></td>
<td></td>
<td>medical control</td>
</tr>
</tbody>
</table>

Indications/Contraindications:
- Antiarrhythmic used in ventricular Fibrillation.
- Avoid in patients with heart block or profound bradycardia.
- An antiplatelet drug for use in cardiac chest pain
- Anticholinergic drug used in bradycardias or asystole.
- (For Endotracheal Tube use of this drug, double the dose)
- In Organophosphate toxicity, large doses may be required (>10 mg)
## Drug List

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<table>
<thead>
<tr>
<th>Drug</th>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atropine and Pralidoxime Auto-Injector Nerve Agent Kit</td>
<td>One auto-injector then per medical control</td>
<td>See Color Coded List&lt;br&gt;One pediatric auto-injector then as per medical control</td>
</tr>
<tr>
<td><strong>NCCEP Protocol:</strong></td>
<td></td>
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<tr>
<td>✴ 26 Overdose/Toxic Ingestion</td>
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<tr>
<td>✴ 58-WMD Nerve Agent</td>
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<tr>
<td><strong>Indications/Contraindications:</strong></td>
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<td></td>
</tr>
<tr>
<td>• Antidote for Nerve Agents or Organophosphate Overdose</td>
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<tr>
<td>Calcium Chloride</td>
<td>One amp (10 ml) or 1 gm IV&lt;br&gt;Avoid use if pt is taking digoxin</td>
<td>See Color Coded List&lt;br&gt;20 mg/kg IV or IO slowly</td>
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<tr>
<td><strong>NCCEP Protocol:</strong></td>
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<td>✴ 19-Bradycardia</td>
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<td>✴ 29-Pulseless Electrical Activity</td>
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<td>✴ 41-Pediatric Bradycardia</td>
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<td><strong>Indications/Contraindications:</strong></td>
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<tr>
<td>• Indicated for severe hyperkalemia</td>
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<tr>
<td>Charcoal</td>
<td>50 gms po ONLY, if alert&lt;br&gt;NOT to be given by NG</td>
<td>See Color Coded List&lt;br&gt;1 gm/kg PO (Max 25 gms) ONLY, if alert&lt;br&gt;Not to be given by NG</td>
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<td><strong>NCCEP Protocol:</strong></td>
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<td><strong>Indications/Contraindications:</strong></td>
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<tr>
<td>• Binds, or absorbs, various chemical agents and drugs from the GI tract</td>
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<tr>
<td>• Combined with Sorbitol to promote GI motility</td>
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</table>
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<table>
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<td><strong>Dextrose 25% Glucose solutions</strong></td>
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<td>(Use in place of Dextrose 10%)</td>
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<td>✴ 17-Altered Mental Status</td>
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<td>✴ 37-Vomiting and Diarrhea</td>
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<td></td>
</tr>
<tr>
<td>✴ 39-Newly Born</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✴ 40-Obstetrical Emergencies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✴ 41-Pediatric Bradycardia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✴ 42-Pediatric Head Trauma</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✴ 43-Pediatric Hypotension</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✴ 45-Pediatric Pulseless Arrest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✴ 47-Pediatric Seizure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✴ 56-Hypothermia</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Indications/Contraindications:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Use in unconscious or hypoglycemic states</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **Dextrose 50% Glucose Solutions** | Ø     |           |
| NCCEP Protocol:                   |       |           |
| ✴ 7-Behavioral                   |       |           |
| ✴ 13-Universal Patient Protocol  |       |           |
| ✴ 17-Altered Mental Status       |       |           |
| ✴ 29-Pulseless Electrical Activity |   |           |
| ✴ 31-Seizure                     |       |           |
| ✴ 33-Suspected Stroke            |       |           |
| ✴ 34-Syncope                     |       |           |
| ✴ 37-Vomiting and Diarrhea       |       |           |
| ✴ 40-Obstetrical Emergencies     |       |           |
| ✴ 54-Adult Head Trauma           |       |           |
| ✴ 56-Hypothermia                 |       |           |
| **Indications/Contraindications:** |       |           |
| • Use in unconscious or hypoglycemic states |       |           |

- One amp or 25 gm IV bolus
- Repeat based on blood glucose results

- See Color Coded List
- 2-10 ml/kg IV or IO starting at low dose
- Repeat based on blood glucose results
**Drug List**

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<table>
<thead>
<tr>
<th>Drug</th>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
</table>
| **Diltiazem** (Cardizem) Calcium Channel Blocker | • Use Wake County EMS System Standardized Medication Delivery tables for infusion  
• 0.25 mg/kg IV over 2 minutes to a maximum of 20 mg for initial dose  
• May repeat x 1 at 0.35 mg/Kg IV over 2 minutes to maximum of 20 mg in the second dose | Ø         |
| **Diphenhydramine** (Benadryl)    | • 50 mg IV/IM/PO                                                       | • See Color Coded List  
• 1 mg/kg IV/IO/IM  
• Do not give in infants < 3 mo  
• (Max dose 25 mg) |           |
| **Dopamine**                      | • 2 - 20 micrograms/kg/min IV/IO titrated to BP systolic of 90 mmHg  
• 2-20 micrograms/kg/minute IV/IO titrated to maintain mean arterial pressure of 90 – 100 mmHg post-cardiac arrest | • See Color Coded List  
• 2 - 20 micrograms/kg/min IV or IO, titrated to BP systolic appropriate for age | Ø         |
| **Enalapril, Enalaprilat** (Vasotec) | • 1.25 mg IV – avoid when systolic blood pressure <110 mmHg           | Ø         |
| **NCCEP Protocol:**              | • 32-Supraventricular Tachycardia  
• 32.5-Atrial Fibrillation  
**Indications/Contraindications:** |  
• Calcium channel blocker used to treat narrow complex SVT |  
• 16-Allergic Reaction
**Indications/Contraindications:** |  
• Antihistamine for control of allergic reactions |  
• 19-Bradycardia  
• 25-Hypotension  
• 27-Post Resuscitation  
• 29-Pulseless Electrical Activity  
• 43-Pediatric Hypotension  
**Indications/Contraindications:** |  
• A vasopressor used in shock or hypotensive states |  
• 28-Pulmonary Edema  
**Indications/Contraindications:** |  
• ACE-Inhibitor used to improve hemodynamics in patients with pulmonary edema |  
| **NCCEP Protocol:**              | • 32-Supraventricular Tachycardia  
• 32.5-Atrial Fibrillation  
**Indications/Contraindications:** |  
• Calcium channel blocker used to treat narrow complex SVT |  
• 16-Allergic Reaction
**Indications/Contraindications:** |  
• Antihistamine for control of allergic reactions |  
• 19-Bradycardia  
• 25-Hypotension  
• 27-Post Resuscitation  
• 29-Pulseless Electrical Activity  
• 43-Pediatric Hypotension  
**Indications/Contraindications:** |  
• A vasopressor used in shock or hypotensive states |  
• 28-Pulmonary Edema  
**Indications/Contraindications:** |  
• ACE-Inhibitor used to improve hemodynamics in patients with pulmonary edema |  
| **NCCEP Protocol:**              | • 32-Supraventricular Tachycardia  
• 32.5-Atrial Fibrillation  
**Indications/Contraindications:** |  
• Calcium channel blocker used to treat narrow complex SVT |  
• 16-Allergic Reaction
**Indications/Contraindications:** |  
• Antihistamine for control of allergic reactions |  
• 19-Bradycardia  
• 25-Hypotension  
• 27-Post Resuscitation  
• 29-Pulseless Electrical Activity  
• 43-Pediatric Hypotension  
**Indications/Contraindications:** |  
• A vasopressor used in shock or hypotensive states |  
• 28-Pulmonary Edema  
**Indications/Contraindications:** |  
• ACE-Inhibitor used to improve hemodynamics in patients with pulmonary edema |  

