Brunswick County EMS System

2013 Protocol Update – V 1.2 Updates 03/01/2013

PAGE	Description	Change/Correction
Page 10	Standards for EMS Equipment	Corrected spelling of Sheets
Page 12	Standards of EMS Medications	Corrected EPI for use by EMT/MR without Med Control
Page 14	Standards for EMS Skills	Corrected CPR to apply at all levels
Page 16	Medication Quantities	Toradol added to EMT-I, Added Benzodiazepines, Crystalloid Solutions, & Oxygen.
Page 61	Allergic Reaction	Added EMT-Basic contact Medical Control before Albuterol
Page 74	Overdose	Old protocol had “Serious Symptoms/Symptoms” changed to “Serious Signs/Symptoms”
Page 75	Overdose	Corrected Poison Control Hotline to 1-800-222-1222
Page 76	Seizure	Changed Ativan Dose 1-2mg IV/IM Repeat once in 5 mins
Page 88	OB Emergency	Changed Ativan Dose 1-2mg IV/IM Repeat once in 5 mins
Page 97	Pediatric Airway Failed	PEARL Added: **Continuous capnography (EtCO2) is strongly recommended with BIAD or endotracheal tube use though this is not validated and may prove impossible in the neonatal population (verification by two (2) other means is recommended).**
Page99	Ped Failed Airway	PEARL Added: **Continuous capnography (EtCO2) is strongly recommended with BIAD or endotracheal tube use though this is not validated and may prove impossible in the neonatal population (verification by two (2) other means is recommended).**
Page 120-121	Ped Overdose	Old protocol had “Serious Symptoms/Symptoms” changed to “Serious Signs /Symptoms” Corrected Poison Control Hotline to 1-800-222-1222
Page 122-123	Ped Respiratory Distress	New Albuterol Dosage
Page 169	Pediatric Destination Plan	Removed Grand Strand Regional Medical Center. No PEDs ICU.
Page 183	Domestic Violence Reporting	Item 4, added Law Enforcement

Page 194	RSI Policy	Watermarked – Not Used in Brunswick County EMS System.
Page 208	RSI Skill	Watermarked – Not Used in Brunswick County EMS System.
Page 261	Med List – Albuterol	Changed Pediatric Dosage to match Pediatric Respiratory Distress Protocol.
Page 266	Med List – Dilaudid	Changed dose to read 0.5-1 mg IV / IO / IM
Page 269	Med List – Ativan	Changed Dose to read 1-2 mg IV/IM.
Page 270	Med List – Versed	changed dose to read 0.5-2.5 mg IV/IO.
Pages 279-281	Approved Medications & Skills	Updated to reflect NCOEMS changes 02/04/2013

Brunswick County
Emergency Medical Services

System Wide Patient Care Protocols, Policies, Procedures.

REVISION HISTORY		
Description	**Effective Date**	**Version**
Initial Release	03/01/2013	1.0
Corrections: Page 10, 12, 14, 16, 61, 74, 75, 76, 88, 97, 99, 120, 121, 122, 123, 169, 183, 194, 208, 261, 266, 269, 270, 279, 280, 281, 282	03/01/2013	1.2

Brunswick County EMS System
Standards for EMS Equipment

Equipment	Medical Responder	EMT	EMT-I	EMT-P
Pacemaker- External				X
ECG Monitor with 12 lead EKG		O	O	X
All 911 response Trucks are encouraged, but not required to have 12 lead EKG capability				
Monitor/defibrillator with electrodes and 2 sizes of pads or paddles				X
Pulse oximeter with 2 probe sizes (one adult and one pediatric)		X	X	X
Cervical spine immobilization device in at least 3 sizes (small, medium, and large)	O	X	X	X
Femur traction device in at least 2 sizes (one adult and one pediatric)		X	X	X
Head immobilization device	O	X	X	X
Backboards, short and long with appropriate restraints (minimum of 3 straps)	O	X*	X*	X*
Spinal immobilization and extrication device (one adult and one pediatric)	O	X	X	X
Upper and Lower extremity immobilization devices	O	X	X	X
Bandages				
Burn sheet	X	X	X	X
Cold Packs	X	X	X	X
Dressings, bandages, gauze rolls, adhesive tape and 2 triangular bandages	X	X	X	X
Heavy scissors for clothing removal	X	X	X	X
Occlusive dressing	X	X	X	X
Sterile saline solution for irrigation (may use IV solution)	X	X	X	X
Medication Administration				
Alcohol Wipes		X	X	X
Intraosseous needles in at least 2 sizes (one adult and one pediatric) EZ-IO brand				X
IV administration sets			X	X
IV arm boards			X	X
IV catheters in at least 4 sizes			X	X
IV pole/hook		0	X	X
Needles in various sizes (at least 1 must be 1.5 in. for IM injections)			X	X
Syringes in at least 3 sizes			X	X
Tourniquet		X	X	X
Obstetrical				
Sterile OB kit, scissors, bulb suction, cord clamps		X	X	X
Miscellaneous				
Bedpan and Urinal	O	X*	X*	X*
Length/Weight based Pediatric Tape	O	X	X	X
Cellular Phone	O	X	X	X
Emesis basins	O	X	X	X
Lubricating Jelly	O	X	X	X
Gastric Tubes (adult and Pediatric sizes)				X
Sheets, Pillows, Pillow Cases, Towels	O	X*	X*	X*

Brunswick County EMS System
Standards for EMS Medications and Skills Use

	MR	EMT	EMT-I	EMT-P
Medications				
Adenosine				X
Beta-Agonist (Albuterol, Lebalbuterol, etc		MC, O	X	X
Anti-emetic preperations				O
Aspirin		X	X	X
Atropine	O	O	O	X
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 medial direction. All personnel except for EMT-P's must administer theses Medications via Auto Injector.				
Benzodiazepines				
Midazolam (Versed)				X
Diazepam (Valium)				O
Lorazepam (Ativan)				O
Beta Blockers				Special Circumstance
Only to be used as a theraputic substituion when Calcium Channel Blocker is unavailable.				
Cacium Channel Blockers (Diltiazem)				X
Use of other Calcium Ca^{+} Blockers considered Special Circumstance.				
Calcium chloride/gluconate				X
Charcoal		MC	X	X
Crystalloid Solutions (Normal Saline, etc)			X	X
Diphenhydramine		MC	X	X
Dobutamine				Special Circumstance
Dopamine				X
Epinephrine	X	X	X	X
MR/EMT-B may use Epinephrine auto-injector in anaphylaxis only				
Etomidate				Special Circumstance
Furosemide				MC, O
Glucagon			X	X
Glucose Solutions			X	X
Haloperidol				X
Histamine 2 Blockers			X	X
Ranitidine preferred, Others considered Special Circumstance				
Ipatropium			X	X
Lidocaine				X
Magnesium Sulfate				X
Methylprednisolone				X
Analgesics atleast 2 of the following:				
Morphine Sulfate				X
Fentanyl				O
Hydromorphone (Dilaudid)				O
Ketorolac (Tordol)				O