This formulary is provided as a reference only. It does not contain all of the contraindications and potential adverse reactions for each listed drug. It is the responsibility of each EMS System, Agency, and Medical Director to assure that each EMS professional is knowledgeable about the use each drug in this formulary. This drug list has been altered from the original 2009 NCCEP Drug List by the Wake County EMS System Medical Director.
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<thead>
<tr>
<th>Drug</th>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Epinephrine 1:1,000</strong></td>
<td>- 0.3 mg IM (if age &lt; 50 yrs)</td>
<td>- See Color Coded List</td>
</tr>
<tr>
<td>NCCEP Protocol:</td>
<td>- 0.15 mg IM (if age &gt; 50 yrs)</td>
<td>- 0.01 mg/kg IM</td>
</tr>
<tr>
<td>16-Allergic Reaction</td>
<td></td>
<td>(Max dose 0.3 mg)</td>
</tr>
<tr>
<td>30-Respiratory Distress</td>
<td></td>
<td></td>
</tr>
<tr>
<td>46-Pediatric Respiratory Distress</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nebulized Epinephrine</td>
<td>- 2 mg (2 ml) mixed with 1 ml of Normal Saline</td>
<td></td>
</tr>
<tr>
<td>Indications/Contraindications:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Vasopressor used in allergic reactions or anaphylaxis</td>
<td></td>
</tr>
<tr>
<td><strong>Epinephrine 1:10,000</strong></td>
<td>- 1.0 mg IV/IO (Pulseless)</td>
<td>- See Color Coded List</td>
</tr>
<tr>
<td>NCCEP Protocol:</td>
<td>- 1.0 mg/3 minutes infusion USE Wake County EMS System</td>
<td>- 0.01 mg/kg IV or IO</td>
</tr>
<tr>
<td>16-Allergic Reaction</td>
<td>Dtsandardized Medication Delivery Tables to infuse</td>
<td>(Max dose 0.5 mg)</td>
</tr>
<tr>
<td>18-Asystole</td>
<td>- Repeat every 3 - 5 minutes until response observed</td>
<td>Repeat every 3 - 5 minutes until observe response</td>
</tr>
<tr>
<td>29-Pulseless Electrical Activity</td>
<td>(May be given by Endotracheal tube in double the IV dose)</td>
<td>(May be given by Endotracheal tube in double the IV dose)</td>
</tr>
<tr>
<td>30-Respiratory Distress</td>
<td>- Repeat every 3 - 5 minutes until response observed</td>
<td></td>
</tr>
<tr>
<td>35-Ventricular Fibrillation</td>
<td>- (May be given by Endotracheal tube in double the IV dose)</td>
<td></td>
</tr>
<tr>
<td>41-Pediatric Bradycardia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>45-Pediatric Pulseless Arrest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>46-Pediatric Respiratory Distress</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indications/Contraindications:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Vasopressor used in cardiac arrest.</td>
<td></td>
</tr>
<tr>
<td><strong>Cardiac Arrest</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Allergic Reaction and Resp Distress</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Etomidate (Amidate)</strong></td>
<td>- Usual adult dose = 20 mg IV/IO</td>
<td>- Use Wake County EMS System</td>
</tr>
<tr>
<td>WCEMSS Protocol:</td>
<td></td>
<td>Standardized Medication Delivery tables to administer:</td>
</tr>
<tr>
<td>27.5-Induced Hypothermia</td>
<td></td>
<td>0.3 mg/kg IV/IO up to max dose of 20 mg</td>
</tr>
<tr>
<td>Indications/Contraindications:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Hypnotic used in shivering patient being resuscitated from cardiac arrest</td>
<td></td>
</tr>
<tr>
<td><strong>Famotidine (Pepcid)</strong></td>
<td>- 20 mg IV</td>
<td>Ø</td>
</tr>
<tr>
<td>Histamine-2 Blocker</td>
<td>- 20-40 mg PO</td>
<td></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Drug</th>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fentanyl</strong> (Sublimaze) Narcotic Analgesic</td>
<td>- 50-75 mcg IM/IV/IO bolus then 25 mcg IM/IV/IO every 20-30 minutes until a maximum of 200 mcg or clinical improvement</td>
<td>- See Color Coded List</td>
</tr>
<tr>
<td>NCCEP Protocol:</td>
<td>- 10-Pain Control Adult</td>
<td>- 1 mcg/kg IM/IV/IO single bolus only (Max 50 mcg)</td>
</tr>
<tr>
<td></td>
<td>- 11-Pain Control Pediatric</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 21-Chest Pain and STEMI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 28-Pulmonary Edema</td>
<td></td>
</tr>
<tr>
<td><strong>Indications/Contraindications:</strong></td>
<td>• Narcotic pain relief</td>
<td>• Use in patients with no IV access</td>
</tr>
<tr>
<td></td>
<td>• Antianxiety</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Possible beneficial effect in pulmonary edema</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Avoid use if BP &lt; 110</td>
<td></td>
</tr>
</tbody>
</table>