Brunswick County EMS System
Standards for EMS Medications and Skills Use

	MR	EMT	EMT-I	EMT-P
SKILLS				
1. 12-Lead Electrocardiogram		X	X	X
2. 15-Lead Electrocardiogram				X
3. Airway-BIAD Combitube		X	X	X
4. Airway-King LTS-D		X	X	X
5. Airway-BIAD-Laryngel Mask Airway		X	X	X
6. Airway-CPAP			X	X
7. Airway - Cricothyrotomy - Surgical				X
8. Airway - Endotracheal Tube Introducer				X
9. Airway Foreign Body Obstruction	X	X	X	X
10. Airway- Intubation Conformation END Tidal CO_2 (Color)		X	X	X
11. Airway- Intubation Conformation Esopagel Bulb		X	X	X
12. Airway-Intubation Rapid Sequence Intubation - Adults				Not Used
13. Airway-Intubation Rapid Sequence Intubation - Peds				Not Used
14. Airway-Intubation Nasotracheal			**MC**	X
15. Airway-Intubation Oral Tracheal			X	X
16. Airway-Nebulizer Inhalation Therapy		**MC**	X	X
17. Airway-Respirator Operation				X
18. Airway-Suction Advanced			X	X
19. Airway-Suction Basic		X	X	X
20. Airway-Tracheostomy Tube Change				X
21. Airway-Ventilator Operation				Special Circumstance
22. Arterial Lines-Blood Draw				Not Used
23. Arterial Lines-Maintain				X
24. Assessment-Adult	X	X	X	X
25. Assessment-Pain	X	X	X	X
26. Assessment-Pediatric	X	X	X	X
27. Blood Glucose Analysis	X	X	X	X
28. Capnography (waveform)		X	X	X
29. Carbon Monoxide Measurement - Non-Invasive	X	X	X	X
30. Cardiac Pacing				X
31. Cardiopulmonary Resuscitation (CPR)	X	X	X	X
32. Chest Compression – External Device			Special Circumstance	Special Circumstance
33. Cardioversion				X
34. Chest Decompression (Needle)				X
35. Chest Tube Maintenance				Special Circumstance

Brunswick County EMS System
Medications Quantities

Medications	EMT	EMT-I	EMT-P	EMT-P / QRV
Adenosine			60 mg	30 mg
Albuterol	Optional - 3 vials 2.5 mg/ea.	6 vials 2.5 mg each	6 vials 2.5 mg each	6 vials 2.5 mg each
Analgesics at least 2 of the following:				
Morphine Sulfate			20 mg-Required	10 mg-Required
Fentanyl			200 mcg-optional	200 mcg-optional
Ketorolac (Toradol)		120 mg - optional	120 mg - optional	60 mg - optional
Hydromorphone (Dilaudid)			2 mg - optional	2 mg - optional
Anti-emetics:				
Odenansetron (Zofran)			8mg	4mg
Promethazine			50 mg (optional)	25 mg (optional)
Aspirin	12 tablets 81mg/ea	12 tablets 81mg/ea	12 tablets 81mg/ea	12 tablets 81mg/ea
Atropine			3 mg	2 mg
Benzodiazepines				
Midazolam (Versed)			20 mg Required	20 mg Required
Diazepam (Valium)			20 mg - optional	20 mg - optional
Lorazepam (Ativan)			10 mg - optional	10 mg - optional
Calcium chloride			2 gram	1 gram
Crystalloid Solutions				
0.9% Normal Saline		5 x 1000ml Bags or equivalent	5 x 1000ml Bags or equivalent	2 x 1000ml Bags or equivalent
Lactated Ringers		2 x 1000ml Bags or equivalent - OPTIONAL	2 x 1000ml Bags or equivalent - OPTIONAL	1 x 1000ml Bags or equivalent - OPTIONAL
Dextrose		150 grams	150 grams	100 grams
Diltiazem			100 mg	100 mg
Diphenhydramine	Optional 50 mg	50 mg	100 mg	50 mg
Dopamine			2 x 400 mg	400 mg
Epinephrine 1:1,000	1 adult 1 pediatric auto-injector	2mg	3mg	2mg
Epinephrine 1:10,000		6 mg	8mg	4mg
Furosemide			Optional - 40mg	Optional - 40mg
Glucagon		3 mg	3 mg	2 mg
Glucose - Oral	2 tubes - 15 grams	2 tubes - 15 grams	2 tubes - 15 grams	2 tubes - 15 grams
Haloperidol			20 mg	10 mg
Ibuprofen	800 mg	800 mg	800 mg	800 mg
Ipratropium		1.5 mg	1.5 mg	1.5 mg
Lidocaine			600 mg	400 mg
Magnesium Sulfate			4 grams	2 grams
Methylprednisolone			375 mg	250 mg
Naloxone	2 mg - optional	4 mg	8 mg	4 mg
Nasal Spray Decongestant			1 bottle	1 bottle
Nitroglycerin	optional - 3 x 0.4mg doses	6 x 0.4 mg doses	6 x 0.4 mg doses	6 x 0.4 mg doses
Oxygen	1 full D cylinder or larger AND 1 M cylinder or larger with no less than 500 PSI remaining.	1 full D cylinder or larger AND 1 M cylinder or larger with no less than 500 PSI remaining.	1 full D cylinder or larger AND 1 M cylinder or larger with no less than 500 PSI remaining.	1 full D cylinder or larger
Procainamide			200 mg	100 mg
Ranitidine (Zantac)		50 mg IV & 150 mg PO	50 mg IV & 150 mg PO	50 mg IV & 150 mg PO
Sodium Bicarbonate			200 mEq	100 mEq
Vasopressin			80 units	40 units
Vecuronium			20 mg	10 mg

Quantities listed are MINIMUM required quantity for a permitted vehicle. Any permitted vehicle with less than the above listed quantities of medication will be considered out of service, unless written authorization from the Medical Director has been granted in extreme circumstances. Agencies are encouraged to stock sufficient quantity to treat 2 patients with the same complaint without restocking.

Allergic Reaction / Anaphylaxis

EMT-Basic should contact medical control prior to administering Diphenhydramine or Albuterol.