| **Glucagon**                | - 1 - 2 mg IM                                                        | - See Color Coded List                                                         |
| NCCEP Protocol:            | - Follow up blood glucose determination in 15 minutes, if < 60 repeat dose. | - 0.1 mg/kg IM                                                                 |
|                            | - 7-Behavioral                                                      | - Follow up blood glucose determination in 15 minutes, if < 60 repeat.        |
|                            | - 13-Universal Patient Protocol                                     | - Age > 3 years                                                                |
|                            | - 17-Altered Mental Status                                          |                                                                                |
|                            | - 19-Bradycardia                                                    |                                                                                |
|                            | - 29-Pulseless Electrical Activity                                  |                                                                                |
|                            | - 31-Seizure                                                        |                                                                                |
|                            | - 33-Suspected Stroke                                               |                                                                                |
|                            | - 34-Syncope                                                        |                                                                                |
|                            | - 37-Vomiting and Diarrhea                                          |                                                                                |
|                            | - 40-Obstetrical Emergencies                                        |                                                                                |
|                            | - 41-Pediatric Bradycardia                                          |                                                                                |
|                            | - 42-Pediatric Head Trauma                                          |                                                                                |
|                            | - 43-Pediatric Hypotension                                          |                                                                                |
|                            | - 47-Pediatric Seizure                                              |                                                                                |
|                            | - 54-Adult Head Trauma                                              |                                                                                |
|                            | - 56-Hypothermia                                                    |                                                                                |
| **Indications/Contraindications:** | • Drug acting to release glucose into blood stream by glycogen breakdown |                                                                                |
|                            | • Use in patients with no IV access                                 |                                                                                |
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### Drug List

<table>
<thead>
<tr>
<th>Drug</th>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Glucose Oral</strong></td>
<td>• One tube or packet</td>
<td>• See Color Coded List</td>
</tr>
<tr>
<td><strong>Glucose Solutions</strong></td>
<td>• Repeat based on blood glucose results</td>
<td>• One Tube or packet</td>
</tr>
<tr>
<td>NCCEP Protocol:</td>
<td></td>
<td>• Repeat based on blood glucose result</td>
</tr>
<tr>
<td>✦ 7-Behavioral</td>
<td></td>
<td>• Minimal Age = 3 years</td>
</tr>
<tr>
<td>✦ 13-Universal Patient Protocol</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✦ 17-Altered Mental Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Indications/Contraindications:</strong></td>
<td>• Use in conscious hypoglycemic states</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Haloperidol</strong></td>
<td>• 5-10 mg IV/IM only.</td>
<td>Ø</td>
</tr>
<tr>
<td>(Haldol) Phenothiazine Preperation</td>
<td>• May repeat to a total of 20 mg</td>
<td></td>
</tr>
<tr>
<td>NCCEP Protocol:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✦ 7-Behavioral</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Indications/Contraindications:</strong></td>
<td>• Medication to assist with sedation of agitated patients</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Contraindicated by IM route</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ipratropium</strong></td>
<td>• 2 puffs per dose of MDI (18 mcg/spray) --- OR ---</td>
<td>• Use in Pediatrics as a combined Therapy with a Beta Agonist such as Albuterol</td>
</tr>
<tr>
<td>(Atrovent)</td>
<td>• 500 mcg per nebulizer treatment</td>
<td>• 2 puffs per dose of MDI (18 mcg/spray) --- OR ---</td>
</tr>
<tr>
<td>NCCEP Protocol:</td>
<td></td>
<td>• 500 mcg per nebulizer treatment</td>
</tr>
<tr>
<td>✦ 30-Respiratory Distress</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✦ 46-Pediatric Respiratory Distress</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Indications/Contraindications:</strong></td>
<td>• Medication used in addition to albuterol to assist in patients with asthma and COPD</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
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<tr>
<th>Drug</th>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ketorolac (Toradol)</strong> Non-steroidal Anti-inflamatory Drug</td>
<td>30 mg IV or IM</td>
<td>Ø</td>
</tr>
</tbody>
</table>

**NCCEP Protocol:**
* 10-Pain Control Adult

**Indications/Contraindications:**
- A nonsteroidal anti-inflammatory drug used for pain control.
- Not to be used in patients with history of GI bleeding (ulcers), renal insufficiency, or in patients who may need immediate surgical intervention (i.e. obvious fractures).
- Not to be used in patients with allergies to aspirin or other NSAID drugs such as motrin
- Avoid in patients currently taking anticoagulants such as coumadin

<table>
<thead>
<tr>
<th>Drug</th>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Levalbuterol (Xopenex)</strong> Beta-Agonist</td>
<td>0.63-1.25 mg (3cc) in nebulizer continuously x 3 doses, if no history of cardiac disease and Heart Rate ≤ 150.</td>
<td>See Color Coded List</td>
</tr>
</tbody>
</table>

**NCCEP Protocol:**
* 30-Respiratory Distress
* 46-Pediatric Respiratory Distress
* 52-Drowning

**Indications/Contraindications:**
- Beta-Agonist nebulized treatment for use in respiratory distress with bronchospasm
- 0.31-0.63 mg (3cc) in nebulizer continuously x 3 doses, if no history of cardiac disease and Heart Rate < 200.
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<tr>
<th>Drug</th>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lidocaine</strong></td>
<td>Head Trauma:</td>
<td>Intraosseous Anaesthetic:</td>
</tr>
<tr>
<td>NCCEP Protocol:</td>
<td>• 1.5 mg/kg IV bolus (ETT dose = 2 x IV dose)</td>
<td>• 0.2 mg/kg IO to a maximum of 20 mg through IO device</td>
</tr>
<tr>
<td></td>
<td>• Initial Dose 0.75 mg/kg in patients &gt; 60 years of age.</td>
<td>• No cardiac indication</td>
</tr>
<tr>
<td></td>
<td>• Repeat 1/2 initial dose in 10 minutes.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• No Drip Administration</td>
<td></td>
</tr>
<tr>
<td>Indications/Contraindications:</td>
<td>• Anesthetic used during invasive airway management that may reduce elevated intracranial pressures during procedures</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Injectable anaesthetic used to reduce pain associated with pressure infusion of fluids into marrow space</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Head Trauma:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 1.5 mg/kg IV bolus (ETT dose = 2 x IV dose)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Initial Dose 0.75 mg/kg in patients &gt; 60 years of age.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Repeat 1/2 initial dose in 10 minutes.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• No Drip Administration</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Intraosseous Anaesthetic:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 10-20 mg slow IO push through IO device, do not flush for at least 30 seconds</td>
<td></td>
</tr>
<tr>
<td><strong>Magnesium Sulfate</strong></td>
<td>2 grams in 250 mL NS bag (respiratory distress)</td>
<td>Per Medical Control Order</td>
</tr>
<tr>
<td>NCCEP Protocol:</td>
<td>4 grams in 250 mL NS bag (obstetrical emergencies)</td>
<td>40 mg/kg slow IV over 30 minutes (Max 2 gms)</td>
</tr>
<tr>
<td></td>
<td>dose may be repeated once</td>
<td>dose may be repeated once</td>
</tr>
<tr>
<td>Indications/Contraindications:</td>
<td>• Elemental electrolyte used to treat eclampsia during the third trimester of pregnancy and perinatal period.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• A smooth muscle relaxor used in refractory respiratory distress resistant to beta-agonists</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Per Medical Control Order</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>40 mg/kg slow IV over 30 minutes (Max 2 gms)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>dose may be repeated once</td>
<td></td>
</tr>
<tr>
<td><strong>Methylprednisolone</strong></td>
<td>125 mg IV</td>
<td><strong>See Color Coded List</strong></td>
</tr>
<tr>
<td>(Solu-medrol)</td>
<td></td>
<td>2 mg/kg IV (Max 125 mg)</td>
</tr>
<tr>
<td>Steroid Preparation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NCCEP Protocol:</td>
<td>16-Allergic Reaction</td>
<td></td>
</tr>
<tr>
<td></td>
<td>30-Respiratory Distress</td>
<td></td>
</tr>
<tr>
<td></td>
<td>46-Pediatric Respiratory Distress</td>
<td></td>
</tr>
<tr>
<td>Indications/Contraindications:</td>
<td>• Steroid used in respiratory distress to reverse inflammatory and allergic reactions</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>See Color Coded List</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 mg/kg IV (Max 125 mg)</td>
<td></td>
</tr>
</tbody>
</table>
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<tr>
<th>Drug</th>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metoclopramide (Reglan)  Anti-emetic</td>
<td>• 5-10 mg IM or IV</td>
<td>Ø</td>
</tr>
<tr>
<td></td>
<td>• (If ≥ 60 yrs. old dose 5 mg IV)</td>
<td></td>
</tr>
<tr>
<td><strong>NCCEP Protocol:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>✅ 15-Abdominal Pain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✅ 21-Chest Pain and STEMI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✅ 37-Vomiting and Diarrhea</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Indications/Contraindications:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Anti-Emetic used to control Nausea and/or Vomiting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Ondansetron (Zofrin) is the recommended Anti-emetic for EMS use since it is associated with significantly less side effects and sedation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Reglan may worsen diarrhea and is generally not indicated when diarrhea has occurred</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Metoprolol (Lopressor)  Beta-Blockers</strong></td>
<td>• 5 mg IV over 1 minute. Repeat in 5 minutes up to 15 mg</td>
<td>Ø</td>
</tr>
<tr>
<td><strong>WCEMSS Protocol:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>✅ 35-Refractory Ventricular Fibrillation/Pulseless V-tach</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Indications/Contraindications:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Medication used for the control of ventricular tachyarrhythmias in cardiac arrest patients not responding to electrical therapy or other antiarrhythmics</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Drug List

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<table>
<thead>
<tr>
<th>Drug</th>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Midazolam</strong>&lt;br&gt;(Versed)&lt;br&gt;Benzodiazepine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NCCEP/WCEMSS Protocol:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✖ 1-Airway Adult</td>
<td>✖ 4-Airway Pediatric</td>
<td>✖ 28-Pulmonary Edema</td>
</tr>
<tr>
<td>Indications/Contraindications:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Benzodiazepine used to control seizures and sedation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Quick acting Benzodiazepine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Use with caution if BP &lt; 110</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Morphine Sulfate</strong>&lt;br&gt;Narcotic Analgesic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NCCEP Protocol:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✖ 10-Pain Control Adult</td>
<td>✖ 11-Pain Control Pediatric</td>
<td>✖ 21-Chest Pain and STEMI</td>
</tr>
<tr>
<td>Indications/Contraindications:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Narcotic pain relief</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Antianxiety</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Possible beneficial effect in pulmonary edema</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Avoid use if BP &lt; 110</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Indications/Contraindications:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 2-5 mg IV/IO slowly over 2-3 minutes. May slowly titrate dose up to 5 mg if needed. Usual total dose: 2-5 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 5 mg Nasally via Atomizer. Usual total dose: 5 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• IM dosage: 5 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• On Behavioral and Seizure Protocols, maximum dose is 10 mg. There is a 5 mg maximum on all other protocols</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• USE Wake County EMS System Standardized Medication Delivery tables ONLY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Do not use Broselow tape or Color-coded list doses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 0.05-0.1 mg IV or IO slowly over 2 – 3 minutes (Max 5 mg/dose)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Indications/Contraindications:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 4 mg IM/IV/IO bolus then 2 mg IM/IV/IO every 5-10 minutes until a maximum of 20 mg or clinical improvement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• If the patient has suffered burns that require transport to the burn center, maximum toal dose is 50 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• See Color Coded List</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 0.1 mg/kg IV or IO single bolus only (Max 5 mg)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Only Medications included in the 2010 WCEMSS Protocols are included in this document. For a full list of medications approved for use by EMS professionals, please refer to the North Carolina Medical Board document entitled: Approved Medications for Credentialed EMS Personnel.