Adult Medical Protocol Section

Pearls

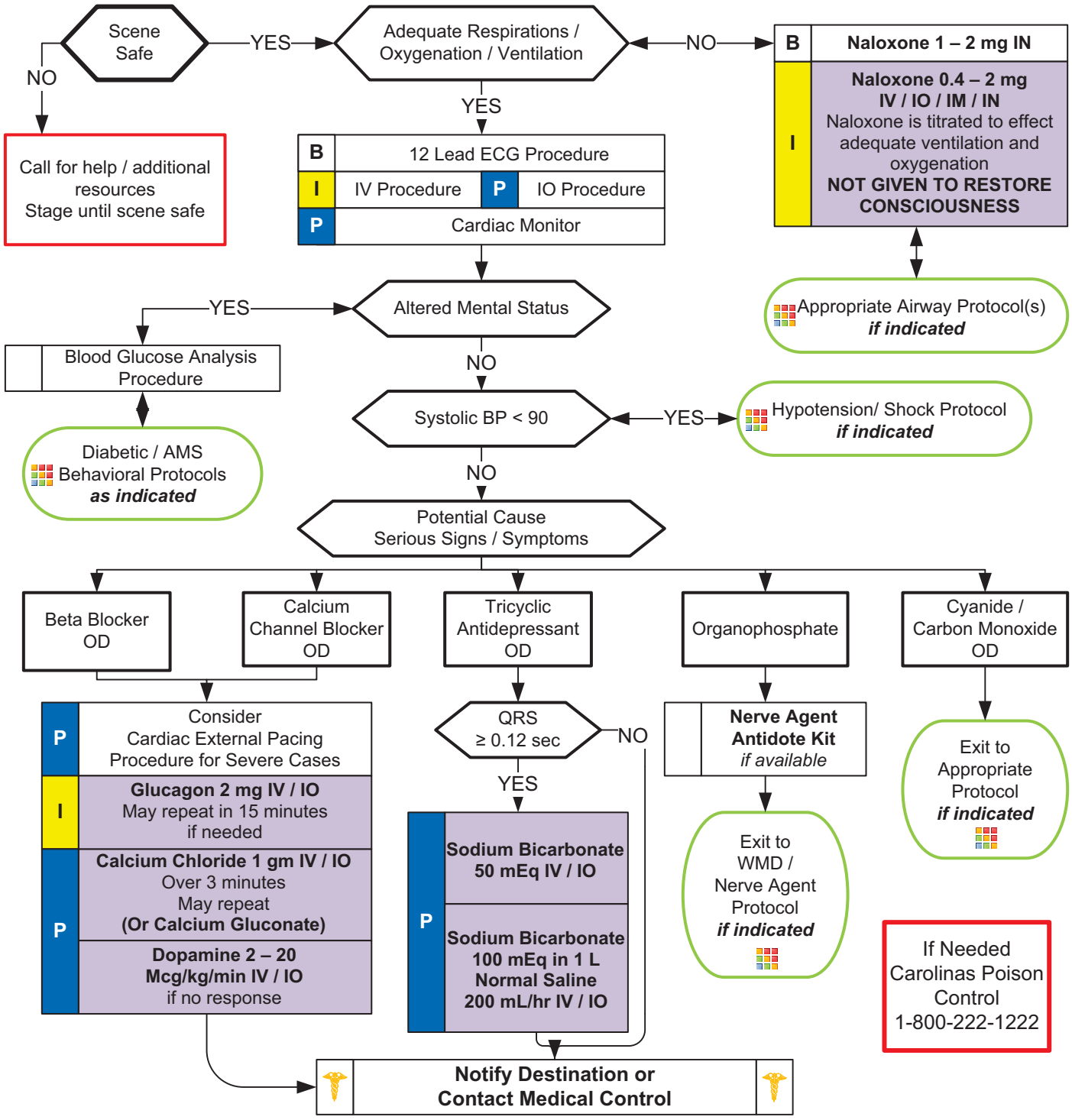
- **Recommended Exam: Mental Status, Skin, Heart, Lungs**
- **Anaphylaxis is an acute and potentially lethal multisystem allergic reaction.**
- **Epinephrine is the drug of choice and the first drug that should be administered in acute anaphylaxis (Moderate / Severe Symptoms.) IM Epinephrine should be administered in priority before or during attempts at IV or IO access.**
- **Anaphylaxis unresponsive to repeat doses of IM epinephrine may require IV epinephrine administration by IV push or epinephrine infusion. Contact Medical Control for appropriate dosing.**
- **Symptom Severity Classification:**
  - **Mild symptoms:**
    - **Flushing, hives, itching, erythema with normal blood pressure and perfusion.**
  - **Moderate symptoms:**
    - **Flushing, hives, itching, erythema plus respiratory (wheezing, dyspnea, hypoxia) or gastrointestinal symptoms (nausea, vomiting, abdominal pain) with normal blood pressure and perfusion.**
  - **Severe symptoms:**
    - **Flushing, hives, itching, erythema plus respiratory (wheezing, dyspnea, hypoxia) or gastrointestinal symptoms (nausea, vomiting, abdominal pain) with hypotension and poor perfusion.**
- **Allergic reactions may occur with only respiratory and gastrointestinal symptoms and have no rash / skin involvement.**
- **Angioedema is seen in moderate to severe reactions and is swelling involving the face, lips or airway structures. This can also be seen in patients taking blood pressure medications like Prinivil / Zestril (lisinopril)-typically end in -il.**
- **Patients who are ≥ 50 years of age, have a history of cardiac disease, take Beta-Blockers / Digoxin or patient's who have heart rates ≥ 150 give one-half the dose of epinephrine (0.15 – 0.25 mg of 1:1000.) Epinephrine may precipitate cardiac ischemia. These patients should receive a 12 lead ECG at some point in their care, but this should NOT delay administration of epinephrine.**
- **MR / EMT-B may administer Epinephrine IM as Auto-injector only and may administer from EMS supply.** Agency Medical Director may require contact of medical control prior to MR / EMT-B administering any medication.
- **EMT-B may administer diphenhydramine by oral route only and may administer from EMS supply**. Agency Medical Director may require contact of medical control prior to EMT-B / MR administering any medication.
- **EMT-B may administer Albuterol if patient already prescribed and may administer from EMS supply.** Agency Medical Director may require contact of medical control prior to EMT-B / MR administering any medication.
- 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.

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
- S.L.U.D.G.E.
- D.U.M.B.B.E.L.S

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



Adult Medical Section Protocols

NC Poison Control Hot line: 1-800-222-1222

Pearls

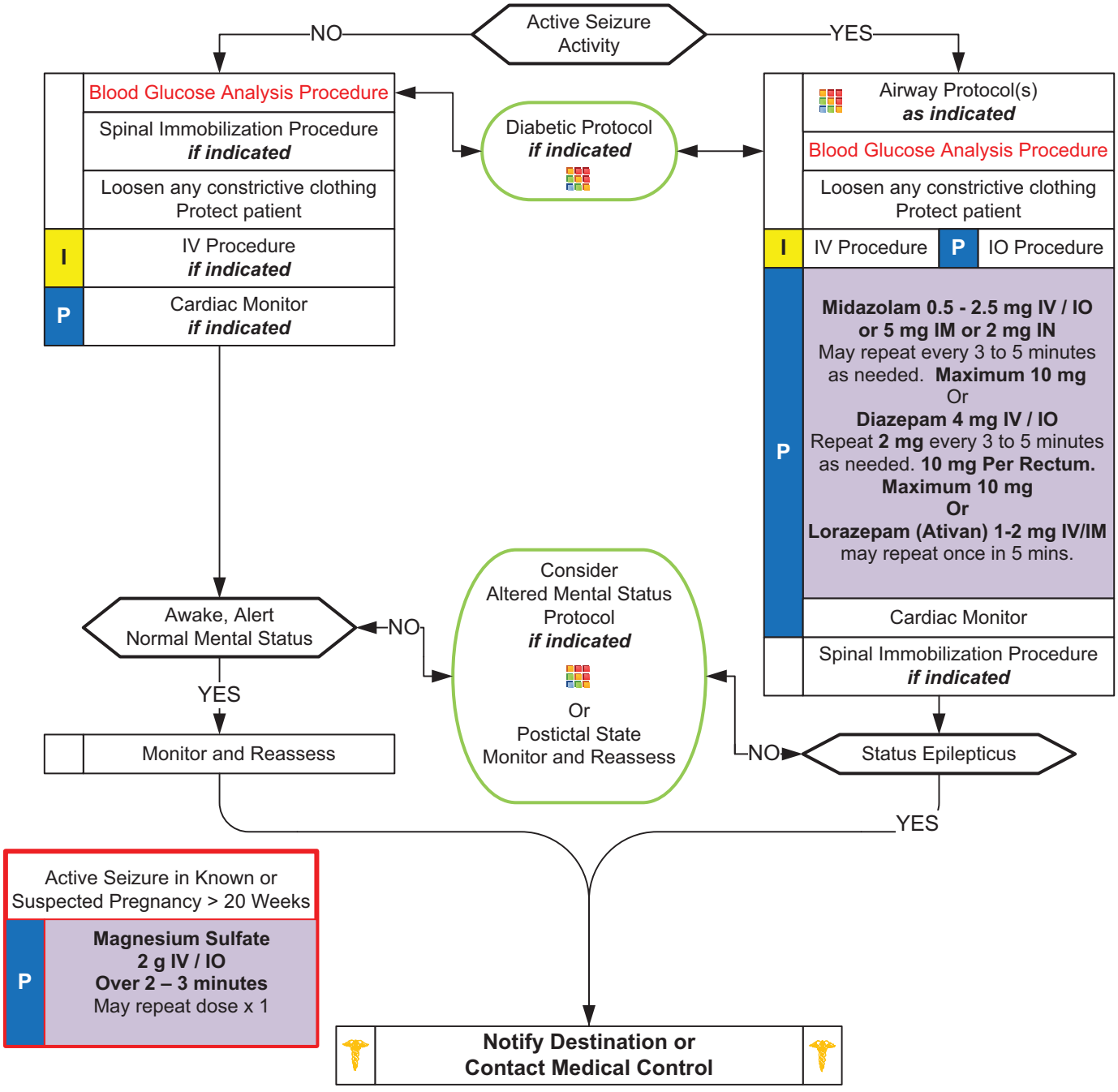
- **Recommended Exam: Mental Status, Skin, HEENT, Heart, Lungs, Abdomen, Extremities, Neuro**
- **Do not rely on patient history of ingestion, especially in suicide attempts. Make sure patient is still not carrying other medications or has any weapons.**
- **Bring bottles, contents, emesis to ED.**
- **S.L.U.D.G.E: Salivation, Lacrimation, Urination, Defecation, GI distress, Emesis**
- **D.U.M.B.B.E.L.S: Diarrhea, Urination, Miosis, Bradycardia, Bronchorrhea, Emesis, Lacrimation, Salivation.**
- **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.
- **EMT-B may administer naloxone by IN route only. May administer from EMS supply.** Agency medical director may require Contact of Medical Control prior to administration.
- **Consider contacting the North Carolina Poison Control Center for guidance.**