<table>
<thead>
<tr>
<th>Drug</th>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Naloxone (Narcan)</strong> Narcotic Antagonist</td>
<td>0.5 - 2 mg IV/IO bolus titrated to patient’s respiratory response</td>
<td>See Color Coded List</td>
</tr>
<tr>
<td>NCCEP Protocol:</td>
<td>May be given IM or IN if unable to establish IV in a known or suspected narcotic overdose</td>
<td>0.1 mg/kg IV or IO (Max 2 mg)</td>
</tr>
<tr>
<td>✔ 17-Altered Mental Status</td>
<td>The lowest dose required for patient to protect their airway should be utilized</td>
<td>May be given IM or IN if unable to establish IV or IO in a known or suspected narcotic overdose</td>
</tr>
<tr>
<td>✔ 26-Overdose/Toxic Ingestion</td>
<td>Dosing may be repeated at 5 minute intervals without maximum as necessary to maintain protection of the airway</td>
<td>The lowest dose required for patient to protect their airway should be utilized</td>
</tr>
<tr>
<td>✔ 29-Pulseless Electrical Activity</td>
<td>✔ 54-Adult Head Trauma</td>
<td>Dosing may be repeated at 5 minute intervals without maximum as necessary to maintain protection of the airway</td>
</tr>
<tr>
<td>✔ 39-Newly Born</td>
<td>✔ 56-Hypothermia</td>
<td>✔ 57-Multiple Trauma</td>
</tr>
<tr>
<td>✔ 41-Pediatric Bradycardia</td>
<td>✔ 54-Adult Head Trauma</td>
<td>✔ 56-Hypothermia</td>
</tr>
<tr>
<td>✔ 54-Adult Head Trauma</td>
<td>✔ 56-Hypothermia</td>
<td>✔ 57-Multiple Trauma</td>
</tr>
</tbody>
</table>

**Indications/Contraindications:**
- Narcotic antagonist

**Normal Saline Crystalloid Solutions**

| NCCEP/WCEMSS Protocol: | KVO for IV access | See Color Coded List |
| ✔ 6-Back Pain | Adult | Pediatric |
| ✔ 8-Fever | Adult | Pediatric |
| ✔ 15-Abdominal Pain | Adult | Pediatric |
| ✔ 17-Altered Mental Status | Adult | Pediatric |
| ✔ 19-Bradyca | Adult | Pediatric |
| ✔ 21-Chest Pain and STEMI | Adult | Pediatric |
| ✔ 22-Dental Problems | Adult | Pediatric |
| ✔ 23-Epistaxis | Adult | Pediatric |
| ✔ 25-Hypotension | Adult | Pediatric |
| ✔ 27-Post Resuscitation | Adult | Pediatric |
| ✔ 37.5-Induced Hypothermia | Adult | Pediatric |
| ✔ 29-Pulseless Electrical Activity | Adult | Pediatric |
| ✔ 30-Respiratory Distress | Adult | Pediatric |
| ✔ 37-Vomiting and Diarrhea | Adult | Pediatric |
| ✔ 39-Newly Born | Adult | Pediatric |
| ✔ 40-Obstetrical Emergencies | Adult | Pediatric |
| ✔ 41-Pediatric Bradycardia | Adult | Pediatric |
| ✔ 43-Pediatric Hypotension | Adult | Pediatric |
| ✔ 44-Pediatric Multiple Trauma | Adult | Pediatric |
| ✔ 50-Burns-Thermal | Adult | Pediatric |
| ✔ 51-Burns-Chemical and Electrical | Adult | Pediatric |
| ✔ 55-Hyperthermia | Adult | Pediatric |
| ✔ 57-Multiple Trauma | Adult | Pediatric |

**Indications/Contraindications:**
- The IV fluid of choice for access or volume infusion
- KVO for IV access
- Bolus in 250-500 ml for cardiac
- Bolus in 500 to 1000 ml amount for volume
- Bolus in 1000 ml amount for burns or electrical injuries. See Burn Protocol or Reference Materials for IV rates.
- See Burn Protocol or Reference Materials for IV rates.

- KVO for IV or IO access
- Bolus in 20ml/kg for volume (May be repeated x 3)
- See Burn Protocol or Reference Materials for IV rates.
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<table>
<thead>
<tr>
<th>Drug</th>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nitroglycerine</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NCCEP Protocol:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✴ 21-Chest Pain and STEMI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✴ 24-Hypertension</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✴ 28-Pulmonary Edema</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Indications/Contraindications:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Vasodilator used in anginal syndromes, CHF and Hypertension.</td>
<td>• 1 tablet 0.4 mg SL every 5 minutes until pain free or 3 doses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• If SBP ever &lt; 100, contact medical control before administration</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 1” paste after pain free or 3 doses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pulmonary Edema</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 1 spray/tablet SL every 1-2 minutes if BP &gt;110 Systolic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• If SBP ever &lt; 100, contact medical control before administration</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Mean Arterial Blood Pressure should not be decreased more than 30%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hypertension</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 1 spray/tablet SL every 1-2 minutes until BP &lt;110 Diastolic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Mean Arterial Blood Pressure should not be decreased more than 30%</td>
<td></td>
</tr>
</tbody>
</table>

| **Ondansetron (Zofran)**          |                                    | 0.15 mg/kg IV (Max 4 mg) (for age >1 year) |
| **Anti-emetic**                   |                                    |           |
| NCCEP Protocol:                   |                                    |           |
| ✴ 15-Abdominal Pain               |                                    |           |
| ✴ 21-Chest Pain and STEMI         |                                    |           |
| ✴ 37-Vomiting and Diarrhea        |                                    |           |
| **Indications/Contraindications:**|                                    |           |
| • Anti-Emetic used to control Nausea and/or Vomiting | • 4 mg IM or IV |           |
| • Ondansetron (Zofran) is the recommended Anti-emetic for EMS use since it is associated with significantly less side effects and sedation. | |           |
**Drug List**