Seizure

History
- Reported / witnessed seizure activity
- Previous seizure history
- Medical alert tag information
- Seizure medications
- History of trauma
- History of diabetes
- History of pregnancy
- Time of seizure onset
- Document number of seizures
- Alcohol use, abuse or abrupt cessation
- Fever

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



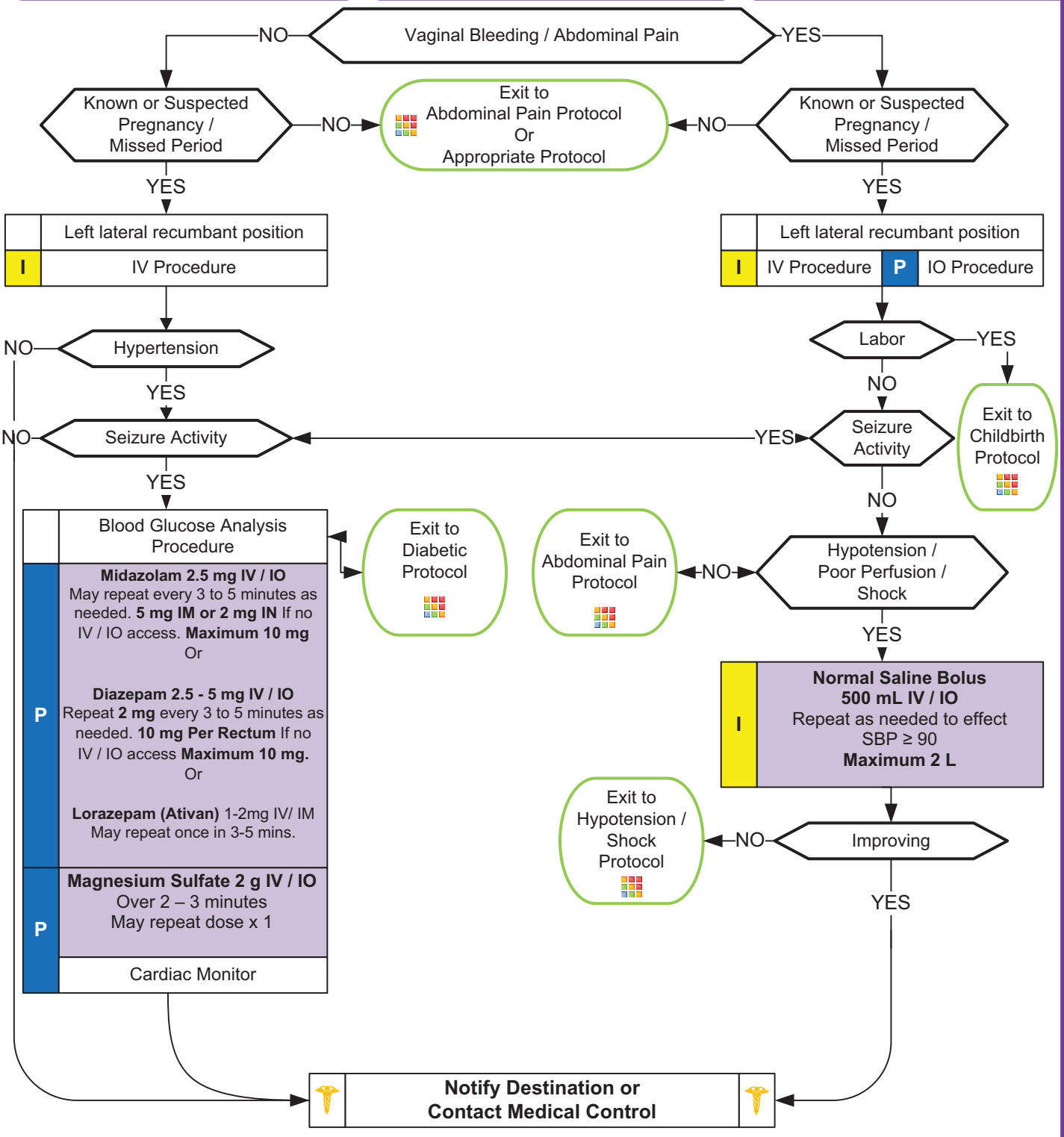
Adult Medical Section Protocols

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



Adult Obstetric Section Protocols

Pediatric Airway

Airway positioning is commonly overlooked in pediatric airway management. Place padding under torso to maintain neutral inline airway.

Pediatric airways can often be maintained with good BLS techniques.

- Positioning
- BVM/OPA

Pearls

- **For this protocol, pediatric is defined as less than ≤ 11 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 though this is not validated and may prove impossible in the neonatal population (verification by two (2) other means is recommended).**
- **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 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 35 and 45 and avoid hyperventilation.**
- **Hyperventilation in deteriorating head trauma should only be done to maintain a pCO_2 of 30-35.**
- **It is strongly encouraged to complete an Airway Evaluation Form with any BIAD or Intubation procedure.**
- Do not attempt intubation in patients who maintain a gag reflex.
- Paramedics should consider using a BIAD if oral-tracheal intubation is unsuccessful.
- Cricoid pressure and BURP maneuver may be used to assist with difficult intubations. They may worsen view in some cases.
- Gastric tube placement should be considered in all intubated patients.
- It is important to secure the endotracheal tube well and consider c-collar (even in absence of trauma) to better maintain ETT placement. Manual stabilization of endotracheal tube should be used during all patient moves / transfers.
- **<u>Airway Cricothyrotomy Needle Procedure:</u>**
  Indicated as a lifesaving / last resort procedure in pediatric patients ≤ 11 years of age.
  Very little evidence to support it's use and safety.
  A variety of alternative pediatric airway devices now available make the use of this procedure rare.
  Agencies who utilize this procedure must develop a written procedure, establish a training program, maintain equipment and submit procedure and training plan to the State Medical Director / Regional EMS Office.

Pediatric Failed Airway

Pearls

- **For this protocol, pediatric is defined as less than ≤ 11 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 though this is not validated and may prove impossible in the neonatal population (verification by two (2) other means is recommended).**
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- **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 35 and 45 and avoid hyperventilation.**
- **Hyperventilation in deteriorating head trauma should only be done to maintain a pCO_2 of 30-35.**
- **It is strongly encouraged to complete an Airway Evaluation Form with any BIAD or Intubation procedure.**
- **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; Change head positioning
- Paramedics should consider using a BIAD if oral-tracheal intubation is unsuccessful.
- Cricoid pressure and BURP maneuver may be used to assist with difficult intubations. They may worsen view in some cases.
- Gastric tube placement should be considered in all intubated patients.
- It is important to secure the endotracheal tube well and consider c-collar (even in absence of trauma) to better maintain ETT placement. Manual stabilization of endotracheal tube should be used during all patient moves / transfers.
- **<u>Airway Cricothyrotomy Needle Procedure:</u>**
  Indicated as a lifesaving / last resort procedure in pediatric patients ≤ 11 years of age.
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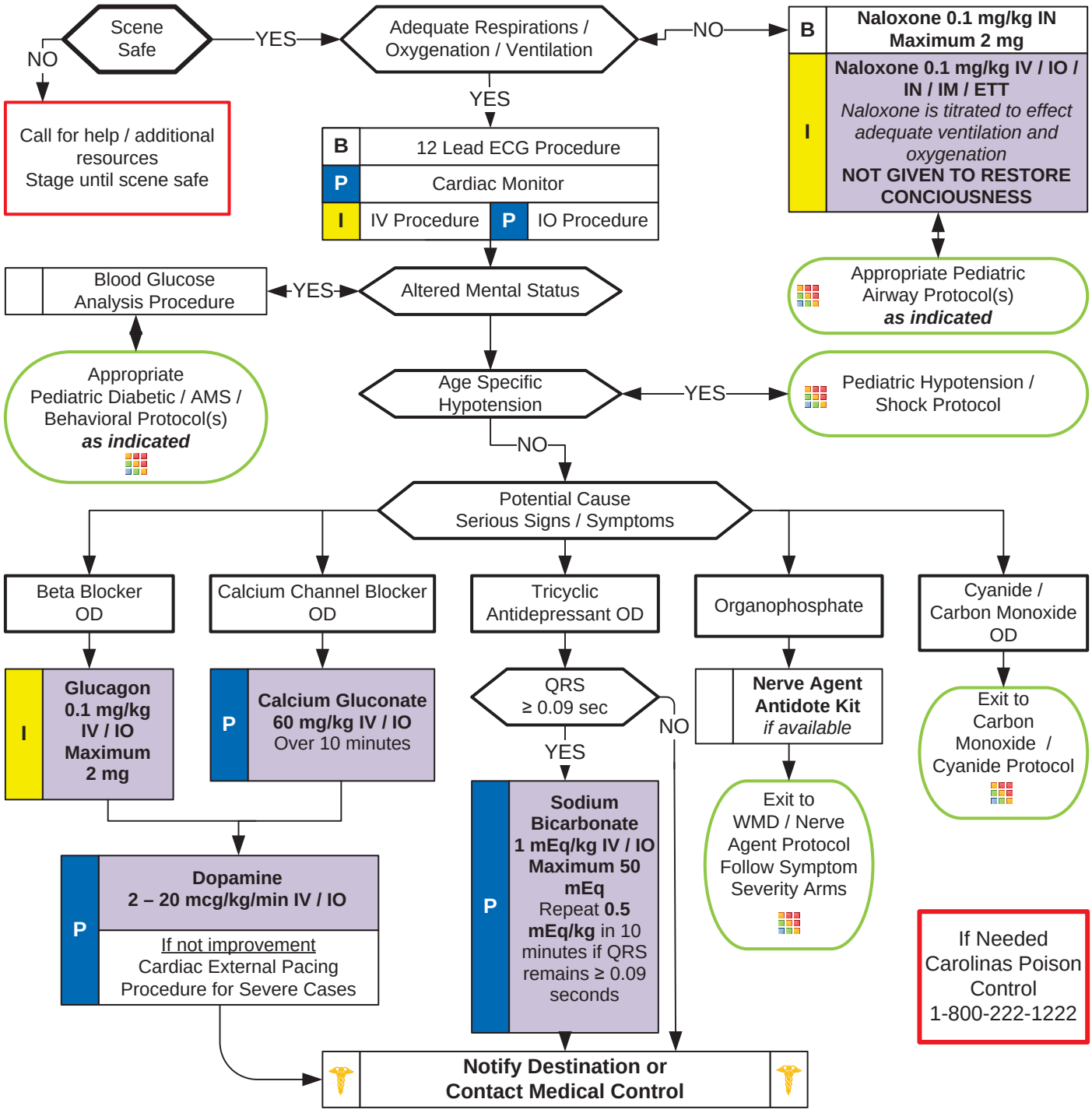
Pediatric Overdose / Toxic Ingestion

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

Signs and Symptoms
- Mental status changes
- Hypotension / hypertension
- Decreased respiratory rate
- Tachycardia, dysrhythmias
- Seizures
- **S**alivation, **L**acrimation, **U**rination; increased, loss of control, **D**efecation / Diarrhea, **G**I Upset; Abdominal pain / cramping, **E**mesis, **M**uscle Twitching

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



Pediatric Medical Section Protocols

NC Poison Control Hotline: 1-800-222-1222

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.**
- **Age specific blood pressure 0 – 28 days > 60 mmHg, 1 month - 1 year > 70 mmHg, 1 - 10 years > 70 + (2 x age)mmHg and 11 years and older > 90 mmHg.**
- **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.