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<table>
<thead>
<tr>
<th>Drug</th>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oxygen</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NCCEP Protocol:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indications/Contraindications:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Useful in any condition with cardiac work load, respiratory distress, or illness or injury resulting in altered ventilation and/or perfusion.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Required for pre-oxygenation whenever possible prior to intubation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult</td>
<td>Pediatric</td>
<td></td>
</tr>
<tr>
<td>1-4 liters/min via nasal cannula</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-15 liters/min via NRB mask</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-15 liters via BVM (sufficient to allow reservoir bag to completely refill between ventilations)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Oxymetazoline</strong> (Afrin or Otrivin) Nasal Decongestant Spray</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NCCEP Protocol:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✴ 23-Epistaxis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indications/Contraindications:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Vasoconstrictor used with nasal intubation and epistaxis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Relative Contraindication is significant hypertension</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult</td>
<td>Pediatric</td>
<td></td>
</tr>
<tr>
<td>2 sprays in affected nostril</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pralidoxime</strong> (2-PAM)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NCCEP Protocol:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✴ 26-Overdose/Toxic Ingestion</td>
<td>✴ 58-WMD Nerve Agent</td>
<td></td>
</tr>
<tr>
<td>Indications/Contraindications:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Antidote for Nerve Agents or Organophosphate Overdose</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Administered with Atropine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult</td>
<td>Pediatric</td>
<td></td>
</tr>
<tr>
<td>600 mg IM or IV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>per Medical Control only</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Drug List

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<table>
<thead>
<tr>
<th>Drug</th>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procainamide (Pronestyl)</td>
<td>• Place 1.5 grams in 250 mL bag of NS with a 60 drop set and infuse over 15 minutes or until dysrhythmia resolves</td>
<td>Ø</td>
</tr>
</tbody>
</table>
| Sodium Bicarbonate          | • 1 amp (50 mEq) IV initially, then 1/2 amp IV every 10 minutes to a total of 3 amps  
                             | • In TCA (tricyclic), 1 amp (50 mEq) bolus, then 2 amps in 1 liter of NS for infusion at 200 ml/hr. | See Color Coded List  
                             | • See Color Coded List  
                             | • 1 meq/kg IV, IO initially, then 1/2 meq/kg IV every 10 minutes as needed.  
                             | • TCA (tricyclic) overdose per medical control. |           |
| Vasopressin (Pitressin)     | • 40 units IV X 1                                                   | Ø         |
| Vecuronium Paralytic Agent  | • 0.1 mg/kg IV/IO to a max of 10 mg. If inadequate relaxation after 5 minutes, may repeat dose.  
                             | • USE Wake County EMS System Standaized Medication Delivery table “Induction of Paralysis” ONLY to administer 0.1 mg/kg IV to a max of 10 mg  
                             | • Avoid in Broselow Pink |
# Pediatric Color Coded Drug List

## Weight 3-5 Kg (Avg 4.0 Kg)

<table>
<thead>
<tr>
<th>Vital Signs</th>
<th>Heart Rate 120-150</th>
<th>Respirations 24-48</th>
<th>BP Systolic 70 (+/-25)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment</td>
<td>ET Tube 2.5 - 3.5</td>
<td>Blade Size 0 - 1</td>
<td></td>
</tr>
<tr>
<td>Defibrillation</td>
<td>Defibrillation 8 Joules</td>
<td>Cardioversion 4 Joules</td>
<td></td>
</tr>
<tr>
<td>Normal Saline</td>
<td>40-80 ml</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------------</td>
<td>---------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Acetaminophen</td>
<td>40 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adenosine</td>
<td>1st Dose- 0.5 mg</td>
<td>Repeat Dose- 1.0 mg</td>
<td></td>
</tr>
<tr>
<td>Afrin Nasal Spray</td>
<td>HOLD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Albuterol</td>
<td>2.5 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amiodarone</td>
<td>HOLD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atropine</td>
<td>0.10 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calcium Chloride</td>
<td>80 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charcoal</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dextrose 10%</td>
<td>20-30 ml</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diazepam (IV)</td>
<td>0.8 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diliaudid</td>
<td>HOLD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diphenhydramine</td>
<td>6.5 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dopamine (800 mg in 500 cc)</td>
<td>0.3 ml/hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 mcg/kg/min</td>
<td>0.3 ml/hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 mcg/kg/min</td>
<td>0.9 ml/hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 mcg/kg/min</td>
<td>1.7 ml/hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 mcg/kg/min</td>
<td>3.3 ml/hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Defibrillation</td>
<td>8 Joules</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardioversion</td>
<td>4 Joules</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal Saline</td>
<td>40-80 ml</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Weight 6-7 Kg (Avg 6.5 Kg)

<table>
<thead>
<tr>
<th>Vital Signs</th>
<th>Heart Rate 120-125</th>
<th>Respirations 24-48</th>
<th>BP Systolic 85 (+/-25)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment</td>
<td>ET Tube 3.5</td>
<td>Blade Size 1</td>
<td></td>
</tr>
<tr>
<td>Defibrillation</td>
<td>Defibrillation 13 Joules</td>
<td>Cardioversion 6 Joules</td>
<td></td>
</tr>
<tr>
<td>Normal Saline</td>
<td>65-130 ml</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------------</td>
<td>---------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Acetaminophen</td>
<td>2.5 ml</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adenosine</td>
<td>1st Dose- 0.7 mg</td>
<td>Repeat Dose- 1.4 mg</td>
<td></td>
</tr>
<tr>
<td>Afrin Nasal Spray</td>
<td>HOLD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Albuterol</td>
<td>2.5 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amiodarone</td>
<td>0.13 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calcium Chloride</td>
<td>120 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charcoal</td>
<td>HOLD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dextrose 10%</td>
<td>30-35 ml</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diazepam (IV)</td>
<td>1.3 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diliaudid</td>
<td>HOLD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diphenhydramine</td>
<td>6.5 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dopamine (800 mg in 500 cc)</td>
<td>0.5 ml/hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 mcg/kg/min</td>
<td>0.5 ml/hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 mcg/kg/min</td>
<td>1.3 ml/hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 mcg/kg/min</td>
<td>2.5 ml/hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 mcg/kg/min</td>
<td>5.0 ml/hr</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Weight 8-9 Kg (Avg 8.5 Kg)

<table>
<thead>
<tr>
<th>Vital Signs</th>
<th>Heart Rate 120</th>
<th>Respirations 24-32</th>
<th>BP Systolic 92 (+/-30)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment</td>
<td>ET Tube 3.5-4.0</td>
<td>Blade Size 1</td>
<td></td>
</tr>
<tr>
<td>Defibrillation</td>
<td>Defibrillation 17 Joules</td>
<td>Cardioversion 8 Joules</td>
<td></td>
</tr>
<tr>
<td>Normal Saline</td>
<td>85-170 ml</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------------</td>
<td>---------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Acetaminophen</td>
<td>3.1 ml</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adenosine</td>
<td>1st Dose- 0.9 mg</td>
<td>Repeat Dose- 1.8 mg</td>
<td></td>
</tr>
<tr>
<td>Afrin Nasal Spray</td>
<td>HOLD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Albuterol</td>
<td>2.5 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atropine</td>
<td>0.17 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amiodarone</td>
<td>45 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calcium Chloride</td>
<td>170 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charcoal</td>
<td>HOLD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dextrose 10%</td>
<td>45-50 ml</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diazepam (IV)</td>
<td>1.7 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diliaudid</td>
<td>HOLD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diphenhydramine</td>
<td>7.5 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dopamine (800 mg in 500 cc)</td>
<td>0.7 ml/hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 mcg/kg/min</td>
<td>0.7 ml/hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 mcg/kg/min</td>
<td>1.6 ml/hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 mcg/kg/min</td>
<td>3.2 ml/hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 mcg/kg/min</td>
<td>6.5 ml/hr</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Weight 10-11 Kg (Avg 10.5 Kg)

<table>
<thead>
<tr>
<th>Vital Signs</th>
<th>Heart Rate 115-120</th>
<th>Respiration 22-30</th>
<th>BP Systolic 96 (+/-30)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Equipment</strong></td>
<td>ET Tube 4.0</td>
<td>Blade Size 1</td>
<td></td>
</tr>
<tr>
<td><strong>Defibrillation</strong></td>
<td>Defibrillation 20 Joules</td>
<td>Cardiopverson 10 Joules</td>
<td></td>
</tr>
<tr>
<td><strong>Normal Saline</strong></td>
<td>105-210 ml</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Drugs

- **Acetaminophen**: 3.75 ml
- **Adenosine**: 1st Dose- 1.4 mg, Repeat Dose- 2.8 mg
- **Afrin Nasal Spray**: 1 spray
- **Albuterol**: 2.5 mg
- **Atropine**: 0.2 mg
- **Amiodarone**: 55 mg
- **Calcium Chloride**: 210 mg
- **Charcoal**: HOLD
- **Dextrose 10%**: 40-60 ml
- **Diazepam (IV)**: 1.0 mg
- **Dilaudid**: HOLD
- **Diphenhydramine**: 10 mg
- **Dopamine** (800 mg in 500 ml Normal Saline)
  - 2 mcg/kg/min: 0.8 ml/hr
  - 5 mcg/kg/min: 2.0 ml/hr
  - 10 mcg/kg/min: 4.0 ml/hr
  - 20 mcg/kg/min: 8.0 ml/hr
- **Epinephrine 1:10,000**: 0.1 mg
- **Epinephrine 1:1000 IM**: 0.1 mg
- **Fentanyl**: 21.0 mcg
- **Glucagon**: 0.3-1.0 mg
- **Ibuprofen**: 2.5 mg
- **Ipratropium**: 10 mg
- **Lorazepam**: 0.5 mg
- **Methylprednisolone**: 21.0 mg
- **Morphine Sulfate**: 1.0 mg
- **Naloxone**: 1.0 mg
- **Ondansetron**: 1.0 mg
- **Prednisone**: 10.5 mg
- **Sodium Bicarbonate**: 10 mEq

#### Defibrillation
- Defibrillation: 20 Joules
- Cardioversion: 10 Joules

#### Normal Saline
- 105-210 ml

### Weight 12-14 Kg (Avg 13 Kg)

<table>
<thead>
<tr>
<th>Vital Signs</th>
<th>Heart Rate 110-115</th>
<th>Respiration 20-28</th>
<th>BP Systolic 100 (+/-30)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Equipment</strong></td>
<td>ET Tube 4.5</td>
<td>Blade Size 2</td>
<td></td>
</tr>
<tr>
<td><strong>Defibrillation</strong></td>
<td>Defibrillation 26 Joules</td>
<td>Cardiopverson 13 Joules</td>
<td></td>
</tr>
<tr>
<td><strong>Normal Saline</strong></td>
<td>130-260 ml</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Drugs

- **Acetaminophen**: 5 ml
- **Adenosine**: 1st Dose- 1.4 mg, Repeat Dose- 2.8 mg
- **Afrin Nasal Spray**: 1 spray
- **Albuterol**: 2.5 mg
- **Atropine**: 0.26 mg
- **Amiodarone**: 65 mg
- **Calcium Chloride**: 260 mg
- **Charcoal**: 15 gms
- **Dextrose 10%**: 60-80 ml
- **Diazepam (IV)**: 2.6 mg
- **Dilaudid**: HOLD
- **Diphenhydramine**: 12.5 mg
- **Dopamine** (800 mg in 500 ml Normal Saline)
  - 2 mcg/kg/min: 0.8 ml/hr
  - 5 mcg/kg/min: 2.0 ml/hr
  - 10 mcg/kg/min: 4.0 ml/hr
  - 20 mcg/kg/min: 8.0 ml/hr
- **Epinephrine 1:10,000**: 0.13 mg
- **Epinephrine 1:1000 IM**: 0.13 mg
- **Fentanyl**: 26.0 mcg
- **Glucagon**: 0.4-1 mg
- **Ibuprofen**: 5 ml
- **Ipratropium**: 500 mcg
- **Levalbuterol**: 0.63 mg
- **Lidocaine**: 13 mg
- **Lorazepam**: 0.65 mg
- **Methylprednisolone**: 26.0 mg
- **Morphine Sulfate**: 1.3 mg
- **Naloxone**: 1.3 mg
- **Ondansetron**: 1.3 mg
- **Prednisone**: 13.0 mg
- **Sodium Bicarbonate**: 13.0 mEq