Pediatric Respiratory Distress

History
- Time of onset
- Possibility of foreign body
- Past Medical History
- Medications
- Fever / Illness
- Sick Contacts
- History of trauma
- History / possibility of choking
- Ingestion / OD
- Congenital heart disease

Signs and Symptoms
- Wheezing / Stridor / Crackles / Rales
- Nasal Flaring / Retractions / Grunting
- Increased Heart Rate
- AMS
- Anxiety
- Attentiveness / Distractability
- Cyanosis
- Poor feeding
- JVD / Frothy Sputum
- Hypotension

Differential
- Asthma / Reactive Airway Disease
- Aspiration
- Foreign body
- Upper or lower airway infection
- Congenital heart disease
- OD / Toxic ingestion / CHF
- Anaphylaxis
- Trauma

History / Signs / Symptoms consistent with respiratory distress with wheezing or stridor

NO → Airway Patent, Ventilations adequate, Oxygenation adequate

NO → Pediatric Airway Protocol(s)

YES → Allergic Reaction Anaphylaxis

YES → Pediatric Allergic Reaction Anaphylaxis Protocol

NO →
- B: 12 Lead ECG Procedure
- I: IV Procedure *if indicated*
- P: IO Procedure *if indicated*
- P: Cardiac Monitor

Lung Exam Signs / Symptoms

WHEEZING

Age ≥ 12 months

NO → First Wheezing Episode

NO →
- B: **Albuterol Nebulizer 1.25 - 2.5 mg**
- I: **Albuterol Nebulizer 1.25 - 2.5 mg +/- Ipratropium 0.5 mg** Repeat as needed x 3
- P: **Methyl-prednisolone 2 mg/kg IV/IO/IM Maximum 125 mg**
- Pediatric Airway Protocol(s) ***as indicated***

YES →
- I: **Albuterol Nebulizer 1.25 - 2.5 mg +/- Ipratropium 0.5 mg** Repeat as needed x 3

Worsening

YES →
- I: **Epinephrine 1:1000** Nebulizer **1 mg in 2 mL NS**
- Pediatric Airway Protocol(s) ***as indicated***

NO →

YES →
- B: **Albuterol Nebulizer 1.25 - 2.5 mg**
- I: **Albuterol Nebulizer 1.25 - 5 mg +/- Ipratropium 0.5 mg** Repeat as needed x 3
- P: **Methyl-prednisolone 2 mg/kg IV/IO/IM Maximum 125 mg**

Worsening

NO →

YES →
- I: **Epinephrine 1:1000 0.01 mg / kg IM Maximum 0.3 mg**
- P: **Magnesium Sulfate 40 mg/kg IV / IO** Over 20 minutes
- Pediatric Airway Protocol(s) ***as indicated***

STRIDOR

- B: **Albuterol Nebulizer 1.25 - 5 mg**
- I: **Epinephrine 1:1000** Nebulizer **1 mg in 2 mL NS** May repeat x 1

Worsening

NO →

YES →
- P: **Methyl-prednisolone 2 mg/kg IV/IO/IM Maximum 125 mg**
- I: **Epinephrine 1:1000 0.01 mg / kg IM Maximum 0.3 mg**
- P: **Magnesium Sulfate 40 mg/kg IV / IO** Over 20 minutes
- Pediatric Airway Protocol(s) ***as indicated***

Notify Destination or Contact Medical Control

Pediatric Medical Section Protocols

EMT- Basic should contact Medical Control prior to administering Albuterol.

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 in the patient with respiratory distress.**
- **EMT-B may administer Albuterol if patient already prescribed and may administer from EMS supply.** Agency medical director may require Contact of Medical Control prior to administration.
- **Albuterol dosing: ≤ 1 year of age 1.25 mg; 1 – 6 years 1.25 – 2.5 mg; 6 – 14 years 2.5 mg; ≥ 15 years 2.5 – 5 mg.**
- **Consider IV access when Pulse oximetry remains ≤ 92 % after first beta agonist treatment.**
- Do not force a child into a position, allow them to assume position of comfort. 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 nebulizer 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.
- In patients using levalbuterol (Xopenex) you may use Albuterol for the first treatment then use the patient's supply for repeat nebulizers or agency's supply.

Pediatric
EMS Triage and Destination Plan

Pediatric Patient

- **Any patient less than 16 years of age with a life-threatening illness (Not Trauma)**

Life Threatening Illness

- **Decreased Mental Status (GCS<13)**
- **Non-Responsive Respiratory Distress**
- **Intubation**
- **Post Cardiac Arrest**
- **Non-Responsive Hypotension (shock)**
- **Severe Hypothermia or Hyperthermia**
- **Status Epilepticus**
- **Potential Dangerous Envenomation**
- **Life Threatening Ingestion/Chemical Exposure**
- **Children with Special Healthcare Needs** (and destination choice based on parental request)

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

Pediatric Patient with Life Threatening Illness (Not Trauma/Injury)

Pediatric Patient too unstable to transport beyond closest hospital?

Yes → **Transport to closest Community Hospital Listed**
Early Notification/Activation if Life Threatening

- **Dosher Memorial Hospital**
- **Brunswick Novant Medical Center**
- **McLeod Seacoast Medical Center**
- **New Hanover Regional Medical Center**

No

Pediatric Capable Hospital within a 60 minute EMS transport?

No → (to Community Hospital Listed)

Yes

Transport to closest Pediatric Capable Hospital Listed
Early Notification/Activation

- **New Hanover Regional Medical Center**

Pediatric EMS Triage and Destination Plan

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.**
- **The Trauma and Burn Triage and Destination Plan should be used for all injured patients regardless of age.**
- **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 available in-house or on call 24/7/365)
  - 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.

Brunswick County EMS **2009**

This protocol has been developed by the North Carolina Office of EMS (Final Version 11-1-2009)

North Carolina College of Emergency Physicians
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 both the receiving hospital (if transported) & Law Enforcement. 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**.

North Carolina College of Emergency Physicians
Standards Policy

Rapid Sequence Induction

Policy:

Rapid Sequence Induction (RSI) requires an EMS System or Agency to follow these guidelines to ensure that this invasive procedure is performed in a safe and effective manner to benefit the citizens and guest of North Carolina.

Purpose:

The purpose of this policy is to:

- Ensure that the procedure is performed in a safe and effective manner
- Facilitate airway management in appropriate patients

Procedure:

1. In addition to other monitoring devices, Waveform Capnography and Pulse Oximetry are required to perform Drug-Assisted Intubation and must be monitored throughout the procedure.

2. Two EMT-Paramedics or higher-level providers must be present and participate in the airway management of the patient during the procedure.

3. All staff must be trained and signed off by the EMS Medical Director prior to performing Rapid Sequence Induction.

4. A printed copy or electronic download from the monitor defibrillator including the pulse oximetry, heart rate, heart rhythm, waveform capnography, and blood pressure must be stored with the patient care report.

5. An EMS Airway Evaluation Form must be completed on all Rapid Sequence Induction Attempts.

6. The EMS Airway Evaluation Form must be reviewed and signed by the EMS Medical Director within 7 days of the Rapid Sequence Induction.

7. All Rapid Sequence Inductions must be reviewed by the EMS System or Agency and issues identified addressed through the System Peer Review Committee.

8. A copy of the EMS Airway Evaluation form for each Rapid Sequence Induction must be forwarded to the appropriate OEMS Regional Office listed below at the end of each month for state review.

Western Regional Office
3305-4 16th Avenue SE
Conover, NC 28613
Telephone: 828-466-5548
Fax: 828-466-5651

Central Regional Office
801 Biggs Drive
Raleigh, NC 27603
Telephone: 919-855-4678
Fax: 919-715-0498

Eastern Regional Office
404 Saint Andrews Dr
Greenville, NC 27834
Telephone: 252-355-9026
Fax: 252-355-9063

In addition, the NC EMS Airway Evaluation Form has been revised to a one page document to improve provider compliance and promote receiving/confirming physician acceptance.

Airway: Intubation Drug Assisted

Clinical Indications:

- Need for advanced airway control in a patient who has a gag reflex or trismus (jaw clinching).