#### Defibrillation
- Defibrillation: 26 Joules
- Cardioversion: 13 Joules

#### Normal Saline
- 130-260 ml

### Weight 15-18 Kg (Avg 16.5 Kg)

<table>
<thead>
<tr>
<th>Vital Signs</th>
<th>Heart Rate 100-15</th>
<th>Respiration 20-26</th>
<th>BP Systolic 100 (+/-20)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Equipment</strong></td>
<td>ET Tube 5.0</td>
<td>Blade Size 2</td>
<td></td>
</tr>
<tr>
<td><strong>Defibrillation</strong></td>
<td>Defibrillation 35 Joules</td>
<td>Cardiopverson 16 Joules</td>
<td></td>
</tr>
<tr>
<td><strong>Normal Saline</strong></td>
<td>165-330 ml</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Drugs

- **Acetaminophen**: 6.25 ml
- **Adenosine**: 1st Dose- 1.8 mg, Repeat Dose- 3.6 mg
- **Afrin Nasal Spray**: 1 spray
- **Albuterol**: 2.5 mg
- **Atropine**: 0.33 mg
- **Amiodarone**: 85 mg
- **Calcium Chloride**: 330 mg
- **Charcoal**: 15-30 gms
- **Dextrose 10%**: 70-80 ml
- **Diazepam (IV)**: 3.3 mg
- **Dilaudid**: HOLD
- **Diphenhydramine**: 15 mg
- **Dopamine** (800 mg in 500 ml Normal Saline)
  - 2 mcg/kg/min: 1.2 ml/hr
  - 5 mcg/kg/min: 3.0 ml/hr
  - 10 mcg/kg/min: 6.0 ml/hr
  - 20 mcg/kg/min: 12 ml/hr
- **Epinephrine 1:10,000**: 0.16 mg
- **Epinephrine 1:1000 IM**: 0.16 mg
- **Fentanyl**: 33.0 mcg
- **Glucagon**: 0.5-1.0 mg
- **Ibuprofen**: 5 ml
- **Ipratropium**: 500 mcg
- **Levalbuterol**: 0.63 mg
- **Lidocaine**: 15 mg
- **Lorazepam**: 0.83 mg
- **Methylprednisolone**: 33.0 mg
- **Morphine Sulfate**: 1.5 mg
- **Naloxone**: 1.5 mg
- **Ondansetron**: 1.5 mg
- **Prednisone**: 16.5 mg
- **Sodium Bicarbonate**: 15 mEq

#### Defibrillation
- Defibrillation: 35 Joules
- Cardioversion: 16 Joules

#### Normal Saline
- 165-330 ml

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**Pediatric Color Coded Drug List**

**Weight 10-11 Kg (Avg 10.5 Kg)**

- **Vital Signs**
  - Heart Rate: 115-120
  - Respiration: 22-30
  - BP Systolic: 96 (+/-30)

- **Equipment**
  - ET Tube: 4.0
  - Blade Size: 1

- **Defibrillation**
  - Defibrillation: 20 Joules
  - Cardioversion: 10 Joules

- **Normal Saline**: 105-210 ml

**Weight 12-14 Kg (Avg 13 Kg)**

- **Vital Signs**
  - Heart Rate: 110-115
  - Respiration: 20-28
  - BP Systolic: 100 (+/-30)

- **Equipment**
  - ET Tube: 4.5
  - Blade Size: 2

- **Defibrillation**
  - Defibrillation: 26 Joules
  - Cardioversion: 13 Joules

- **Normal Saline**: 130-260 ml

**Weight 15-18 Kg (Avg 16.5 Kg)**

- **Vital Signs**
  - Heart Rate: 100-15
  - Respiration: 20-26
  - BP Systolic: 100 (+/-20)

- **Equipment**
  - ET Tube: 5.0
  - Blade Size: 2

- **Defibrillation**
  - Defibrillation: 35 Joules
  - Cardioversion: 16 Joules

- **Normal Saline**: 165-330 ml
<table>
<thead>
<tr>
<th>Weight</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>19-22 Kg (Avg 20.75 Kg)</td>
<td><strong>Vital Signs</strong>&lt;br&gt;Heart Rate 100&lt;br&gt;Respirations 20-24&lt;br&gt;BP Systolic 100(+)15&lt;br&gt;<strong>Equipment</strong>&lt;br&gt;ET Tube 5.5&lt;br&gt;Blade Size 2&lt;br&gt;<strong>Defibrillation</strong>&lt;br&gt;Defibrillation 40 Joules&lt;br&gt;Cardioversion 20 Joules&lt;br&gt;<strong>Normal Saline</strong> 200-300ml</td>
</tr>
<tr>
<td>24-30 Kg (Avg 27 Kg)</td>
<td><strong>Vital Signs</strong>&lt;br&gt;Heart Rate 90&lt;br&gt;Respirations 18-22&lt;br&gt;BP Systolic 105(+)15&lt;br&gt;<strong>Equipment</strong>&lt;br&gt;ET Tube 6.0&lt;br&gt;Blade Size 2-3&lt;br&gt;<strong>Defibrillation</strong>&lt;br&gt;Defibrillation 54 Joules&lt;br&gt;Cardioversion 27 Joules&lt;br&gt;<strong>Normal Saline</strong> 270-540ml</td>
</tr>
<tr>
<td>32-40 Kg (Avg 36 Kg)</td>
<td><strong>Vital Signs</strong>&lt;br&gt;Heart Rate 85-90&lt;br&gt;Respirations 16-22&lt;br&gt;BP Systolic 115(+)20&lt;br&gt;<strong>Equipment</strong>&lt;br&gt;ET Tube 6.5&lt;br&gt;Blade Size 3&lt;br&gt;<strong>Defibrillation</strong>&lt;br&gt;Defibrillation 70 Joules&lt;br&gt;Cardioversion 40 Joules&lt;br&gt;<strong>Normal Saline</strong> 400-800ml</td>
</tr>
</tbody>
</table>