Clinical Contraindications:

P EMT- P P

- Significant burns between 24 hours old and 2 weeks old.
- Known neuromuscular disease such as myasthenia gravis, amyotrophic lateral sclerosis, muscular dystrophy, Guillain-Barre syndrome.
- Chronic renal failure and on hemodialysis
- Age less than 12 years
- Patient or family history of malignant hyperthermia
- A minimum of 2 EMT-Paramedics on scene able to participate in patient care

Procedure:

1. Pre-oxygenate patient with 100% oxygen via NRB mask or BVM
2. Monitor oxygen saturation with pulse oximetry and heart rhythm with ECG
3. Ensure functioning IV access
4. Evaluate for difficult airway (LEMON)-see appendix
5. Perform focused neurological exam
6. Prepare equipment (intubation kit, BVM, suction, RSI medications, BIAD, Cricothyrotomy kit, waveform capnography)
7. Administer Etomidate
8. Stroke/head trauma suspected? If yes, Lidocaine 1mg/kg
9. In-line c-spine stabilization by second caregiver (in setting of trauma)
10. Apply cricoid pressure (by third caregiver)
11. Administer Succinylcholine and await fasciculation and jaw relaxation
12. Intubate trachea
13. Verify ET placement through auscultation, Capnography, and Pulse Oximetry
14. May repeat Succinylcholine if inadequate relaxation after 2 minutes
15. Release cricoid pressure and secure tube
16. **Continuous Capnography and Pulse Oximetry is required for Drug Assisted Intubation. The pre-intubation levels, minimal levels during intubation, and post-intubation levels must be recorded in the PCR.**
17. Re-verify tube placement after every move and upon arrival in the ED
18. 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/methods used to confirm initial tube placement initially and with patient movement.
19. Consider placing a gastric tube to clear stomach contents after the airway is secured.
20. **Completion of the Airway Evaluation Form is required including a signature from the receiving physician at the Emergency Department confirming proper tube placement.**

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. Assessment should include direct observation at least once per certification cycle.

Drug List

ONLY Medications that are included by name and dose in the 2012 NCCEP Protocols are included in this document; the only purpose of this document is to serve as a reference for the 2012 NCCEP Protocols.
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. See the Pediatric Color Coded Drug List for pediatric dosages

Medication	Adult Dosing	Pediatric Dosing
Adenosine (Adenocard) **NCCEP Protocol:** ✱ 16-Adult Tachycardia Narrow Complex ✱ 17-Adult Tachycardia Wide Complex ✱ 52-Pediatric Tachycardia **Indications/Contraindications:** • Specifically for treatment or diagnosis of Supraventricular Tachycardia	• 6 mg IV push over 1-3 seconds. If no effect after 1-2 minutes, • Repeat with 12 mg IV push over 1-3 seconds. • Repeat once if necessary • (use stopcock and 20 ml Normal Saline flush with each dose)	• 0.1 mg/kg IV (Max 6 mg) push over 1-3 seconds. If no effect after 1-2 minutes, • Repeat with 0.2 mg/kg IV (Max 12 mg) push over 1-3 seconds. • Repeat once if necessary • (use stopcock and Normal Saline flush with each dose)
Albuterol Beta-Agonist **NCCEP Protocol:** ✱ 24-Allergic Reaction Anaphylaxis ✱ 26-COPD Asthma ✱ 56-Pediatic Allergic Reaction ✱ 61-Pediatric Respiratory Distress **Indications/Contraindications:** • Beta-Agonist nebulized treatment for use in respiratory distress with bronchospasm	• 2.5-5.0 mg (3cc) in nebulizer continuously x 3 doses. See local protocol for relative contraindications and/or indications to contact medical control for use of this drug.	**See Color Coded List** **1 Year or less = 1.25mg** **1-6 Years 1.25-2.5mg** **6-14 2.5 mg** **15+ 2.5-5mg** • 2.5mg (3cc) in nebulizer continuously x 3 doses. See local protocol for relative contraindications and/or indications to contact medical control for use of this drug.
Aspirin **NCCEP Protocol:** ✱ 7-Pain Control Adult ✱ 14-Chest Pain and STEMI **Indications/Contraindications:** • An antiplatelet drug for use in cardiac chest pain	• 81 mg chewable (baby) Aspirin Give 4 tablets to equal usual adult dose.	∅

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Medication	Adult Dosing	Pediatric Dosing
Glucose Oral **Glucose Solutions** **NCCEP Protocol:** ✱ 27-Diabetic; Adult ✱ 58-Pediatric Diabetic **Indications/Contraindications:** • Use in conscious hypoglycemic states	• One tube or packet • Repeat based on blood glucose results, per protocol	• **See Color Coded List** • One Tube or packet • Repeat based on blood glucose results, per protocol • Consider patient's ability to swallow and follow directions based on age
Haloperidol **(Haldol)** **Phenothiazine Preperation** **NCCEP Protocol:** ✱ 6-Behavioral **Indications/Contraindications:** • Medication to assist with sedation of agitated patients	• 5 mg IV/IM/IN • Age 65 or greater, 2.5 mg IV/IM/IN • May repeat Maxium 10mg.	Ø
Hydromorohone (Dilaudid) **Narcotic Analgesic** **NCCEP Protocol:** ✱ Multiple **Indications/Contraindications:** • Narcotic pain relief • Avoid use if BP < 110	• 0.5 – 1mg IV / IO / IM • May repeat once after 15 mins.	Ø

Drug List

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Medication	Adult Dosing	Pediatric Dosing
Lidocaine **NCCEP Protocol:** ✱ 4-Airway Rapid Sequence Intubation ✱ 17-Adult Wide Complex Tacycardia ✱ 18-VF Pulseless VT ✱ 53-Pediatric VF Pulseless VT **Indications/Contraindications:** • Antiarrhythmic used for control of ventricular dysrrythmias • Anesthetic used during intubation to prevent elevated intracranial pressures during intubation	Patients in Cardiac Arrest: • 1.5 mg/kg IV / IO bolus (ETT dose = 2 x IV dose) up to 3mg/kg max bolus dose Wide Complex Tachycardia – with pulse: • 1.5 mg/kg IV/IO • Age 60 or greater: 0.75 mg/kg IV/IO. • May repeat in 10 mins at ½ initial dose.	• **See Color Coded List** • 1 mg/kg IV / IO Maximum 100 mg Repeat 0.5 mg/kg Maximum 3 mg/kg total
Lorazepam: (Ativan) Benzodiazepene **NCCEP Protocol:** ✱ 32-Seizure ✱ 39-Obstetrical Emergency ✱ 62-Pediatric Seizure **Indications/Contraindications:** • Seizure control • Mild Sedation	• 1-2mg IV/IM • • May repeat once in 5 mins	• 0.05-0.1 mg/kg IV/IM max 2 mg per dose. • May repeat q 5-10 mins max 3 doses
Magnesium Sulfate **NCCEP Protocol:** ✱ Multiple **Indications/Contraindications:** • Elemental electrolyte used to treat eclampsia during the third trimester of pregnancy. • A smooth muscle relaxor used in refractory respiratory distress resistent to beta-agonists	**Respiriatory Distress:** • 2 g IV / IO over 10 minutes • Repeat dosing per local protocol **Obstetrical Seizure:** • 2 g IV / IO over 2-3 minutes • Dose may be repeated once, or as per local protocol	• 40 mg/kg IV / IO over 20 minutes (Max 2 gms) • Repeat dosing per local protocol

Drug List

ONLY Medications that are included by name and dose in the 2012 NCCEP Protocols are included in this document; the only purpose of this document is to serve as a reference for the 2012 NCCEP Protocols.
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. See the Pediatric Color Coded Drug List for pediatric dosages

Medication	Adult Dosing	Pediatric Dosing
Methylprednisolone (Solu-medrol) Steroid Preparation **NCCEP Protocol:** ✱ 24-Allergic Reaction Anaphylaxis ✱ 26-COPD Asthma ✱ 56-Pediatric Allergic Reaction ✱ 61-Pediatric Respiratory Distress **Indications/Contraindications:** • Steroid used in respiratory distress to reverse inflammatory and allergic reactions	• 125 mg IV / IO / IM	• **See Color Coded List** • 2 mg/kg IV / IO (Max 125 mg) • IM dosing only if indicated by local protocol
Midazolam (Versed) Benzodiazepine **NCCEP Protocol:** ✱ Multiple **Indications/Contraindications:** • Benzodiazepine used to control seizures and sedation • Quick acting Benzodiazepine • Preferred over Valium for IM use • Use with caution if BP < 110	**Seizure:** • 0.5-2.5 mg IV / IO • 2 mg IN • 5 mg IM • Repeat every 3-5 mins Max 10 mg **Behavioral:** • 2.5 mg IV/ IN • 5mg IM Age 65 or greater: • 1-2.5 mg IV/IN 2.5 mg IM May repeat every 2-3 mins Max 10mg. **Post Arrest** • 2.5 mg IV/IO repeat once in 5 mins.	• **See Color Coded List** • See individual protocols for dosing • Usual total dose 0.1-0.2 mg/kg IV / IO / IM / IN
Morphine Sulfate Narcotic Analgesic **NCCEP Protocol:** ✱ Multiple **Indications/Contraindications:** • Narcotic pain relief • Possible beneficial effect in pulmonary edema • Avoid use if BP < 110	• 2-10 mg (0.1 mg/kg) IV/IO/IM. • Repeat as needed to maximum dose 10 mg.	• **See Color Coded List** • 0.1 mg/kg IV / IO / IM May repeat every 5 minutes Maximum single dose 5 mg Maximum dose 10 mg

North Carolina Medical Board
Approved Medications for Credentialed EMS Personnel

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.

Medications	MR	EMT	EMT-I	EMT-P
ACE inhibitors				X
Acetaminophen	X	X	X	X
Adenosine				X
Aminophylline				X
Amiodarone				X
Antibiotics				X
Anti-emetic preparations				X
Aspirin		X	X	X
Atropine	X[4]	X[4]	X[4]	X
Barbituates				X
Benzodiazepine preparations				X
Beta agonist preparations		X[2]	X	X
Beta blockers				X
Bretylium				X
Calcium channel blockers				X
Calcium chloride/gluconate				X
Charcoal		X	X	X
Clonidine				X
Clopidogrel				X
Crystalloid solutions			X	X
Cyanide poisoning antidote kit				X
Digoxin				X
Diphenhydramine		X[3]	X	X
Dobutamine				X
Dopamine				X
Epinephrine	X[1]	X[1]	X	X
Etomidate				X
Flumazenil				X
Furosemide				X
Glucagon			X	X
Glucose solutions			X	X
Haloperidol				X
Heparin (unfractionated and low molecular weight)			X	X
Histamine 2 blockers			X	X
Hydroxocobalamin				X
Immunizations			X[6]	X[6]
Insulin				X
Ipratropium			X	X
Isoproterenol				X
Ketamine				X[8]
Lidocaine				X
Magnesium sulfate				X
Mannitol				X

Medications	MR	EMT	EMT-I	EMT-P
Methylene blue				X
Milrinone				X
N-acetylcysteine				X
Narcotic analgesics				X
Narcotic antagonists		X[7]	X	X
Nasal spray decongestant		X	X	X
Nesiritide				X
Nitroglycerin		X[2]	X	X
Nitroprusside sodium				X
Nitrous oxide				X
Non-prescription medications		X	X	X
Non-steroidal anti-inflammatory		X	X	X
Norepinephrine				X
Octreotide				X
Oxygen	X[5]	X[5]	X[5]	X[5]
Oxytocin				X
Paralytic agents				X
Phenothiazine preparations				X
Phenylephrine				X
Phenytoin preparations				X
Plasma protein fraction				X
Platelet g-II/IIIa inhibitors				X
Potassium chloride				X
Pralidoxime	X[4]	X[4]	X[4]	X
Procainamide				X
Procaine				X
Proparacaine				X
Propofol				X[9]
Proton pump inhibitors				X
Sodium bicarbonate				X
Steroid preparations				X
Thiamine			X	X
Thrombolytic agents				X
Topical hemostatic agents	X	X	X	X
Total Parenteral Nutrition				X
Tuberculosis skin test			X[6]	X[6]
Valprocic acid				X
Vasopressin			X	X
Whole blood and components				X
Ziprasidone				X

[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.

[8] Can only be used as induction agent for RSI or for post intubation sedation.

[9] Can only be used for interfacility transport where infusion has already been started at transferring facility. **EMS units can not carry propofol, it must be provided by transferring hospital.**

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.

Skills	EMD	MR	EMT	EMT-I	EMT-P
12-Lead ECG acquisition & transmission			X	X	X
12-Lead ECG interpretation					X
Airway-Blind Insertion Device			X[2]	X	X
Airway-CPAP					X
Airway-Cricothyrotomy-Needle					X
Airway-Cricothyrotomy-Surgical					X
Airway-Intubation				X	X
Airway-Rapid sequence induction					X
Airway-Suction		X	X	X	X
Airway-Tracheostomy tube change				X	X
Arterial Access-Blood Draw					X
Arterial Line maintenance					X
Capnography (waveform)					X
Carbon Monoxide Measurement (non-invasive)		X	X	X	X
Cardiac Pacing					X
Cardiopulmonary Resuscitation		X	X	X	X
Cardioversion					X
Carotid Massage					X
Central Venous Pressure line maintenance					X
Chest Compression-External Device				X	X
Chest Decompression-Needle					X
Chest Tube Maintenance					X
Defibrillation-Automated		X	X	X	X
Defibrillation-Manual					X
Epidural Catheter maintenance					X
Gastric Intubation					X
Glucose Measurement		X	X	X	X
Intra-Ventricular Catheter maintenance					X
Intubation Confirmation-Capnometry (color)				X	X
Intubation Confirmation-Esophageal Bulb				X	X
Medication Administration		X[3]	X[3]	X[3]	X[3]
Orthostatic Blood Pressure		X	X	X	X
Oxygen Administration		X	X	X	X
Patient Assessment		X	X	X	X
Pulse Oximetry		X	X	X	X
Reperfusion Checklist		X	X	X	X
Respirator Operation			X	X	X
Restraints		X	X	X	X
Spinal Immobilization		X	X	X	X
Splinting		X	X	X	X
Stroke Screen		X	X	X	X
Swan-Ganz Catheter maintenance					X
Thermometer (oral & rectal with low temperature capability)		X	X	X	X

Skills	EMD	MR	EMT	EMT-I	EMT-P
Urinary Catheterization					X
Venous Access-Blood Draw				X	X
Venous Access-Existing catheters					X
Venous Access-Femoral Line					X
Venous Access-Intraosseous					X
Venous Access-Peripheral				X	X
Ventilator Operation					X
Wound Care		X	X	X	X
Pre-arrival instructions to callers	X[1]				
Determine and dispatch appropriate EMS system resources	X[1]				

[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.